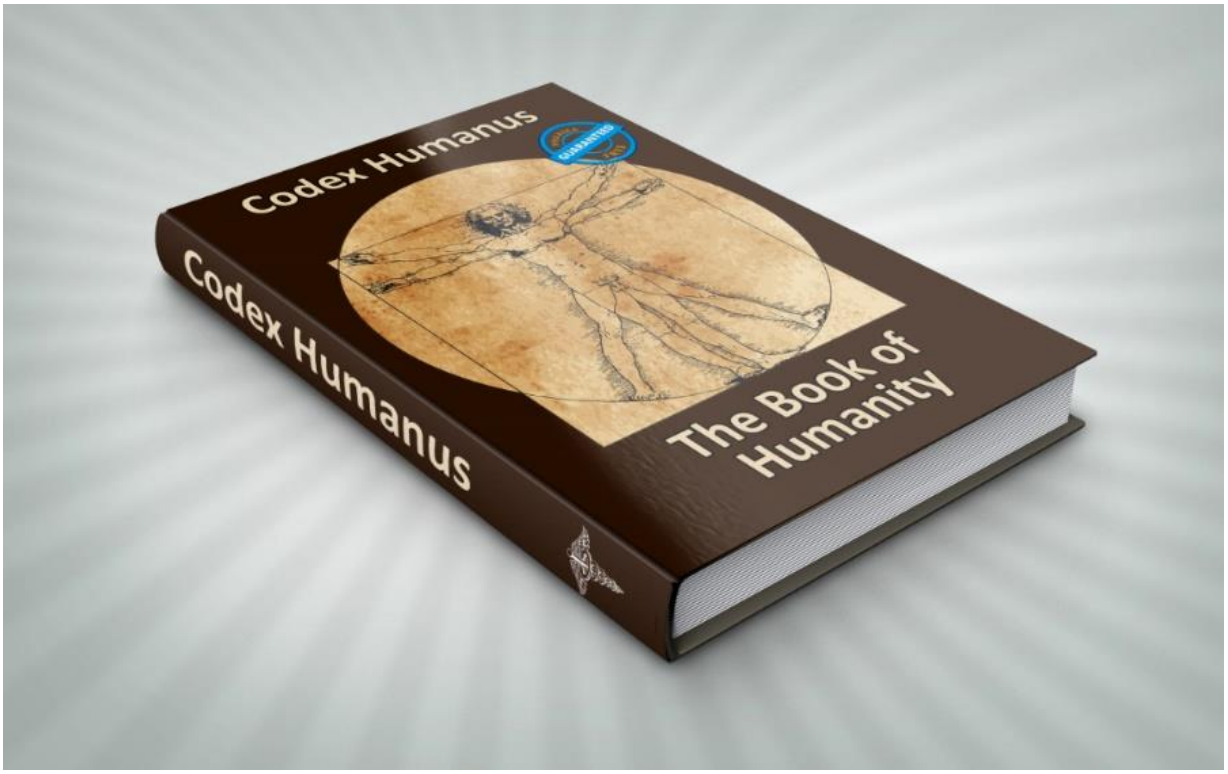
Codex Humanus
The Book of Humanity
Volume I and II

3rd Edition August 2018



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DEDICATION

This ebook is dedicated to my mother Aniela Chrobok, a wonderful, warm person, whose passing served as the primary inspiration for writing the 'Codex Humanus' and all the books in the 'MEDICAL SCANDALS' series (Shop: www.vitaminum.net). May the reader gain maximum health benefits from the knowledge herein, so that her untimely death may not be in vain!

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1 INTRODUCTION

‘The Book of Humanity’

What is a Codex Humanus and who, may I ask, needs such a thing? Codex Humanus, translated as ‘The Book of Humanity’, or ‘The Book for the Person’



or 'The Human Book', sees itself as a long overdue counterpart to conventional books that you see in the shops and - even though there are already thousands of them - ultimately only repeat the information that official agencies share or even dictate under the 'care' of Big Pharma.

The Codex Humanus is different!

It is free of all lobby associations and reprisals on the part of the ruling medical establishment and, with its approximately 2000 pages of information, serves the cause of humanity and not the coffers of the pharmaceutical industry, the often-corrupt medical profession or even the so-called self-help groups that are nothing more than the extended arm of Big Pharma!

We promise you that you are reading the most valuable book you have ever held in your hand - and you will soon find out why!

In a direct - and most importantly, uncensored – manner, you will find out the whole truth on topics concerning the most precious commodity for every human being:

Your health!

Since the publication of the first edition of the *'Codex Humanus'* in the year 2013, a lot has changed in the field of research into natural remedies and therapies. Here, it is particularly worth mentioning new understanding, based on the results of the latest research, of the role of colloidal metal ions (e.g. colloidal gold, colloidal silver), which is also a current topic of discussion in modern



medicine in the form of nanotechnology.

Natural substances, especially colloidal gold and colloidal silver, with their invaluable, positive influence on body, mind and soul, are heralding a completely new era in the prevention and treatment of diseases, as well as age prophylaxis. But while colloidal silver may already be sold within the EU for therapeutic purposes, its big brother, colloidal gold, which Paracelsus claimed was the most important elixir for humanity, has not been given official recognition and approval. In the most countries, colloidal gold is classified as 'experimental water' and may only be sold as this, or for technical purposes. Meanwhile in a few countries people can buy it as a food supplement in any chemist - which also poses the cynical question: do any people have a different organism to other people...? Our health, our life expectancy, should in no way be restricted by regulations or laws - much more, it should always make use of proven, albeit often suppressed, knowledge!

In short, it was time in 2016 for a second and 2018 third edition of the best-seller '*Codex Humanus'*. In addition to more brilliant natural healing substances, more substance-effect tables, and adjustments to various sections to reflect the very latest research, we can no longer ignore the effect of colloids (e.g. colloidal gold). Many researchers claim that their effect is vastly superior to that of vitamins and if used correctly, could help us live for several decades longer in the best of health!

Our quality of life does not depend on our finances or other material things in



any way. It is about time that humans realised that they consist of about 37,2 trillion body cells and that it is the health of these cells that determines their quality of life. After all, what is the benefit of being able to afford five luxury holidays a year while plagued by regular migraines... What good is it to have the latest Porsche if we have crippling back pain when getting out, or a villa on the outskirts of the city where we cannot climb the stairs without having to clutch our chests, short of breath... Only when our cells are in good health can we be in good health. Unfortunately, this is something that even supposedly very intelligent people do not seem to have understood, and so even the most intelligent geniuses still suffer from - and die unnecessarily from - preventable diseases and premature ageing because they have misjudged their priorities and because they have trusted the wrong sources of information...

In the following, you can read about conditions such as cancer, heart attacks, stroke, diabetes, arthrosis, arthritis, allergies, dementia, depression, asthma, hepatitis, migraine, or impotence, as well as all diseases ending in '-itis', and how you can rid yourself of them forever by purchasing this book!
All these diseases are scourges of modern humanity which are

completely unnecessary and completely avoidable

because an herb has grown which can be used to combat every – yes, every - disease!

We reveal to you the amazing power of Mother Nature which your doctors are not aware of due to the suppression of teaching content in universities and



falsified studies - confirmed by clear analysis and expert statements!

3 + 3 = 243 - the ingenious synergy effect!

The individual effects of just the few examples of substances mentioned in this book are already incredible! What do you think the effect of a *combination* of these substances will be?!

The **combination** of several of these extremely potent natural substances from this book does not just add up their powers - it **multiplies** them.

For example, as you will read, in the presence of another natural substance called resveratrol, the natural substance 'Bioperine' improves the desired effect by 1544 %, while curcumin has even increased these values by 2000 % in studies! In a few minutes you will learn why you need no longer fear almost any disease once you have the insider knowledge from the reference work you hold in your hand, because the Codex Humanus treats hundreds of diseases!

From mild coughing to HIV, there is no ailment for which a proven cure is not given in this book! The following are among the most unpleasant and dangerous of these many diseases, which is why we make particular mention of them:

Heart disease and heart attack - the Number 1 cause of death

One in two people dies of cardiovascular disease, despite so-called research. With the right combination of nutrients, heart attacks are 100 % preventable!



Instead, the patient is treated with useless, altogether more harmful blood pressure reducers (beta-blockers) and cholesterol inhibitors (statins), until the patient finally succumbs to a heart attack or other health problems!
With the information of the Codex Humanus, you can protect yourself and your loved ones - because prevention is simple and healing is possible, even for the most serious conditions! This book is therefore, without a doubt, a must for every household!

In your Codex Humanus, you also learn

- that Prof. Dohrmann, in a Berlin clinic, achieved the '*world's best survival rates'* for acute heart attacks with strophanthin; over 1000 heart attacks were analysed for this! Prof. Agostini in Milan has achieved similar results.
- that in a 1984 survey of 3650 doctors, 98 % stated that strophanthin (ouabain) was extremely effective!
- that alpha-lipoic acid can reduce cholesterol in the blood by 40 % and in the aorta by 45 %; oxygen uptake in the heart increases by 72 %, by as much as 148 % in the aorta and by 128 % in the liver!
- that in 20 patients treated with Astragalus membranaceus, the blood output from the heart was increased from 5.09 to 5.95 litres in a record time of only two weeks. This was checked with an echocardiogram!
- that in 92 patients treated with Astragalus membranaceus, ECG values



were improved by 82.6 %!

- that beta-carotene has reduced the risk of heart attack by 50 % in studies!
- that the effect of DHEA on longevity has been examined in a 12-year study on 240 men aged 50 to 79. An increase in the DHEA concentration of 1 mg/litre can greatly reduce the risk of heart attack and reduce the rate of heart-attack fatalities by 48 %!
- that according to a long-term study, pomegranate juice can halt the development of atherosclerosis (blood calcification leading to heart attack and stroke) and can even reverse it by up to 30 %!
- that in a Bulgarian study on 34 patients with chronic high blood pressure, it was possible to lower systolic high blood pressure by 10-15 mmHg on average and diastolic high blood pressure by 5-10 mmHg!
- that in the long term, lapacho tea can remove deposits on the arteries (which cause heart attacks!), make blood vessels elastic again and can partly reverse atherosclerosis!
- that a daily dose of 3 x 15 drops of MMS (Miracle Mineral Supplement) was sufficient to clear arteries that were 80 % blocked (severe atherosclerosis!) by 50 % in just 30 days!
- that in a long-term study on more than 11,000 patients, omega-3 fatty acids reduced the heart attack and stroke rate by 30 % compared to the



control group; sudden cardiac death dropped 45 % and cholesterol fell by up to 30 %!

- that a study on 2664 cardiac patients showed the following improvements with coenzyme Q10 after just 90 days:

SYMPTOMS	**REDUC-TION IN %**
Cardiac arrhyth-mia	63.4 %
Heart palpitations	75.4 %
Dizziness	73.1 %
Shortness of breath	52.7 %
Cyanosis	78.0 %
Oedema	77.8 to 78.6 %
Insomnia	62.8 %
Urgency to uri-nate at night	53.6 %
Enlargement of the liver	49.8 %



Sweating	79.8 %

Cancer, Number 2 cause of death!

One in two people[1] suffers from cancer and one in four people dies of cancer[2] - and where are the 'researching pharmaceutical companies'? Cancer is still THE scourge of humanity because our understanding of it is built entirely on lies!

Chemotherapy has been proven to deliver a very questionable rate of success of just 2.3 % of those treated, underpinned by long-term studies from the US and Australia on a total of 200,000 treated patients![3]

Surgery, radiation and chemotherapy... a more-than-questionable triangle of a clearly-misguided cancer therapy concept, symptom-oriented rather than cause-oriented, created by supposedly-advanced medical science, which has clearly been in a dead end for decades!
Curing cancer is possible, as long as one chooses the right cancer treatment - cancer prevention couldn't be easier with the right combination of natural substances!
Confront your oncologist with the most significant studies on the effects and inefficiencies of chemotherapy on individual cancer cases in more than 200,000 patients in the US and Australia - support your cancer therapy with natural

[1] https://www.medicalnewstoday.com/articles/288916.php

[2] https://gis.cdc.gov/Cancer/USCS/DataViz.html

[3] see www.brisante-krebsheilung.com



cytotoxic, cytostatic and immunomodulatory drugs from this book that are completely free of side effects, but are all the more effective for it!
All of this is supported by meaningful, representative studies.

In your Codex Humanus, you will learn in detail,

- that bitter apricot kernels (vitamin B17) have prevented 98 % of cancers for over 60 years in millions of people!
- that resveratrol is a power substance that could prevent up to 100 % of breast cancer according to studies!
- that bromelain inhibits the growth of lung cancer, lymphoma and leukaemia by at least 80 %!
- that according to the French internist Gérard, 600 mg of bromelain per day could lead to a '*significant drop'* in malignant tumours within a few weeks, especially in breast, colon and stomach cancer!
- that according to experts, there is not a single type of cancer that would not react positively to treatment with curcumin!
- that in 2005, at a medical convention in the US, curcumin was recognised as the only natural remedy that can be used for the preventive and therapeutic treatment of cancer - regardless of the type of cancer!
- that, statistically, cross-national comparison shows that the incidence of breast, prostate, colon, and lung cancer in India is ten times lower than in



the US, which is attributed to the daily proportion of curcumin within the traditional Indian diet.

- that Dr. Schwartz observed a reduction in cancer rates of up to 80 % in his studies with DHEA!
- that Prof. John Pezzuto and his team investigated 2,500 natural substances for their anti-cancer effects in their unique research program, the largest in the world, and came to the following conclusion: *'Of all the phytochemicals that we have tested for their chemopreventive efficacy, resveratrol has been the most promising substance'*.
- that the effect of natural killer cells against cancer was tripled from 10 % to 33 % with organic germanium!
- that a staggering 600 cancer studies on papain support the excellent effects of papaya and papain!

Diabetes/diabetes mellitus - the Number 3 cause of death

About every 10 seconds, somewhere in this world, a person dies from the consequences of diabetes! One in ten adults is now suffering from diabetes, and the trend is rising! A disease that has become one of the scourges of modern humanity, for which conventional medicine again has no cure!

Type 1 diabetes



Type 1 diabetes affects 10 % of all diabetics and is caused by the lack of the hormone insulin, which is why this type of diabetes is also referred to as ' insulin-dependent diabetes mellitus'. Type 1 diabetes starts at a young age, often as early as childhood and adolescence.

Type 2 diabetes

Type 2 diabetes, which also used to be called 'non-insulin-dependent diabetes', or 'adult-onset diabetes', is a disease that mostly affects older people and does not necessarily require insulin treatment. This type of diabetes affects around 90 % of all diabetics.

Environmental factors, obesity and rising sugar consumption are the causes, and more and more young people are dying of Type 2 diabetes. The long-term effects of diabetes include circulatory disorders, which can lead to limb amputations, but also fatal heart attacks and strokes!

How can diabetes be avoided through diet?

How can people shield themselves against the serious consequences of diabetes, such as eye and kidney problems, nerves (diabetic neuropathy), diabetic foot or diabetic foot syndrome, diabetic macroangiopathy, excess weight, based on metabolic syndrome, heart attacks and strokes?

In your Codex Humanus, you will find detailed information which reveals



- that blood glucose levels decrease from 14.23 ± 1.32 mmol/l to 11.4 ± 0.89 mmol/l, 60 minutes after consuming 200 ml of aronia berry juice!
- that another study examined the effect of regular consumption of aronia berry juice on blood sugar levels over a three-month period. Here, the blood sugar level was initially 13.28 ± 4.55 mmol/l and after three months it dropped to 9.10 ± 3.05 mmol/l. In addition to the hypoglycaemic effect, total cholesterol, lipid levels and HbA1c also improved.
- that Astragalus membranaceus counteracts the formation of advanced glycation end products (AGEs) that cause neuropathic complications in diabetes!

The following table documents the therapeutic benefit of alpha-lipoic acid in diabetes mellitus:

THERAPEUTIC BENEFITS OF ALPHA-LIPOIC ACID FOR PATIENTS WITH DIABETES MELLITUS
Optimisation of glucose uptake into the muscle cell, where it is then consumed
Optimisation of glucose utilisation and Improvement of insulin sensitivity



Neutralisation of the free radicals that cause complications in patients with diabetes
Increase in glutathione level, which is low in patients with diabetes
Improved blood circulation
Protection against typical cardiovascular problems in patients with diabetes
Protection against neurological deficits such as diabetic polyneuropathy
Improved nerve conductivity
Protection against degradation of Vitamin C, which is consumed by increased blood sugar
Protection of the blood vessels
Improved blood circulation in nerves
Protection against diabetic cataracts
Counteraction of circulatory disorders
Promoting the growth of peripheral nerve cells



Interception of metal ions which cause oxidative stress

Sao Paulo Hospital doctors reported on the effects of *lapacho tea* on diabetes: *'We have observed, so far without determining an explanation, that the use (of lapacho) alleviates juvenile diabetes (Type 1 diabetes) to an impressive degree. Some sugar levels have fallen back to the normal level of a healthy person'.*

Effect of L-carnosine on diabetes: since L-carnosine controls our blood sugar content via the H3 receptors of the autonomic nervous system, it is already recommended as therapeutic treatment for diabetics, but also as preventive measure to protect against diabetes. Furthermore, L-carnosine prevents the described glycation and can thus prevent diabetic nephropathy, diabetic neuropathy and damage to the eye.

In addition, the use of L-carnosine in pregnancy increases the glucose tolerance of the child and thus reduces the risk of diabetes.

Stroke, the Number 4 cause of death

In this book, you will discover, in detail,

- that in his experiments with alpha-lipoic acid, Dr. Packer was able to lower mortality caused by reperfusion during strokes from 80 % to 25 %! The 75 % surviving animals suffered no consequential harm.
- that in another study at Johns Hopkins University in Baltimore, gingko



reduced the consequential damage caused by artificially induced strokes by 48 % and reduced brain function disturbances by 51 % compared to the control group!

- *that Dr. Maxim Bing has written the following on kombucha: '[...] very effective means of combating arteriosclerosis [...] If the kidney and the capillaries of the brain are calcified, particularly favourable results can be achieved'.*
- that acetyl-L-carnitine may protect against tissue damage due to circulatory deficiency, as may occur after heart attacks. Furthermore, this reperfusion damage may lead to strokes![4]
- that acetyl-L-carnitine improves cognitive functions after a stroke, as well as memory. This significantly shortens the rehabilitation phase after a stroke![5]
- that several studies indicate that L-carnosine reduced the mortality rate from 67 % (without L-carnosine) to 30 %, with another study showing a reduction from 55 % to 17 %!

Arthrosis /arthritis

Every year, 2.5 million hip replacements and 4.7 million knee replacements

[4] Rosenthal 1992

[5] Arrigo 1990



alone in USA[6] are performed due to arthrosis or arthritis - arthrosis is preventable and curable, as is arthritis!
However, Big Pharma and doctors are engaged in a billion-dollar business of prescribing harmful, synthetic, so-called chondroprotective drugs and anti-inflammatory drugs, in order that the patient can finally earn an endoprosthesis after years of suffering - a reason why you have never heard of successful natural remedies and even your doctor does not usually know of them!
All harmful and practically useless synthetic cartilage constructs find their efficient and side effect-free counterpart within nature, supported by meaningful, representative studies!

In your Codex Humanus you will also learn

- that researchers at Creighton University in Omaha, Nebraska, evaluated 20 randomised, controlled trials involving over 2,500 patients.[7]
- *'Glucosamine sulphate is a physiological substance that has been shown to slow the progression of arthritis. The benefit-risk profile is low'*.[8]
- *'It appears that these components (glucosamine and chondroitin sulphate) play a role in the efficient treatment of joint diseases'.*[9]
- Silicon has an anti-inflammatory effect on the joint, enhances the ability of hyaline cartilage to bind water and increases its elasticity. The connective

[6] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4551172/

[7] Report in the New York Times on January 21, 2008

[8] Prof. Dr. med. R. Jakob, Chief Physician, Freiburg Orthopaedic Clinic

[9] Journal of the American Medical Association as Evaluation of 15 Clinical Trials on Glucosamine and Chondroitin Sulphate in March 2000



tissue is strengthened, the cartilage can even partially regenerate, because the chondrocytes (cells in the joint capsule), which constantly regenerate the degraded cartilage in the joint throughout your life, increase their activity by 243 % in the presence of silicon! This very quickly results in significant pain relief and increased mobility.

- The inhibition of NF-kappB and expression of adhesion molecules mediate the anti-inflammatory activity of astragaloside IV, an ingredient of Astragalus membranaceus, which is crucial for the healing of arthritis!

- Lapacho tea, with its proven anti-inflammatory and detoxifying properties, is particularly effective for arthritis and can both relieve the pain and strongly support recovery from the disease.

- Prof. Winfried Laakmann, Director of the University of San Salvador, says: *'When it comes to rheumatism, I have had worldwide success with kombucha. I have had patients who could not get out of bed in the morning due to rheumatic pains. Their joints were stiff. I prescribed them kombucha. The result: after a month, they were able to move their joints again without any pain!'*

- Natural Vitamin C can reduce arthritic inflammations and pain through the synthesis of PGE 1 (prostaglandin) because it affects the regulation of the immune system!

- With the help of selenium (best in combination with vitamin E) arthritis can be relieved, often even cured!



- In a test with selenium, 70 % of the animals tested recovered from arthritis and 1/3 were completely cured!
- As the media has reported, the chairman of the British Arthritis Society, Charles Ware, completely cured himself of the most severe arthritis using selenium alone!
- In studies of arthritic patients taking pomegranate juice, an inhibition of metalloproteases, NFkappaB, TNF-alpha and COX-2 - and thus the inhibition of arthritis-specific joint inflammation could be detected.
- And much else besides.

Anti-ageing - governments keep knowledge under wraps!

As you can imagine, it is far from being in the interest of the individual governments of the industrialised countries to let successful studies from *gerontology*, the study of ageing, leak out to the masses in an uncontrolled manner... What would it mean if every German citizen had this knowledge and could extend their life even by just one or two years?

That's right! The social system of the generational contract would collapse in less than three years, the pension funds would be empty!

A perfect anti-ageing cure, successful biological rejuvenation, always occurs in a twofold manner:



- The supply of the natural enzyme 'telomerase', which stops the telomeres on the chromosomes from shortening, so that they can continue to divide unhindered, inhibits cell ageing;

- at the same time, the damage that has already occurred in the past due to the destructive mechanisms of cell oxidation, carbonylation, glycation, and cross-linking of collagens, which have already occurred because telomeres have not been protected, is remedied.

Through this two-pronged approach, each being is allowed to rejuvenate biologically and further ageing is prevented or greatly reduced!

In your Codex Humanus, you will find details of how this works!

We have the suppressed studies on the natural resources that will make this dual rejuvenation possible for you and greatly delay your ageing!

You will be able to read the following in the Codex Humanus:

- Studies at the National Cancer Research Centre in Spain, led by Maria Blasco, have shown that TA-65, a molecule derived from the Astragalus plant, activates the telomerase enzyme, re-extending critically-short telomeres, heals cells in different organ systems, and prolongs the human lifespan!



- The increase in telomerase activity in normal human cells thanks to Astragalus membranaceus could lead to an increase in lifespan.
- Colostrum is the only known natural substance that has the enzyme telomerase, which has recently proven that it can prolong life (this discovery was rewarded with the Nobel Prize!).
- 'DHEA prolongs life and increases the quality of life over the extra years'.[10]
- What is commonly referred to as 'age spots' is nothing but 'glycation', a tissue-destroying process that results from the reaction of blood sugar to body proteins.
- While age spots on the skin damage appearance, age spots also occur in the heart and brain. DMAE can suppress these mechanisms, in our internal organs, in the brain (preventing senile dementia!) and on the skin!
- L-carnosine protects against all signs of ageing.

Antioxidation: As a highly efficient antioxidant, L-carnosine repels even the most stubborn, destructive radicals, which other antioxidants cannot, such as hydroxyl, peroxyl, superoxide, and singlet oxygen.

[10] Dr. Arthur Schwartz (Temple University, Philadelphia USA)



Anti-carbonylation: 'Carbonylation' is an age-dependent process in which the skin matrix is changed due to constant protein damage. L-carnosine is considered the most efficient anti-carbonylation agent discovered to date!

Protection against cross-linking: Connective tissue weakness, loss of elasticity and wrinkles are caused by the cross-linking properties of ageing skin. L-carnosine has the ability to protect the skin from cross-linking and therefore from ageing.

Anti-glycation: Another major aspect of physical ageing is glycation. This refers to the saccharification and thus the hardening of the body's own proteins, which leads to the loss of protein function, atherosclerosis, loss of flexibility of proteins, inflammation, diabetes and other age-related problems. Each one of us knows the visible consequences of glycation, which occurs in the form of brown spots on the skin of older people.

As already mentioned, l-carnosine provides reliable protection against the formation of the so-called 'advanced glycation end products' (AGE) and acts against glycation like no other known substance! What's more, it protects against the oxidative stress that a glycosylated protein produces, 50 times stronger than that of a non-glycosylated protein.



Since the glycation first expresses itself via wrinkles on the skin, the anti-glycation on the part of L-carnosine quickly helps the skin become smooth again!

Prof. Dr. Pauling argued that natural vitamin C (e.g. camu camu), in appropriate doses, can extend life by up to 20 years!

Scientists at the prestigious Harvard University recently created a small sensation when, following a resveratrol study, they told people that resveratrol was estimated to extend their life by 20 years!

Allergies (hay fever, lactose intolerance, house dust allergy, animal hair allergy & co!)

Allergies are a typical problem of modern times! Every year, we are confronted with around 1000 new foreign substances which our immune system tries to protect us from. If, one day, it all becomes too much, our immune system targets healthy cells and allergies develop!

In your Codex Humanus you will read

- that colostrum has corresponding autoantibodies, such as polymorphonuclear leukocytes, which regulate the immune reactions in the body that lead to allergies.

- that the IgE in the colostrum regulates allergic reactions and can help prevent them.
- that, in numerous studies, astragalus has been shown to have a regulatory



effect on the immune system, which is of utmost importance in relation to allergic diseases.

- that astragalus promotes the synthesis of IgG antibodies, thus contributing to the elimination of allergens. The expression of T-bet mRNA and T-helper1 cytokines, such as IFN-γ, is promoted, the activity of genes involved in inflammation during the allergy process is regulated and the release of histamine is inhibited, resulting in the prevention of allergy symptoms. Astragalus has proven its worth here with pollen allergy, house dust mites and animal hair allergies.

- that with allergies, the blood coagulation factor PAF ('platelet activating factor') plays an important role; by counteracting the PAF, ginkgo biloba actively counteracts allergic symptoms.

- that camu (natural vitamin C) regulates histamine and histidine production, reduces allergies and improves or even prevents allergic symptoms!

Depression, anxiety, burnout

Experienced nutritionists and practitioners of alternative medicine have long known that even minor deficiencies in certain micronutrients, such as vitamin



B and folic acid, can trigger depression, as can deficiencies in vitamin C, vitamin D, biotin and magnesium, to name but a few. For example, 15-38 % of adults diagnosed with depression suffer from acute folic acid deficiency.[11]

How can this 'phenomenon', known to only a tiny number doctors, much less their patients suffering from depression, be explained?

In order to experience optimal brain function and the resulting well-being and mental balance, our brains need certain nutrients, which are responsible for the creation of so-called messenger substances. If these nutrients are not available in sufficient quantities, the balance of the natural messengers in the brain, through which our nerve cells communicate with each other, is disturbed - a condition that could lead to depression in the foreseeable future!

Hoping that a patient suffering from depression or burnout will be permanently better off by filling them with synthetic and moreover dangerous antidepressants is like trying to get from A to B without any petrol. Of course, there are only two beneficiaries of this very questionable practice, namely **the pharmaceutical industry and the medical profession**, because they make their living from treating you, not curing you!

For example, St. John's wort has shown in numerous studies that it is at least on a par with the common drug 'Fluctin' (international name 'Prozac') in terms of its effect![12] While Prozac has probably led to numerous suicides,[13] St. John's

[11] http://www.naturheilkunde-news.de/2008/05/07/folsaeure-helfer-gegen-depressionen-gedaechtnisverlust-und-schlaganfall/

[12] http://www.stern.de/gesundheit/johanniskraut-gegen-traurigkeit-gewachsen-1524813.html

[13] http://www.welt.de/wissenschaft/article1405811/Die-dunklen-Seiten-der-Gluecksdrogen.html



wort is usually free of any side effects! But doctors and the pharmaceutical industry do not earn any money by using nature.

If we are honest, it's not just the pressure to perform within the fast-paced, ruthless society we live in that torments our psyche and leads to depression or burnout. In parallel with this negative development, the proportion of nutrients in our fruits and vegetables has drastically decreased. The nutrients involved in the production of the messenger substances described in the brain, to enable, for example, the production of the so-called happiness hormones 'serotonin' or 'dopamine', are lacking!

For example, the two reputable German newspapers *Welt am Sonntag* and the *Westfälische Nachrichten* published, for the first time, the results of the comparative studies on the development of nutrient content between 1985 and 1996, conducted by the renowned *Karlsruhe/Sanatorium Oberthal Food Laboratory* and the pharmaceutical company Geigy. The results of these two studies were extremely sobering and frightening at the same time. For example, 80 % of the vitamin C in apples has been lost. During the same period, broccoli lost 68 % of calcium, the same amount of magnesium that spinach has lost. The amount of vitamin B6 in bananas has dropped by a whopping 92 %, calcium in potatoes has fallen by 79 % and folic acid in beans by 61 %!

Reasons for this dire state of affairs include the use of growth promoters, pesticides, fungicides, long transport routes and, of course, the increasingly significant environmental pollution. Another reason for a lack of nutrients is the



impaired intestinal flora. Most of the nutrients are absorbed in the intestine; but this is completely full of waste products in the vast majority of people in industrialised countries, and is impaired by frequent sugar consumption, antibiotics and toxins such as amalgam. Such an overworked and impaired intestine can no longer guarantee the function of metabolising food (decomposition and uptake of nutrients), and only a fraction of the already negligible nutrients in our food will be absorbed!

We hold the view that while stress factors have disproportionately exploded in the last 30 years, the nutritional content in our fruits and vegetables has fallen dramatically, and this affects exactly those nutrients needed to balance our psyche. Furthermore, most 'modern' people have an impaired intestinal flora, which makes optimal nutrient absorption impossible.

Here's what you should know:

- The use of natural vitamin C, which crosses the blood-brain barrier, optimises the calcium metabolism and thus acts against depression.

- Tyrosine and phenylalanine supply the so-called benzene ring, which is responsible for the synthesis of the neurotransmitters 'adrenaline', 'norepinephrine' and 'dopamine'.

- SAM (S-adenosyl-methionine) increases the serotonin level as well as the serum levels of phosphatidylserine and dopamine and can thus be very



helpful against depression and burnout.

- St. John's wort lowers the stress hormone ‘cortisol’, while increasing the number of neurotransmitters and - according to studies - is more successful than standard treatments (see below).

- Tryptophan, a precursor to the neurotransmitter serotonin, increases its activity and thus also counteracts depression.

These are just some examples of the effects of the recommended nutrients and vital substances for depression.
In the following sections you will find drug-effect tables of the recommended natural substances for depression, anxiety and burnout.

Alzheimer’s/dementia

Alzheimer's and dementia are among the diseases growing at a terrifyingly fast rate, which are also afflicting more and more young people. The forensic treatment of Alzheimer's and dementia should pursue the goal of relieving and reactivating brain cells as much as possible.

Although advances in dementia are spoken of as ‘progress’, while the degenerative process of the disease cannot be stopped, or at least delayed, one should not lose sight of the ambitious goal of improving the condition as much as possible.



Contrary to what conventional medicine would have us believe, Alzheimer's and dementia can be positively influenced according to various studies, studies which conventional physicians in medical faculties generally do not get to see, studies on natural healing substances that are not patentable and therefore bring no financial benefit to the pharmaceutical industry and do not profit doctors (unlike drugs from the devil's workshop of Big Pharma).

These studies deal precisely with natural substances (such as omega-3 and omega-6 fatty acids) which counteract Alzheimer's and dementia and can even repair damaged brain cells and impaired nerve transmission circuits (such as alpha-lipoic acid).

The interplay of factors that rid the body and the brain of mercury, amalgam, palladium, aluminium and other toxins, protect the neurons (brain cells) from the attacks of free radicals, deposits, so-called 'plaques', in the brain which promote cerebral circulation, stimulate messenger substances (neurotransmitters), repair damaged neuron circuits and - last but not least - regenerate brain cells by promoting sleep during the night, is promising.

In the *Codex Humanus*, you will learn

- which natural substances free the organism and the brain of heavy metals,
- which antioxidants protect our neurons (nerve cells) from attack by free radicals,



- which natural substances remove brain plaques,

- which substances increase cerebral blood flow,

- which natural substances stimulate neurotransmitters (messenger substances) and

- which natural substances regenerate the brain during sleep.

SUMMARY

Cancer is no longer an automatic death sentence, ***heart disease***, ***heart attacks*** and ***strokes*** can be prevented and treated successfully, diseases such as ***arthrosis*** and ***arthritis*** are curable in most cases, ***diabetes*** and all ***allergies*** can be successfully countered, ***depression***, ***asthma***, ***hepatitis***, ***migraine***, ***impotence*** and all illnesses that end in '-itis' are not only preventable, but often curable with the appropriate natural substances at the cellular level - this approach is also called orthomolecular medicine!

The Codex Humanus, a unique insider report, an indispensable reference book and a must-have for every modern person, prevents and heals diseases - and is underpinned by meaningful, representative studies and expert statements!



Substance-effect tables

Your Codex Humanus covers hundreds of different diseases. Below are the ***substance-effect tables*** for the most common diseases and ailments that make life difficult or even endanger life. If you cannot find what you are looking for, you will find a ***disease index*** at the back and you can use also the search function of the PDF for disease name, other words or phrases: 



SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES THAT COUNTERACT ALLERGIES

Natural substance	Page	Anti-oxi-dants	Detoxifica-tion and deacidifi-cation	Combatting in-flammation me-diators	Intestinal flora regu-lators	Histamine- and histidine blockers	Immune system-modulators
Colostrum	264	X	X	X	X	X	X
Astragalus	197	X	X	X		X	X
Rooibos-Tea	1370	X	X	X	X	X	X
Propolis	1232	X	X	X		X	X
Royal jelly	1268	X	X	X			X
Vitamin C	1720	X	X	X		X	X
OPC	1094	X	X	X		X	X
Curcumin	328	X	X	X			X

Ginkgo B.	398	X	X	X		X	X
Pomegranate	490	X	X	X			X
colloidal silver	685		X				X
Lapacho	815	X	X	X			X
Selen	1405	X	X	X			X
Silica	1582	X		X	X		X
Spirulina	1515	X	X	X	X	X	X
Reishi	1665	X	X	X		X	X
Shiitake	1685	X	X	X			X
Maitake	1697	X	X	X			X
Polyporus	1845	X	X	X			X
Coriolus	1848	X	X	X			X
Kombucha	731	X	X	X	X		X

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES FOR ARTHRITIS

Natural substance	Page	Anti-oxi-dants	Detoxi-fica-tion and de-acidi-fica-tion	Control of inflamma-tory medi-ators	Regulation of hyper-active im-mune sys-tem	Struc-ture of the hy-aline joint carti-lage	Metabolism stimulus of the joint capsule and joint fluid	Antibac-terial and an-tifungal effect	Pallia-tivum (analge-sic ef-fect)
Kombucha	731	X	X	X	X	X	X	X	X
Organic Ger-manium	1152	X	X	X	X			X	X
Colloidal Gold	642	X	X	X	X		X	X	X
Selen	1405	X	X	X	X				
Colostrum	264	X	X	X	X	X	X	X	

Glucosamine & Chondroitin	441			X		X	X		X
Bromelain	140	X		X	X				
Aronia berries	173	X	X	X					
Astragalus M.	197	X		X	X				
Curcumin	328	X		X	X				
DHEA	365	X			X				X
Ginkgo B.	398	X		X		X	X		
Pomegranate	490	X		X				X	
Lapacho-Tea	815	X	X	X					X
MMS	1006				X			X	
Omega-3 fatty acids	1036	X		X			X		

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES FOR ARTHROSIS

Natural substance	Page	Anti-oxidant	Detoxification & Deacidification	Combatting inflammation mediators	Stimulation of the collagen metabolism and structure of the hyaline joint cartilage	Metabolic stimulation of the joint capsule and the synovial fluid	Palliativum (pain-relieving effect)
Glucosamine & Chondroitin	441			X	X	X	X
MMS	1006			X			
Silica	1460	X	X	X	X	X	X
Colloidal-Gold	642	x	x	x		x	x
Vitamin C	1720			X	X	X	

(Camu Camu)							
Bromelain	140	X	X	X			X
Aronia ber-ries	173	X	X	X			
Curcumin	328	X		X			X
Gotu Kola	473	X		X	X	X	
Kombucha	731	X	X	X	X	X	X
Omega-3 fatty acids	1036	X		X			X
Pomegranate	490	X		X			X
OPC	1094	X	X	X			
Papain	1188				X		X
Propolis	1232	X		X		X	
Resveratrol	1340	X		X			X
Royal jelly	1268	X		X			

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES FOR DIABETES

Natural substance	Page	Anti oxi-dants	Anti-Viral ef-fect against Coxsackie B virus	Optimisa-tion of glucose-utilisa-tion / re-duction of blood sugar	Improve-ment of insulin sensi-tivity	Protection against neurologi-cal fail-ures and diabetic polyneurop-athy (dia-betic foot)	Protection against diabetes-related cardio-vascular diseases	Protec-tion for blood vessels (against athero-sclero-sis)	Protec-tion against diabetic reti-nopathy
Alpha-li-poic acid	86	X		X	X	X	X	X	X
Lapacho-Tea	815	X		X			X	X	
Aronia berries	173	X		X			X	X	
Pomegranate	490	X		X	X	X	X	X	
L-Carnosine	924	X		X			X	X	X

Green Tea	587	X		X	X		X	X	
Astragalus	197	X				X	X	X	
Colostrum	264	X		X				X	X
Curcumin	328	X		X		X	X	X	
DHEA	365	X		X	X	X	X	X	
Ginkgo	398	X					X	X	
Acetyl-L-Carnitine	866	X		X	X	X	X	X	X
Melatonin	954	X		X			X	X	
MMS	1006		X					X	
Omega-3 fatty acids-3-Fettsäuren	1036	X			X		X	X	X
Resveratrol	1340	X			X	X	X	X	
Papain	1188	X					X	X	

Rooibos	1370	X		X			X	X	
Selen	1405	X			X		X	X	X
Spirulina platensis	1515	X		X	X		X	X	
Reishi-Heilpilz	1665	X					X	X	
Shiitake	1685	X					X	X	
Maitake	1697	X		X	X		X	X	
Vitamin C	1720	X		X			X	X	
Stevia	1571			X			X	X	

SUBSTANCE-EFFECT TABLE OF NATURAL SUBSTANCES FOR HEART DISEASES

Natural substance	Page	General strengthening of the heart muscle	Increased blood flow through the heart	Regulation of the blood pressure	Reduction of cholesterol level	Prevention of atherosclerosis	Reduction of Atherosclerosis
Strophanthin	1615	X	X	X	X	X	
Coenzyme Q10	1393	X	X	X	X	X	
Beta-Carotin	237	X		X	X	X	
Omega-3 fatty acids-3-Fettsäuren	1036	X	X	X	X	X	
L-Carnitine	866	X	x	X	X	X	
Pomegranate	490	X	X	X	X	X	X
Alpha-lipoic acid	86	X	X	X	X	X	

Pineapple-Bromelain	140	X	X	X	X	X	X
Aronia berries	173	X	X	X	X	X	
Astragalus M.	197	X	X	X	X	X	
Vitamin C (Camu Camu)	1720	X	X	X	X	X	X
Curcumin	328	X	X	X	X	X	

SUBSTANCE-EFFECT TABLE FOR THE NATURAL REMEDIES FOR THE THREE TYPES OF STROKE AND THEIR CONSEQUENCES

Natural sub-stance	Page	Anti oxi-dant	deacid-ifying	Anti-throm-botic	Dila-tion of blood vesels	Strengthens blood vessels and keeps them flexible	Antiathero-genic (for atherosclero-sis + breaks it down!)	High blood pressure-lowering	Cholest-erol-lowering
L-Carnosine	924	X	X				X	X	X
Resveratrol	1340	X		X				X	X
Omega-3 fatty acids-3	1036			X			X	X	X
Ginkgo Biloba	398	X		X	X		X	X	X
Vitamin C	1720	X		X		X	X	X	X
OPC	1094	X		X		X	X	X	X

Acetyl-L-Carnitine*	866	X			X			X	
Pomegranate	490	X		X			X	X	
Spirulina platensis	1515	X	X	X	X	X	X	X	X
Strophanthin	1615		X	X	X			X	X
Green Tea	587	X		X			X	X	X
Alpha-Lipoic acid*	86	X					X	X	X
DHEA	365	X		X				X	X
Selenium	1405	X						X	
Bromelain	113	X	X	X			X	X	
Silica	1460					X	X	X	
Aronia berries	173	X		X			X	X	X
Beta-carotene	237	X					X	X	X

Curcumin	328	X						X	X
Gotu Kola	473	X			X	X	X	X	
Kombucha	731	X	X	X			X	X	X
Lapacho	815	X		X				X	
Melatonin	954	X						X	X
MMS	1006	X		X				X	
Organic Germa-nium	1152	X					X	X	X
Papain	1188	X	X				X	X	X
Q10	1393	X					X	X	X
Reishi medici-nal mushroom	1665	X		X				X	X
Shiitake me-dicinal mush-room	1685	X	X	X				X	X
Maitake medic-inal mushroom	1697	X		X				X	X

Hericium medicinal mushroom	1707	X						X	X
Polyporus	1845	X						X	X
Coriolus	1848	X						X	X

*additional protection against reperfusion damage

SUBSTANCE-EFFECT TABLE OF NATURAL SUBSTANCES FOR CANCER

Natural substance	Chemo-Sensitiser (Cancer cells are made more sensitive to chemotherapy)	Chemo-protectors (Natural substance protects against side effects of chemotherapy)	Radiationsensitisers (Cancer cells are made more sensitive to radiotherapy)	Radiation(Radio-) Protectors (Natural substance protects against side effects of radiotherapy)	Natural cytotoxic agents (Cancer cells destructive natural substances)	Natural cytostatics (Cancer growth inhibiting natural substances)	Immunmodulators (Immune system is stimulated)	Antioxidant (Protection against free radicals)	Neo-angiogenesis inhibator (Formation of cancerous blood vessels is inhibited!)	Apoptosis activators (Activates the self-destruction of the cancer cells)	Hormone regulator (important for hormone-related cancers such as breast, uterine, prostate, etc.)	Natural Palliativum (Cancer pain relieving effect)
Coenzyme Q10		X		X			X	X				

p.1393												
Ginkgo Biloba p.398	X			X								
Apricot kernels /Laetrile/ Vitamin B17 p.783					X	X						X
Lapacho-Tea p. 815		X			X	X	X					X
Colloidal Gold p.642					X	X	X	X				X
Spirulina-Platensis		X		X	X	X	X					

p.1515												
L-Carnosine p.924					X	X						
Melatonin p.954	X	X				X	X	X			X	
MMS p.1006							X					
Silica p.1460							X					
Omega-3 fatty acids p.1036			X	X			X				X	X

Rooibos-Tea **p.1370**				X		X	X					
OPC/Vitamin P **S.1094**							X	X				
Organic Germa-nium **p.1152**					X	X	X	X				X
Papaya-Papain **p.1188**		X		X	X	X	X	X				
Propolis **p.1232**	X	X		X	X	X	X	X	X	X		X
Selenium	X	X	X	X			X	X		X		

p.1405												
Medicinal mush-room Reishi p.1665					X	X	X	X	X	X		
Medicinal mush-room Shiitake p.1685					X	X	X	X		X		
Medicinal mush-room Maitake p.1697					X	X	X	X				
Medicinal mush-room Hericium p.1707					X	X	X	X				

Medicinal mush-room **Polyporus** **p.1845**		X			X	X	X	X				
Medicinal Mush-room **Coriolus** **p.1848**		X		X	X	X	X	X				
Vitamin C **p.1720**					X	X	X					
Alpha-lipoic acid **p.86**		X		X			X	X				
Bromelain **p.113**	X	X		X			X	X		X		

Aronia berries **p.173**		X		X			X	X				
Astragalus Membranaceus **p.197**	X	X					X					
Beta-carotene **p.237**					X		X					
Colostrum **p.264**						X	X	X			X	
Cucumin **p.328**	X	X	X				X			X		
DHEA											X	

p.378												
Ginkgo-Biloba p.398	X			X			X	X				X
Pomegranate p.490							X	X	X	X	X	
Green Tea p.587						X	X	X				
Kombucha-Tea p.731						X	X	X				
L-Carnitine p.866		X										

Organic Germa-nium **p.1152**					X	X	X					
Royal jelly **p.1268**				X								

ALLOCATION TABLE DETOXIFICATION, HEAVY METAL REMOVAL, DEACIDIFICATION THROUGH THE USE OF NATURAL SUBSTANCES (CANCER THERAPY)				
Natural substance	General detoxification	Removal of heavy metals	Removal of/protection against radiation	Deacidification
Kombucha-Tea p.731	x			x
Spirulina-Platensis p.1515	x	X	x	x
Lapacho p.815	x			

L-Carnosine **p.924**		X		
Rooibostea **p.1370**	X		X	
Organic Germanium **p.1152**	X	X		
Papaya-Papain **p.1188**	X			X
	X	X		

Propolis **p.1232**				
Selenium **p.1405**			X	
Vitamin C **p.1720**	X	X		
Alpha-lipoic acid **p.86**	X	X	X	

Bromelain **p.113**	X	X		X
Aronia berries **p.173**	X	X		
Beta-carotene **p.237**	X			
Colostrum **p.264**	X			
Curcumin-Kurkuma	X			

p.328				
Green Tea **p.587**	X			
Kombucha-Tea **p.731**	X			
L-Carnitine **p.866**	X			
OPC **p.1094**	X			

Organic Germanium **p.1152**	X	X	X	
Silica **p.1460**	X	X	X	

SUBSTANCE-EFFECT TABLE ANTI-AGEING / REVERSE-AGEING (primary factors)					
Natural substance	**Page**	**Protection against telomere shortening or extension of telomeres**	**Protection against DNA mutations via antioxidants**	**Protection against glycation**	**Protection against epigenetic changes**
Astragalus Membranaceus	197	X	X	X	
L-Carnosine	924	X	X	X	
Melatonin	954		X		
Resveratrol	1340		X		X
Selenium	1405		X		
Colloidal gold	642		X	x	x
Colostrum	264	X	X		

Kombucha	731		X		
Omega-3 fatty acids	1036	X	X		
Alpha-lipoic acid	86		X		X
Acetyl-L-Carnitine	866		X	X	
DHEA	365		X		X
DMAE	387		X	X	
Silica	1460		X	X	
Vitamin C	1720		X	X	X
OPC	1094		X		
Coenzyme Q10	1393		X		
Spirulina p.	1515		X		
Bromelain	113		X		
Papain	1188		X		

Propolis	1290		X		
Aronia berries	173		X		
Curcumin	328		X		
Ginkgo Biloba	398	X	X		
Gotu Kola	473		X		
Pomegranate	490		X		
Green Tea	587		X		X
Organic Germa-nium	1152		X		
Medicinal mushroom Reishi	1665		X		
Maitake	1697		X		
Shiitake	1685		X		
Hericium	1707		X		

Polyporus	1845		X		
Coriolus	1848		X		
Glucosamine / Chondroitin	441		joints/skin		

SUBSTANCE-EFFECT TABLE ANTI-AGEING / REVERSE-AGEING (secondary factors)					
Natural substance	**Page**	**Optimisation of the body´s own hormone production**	**Combatting inflammation mediators**	**Reducing the work of the mitochondria**	**Deacidification & purification**
Astragalus Membranaceus	197		X		
L-Carnosine	924				
Melatonin	954	X		X	
Resveratrol	1340		X	X	
Selenium	1405		X		
Colloidal gold	642	X	X	X	
Colostrum	264	X	X		

Kombucha	731		X		X
Omega-3 fatty acids	1036	X	X		
Alpha-lipoic acid	86		X	X	
Acetyl-L-Carnitine	866	X		X	
DHEA	365	X			
DMAE	387				
Silica	1460		X		X
Vitamin C	1720	X	X		
OPC	1094		X		
Coenzyme Q10	1393		X	X	
Spirulina p.	1515	X	X		X
Bromelain	113		X		X
Papain	1188	X	X		X

Propolis	1232		X		
Aronia berries	173		X		
Curcumin	328	X	X		
Ginkgo Biloba	398		X		
Gotu Kola	473		X		
Pomegranate	490	X	X		
Green Tea	587		X		
Organic Germanium	1152		X		
Reishi	1665		X		X
Maitake	1697				
Shiitake	1685				
Hericium	1707				
Polyporus	1845				

Coriolus	1848				
Glucosamine / Chondroitin	441		X		

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES TO COUNTERACT DEPRESSION, ANXIETY AND BURNOUT

Natural substance	Page	Optimisation of serotonin synthesis	Natural monoamine oxidase inhibitor (MAO inhibitor)	Activation, reorganisation of neurotransmitters	Optimisation of neuron communication	Deacidifying effect	Antiviral and antifungal effect
Curcumin	328	X	X	X	X		
Colloida gold	642	x		X	x		x
Ginkgo B.	398	X		X	X		
DHEA	365						
	387						

DMAE							
Bromelain	113	X				X	
Melatonin	954				X		
Omega-3 fatty acids	1036	x					
Coenzyme Q10	1393				X		
Vitamin C	1720				X		
OPC	1094				X		
Rooibostea	1370	X					
Selenium	1405						

Acetyl-L-Carnitine	866	X					
Spirulina platensis	1515	X			X	X	
Colostrum	264						X
Lapacho	815						
Organic Germanium	1152						X
Strophanthin	1615					X	
Grape-fruitseed extract	534						X
MMS	1006						X
Colloidal Silica	1460						X

MICRONUTRIENTS THAT COUNTERACT DEPRESSION, ANXIETY AND BURNOUT		
Micronu-trient	**Recom-mended amount** (if known)	**Explanation of effect** (to the extent known)
Vitamins:		
Vitamin C	2000–5000 mg	Increases calcium conversion
Vitamin B1	50 mg	Slight deficiency may trigger depression
Vitamin B2	50 mg	Slight deficiency may trigger depression
Vitamin B3		Slight deficiency may trigger depression
Vitamin B6	50 mg	Slight deficiency may trigger depression
Vitamin B12		Slight deficiency may trigger depression
Folic acid		Raises serotonin level
Vitamin D	10–20 mcg	Especially effective for seasonal depres-sion

Biotin	150 ug	Slight deficiency can already trigger depression and anxiety
Minerals:		
Magnesium	600 mg	Magnesium activates the B vitamins that counteract depression. Magnesium deficiency is commonly seen in people with depression, often due to stress, illness and medication.
Calcium	1000 mg	Especially effective for seasonal depression
Zinc	30-60 mg	Zinc deficiency is often observed in people with depression
Chromium		Optimises the metabolisation of amino acids, thus counteracting depression and anxiety.
Selenium	up to 1000 µg	
Amino acids:		
S-adenosilmethionine (SAMe)	400 mg x 4 per day	Increases serotonin phosphatidylserine and dopamine levels

Sources: Zimmermann, Michael et al.: Burgersteins Handbuch der Nährstoffe ('Nutrient Manual'), Haug-Verlag, Heidelberg, 2000; Schilcher, Heinz and Kammerer, Susanne: Leitfaden Phytotherapie ('Guide to Phytotherapy'), 2nd Edition, Urban & Fischer.

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES THAT COUNTERACT FUNGAL INFECTIONS

Natural substance	Fungicidal (Anti-fungal) effect	Immune system-stimulating	Deacidifyinge effect	Removal of heavy metals	Anti-Inflammatory effect	Fights drug resistance among yeasts	Sugar substitute	Intestinal flora regulators	Acts against "brain fog"
Grapefruit seed extract p. 534	X	X							
colloidal silver p. 685	X	X							
kolloid. Gold p. 642		X			X				
MMS p. 1006	X	X							
Spirulina p. 1515		X	X	X	X			X	
Lapacho p. 815	X	X			X			X	

Curcumin p. 328	X	X			X	X			
Propolis p. 1232	X	X		X	X				
Organic Germanium p. 1152	X	X		X	X				
Astragalus p. 197	X	X			X				
Pomegranate p. 490	X	X			X				
Shiitake p. 1685	X	X	X					X	
Coriolus p. 1848	X	X							
Papain p. 1312	X	X	X		X			X	
Bromelain p. 140	X	X	X	X	X			X	
Ginkgo p. 398	X	X			X				
Stevia p. 1571	X	X					X		
Rooibos p. 1370	X	X						X	
Colostrum p. 264		X			X			X	
Selenium p. 1405		X		X	X				

Green Tea **p. 587**	X (Japanese bancha)	X			X			X	
A-L-Carnitine **p. 866**				X					X
Melatonin **p. 954**		X						X	

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES FOR ALZHEIMER´S AND DEMENTIA

Natursubtanz	Page	Detoxification of mercury, amalgam, palladium, aluminium etc/repair of brain cells	Neuroprotective shield (e.g. against free radicals)	Removal of deposits (so-called plaques) in the brain	Stimulation of circulation in the brain	Support for neurotransmitters/improvement of nerve transfers in the brain	Effects which encourage stress reduction, healthy sleep (only at night) and regeneration of brain cells
Ginkgo	398		X		X	X	X
L-Carnosine	924	X	X	X		X	
colloidal-Gold*	642		X			X	X

Omega-3 fatty acids-3-Fettsäuren	1036	X			X	X	X
Alpha-lipoic acid	86	X	X			X	
Acetyl-L-Carnitine	866	X	X		X		X
DHEA	365		X				
Curcumin	328		X	X	X	X	X
DMAE	387			X		X	X
Gotu Kola	473		X				X
Green Tea	587		X		X		
Melatonin	954		X				X
Bromelain	113			X	X		X
Resveratrol	1340		X		X		
Silica	1460						X

Vitamin C	1720		X		X	X	X
OPC	1094		X		X	X	X
Medicinal mushrooms	1787		X		X		X
Pomegranate	490		X	X	X		
Strophanthin	1615				X		
Aronia berries	173		X		X		
Colostrum	264		X				
Astragalus m.	197		X		X		

*in study IQ increased by 20%!

SUBSTANCE-EFFECT TABLE OF NATURAL REMEDIES FOR IMPOTENCE

Natural substance	Page	Stimulation of circulation in the sexual organs	Increase of oxygen content in the blood	Protection of arteries (removal of deposits in the arteries of the genitals and prevention of future deposits)	Regulation of hormone balance (oestrogen-testosterone levels)	Invigoration of the sex glands	Stress reduction	Protection against cell oxidation
L-Carnosine	924		X	X				X
Colloidal gold	642	X		X	X	X	X	X
Medicinal mushrooms	24	X	X	X				X
DHEA	46	X		X	X		X	X
Bromelain	62	X	X	X		X		
Curcumin	80	X	X	X				X
Ginkgo Biloba	92	X	X	X			X	X
Pomegranate	111	X	X	X	X			X
Melatonin	143			X	X		X	X
Vitamin C	187	X	X	X	X		X	X

OPC	1094	X	X		X		X	X
Papain	276	X	X	X		X		X
Kombucha	293	X		X		X	X	
Acetyl-L-Car-nitine	347	X	X	X	X			X
Gotu Kola	376	X	X	X		X	X	X

ALPHA-LIPOIC ACID

What is alpha-lipoic acid (ALA)? - the key facts first

Most scientists and researchers now agree that ageing[14] and most civilisation diseases – such as atherosclerosis, cardiovascular disease and stroke (one in two people dies as a result of these!), cancer (one in four dies as a result of cancer[15]; taking bitter apricot kernels could prevent the disease!), diabetes, arthritis, Alzheimer's, respiratory diseases, blood vessel diseases, cystic fibrosis, inflammation, hepatitis, Down's syndrome and many others – are largely due to cell oxidation, that is, the destruction of our body cells by so-called 'free radicals'.

One must imagine iron, which begins to rust when left unprotected to the effects of oxygen and water and is gradually destroyed; rust = oxidation! The genetic material (DNA) of each of our body cells is exposed to oxidative attacks by free radicals, and our body cells are gradually destroyed, just like the iron that is consumed by rust.

These are exactly the mechanisms that are reflected in the form of ageing signs, and are those that age our body and lead to the aforementioned diseases! While protective mechanisms such as galvanising, priming and painting are applied to iron, as human beings, we have only one way to protect ourselves from oxidation and thus the destruction and premature ageing of our body: with the help of so-called antioxidants, also called 'free radical scavengers', which can only be

[14] 'Theory of Ageing' by Harman and Perricone 2001

[15] https://gis.cdc.gov/Cancer/USCS/DataViz.html



obtained through diet. So, antioxidants are, for our body cells, what rust protection, primer and paint are for the metal on our car!

Incidentally, scientists have found that human DNA has the potential to reach the age of about 120 years. If one succeeded in stopping cell oxidation, one could live to 120 years old! Of course, antioxidants play a key role as they are the only ones that protect the cells from oxidation!

Can a healthy person really reach 120 years of age?

Our genetic plan, at least, allows for this, and the regular intake of effective antioxidants, such as alpha-lipoic acid (or ALA for short), could make this dream come true!

In the following chapters, read more about one of the most important, if not THE most important, antioxidant, as described by Prof. Dr. Lester Packer, one of the world's leading antioxidant researchers and Professor of Molecular Cell Biology at the renowned Berkeley University. Lipoic acid is one of the most powerful antioxidants known to man. Find out more about the amazing health benefits that Mother Nature provides with the gift of alpha-lipoic acid!

Did you know, that...

- ... most civilisation diseases (cancer, diabetes, Alzheimer's, Parkinson's, etc.) are due to the oxidation of the body cells?
- ... according to scientific findings, humans could become 120 years old if



the body cells did not oxidise?

- ... there is one sole means of protection against oxidation (free radicals) of the cells, namely the absorption of so-called antioxidants?
- ... unlike the other antioxidants, alpha-lipoic acid protects our entire body including the brain, which is why it's also called a 'universal antioxidant'?
- ... in addition, alpha-lipoic acid (ALA) has the ability to regenerate other antioxidants in the fight against voracious free radicals?
- ... alpha-lipoic acid enhances the effects of vitamins like vitamin C, E and coenzyme Q10?
- ... alpha-lipoic acid protects us very successfully against heavy metal contamination and poisoning?
- ... alpha-lipoic acid can be effective against mushroom poisoning?
- ... alpha-lipoic acid very efficiently dissipates radioactivity from our bodies?
- ... alpha-lipoic acid helps to bring sugar into the energy cycle more efficiently, which is of fundamental importance for diabetics, overweight people and athletes?
- ... alpha-lipoic acid protects against diabetes and diabetes-induced nerve



damage?

- ... thanks to alpha-lipoic acid, smokers are better protected?
- ... alpha-lipoic acid regenerates, rejuvenates, smoothens wrinkles and even removes acne scars by up to 70-80 %?
- ... alpha-lipoic acid is used therapeutically, for diabetes, liver cirrhosis, heart disease, heavy metal poisoning, skin diseases, opacity of the eye lens, Parkinson's disease and Alzheimer's disease?
- ... our food contains very little alpha-lipoic acid and vegetarians could be especially lacking in it?
- ... you can enhance your diet with alpha-lipoic acid conveniently and inexpensively in the form of nutritional supplements?

You will find all of this in detail in the following chapters, underpinned by the appropriate representative studies.

Alpha-lipoic acid - what exactly is it?

Alpha-lipoic acid was discovered in 1951 when scientists realised that it plays a key role in the transformation of food into energy within our mitochondria (the power plants of our cells). Gradually, research shed light on further advantages of alpha-lipoic acid. Above all, it has emerged that alpha-lipoic acid possesses three abilities, which have been honed to perfection:



a) protection against free radicals (against cell ageing and cell destruction)

b) detoxification of heavy metals, radioactivity and toxins

c) energy conversion

a) Alpha-lipoic acid as protection against free radicals

As mentioned in the preface, free radicals are not only responsible for ageing, but also for many diseases, some of them fatal, including atherosclerosis, cardiovascular diseases, stroke, cancer, arthritis, diabetes, Alzheimer's, respiratory diseases, blood vessel diseases, cystic fibrosis, inflammation, hepatitis, Down's syndrome and more.

Alpha-lipoic acid, like no other antioxidant, can protect us against these destructive free radicals (oxidants) and has three unique abilities in this regard:

1) Our body consists of aqueous and fatty forms of tissue. In contrast to the other antioxidants (for example, vitamin C is water-soluble and functions merely as a protector of aqueous tissue forms, while vitamin E is fat-soluble and protects the fatty tissue in the body), alpha-lipoic acid is able to penetrate both aqueous and fatty tissues in our body and protect against voracious free radicals. Thus, it protects all tissue forms of our body, which is why it is often referred to as a 'universal antioxidant'.

2) Alpha-lipoic acid, unlike most other antioxidants, can even pass through the blood-brain barrier and protect our brain cells due to its small molecular size



(see also, under 'Effect', the study relating to increased intelligence due to alpha-lipoic acid).

3) Furthermore, alpha-lipoic acid can regenerate other antioxidants so that they do not become exhausted in the fight against free radicals.

b) Alpha-lipoic acid detoxifies us from heavy metals and radioactive rays

In studies, alpha-lipoic acid showed it could remove heavy metals, such as amalgam, from the body and counteract radioactivity, as experiments on irradiated children in Chernobyl impressively demonstrated (see 'Effect').

c) Alpha-lipoic acid as an energy converter

Alpha-lipoic acid plays a central role in the energy transformation of dietary sugar into energy within the mitochondria. Here, it acts as a coenzyme in numerous energy-transforming enzyme complexes and can convert food sugars (and dietary fats) into energy, a property that should be very interesting, especially for diabetics, slimmers and athletes!

For diabetics, this results in an insulin-saving effect, slimmers do not store as much sugar in the form of body fat, and athletes simply have more power! Alpha-lipoic acid is an endogenous chemical that converts the mitochondria into a powerful antioxidant, provided there is enough lipoic acid in the body.



Lipoic acid must be supplied regularly, as mitochondria are only reproduced every ten days. The body is able to produce alpha-lipoic acid, but only in insufficient amounts.

The occurrence of alpha-lipoic acid (ALA) in the diet

Alpha-lipoic acid is found in most foods, but only in traces. Higher concentrations are found in meat, especially in red meat, especially in the liver, heart and kidneys. However, vegetables such as spinach, broccoli or tomatoes contain trace amounts of alpha-lipoic acid.

The following table shows the presence of alpha-lipoic acid in foods and illustrates how difficult it is to ingest the 100 mg recommended for keeping healthy from the natural diet:

Food	Lipoyllysine (mg/g dry weight)	Portion	Alpha-lipoic acid/portion (mcg)
Beef kidney	2.6	3 ounces (85 g)	32
Beef	1.5	3	19



heart		ounces (85 g	
Beef kidney	0.9	3 ounces (85 g)	14
Spinach	3.2	1 cup raw (30 g)	5
Broccoli	0.9	1 cup raw (71 g)	4
Tomatoes	0.6	1 medium (123 g)	3
Peas	0.4	1 cup raw (145 g)	7
Brussels sprout	0.4	1 cup raw (88 g)	3
Rice bran	0.2	1 cup (118 g)	11
Egg yolk	0.05	1 large (17 g)	0.3

Source: www.team-andro.com



Representative, scientific studies on alpha-lipoic acid (ALA)

Study on the prevention of vitamin C and vitamin E degradation using alpha-lipoic acid by Packer, Sosin and Jacobs

In the fight against free radicals, the radical scavengers (antioxidants) lose their energy and then our organism does not have them to protect it. Like no other antioxidant, alpha-lipoic acid has shown remarkable regenerative (protective) effects on the extremely important vitamins C and E, which not only act as antioxidants, but also fulfil many other important functions in the body.

Study on the detoxification of heavy metals by Burgstein (2000)

In his experiments, Burgstein (2000) proved that, in the case of heavy metal poisoning, alpha-lipoic acid leads to the improvement of symptoms, including increased excretion of heavy metals via the kidneys and concomitant improvement of liver function.

Study on the removal of heavy metals by Pfaffly (2001)

Metal	Chelation due to alpha-lipoic acid	Chelation by di-hydrolipoic acid
Pb^{2+} (lead ions)	Yes	Yes
Cu^{2+} (copper ions)	Yes	Yes
Zn^{2} (zinc ions)	Yes	Yes



Mn^2 (manganese ions)	Yes	-
Cd^{2+} (cadmium ions)	Yes	-
Co^2 (cobalt ions)	-	Yes
Hg^{2+} (mercury ions)	-	Yes
Fe^3/Fe^{2+} (iron ions)	Yes	Yes
Ni^{2+} (nickel ions)	-	Yes

Table: Heavy metal binding by alpha-lipoic acid and dihydrolipoic acid and their complementarity in effect

Study on the elimination of radioactivity from the body by alpha-lipoic acid by Korkina et al. (1993)

We are increasingly being involuntarily subjected to radioactive rays. The nuclear disaster in Chernobyl in 1986 has claimed many innocent victims to this day, but has also provided insights into the effectiveness of alpha-lipoic acid against radioactivity.

After 28 days of administering alpha-lipoic acid to some affected children, the



researchers found that the damage caused by free radicals in the blood of these children sank to the level of those who had not been affected. Surprisingly, vitamin E alone was not able to achieve any positive effect on these victims, but in combination with alpha-lipoic acid, the values even fell below the norm!

In addition, kidney and liver values of children treated with alpha-lipoic acid improved as a result of the improved excretion of radioactive metabolites caused by alpha-lipoic acid.

Studies on the normalisation of blood sugar levels by Passwater (1995), Biewenga et al. (1997), Ley (1996), Ziegler et al. (1999b)

In these studies, alpha-lipoic acid was shown to have a significant effect on the normalisation of blood sugar levels, something that is particularly beneficial for diabetics. It activates the transport molecules Glut-1 and Glut-4, which are also responsible for the introduction of glucose into the muscle cells, where it is then consumed as energy.

The degradation of these transport molecules is prevented, and these mechanisms support the normalisation of our blood sugar levels. In studies, it was possible to increase glucose uptake by more than 50 %.

Furthermore, Passwater (1995) proved in his studies that alpha-lipoic acid improves insulin sensitivity.

Studies to Improve Insulin Sensitivity by Packer L., Kraemer K., Rimbach G.

Oral administration of alpha-lipoic acid at doses of 600 mg, 1200 mg or 1800 mg per day over a period of four weeks resulted in an improvement in insulin



sensitivity of 25 %.

Studies by Nagamatsu et al. (1995): Alpha-lipoic acid improves nerve blood flow and nerve signal transmission.

Here it was proven that alpha-lipoic acid improves signal transmission and blood flow in the nerves. Alpha-lipoic acid has proven very successful in the treatment of diabetic polyneuropathy. Thus, the ingestion of alpha-lipoic acid may counteract functional failures of the nerves, such as numbness, abnormal sensations, tingling, pain and burning (e.g. diabetic foot), as well as loss of reflexes.



Study by Ziegler et al. (1197): Alpha-lipoic acid reduces heart problems in diabetics

Prof. Dr. Dan Ziegler presented a previously unpublished meta-analysis at a press workshop in Munich which included four randomised controlled double-blind studies, involving a total of 1258 diabetics who were given daily infusion therapy with 600 mg alpha-lipoic acid (excluding weekends) for three weeks. Main symptoms such as pain, numbness, tingling and paraesthesia, as well as functional deficiencies such as muscle reflexes, were affected positively during the three-week observation period.

In 20-40 % of all diabetics, heart problems occur that dramatically increase the mortality rate. Studies have shown that alpha-lipoic acid has a positive effect on these illnesses.

Study by Dr. Burton: Alpha-lipoic acid and its effect on hepatitis C

Alpha-lipoic acid has also proven effective in the fight against hepatitis C. In his study on the use of antioxidants on hepatitis C, Dr. Burton Berkson reported great success in healing patients.[16]

[16] Dr. Burton Berkson, 'The Alpha-Lipoic Acid Breakthrough' 1998



Study by Zhang and Frei (2001): Alpha-lipoic acid prevents atherosclerosis.

As the cause of approximately 50 % of all deaths, cardiovascular disease is the 'Number One' cause of death in the developed world. The deaths are usually due to atherosclerosis, popularly known as 'arterial calcification'. Zhang and Frei have been able to show in their studies that alpha-lipoic acid prevents the production of many factors that lead to atherosclerosis.

Studies by Passwater (1995), Packer and Colman (2000): Alpha-lipoic acid lowers blood cholesterol and increases the heart's oxygen uptake

According to Passwater (1995), Russian scientists discovered as early as the 1970s that alpha-lipoic acid can reduce cholesterol levels in the blood by 40 % and aorta by 45 %, and can increase oxygen levels in the heart by 72 %, in the aorta by 148 % and in the liver by 128 %.

Study by Passwater (1995): Alpha-lipoic acid helps against reperfusion and increases the chances of survival in the event of a heart attack.

In another trial, Passwater was able to prove that alpha-lipoic acid administration can reduce cardiac damage due to the temporary lack of blood supply to the heart muscle, and then reperfusion during a heart attack from 80 % to 40 %.



Study by Dr. Parker: Alpha-lipoic acid helps against reperfusion and increases the chances of surviving a stroke.

In an experiment on rats, Dr. Parker was able to reduce the rate of deaths caused by reperfusion in induced strokes from 80 to 25 % with alpha-linoic acid. The 75 % surviving animals suffered no consequential harm.

Study by Dr. Parker: Alpha-lipoic acid helps with cataracts and eye problems.

Dr. Parker has demonstrated in his studies that alpha-lipoic acid can minimise the occurrence and symptoms of cataracts and generally improve eye function. Alpha-lipoic acid can prevent cataracts, an effect which is attributed to its impact on glutathione levels.

Study by Münch et al. (2000) and Hager et al. (2001): Alpha-lipoic acid helps with Alzheimer's and dementia.

Observations of diabetic patients who suffered from Alzheimer's and had intakes of alpha-lipoic acid showed that Alzheimer's disease ceased to deteriorate and brain performance remained constant. This stabilisation of the disease state is probably due to the antioxidant effect of alpha-lipoic acid, which can even protect the brain due to its small molecular size.



Study by Packer and Colman (2000): Alpha-lipoic acid increases learning and improves your ability to think.

The aforementioned ability of alpha-lipoic acid to cross the blood-brain barrier and protect the cells and blood vessels from oxidative destruction right in the brain, has proven to increase concentration and improve the ability to learn and think. The lipoic acid not only protects against further oxidative destruction, but can even regenerate brain cells. Dr. Packer believes that alpha-lipoic acid repairs and revitalises depleted circuits in aged brain cells.

Studies by Bauer (1991) and Lands (2001) show a positive effect of alpha-lipoic acid on HIV/AIDS

As in vitro experiments by Bauer et al. demonstrated in 1991, the spread of HIV was inhibited by the use of alpha-lipoic acid. In 2001, Lands was able to reduce the number of viruses in patients with HIV.

Study by Perricone (2001): Alpha-lipoic acid helps combat wrinkles, bags under the eyes, puffiness, and dull and pallid skin

Dr. Perricone has demonstrated in his studies that alpha-lipoic acid solves the following skin problems:

- Baggy eyes and puffy skin
- Lines and wrinkles
- Pallid and dull skin



Study by Dr. Perricone: Alpha-lipoic acid eliminates acne scars

After a six-month local application, Dr. Perricone recorded a decline between 70 and 80 % in acne scars in subjects.

Study by Altenkirch, H. et al.: Alpha-lipoic acid aids relaxation and contentment.

According to Altenkirch et al., a noticeable feeling of relaxation and contentment was observed as a positive side effect of alpha-lipoic acid.

ALA, the all-rounder for your health

Alpha-lipoic acid as an important antioxidant

As explained in the preface, free radicals (known as oxidants) are responsible for physical ageing and are responsible for numerous civilisation diseases such as atherosclerosis, cardiovascular diseases, stroke, cancer, arthritis, diabetes, Alzheimer's, respiratory diseases, blood vessel diseases, cystic fibrosis, inflammation, hepatitis, Down's syndrome and other conditions.

So-called antioxidants or radical scavengers are needed to ward off these harmful oxidants or free radicals! These are natural components of food in the form of vitamins and trace elements. Here, a special role is played by the 'antioxidant network', in the form of vitamin C, vitamin E, coenzyme Q10, glutathione and



especially alpha-lipoic acid!

The 'antioxidant network', also called the 'antioxidant orchestra', represents a perfect biological system of regeneration and health care for our bodies. The network acts like an orchestra in the fight against destructive free radicals, not only fighting free radicals in a specific way according to their own abilities and characteristics, but supporting and regenerating each other in this tireless fight against free radicals.

In its capacity as a water-soluble vitamin, for example, vitamin C supports glutathione and the fight against free radicals in the aqueous parts of the body, and as a fat-soluble vitamin, vitamin E combats free radicals, with the support of coenzyme Q10, in the fatty areas of the body. Some of these players have the ability to replace themselves to some degree; however, they only ever offer perfect protection against free radicals when all of them are present.

A special feature of this 'antioxidant network' is the alpha-lipoic acid, since it is not limited to a tissue form (aqueous or fatty cells), but is effective in both the aqueous and fatty cellular environments. One of its other special features is its molecular size. As one can well imagine, depending on their size, not every antioxidant can penetrate each cell to protect it from the gluttonous free radicals.

Thus, a limiting factor on the effect of the antioxidants is both their specific ability to act in aqueous or fatty cellular environments, and their molecular size, which enables them to penetrate into the cell to work their magic. Here, the small size of alpha-lipoic acid turns out to be a real blessing to our health as,



unlike most other antioxidants, it can penetrate into the smallest cell and even penetrate the blood-brain barrier, in order to protect our control centre, the brain, as well. The alpha-lipoic acid is therefore sufficiently adaptable to be able to protect all tissue forms from free radicals, while being small enough to penetrate even the smallest cells – PERFECT PROTECTION FOR OUR WHOLE BODY!

Alpha-lipoic acid as a regenerator of other antioxidants

As if the role of the 'maestro' within the orchestra were not enough, alpha-lipoic acid also acts as a 'coach' within the 'antioxidant orchestra' and ensures that the other players do not run out of breath.

As mentioned before, some of the antioxidants within the 'antioxidant orchestra' have the important ability to restore the other antioxidants' power that has been lost in the fight against free radicals. But here, alpha-lipoic acid, unlike any other antioxidant, restores peak performance by regenerating the other antioxidants that lose energy in the fight against free radicals!

Vitamin C loss was prevented in studies on the intake of alpha-lipoic acid.[17] And the loss of vitamin E through oxidation has been successfully counteracted in the laboratory by adding alpha-lipoic acid.[18]

Among other things, vitamin C supports our immune system, protects against

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[17] Bierhaus et al. 1997

[18] Packer, from Sosin and Jacobs 1998



colds and viral diseases (similar to grapefruit seed extract), aids collagen formation and protects our blood vessels. Vitamin E is one of the most important vitamins in our lives and, in addition to its function as an antioxidant, is indispensable for the membrane components of the cell, as it protects the cell membranes, is responsible for repairing the cells, and also supports the immune system. The fact that alpha-lipoic acid regenerates vitamins C and E has enormous significance for our health.

The importance of the mutual support between antioxidants within the 'antioxidant network' becomes clear when one realises that antioxidants that lose the fight against free radicals become harmful radicals themselves!

In fact, it is just like the horror movies, where people fighting zombies become zombies themselves after succumbing to them. In less graphic terms, this is exemplified by vitamin E in that an electron taken from a free radical in the fight against vitamin E converts vitamin E into an equally dangerous radical. Like no other antioxidant in the 'antioxidant orchestra', alpha-lipoic acid has the ability to return the stolen electron to its fellow players who have been attacked!

For example, laboratory experiments have demonstrated that alpha-lipoic acid can counteract the typical deficiency symptoms caused by vitamin C loss through oxidation, which can cause scurvy or even death.[19]

The same has been found in studies on vitamin E; again, alpha-lipoic acid has

[19] Bierhaus et al. 1997



saved vitamin E from loss through oxidation.[20]

The demonstrated, remarkable ability of alpha-lipoic acid to reach even the smallest cell and effectively develop its cell-protecting capacities both in aqueous and fatty areas of the body, and to regenerate other antioxidants, makes alpha-lipoic acid an indispensable antioxidant all-rounder and therefore an absolute must-have for every health-conscious person!

Alpha-lipoic acid and its important role as an energy converter

In addition to its outstanding ability to fight free radicals and thus to defy ageing and numerous 'civilisation diseases', as mentioned, alpha-lipoic acid has earned a reputation as an energy converter.

This property was discovered as early as 1951, when scientists realised that alpha-lipoic acid has the ability to convert food into energy in the mitochondria in our bodies. As a coenzyme in many energy-transforming enzyme complexes, alpha-lipoic acid has the ability to convert sugars and fats absorbed from food into energy, which should be of particular interest to diabetics, slimmers and athletes!

These enzyme complexes, of which alpha-lipoic acid is an important component, include:

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[20] Packer, from Sosin and Jacobs 1998



- the pyruvate dehydrogenase complex,
- the alpha-ketoglutarate dehydrogenase complex
- the amino acid dehydrogenase complex,
- the replacement function for coenzyme A (CoA)

Alpha-lipoic acid for the detoxification of heavy metals

The other talents of alpha-lipoic acid include its function as a detoxifier, which, in view of the pollution we encounter through our environment, should not be ignored here!

For example, alpha-lipoic acid has been used therapeutically for detoxification purposes for half a century. Studies have shown that alpha-lipoic acid improves symptoms of severe metal poisoning, including increased renal excretion of heavy metals and concomitant improvement in liver function.[21]

Amalgam detoxification by alpha-lipoic acid

[21] Burgerstein 2000



The widespread use of amalgam as a dental filling for millions of people in the last century is likely to result in large numbers of hidden victims for many years to come. The long-term effects of this heavy metal, stored involuntarily in our body and absorbed over years or decades directly in the body through the oral mucosa are, to this day, not fully understood, but are devastating nonetheless!

The following diseases are caused by poisoning by amalgam fillings:[22]

- Allergies
- Alzheimer's
- Eye, nose and ear conditions
- Chronic pain
- Chronic fatigue
- Fibromyalgia
- Gynaecological disorders
- Cardiovascular dysfunction
- Headaches
- Lateral sclerosis

[22] www.geschichteinchronologie.ch/med/Mutter_amalgam-zivilisationskrankheiten.htm



- Migraines
- Multiple chemical sensitivity
- Multiple sclerosis
- Neuropathy
- Kidney dysfunction
- Parkinson's
- Fungus
- Psychiatry
- Tumour formation
- Indigestion
- Convulsions

Here, alpha-lipoic acid can bring significant benefits by excreting mercury 12 to 37 times faster through the bile.[23]

Effect of alpha-lipoic acid on pathological disorders that impair the excretion of heavy metals

However much we may protect ourselves from immediate exposure to large

[23] Josef Pies: Alpha-Liponsäure – das Multitalent (Alpha-Lipoic Acid - The Multi-Talent'), 2010, p. 18



quantities of heavy metals, and as rare as the catastrophes as serious as Chernobyl or Hiroshima have (fortunately) been, heavy metals still constitute a real problem. Furthermore, there are people who suffer from a pathological heavy metal excretion disorder. Here, alpha-lipoic acid can have a positive impact on diseases such as Wilson's disease (copper storage disease).

Protection for smokers by alpha-lipoic acid

'No single action could save more lives and prevent more illnesses than not smoking!' This global statement from the World Health Organization (WHO), based on the analysis of hundreds of studies on 'nicotine and health', even on its own, emphasises very starkly the dangers of smoking caused by over 1000 toxic (poisonous) substances in cigarettes!

Of course, the most effective measure for any smoker would be to quit smoking immediately – but anyone who cannot escape this addiction would do very well to provide their body with the vital substances that can at least minimise the consequences. Heavy metals such as cadmium are among the 1000 toxic substances encountered in tobacco. Studies have shown that alpha-lipoic acid can remove these heavy metals from the body. Furthermore, smoking leads to the loss of important antioxidants, such as vitamins C, E and glutathione. The 'oxidative stress' caused by smoking, on the one hand, and the loss of protective antioxidants on the other, make smokers age more quickly, both externally and internally, and endanger their health as well as their lives. Here, due to its antioxidant effect and protection of other vital substances, such as vitamin C, E



and glutathione, alpha-lipoic acid makes a significant contribution to maintaining good health.

Excretion of radioactivity from the body by alpha-lipoic acid

Modern humans are more and more directly confronted with radioactivity and are mostly defenceless against it. Today, we are constantly under attack from microwaves, radio waves, UV rays, infrared rays, gamma rays and X-rays, whether we like it or not!

But what effect does radioactivity have? What is its real potential danger? Radioactivity penetrates our body in fractions of a millisecond and affects every last cell in the body. If the radiation attacking from the outside directly hits the cell nucleus of our genetic code, our DNA, this code is changed, which can lead to malfunction, but also to cell death or uncontrolled cell growth, which can then lead to cancer! What's worse is that you can transfer the changed DNA to your offspring and pass on mutation damage for generations to come!

A very sad, vivid example of this is the Chernobyl disaster in the 1980s and the nuclear attack on Hiroshima in 1945. To this day, people have not recovered from these radiation catastrophes, many of them die from diseases such as cancer and pass on damaged genes to their disabled children, and these, in turn, to their children...



Elimination of radioactivity in Chernobyl victims

As mentioned in the chapter "studies", prime example of the detoxification potential of alpha-lipoic acid in the case of radioactivity became apparent among the victims of the 1986 Chernobyl disaster. After 28 days of administering alpha-lipoic acid to some affected children, the researchers found that the damage caused by free radicals in the blood (known as 'peroxidation values') in these children sank to the level of children who had not been affected!

Astonishingly, vitamin E alone was not able to produce any positive effects on these victims, but, in combination with alpha-lipoic acid, the values fell even below the norm![24]

Furthermore, the kidney and liver values of children treated with alpha-lipoic acid improved as a result of the increased elimination of radioactive metabolites by alpha-lipoic acid.

Alpha-lipoic acid as a protector of our genes

Genes determine our genetic material and largely decide not only our appearance, but also how healthy we are and will continue to be. A positive impact on our genetic material (our genes) is a very complex topic that can be explained

[24] Korkina et al. 1993



in simple terms as follows:

- Genes, whether good or bad, only become effective when activated.
- Free radicals are important factors that can activate genes.
- The gene with the abbreviation NF-kB plays an important role as an 'information mediator' until the activation process occurs.
- Thus, the gene NF-kB has the honourable task of protecting cells from damage, such as UV rays, environmental toxins, alcohol and nicotine consumption, by triggering the activation of other genes, the production of certain enzymes to destroy the hostile substances.
- However, if the NF-kB gene has to perform this function too often, then it upsets the balance and the body is damaged, and can even be seriously harmed!

But this is precisely what alpha-lipoic acid, in neutralising free radicals, helps to prevent by stopping the gene NF-kB from performing its rescue tasks excessively, and from damaging the body in the event of a physical overload.



Alpha-lipoic acid effect

Alpha-lipoic acid and its effect on diabetes mellitus

Diabetes mellitus, commonly known as simply 'diabetes', is a very unpleasant and fatal disease that affects for example around 8-10 million Germans.

As already mentioned, Type 1 diabetes affects 10 % of all diabetics and is caused by the lack of the hormone insulin, which is why this type of diabetes is also called insulin- dependent diabetes mellitus. This disease begins at a very young age, usually as early as childhood or adolescence.

Type 2 diabetes, formerly also called 'non-insulin-dependent diabetes' or 'adult-onset diabetes', mostly affects the elderly and does not necessarily require insulin treatment. This type of diabetes affects around 90 % of diabetics. Environmental factors, obesity and increasing sugar consumption are the causes, and more and more young people are falling ill with Type 2 diabetes.

Alpha-lipoic acid can help with diabetes on several fronts:

- It helps the cell use glucose for energy production;
- it activates the transport molecules Glut-1 and Glut-4, which are also responsible for the introduction of glucose into the muscle cells, where it is then consumed as energy.[25] Furthermore, the degradation of these

[25] Passwater 1995



transport molecules is prevented[26], and these mechanisms help our blood sugar levels return to normal. Glucose uptake can be increased by > 50 %.[27]

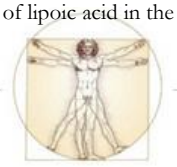
- Studies have shown that alpha-lipoic acid improves insulin sensitivity.[28]
- Intravenous infusions of 600 mg and 1000 mg of alpha-lipoic acid in people with Type 2 diabetes achieved an improvement in insulin sensitivity of 27 % and 51 % respectively compared to the placebo, and a daily oral intake in 20 people with Type 2 diabetes of 1200 mg alpha-lipoic acid over a period of four weeks caused a significant improvement in glucose metabolism. Oral use of alpha-lipoic acid at doses of 600, 1200, or 1800 mg per day over four weeks resulted in an improvement in insulin sensitivity of 25 %.[29]
- Studies such as the *Rochester Diabetic Neuropathy Study* have shown that every other diabetic has signs of neuropathy. Here, alpha-lipoic acid has proven very successful in the treatment of diabetic polyneuropathy.
- Metabolic changes in diabetes can lead to functional failure in the nerves, such as numbness, abnormal sensations, tingling, pains and burning (e.g., diabetic foot) as well as loss of reflexes. An increased intake of alpha-lipoic acid can increase the energy metabolism and cancel the existing enzyme

[26] Biewenga et al. 1997

[27] Ley 1996

[28] Ziegler et al. 1999b

[29] Packer L. Kraemer K, Rimbach G.: Molecular aspects of lipoic acid in the prevention of diabetes complications. Nutrition. 2001; 17 (10) S.: 888–895.



blockages, which leads to an improvement in nerve conductivity in diabetics.

- In 1995, Nagamatsu demonstrated in his studies that alpha-lipoic acid enhances signal transduction and improves blood flow to the nerves.[30] Alpha-lipoic acid is officially approved and scientifically certified as a therapeutic agent for example in Germany.[31]

- It is known that the additional disorders caused by diabetes are generated, or at least aggravated, by free radicals. As, quite simply, THE antioxidant, alpha-lipoic acid plays the key role in antioxidation and helps prevent or reduce the side effects of diabetes. Heart problems that increase the mortality rate occur in 20-40 % of all diabetics. Studies have shown that alpha-lipoic acid has a positive effect on the problems caused by this disease.[32]

[30] Nagamatsu et al. 1995

[31] Ziegler et al. 1995, Ziegler et al. 1999a, Reljanovic et al. 1999

[32] Ziegler et al. 1997



The following table shows once more the therapeutic benefits of alpha-lipoic acid for diabetes mellitus:

THERAPEUTIC BENEFITS OF ALPHA-LIPOIC ACID FOR DIABETES MELLITUS
Optimisation of glucose uptake into the muscle cell, where it is then consumed
Optimisation of glucose utilisation
Improvement of insulin sensitivity
Neutralisation of the free radicals that cause complications in patients with diabetes
Increase in glutathione level, which is low in patients with diabetes
Improved blood circulation
Protection against typical cardiovascular problems in patients with diabetes
Protection against neurological deficiencies, such as diabetic polyneuropathy



Improved nerve conductivity
Protection against vitamin C degradation, which is depleted by the increased blood sugar
Protection of the blood vessels
Improvement of the blood circulation in the nerves
Protection against diabetic cataracts
Counteraction of circulatory disorders
Promoting the growth of peripheral nerve cells
Interception of metal ions which cause oxidative stress

As a rule, diabetics usually receive a dose of 600-900 mg of lipoic acid per day as part of their treatment programme. The quantity of this dose should be discussed with the attending physician, as it can also be assumed that the dose of insulin required can be reduced. The DDG (*Deutsche Diabetes-Gesellschaft - German Diabetes Association*) specifically recommends alpha-lipoic acid.



Alpha-lipoic acid prevents atherosclerosis and prevents cardiovascular disease, heart attack and stroke

Cardiovascular diseases are the number one cause of death in industrialised countries, causing about 50 % of all deaths. It has been proven that, in almost all cases, it is preceded by a pathological process called atherosclerosis.

This is characterised by plaque deposits on the inner wall of the blood vessel and a gradual sclerosis (calcification) and blockage of the arteries. If the blood flow to the heart is stopped because of such a blockage, the heart receives no more oxygen and parts of the heart muscle die off – this is called also myocardial infarction (heart attack). If a cerebral artery has become blocked due to atherosclerosis and prevents blood flow to the brain, it is called a stroke or cerebral apoplexy.

Since the process of atherosclerosis is very lengthy and insidious, prevention is of the utmost importance, so as not to be among the 50 % of People in industrialized countries who die of cardiovascular disease. Here it is necessary to exhaust all conceivable protective measures against atherosclerosis. Alpha-lipoic acid also proves to be a real star performer in this area! Studies have shown that



it prevents the production of many factors that lead to atherosclerosis.[33]

Alpha-lipoic acid prevents heart attack and relieves the knock-on effects

As already mentioned in the chapter "Studies", Russian scientists discovered as early as the 1970s that alpha-lipoic acid can reduce cholesterol in the blood by 40 % and in the aorta by 45 %. Oxygen absorption in the heart increases by 72 %, by as much as 148 % in the aorta and by 128 % in the liver.[34]

In another trial, researchers showed that the administration of alpha-lipoic acid can reduce cardiac damage, caused by a temporary loss of blood supply to the heart muscle and then sudden reperfusion during a heart attack, from 80 % to 40 %.[35]

Alpha-lipoic acid prevents the after-effects of stroke/cerebral apoplexy

In rats given alpha-lipoic acid, Dr. Packer was able to lower the mortality rate due to reperfusion in the case of provoked stroke from 80 % to 25 %. The 75 % of animals that survived had no secondary damage.[36]

[33] Zhang and Frei 2001

[34] Passwater 1995

[35] Packer and Colman 2000

[36] Packer and Colman 2000



Alpha-lipoic acid and its effect on cataracts and eye problems

Studies have shown that alpha-lipoic acid can minimise the onset cataract symptoms and improve eye function in general. In a study by Dr. Parker, the additional administration of alpha-lipoic acid prevented cataracts, which can be attributed to the influence of alpha-lipoic acid on glutathione levels.

The following table explains the preventive and therapeutic effects of alpha lipoic acid on cataracts:

PREVENTATIVE AND THERAPEUTIC EFFECT OF ALPHA-LIPOIC ACID ON CATARACTS
Increase in the glutathione level
Protection against harmful glycoproteins, known as AGEs (advanced glycation end products)
Protection against attacks by free radicals
Protection of the structure of the eye lens from being destroyed by metals, such as cadmium



Alpha-lipoic acid and its effect on Alzheimer's and dementia

Observation of diabetic patients who were given alpha-lipoic acid who also had Alzheimer's showed that their disease ceased to deteriorate and their brain output remained constant.[37]

Doctors have explained that the positive effect was caused by the interception of free radicals and messengers by the alpha-lipoic acid. These messenger substances lead to inflammatory reactions and are intended to attack the senile plaques as part of the immune defence, but also attack the healthy cells. Here, alpha-lipoic acid prevents the direct destruction of brain cells. Furthermore, it is believed that the influence of alpha-lipoic acid on the glucose metabolism benefits the energy levels of the brain cells. The promotion of the formation of neurotransmitters by alpha-lipoic acid also encourages this protective process.

In this context, it is worth noting that some researchers have observed an increased proportion of oxidised lipids (fats) among Alzheimer's patients.[38] The antioxidant activity of alpha-lipoic acid, which can even protect the brain due to its small molecular size, is thought to play a major role in stabilising the disease.

[37] Münch et al. 2000, Hager et al. 2001

[38] Packer and Colman 2000



Alpha-lipoic acid aids learning and increases your ability to think

The ability of alpha-lipoic acid, as described above, to cross the blood-brain barrier and protect cells and blood vessels from oxidative destruction directly in the brain, manifests as an increase in concentration and benefits learning and thinking, as a research group from Mannheim has shown.[39]

Alpha-lipoic acid and its effect on cancer

Of course, cancer patients can benefit from detoxification of the body and protection against free radicals. The immune system can more easily focus on fighting the tumour. Furthermore, alpha-lipoic acid protects against toxins and free radicals produced during chemotherapy or radiation and prevent polyneuropathy, which can often occur during chemotherapy.

Alpha-lipoic acid and its effect on Hepatitis C

Alpha-lipoic acid is also most effective in the fight against hepatitis C (see chapter "Studies" above.) In his study on the use of antioxidants on hepatitis C, Dr. Burton Berkson reported great success in healing patients.[40]

Alpha-lipoic acid and its effect on HIV/AIDS

To date, AIDS is considered incurable and takes millions of lives every year.

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[39] Packer and Colman 2000

[40] Dr. Burton Berkson: The Alpha-Lipoic Acid Breakthrough, 1998



Studies have shown that the multiplication of HIV viruses is promoted by oxidative stress (increased attack of free radicals). Conversely, HIV patients have relatively few antioxidants. One study has impressively demonstrated that alpha-lipoic acid not only increased levels of glutathione and vitamin C in the blood of HIV-positive patients, but even the number of helper T cells that are involved in immune defence, which is so important in patients with HIV!

The antioxidant and antiviral effects of alpha-lipoic acid have a clear positive effect on AIDS. In vitro experiments have shown that HIV proliferation is inhibited by alpha-lipoic acid;[41] the number of viruses in vivo in patients has been reduced.[42]

Eliminating alpha-lipoic acid deficiency by appropriate supplementation

Supply shortages as limiting factors

It would be great if it were possible to put all this knowledge into practice by paying more attention to your diet. Unfortunately, this is not possible, because the supply of alpha-lipoic acid is severely limited by the factors of 'diet', 'age'

[41] Bauer et al. 1991, Grieb 1992

[42] Lands 2001



and ‘disease’.

Limiting factor 1: diet

Some of the players in the antioxidant orchestra must be constantly fed with food; these include vitamins E and C. Other factors are, in part, self-produced by the body; these include coenzyme Q10 and alpha-lipoic acid.

However, while we need to get vitamins E and C from food, our natural diet is losing more and more of those vital, protective nutrients year after year, as pertinent studies have shockingly revealed. We humans have ourselves to blame, because pollution, pesticides, depleted soils, deliberate rapid growth and long storage are all results of the less praiseworthy deeds of the human race:



Minerals and vitamins in mg in each food	Investigated contents	Result 1985	Result 1996	Result 2002	Difference in % 1985-1996	Difference in % 1996-2002
Broccoli	Calcium	103	33	28	-68	-73
	Folic acid	47	23	18	-52	-62
	Magnesium	24	18	11	-25	-55
Beans	Calcium	56	34	22	-38	-51
	Folic acid	39	24	30	-12	-23
	Magnesium	26	22	18	-15	-31
	Vitamin B6	140	55	32	-61	-77
Potatoes	Calcium	14	4	3	-70	-78
	Magnesium	27	18	14	-33	-48
Carrots	Calcium	37	31	28	-17	-24
		21	9	6	-57	-75
Spinach	Magnesium	62	19	15	-68	-76
	Vitamin C	51	21	18	-58	-65
Apples	Vitamin C	5	1	2	-80	-60
Bananas	Calcium	8	7	7	-12	-12
	Folic acid	23	3	5	-84	-79
	Magnesium	31	27	24	-13	-23
	Vitamin B6	330	22	18	-92	-95
Strawberries	Calcium	21	18	12	-14	-43
	Vitamin C	60	13	8	-67	-87

CAUSES: depleted soils, air pollution, excessive pace of growth and long storage
Source: 1985 Pharmakozern Geigy (Switzerland), 1996 Lebensmittellabor Karlsruhe/Sanatorium Oberthal 2002

(Geigy Pharmaceutical Group, Karlsruhe/Sanatorium Oberthal Food Laboratory)

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(Geigy Pharmaceutical Group, Karlsruhe/Sanatorium Oberthal Food Laboratory)



Limiting factor 2: age

So while two players in the antioxidant orchestra need to obtain vitamin E and C from food, which are present in ever smaller amounts (see table above), co-enzyme Q10 and alpha-lipoic acid are, to a certain degree, manufactured by the body itself.

The ageing process unfortunately means that the functional capacity of our body (ageing of the endocrine glands, etc.) decreases over time – as does the ability to produce vital nutrients ourselves!

Increased alpha-lipoic acid requirement

Studies on patients have shown that the demand for these nutrients increases under certain conditions, such as when one has a disease, in some cases increasing many times over! Interestingly, in diseased or injured organs, even a local deficit can be detected. These are clear indications of how essential these nutrients are during a disease, and how important it is that the body laps them up to help itself heal, and that the supply does not lag behind.



Solving the dilemma of 'nutritional deficiency in diet, age, disease'

However intensively you may look for other alternatives, unless you live in a wilderness and spend half your day eating red meat, most of us only have one way to escape this dilemma: nutritional supplements to our natural diet, which should be as varied as possible, by means of dietary supplements!

Alpha-lipoic acid against skin ageing

Few people know that the skin is the largest organ (1.5 to 2 m^2 depending on body width and height), the heaviest (up to 10 kg) and, functionally, the most versatile of the human body. The skin performs very important tasks: it protects us from environmental influences, forms a shell, performs important functions in the metabolism and immunology as well as in homeostasis (inner balance) and – not least – allows us to present ourselves and communicate with the world.[43]

However, most of the time, the skin serves as a tool to represent our appearance, but we seldom perceive it consciously, and this is usually when we injure ourselves, burn ourselves on hot objects, or get sunburnt. Optically, it's skin ageing in the form of wrinkles, sallowness and age spots, which gradually change our appearance in the mirror, something that most of us dislike, because who

[43] https://en.wikipedia.org/wiki/Skin



wants to grow old?

What makes the skin age and what creates skin folds?

Skin ageing and wrinkles are the most striking signs of ageing; however, chronological ageing (due to years of life) plays a secondary role, because physiological ageing is much more important (due to the nature of our physique)!

And so, vitamin researchers nowadays agree that older people who look their age have themselves to blame precisely because they expose their bodies

a) to harmful influences, such as smoking, alcohol, stress and sunlight,

b) do not give their body the nutrients it requires to regenerate the skin and finally

c) do not protect their body from free radicals through a regular intake of antioxidants.

While point a) illustrates living conditions that are more based on *abstaining* from things in life (abstaining from smoking, abstaining from drinking alcohol, or at least limiting alcohol consumption, restricting exposure to UV rays caused by visits to the tanning salon, etc.), points b) and c) refer to the active opposite, that is, *choosing* to take in additional nutrients that restore the skin's youth, protecting the skin while delaying ageing!

To this day, the common misconception persists that external applications (creams, lotions) are more important for the skin than internal applications, i.e.



the intake of nutrients. This is probably due to the widespread advertising for all sorts of cosmetics and the lack of education (thanks to Big Pharma!) about the actual benefits of vitamins and nutrients.

But that is not the case, because in every moment of our lives, every second, not only is there a breakdown, but also a build-up of all our cells, that is, everything that is living matter – and therefore also our skin – is constantly trying to renew itself. However, 'building materials' in the form of nutrients and vital substances are needed for this. The complexity of the skin structure, its thickness consisting of several skin layers, means that external applications in the form of creams and lotions can only play a secondary role. Primarily, it is the nutrients and vital substances that give the living organ 'skin' what it needs to maintain its youth and defy ageing.

Air pollutants, UV rays, cigarette consumption, alcohol, pesticides and toxins in our food exhibit their negative effects in the form of free radicals; we can do so much here against ageing and wrinkles by eliminating harmful behaviours which are under our control (stimulants such as nicotine and alcohol or activities such as tanning and unprotected sunbathing) or protecting ourselves from influences over which we have little or no control (environmental pollution, increased UV radiation due to disturbed atmosphere, stress in our food, etc.) with the help of antioxidants. Furthermore, it is in our power to provide the body with materials and nutrients, which it needs – as in the case of the skin – to regenerate.

The best ways to counteract skin ageing and wrinkles



Don'ts

- Excessive UV radiation (solarium, unprotected sunbathing)
- Cigarettes (nicotine), alcohol
- Stress
- Unhealthy diet (too much fat, too much sugar etc.)
- Environmental toxins

Do's

a) intake of nutrients which the skin requires for regeneration; these include nutrients that boost the production of collagen and elastin and regenerate the skin, such as:

- Vitamin A
- Vitamin B complex
- Vitamin C
- OPC or vitamin P
- Coenzyme Q10

b) intake of antioxidants which protect the skin from attacks by free radicals. These include:

- Vitamin C



- Vitamin E
- OPC
- Coenzyme Q10
- Glutathione
- Selenium
- Beta-carotene

And the most important of all:

- Alpha-lipoic acid!

The targeted effect of alpha-lipoic acid against wrinkles and skin ageing

As we have read in the previous chapters, alpha-lipoic acid occupies a very dominant position among antioxidant substances, because, unlike most of the others, it is effective in all forms of tissue (both aqueous and fatty), and regenerates other antioxidants during their fight against free radicals.

In this way, it ensures that vitamin C, vitamin E, coenzyme Q10 and other substances are not consumed or – even worse – mutate into free radicals, and it can



even compensate for a shortage of these substances to some extent.

For example, studies have shown that degradation of coenzyme Q10, which is so important to the skin, can be reduced by 40 % through localised application of alpha-lipoic acid during UV radiation (sunbeams, solarium).[44]

Alpha-lipoic acid can do even more

During damaging activities, such as exposure to UV radiation, inflammatory reactions are triggered and harmful enzymes are produced that 'eat away' the skin collagen. Before these voracious enzymes are formed, the so-called transcription factor (AP-1) is activated by UV light. It is precisely these factors that cause the skin damage which gradually becomes wrinkles in the form of tiny microscars!

According to the researcher Dr. Perricone, alpha-lipoic acid can trigger counteracting enzymes by removing the damaged collagen, repairing these microscars and smoothing the wrinkles .[45]

Another transcription factor called NF-kB promotes skin ageing by binding to DNA and producing pro-inflammatory proteins that promote skin ageing and wrinkling. The age-related increase in NF-kB activity can be reduced by the use of alpha-lipoic acid.[46]

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[44] Podda et al. 1995

[45] Perricone 2001

[46] Lee and Hughes 2002



Another important property of alpha-lipoic acid is its ability to break down sugar, as this is a factor in inflammation in all our cells, including skin cells. These inflammations lead to faster skin ageing and, in addition to wrinkles and enlarged pores, brown spots, known as age spots, develop. Alpha-lipoic acid can stop this process and even reverse it!

The following table shows the effect of alpha-lipoic acid on the skin when applied locally:[47]

TIME FROM THE START OF THE EXPERIMENT:	EFFECT:
1-2 days	Tightening of the lachrymal sacks
5 days	Healthy erythema
2 weeks	Decrease in pore size
4-8 weeks	Reduction of fine

[47] Perricone 2001



	lines around the eyes
12 weeks	Wrinkles and scars in the face are reduced

According to Dr. Perricone[48] (see the chapter "Studies" above), alpha-lipoic acid successfully tackles the following problems:

- baggy eyes and puffy skin
- lines and wrinkles
- pallid and dull skin
- enlarged skin pores

In general, a dose of 50 to 100 ml per day, divided into two doses, is recommended.

Effect of alpha-lipoic acid on acne scars

After a six-month local application, Dr. Perricone recorded a reduction in acne scars of between 70 and 80 per cent.

[48] Perricone 2001



Sugar breakdown prevents storage of fat

Alpha-lipoic acid plays a key role as a coenzyme in many enzyme complexes that convert energy. Here, it converts sugar and fats from our diet into energy before they can be stored in the form of body fat.

These enzyme complexes, in which alpha-lipoic acid as an important component, include

- pyruvate dehydrogenase complex
- alpha-ketoglutarate dehydrogenase complex
- amino acid dehydrogenase complex
- replacement function for coenzyme Q10 (CoA)

Sugar breakdown prevents insulin release and facilitates the breakdown of fats

The pyruvate dehydrogenase and the alpha-ketoglutarate dehydrogenase play a very important role in the production of energy by breaking down sugar, a process called glycolysis. In turn, coenzyme A helps convert dietary fats into energy.

Furthermore, alpha-lipoic acid prevents excessive releases of insulin. Since insulin prevents the burning of fat, alpha-lipoic acid also rules out this disruptive



factor and aids weight loss! For weight loss, between 300 and 600 mg is administered daily. Incidentally, various studies have proven that green tea helps weight loss.

Alpha-lipoic acid for weightlifting and muscle development (bodybuilding)

Over time, alpha-lipoic acid has also earned a firm place as a supplement for strength athletes and bodybuilders. Supplementation with alpha-lipoic acid can result in measurable strength gains and, consequently, more effective muscle building. It is believed that alpha-lipoic acid infuses nutrients such as amino acids and creatine more efficiently into the muscle cells, resulting in better strength and muscle development.

Dosage and safety of alpha-lipoic acid

Dosage of alpha-lipoic acid

The recommended intake and dosage for alpha-lipoic acid depends heavily on the initial conditions, i.e. whether we are healthy and want to take the alpha-lipoic acid for preventive purposes, or as treatment for diseases.

Alpha-lipoic acid as a preventative measure for healthy people

For the purpose of maintaining health, a 50-150 mg dose of alpha-lipoic acid



should be taken twice a day as a preventative measure.

Alpha-lipoic acid and its effect on illnesses

If someone is already ill and wishes to use alpha-lipoic acid for therapeutic purposes, the dose should be increased accordingly.

Alpha-lipoic acid and its effect on diabetes

Diabetics are usually given a dose of 600 - 900 mg per day in their treatment plan. In addition, the intake of alpha-lipoic acid will presumably require a lower dose of insulin - therefore, there must be a consultation with the relevant doctor or therapist!

To improve the patient's nerve conductivity (keyword 'diabetic foot'), alpha-lipoic acid is usually administered in high doses (about 300-600 mg/, day) intravenously over two weeks; this is followed by oral administration of approx. 200-400 mg alpha-lipoic acid per day.

Alpha-lipoic acid and its effect on liver disease

Alpha-lipoic acid is characterised by a hepatoprotective and liver-vitalising effect; it can lower abnormally high liver values and stimulate blood circulation in the liver, as studies and patient observations have shown. The dosage is usually 100-300 mg of alpha-lipoic acid per day.



Alpha-lipoic acid for healthy, wrinkle-free skin

In addition to creams containing alpha-lipoic acid, an oral intake of 50-100 mg per day is recommended, divided into two daily doses.

Alpha-lipoic acid for weight-loss

Overweight people who want to, or have to, lose weight are usually given 300-600 mg daily.

Safety and side effects of alpha-lipoic acid

Even at higher doses, no serious side effects were observed over 30 years of alpha-lipoic-acid use; alpha-lipoic acid is therefore considered safe. Prof. Dan Ziegler's team observed side effects such as nausea, vomiting and dizziness at daily doses over 600 mg, which did not occur with a daily dose of less than 600 mg.



Pineapple – the 'Gift of the Gods' and the 'Queen of Fruits' conquers the world

Pineapple certainly enjoys great popularity, especially because of its fruity, refreshing, tropical taste – however, few suspect that pineapple actually contains bona fide natural remedy!
In fact, pineapple is a veritable treasure trove of vitamins, and as if that were not enough, it contains an incredible amount of minerals, trace elements and – in particular – enzymes.

Given the title of 'gift of the gods' and idolised for centuries by the Indians of Central America, the pineapple was not discovered until November 4, 1493, when Christopher Columbus discovered it on the Antilles island of Guadeloupe and then brought to Europe. The Spanish conquerors then nicknamed it the 'luxury of the gods'.

Because the pineapple, rich in Vitamin C, prevents scurvy and can be stored for up to 20 days after harvesting, it was a popular food for sailors at the time. Thus began its triumphant procession in the footsteps of colonisers around the world; the Spaniards and Portuguese took them to southern India, St. Helena and the Philippines and very quickly started growing them in Africa. Pineapple was soon grown wherever the climate and outside temperatures allowed.



The French word 'ananas' was coined by the French Huguenot pastor André Thevet; the 'A' stands for 'fruit' and 'nana' for 'delicious' - meaning delicious fruit.

Pineapple – the botanical origin

From a botanical point of view, the pineapple (ananas comosus) comes from the bromeliaceae family and is divided into 100 different types. The plant is about 80 to 100 cm high and has many large leaves. The fruit itself is oval and reaches a length of 14-18 cm and a diameter of 12-15 cm with a weight of up to 4 kg, and even more in exceptional cases.

Their place of origin is believed to be in the Mato Grosso area, which includes parts of southern Brazil, Paraguay and northern Argentina; today, it is grown in the tropical areas of the world (requiring high temperatures of no less than 20 °C) and put on the market as a whole fruit, as a canned fruit (the latter without health benefits) or processed into fruit juice.

Bromelain/bromelin – pineapple's power enzyme

Bromelain (also referred to as 'bromelin') is an enzyme mixture composed of various enzymes derived from the pineapple fruit and its stem.

Bromelain (or bromelin) has interesting and extremely useful properties that benefit both medicine and modern industry. For example, bromelain splits proteins, which has proved to be optimal for the prevention and treatment of various diseases, but, in the food industry, has also been discovered to soften meat.



In the beverage industry, bromelain is used to prevent unwanted protein-related turbidity.

Regarding its medical uses, the main features of bromelain are its anti-inflammatory and decongestant properties as well as in the accompanying cancer therapy, arthritis treatment and cardiology. These properties are highly valued (and not just by sportspeople) for the treatment of swelling and oedemas. All injuries caused by external influences are accompanied by painful swelling, which severely limits mobility. The main cause of the swelling is an increased amount of protein within the injured tissue. The protein components enter the injured tissue from the damaged lymphatic and blood vessels together with the body's own fluid and form the unpleasant swelling. Swelling always impedes proper healing, and thus, as well as being painful, is very counterproductive from a recovery point of view.

Here, the Bromelain actively intervenes, splits the protein components (dissolves them), prevents the swelling and pain as a result, and accelerates the healing of the injured tissue.

Dr. Nieper, an eminent authority in alternative medicine, compares bromelain with tube cleaner, as it has the long-term ability to rid our blood vessels of plaque (atherosclerosis), thus preventing all kinds of cardiovascular diseases. Furthermore, he estimates the effect of bromelain in the prevention of heart attacks to be greater than that of beta-blockers. According to Dr. Nieper *'through intensive long-term therapy with bromelain, the coronary veins are, so to speak, cleaned out*



from the inside'.

Bromelain, similar to papain, is multifactorial as part of cancer treatment and supports cancer therapy in a variety of ways.

Read more interesting things about the effect of this amazing enzyme found in pineapples under 'Effect of pineapple bromelain'.

The active ingredients in pineapple

As already mentioned, pineapple is a veritable treasure trove of vital substances, consisting of countless vitamins, minerals, trace elements and highly effective enzymes. In fact, besides vitamin E, biotin and vitamin B12, it contains all the vitamins and 16 different minerals.[49] *What active substances and ingredients are in pineapple?*

As far as the density of vital substances (the ratio of vital substances to calories) and the enzyme content are concerned, pineapple is in no way inferior to papaya; it contains all the vitamins, beta-carotene, biotin and numerous minerals as well as coenzymes and fruit acids – but above all the super-effective enzyme 'bromelain'!

[49] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p. 68.



Macronutrients in pineapple

150 g of pineapple contains:[50]

Calories	77 kcal
Water	135 g
Protein	0.6 g
Fat	0.66 g
Carbohydrates	19.21 g

Vitamins in pineapple

Provitamin A	4 RE
Vitamin C	23.9 mg
Vitamin B1	0.143 mg
Vitamin B2	0.056 mg
Vitamin B3	0.651 mg

[50] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.48.



Minerals in pineapple

Potassium	175 mg
Calcium	11 mg
Iron	0.57 mg
Magnesium	21 mg
Phosphorus	11 mg
Sodium	1 mg

Pineapple also contains the trace elements zinc, iodine, copper and manganese.

Other substances contained in pineapple with health benefits:

- 1–8.6 % citric acid
- glucuronic acid
- ferulic acid
- galacturonic acid
- niacin
- vanillin



- pantothenic acid
- mannose
- ribose
- xylose
- galactose
- salicylic acid

Enzymes in pineapple: first and foremost, we should mention bromelain here, which is only found in a concentrated form in pineapple.

Effect of pineapple/bromelain

What effect do pineapple and its enzyme bromelain have, and what do they counteract? Before we talk in detail about the mode of action and effect of pineapple and bromelain, it is extremely important to mention that we are talking about fresh pineapple. Tinned pineapple (preserve) has virtually lost its effectiveness during the preservation process, as its effective enzymes have been killed.

What effect does bromelain have, and what does it counteract?

Bromelains are protein-splitting enzymes that act in a cellulose-activating, vitalising, carminative, muscle-relaxing, anti-inflammatory manner and break down



harmful substances.

Effect of bromelain on the body

Stress is by far the most common cause of illness today. If a person is exposed to negative stress over a long period of time (as opposed to 'eustress'), which the body can no longer counteract through its compensatory mechanisms, hormone-like substances ('prostaglandins') are released into the body to draw attention to this condition.

This happens, for example, through the sensitisation of pain receptors causing pain and inflammation, whereby this discomfort makes the person aware that something is wrong with them and that they must remedy the situation.

If the person does not react appropriately to the body's distress signals and if they do not remove the cause (stressors), these messenger substances subsequently cause real physical suffering, which we know as 'chronic, degenerative diseases', for example in the form of cancer, cardiovascular diseases, arthritis and ulcers etc.

Bromelain regulates the work of prostaglandin

In addition to the prostaglandins described above, which are also referred to as 'alarm prostaglandins' because they serve to warn the body and respond to stress overload, there is another group of prostaglandins that has a completely



contrasting mode of action, one that is curative and anti-inflammatory. This group only intervenes when the stressors are broken down and the 'alarm prostaglandins' have withdrawn. Only then is healing possible!

It is exactly at this point that the soothing, healing effect of bromelain kicks in: bromelain acts selectively as a prostaglandin inhibitor by preventing the release of painful and inflammatory 'alarm prostaglandins' and creating room for healing, anti-inflammatory prostaglandins.

Here, the natural prostaglandin inhibitors in pineapple stand out in comparison to the synthetic (artificial) prostaglandin inhibitors, in that the latter prevent both the release of the 'alarm prostaglandins' and the healing, anti-inflammatory prostaglandins, while the pineapple prostaglandin inhibitors are very selective and only inhibit the pathogenic prostaglandins.

In summary, the effect of bromelain results from

- regulation of prostaglandins (see above);
- splitting of dietary protein;
- balancing acid-alkali levels and counteracting atherosclerosis;
- keeps the blood thin, thereby preventing high blood pressure and thrombosis;
- regulates blood pressure;
- has a cardioprotective effect in the prevention of blood platelet formation;
- destroys harmful intestinal parasites and removes these from the body;



- helps against inflammation and rheumatism;
- successfully prevents and treats of cancer and
- prevents the metastasis of cancer cells.

General effect of pineapple/bromelain

The general effect can be categorised in the following bullet points:

- strengthens the immune system
- antioxidant
- protects cells
- rejuvenating
- vitalising
- detoxifying
- deacidifying
- detoxifying
- accelerates healing of wounds
- purgative
- cholagogue
- laxative
- cooling (during fevers)
- anti-atherogenic (protects against atherosclerosis and removes existing vascular calcification)
- anti-carcinogenic (counteracts carcinogenesis)



- protects the cardiovascular system
- regulates blood pressure
- carminative
- diaphoretic
- dehydrating
- builds the intestinal flora
- invigorates the endocrine system
- anti-inflammatory
- antibacterial
- antiviral
- antifungal
- anti-helminthic (removes worms)
- prevention and therapy of ulcers
- anti-inflammatory
- supports weight loss and figure maintenance

Pineapple/bromelain and the immune-strengthening effect

In a similar way to papaya, pineapple's stimulating and regulating effect on our immune system is multifactorial and takes place on the following basis:

- Bromelain stimulates the production of leukocytes (white blood cells).



- Bromelain increases the production of cytokines (interleukins and tumour necrosis factor).
- Pineapple and bromelain relieve the immune system through their antiviral, antibacterial, and antifungal effects.
- Pineapple eliminates immune complexes and prevents the formation of new ones.
- Pineapple and its enzymes clean and detoxify the body.
- Pineapple optimizes the breakdown of protein metabolites.
- Pineapple has high levels of other immune-strengthening substances such as vitamin C.
- Pineapple cleanses the intestinal villi.

Anti-inflammatory effect of bromelain

The anti-inflammatory effect of bromelain is based on several physiological processes:

- platelet aggregation is inhibited,
- blood clotting is suppressed,
- it reacts with the plasma protein α2-macroglobulin,
- it affects plasma kinesins and prostaglandins.

Effect of pineapple against hyperacidity



According to Paracelsus, the forefather of all doctors, the overacidification (acidosis) of our bodies is 'the basic evil of all diseases'. Acidosis results directly or indirectly in lifestyle diseases such as cancer, diabetes, rheumatism, fungi and others. Recent medical studies prove that acidification is the main cause of 60 to 70 % of all lifestyle diseases. Acidification of the body is attributed to modern stress, modern (acid-forming) diet and medication, and about 98 % of all people have acidosis, 80 % severely!

Pineapple, after papaya, is the strongest alkali of all known fruits, which makes it perfect for regulating our acid-base balance (measured in terms of pH) very efficiently. Furthermore, pineapple activates our metabolism with its enzymes and keeps the intestinal flora healthy.

Special effects of pineapple and bromelain on diseases and maladies

With its power enzyme 'bromelain', pineapple proves to be very effective against the following diseases and conditions:

- cardiovascular disease (including protection against heart attack and stroke !)
- claudication
- high blood pressure
- atherosclerosis
- flu/cold
- asthma



- acne
- problems in the pancreas
- loss of appetite
- inflammation of the colon (colitis)
- diarrhoea
- constipation
- urinary tract disorders
- signs of ageing
- cancer
- depression
- thrombosis
- muscle spasms
- ulcers
- sinusitis
- tenosynovitis
- ovary inflammation
- sore throat
- dementia
- arthritis
- gout
- arthrosis (activated)
- joint rheumatism



- muscular rheumatism
- cellulitis
- varicose veins
- flatulence
- inflammations of all kinds
- burns
- sleep disorders
- menstrual cramps
- athlete's foot
- eczema
- oedema
- scurvy
- fungi/mycoses (e.g. Candida albicans)
- psoriasis
- swellings (e.g. sports injuries)
- digestion problems
- gastritis
- general stomach trouble
- heartburn
- stomach ulcers
- gum bleeding
- gum inflammation/parodontosis



- ageing spots
- infertility
- sexual disorders/impotence

Effect of bromelain on rheumatism and rheumatoid arthritis

Bromelain has the ability to inhibit the formation of the pro-inflammatory prostaglandin 'thromboxane', making it perfect for the successful treatment of arthritis. With enzyme therapy, around 90 % of rheumatism patients are able to relieve symptoms. When combined with a raw-food diet, the chance of recovery increases rapidly! Bromelain plays an important role in deactivating antibodies and inhibiting of prostaglandin E2.

Another aspect of the anti-inflammatory effect of pineapple enzymes lies

- in the stimulation of plasmin production, an endogenous drug that breaks down fibrin;
- in the prevention of platelet clumping, and thus in the prevention of blood clotting in the affected body tissue, swelling and inflammation.
- Furthermore, bromelain recognises immune complexes that circulate freely in the body and trigger auto-immune diseases such as rheumatism. It dissolves them before the body turns against them and attacks itself (exactly the mechanisms that are so tissue-damaging and painful in rheumatoid arthritis and other rheumatic diseases!).

The alkalising effect of pineapple, which is due to the high potassium content



and certain fruit acids, is also worthy of note. This has a deacidifying effect on the body, as it produces an even acid-alkali balance, something that should always be the foundation of efficient arthritis therapy and other rheumatic diseases. A high dose of 900-1200 mg bromelain/day is recommended until the swelling and pain subsides, followed by a maintenance dose of 450 mg/day.

Effect of bromelain against gout

See the previous section 'Effect of bromelain on rheumatism and rheumatoid arthritis'.

The effect of bromelain on activated arthrosis

Activated arthrosis is characterised by the fact that the joint is inflamed and painfully swollen. The tricky thing about this is that these activated phases are not only very painful, but also have a highly destructive effect on the hyaline cartilage. These symptoms should always be cleared as soon as possible.

The anti-inflammatory effect of bromelain can counteract the active phases of arthrosis and promote the healing or stabilisation of arthrosis and relieve arthrosis pain.

Effect of bromelain in colitis and other inflammatory intestinal disorders

Bromelain prevents the formation of the pro-inflammatory prostaglandin thromboxane, which means that it can also remedy colitis and inflammatory bowel disease.



Effect of bromelain on cardiovascular disease

Bromelain plays the role of a 'pipe cleaner' and has the long term ability to rid our blood vessels of debris, thereby counteracting atherosclerosis and related cardiovascular diseases, which can lead to heart attacks, thrombosis and even strokes.

In addition, the ingredients of pineapple prove to encourage blood circulation by keeping the blood fluid, preventing blood clots and dissolving existing blood clots.

This leads to efficient perfusion of the heart muscle, angina pectoris pains are demonstrably reduced and vessel blockages that can lead to a heart attack or stroke are avoided. According to Dr. Nieper, the majority of the 20,000 leg amputations performed in 1982 could have been avoided with high doses of bromelain.

Effect on cardiovascular diseases, therapeutic and prophylactic:

- protection against atherosclerosis;
- reduction of angina pectoris attacks;
- breakdown of deposits in the blood vessels (arteriosclerosis/plaque);
- protection against blood clotting as a result of fibrin breakdown and thus better blood flow;
- lowers blood pressure;
- prevents clumping of platelets (thrombocyte aggregation);



- de-acidifies (solidification of platelets – and its dangerous consequences – is avoided);
- effective against angina.

High-dose bromelain proves to be far more successful than many conventional medicines with a high potential for side effects – without any such side effects!

To quote the luminary Dr. Hans Nieper, who recommends bromelain for prophylaxis and treatment of heart disease: '*Bromelain is more effective than Marcumar and beta blockers at preventing heart attacks*'.[51]

Pineapple's effect on thrombosis

Thrombosis occurs when the natural balance between blood clotting and the dissolution of blood clots is disturbed. This balance is primarily maintained by various enzymes.

If these enzymes are lacking, dangerous thromboses are formed which can clog our blood vessels and capillaries so that the tissue behind them can no longer be adequately supplied with blood and thus with oxygen. If a blood vessel is cut off from the blood supply to the heart due to blood clots, a heart attack may result. If a blood vessel that leads to the brain becomes blocked with blood

[51] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.108



clots, the person can suffer a stroke.

Like papaya, pineapple keeps the blood fluid and can thus pre-emptively prevent thrombosis. Here, bromelain acts as a selective prostaglandin inhibitor (thromboxane A2) and thus prevents platelet clumping. Existing blood clots, which can lead to the aforementioned health problems, however, are broken down by the pineapple enzymes.

Effect of bromelain on sports injuries in general

Sports injuries, such as bruises, ligament strains, dislocations and torn muscle fibres, are commonplace in competitive sports and bromelain has already made a name for itself here. It supports the healing process by relieving inflammation and reducing swelling and bruises.

Effect of bromelain on swelling (e.g. sports injuries)

All injuries caused by external factors (compression, contusion, torn ligaments and others) result in painful swelling that severely limits mobility. The main cause of the swelling is an increased amount of protein within the injured tissue; the protein components enter the injured tissue from the damaged lymphatic and blood vessels together with the body's own fluid and form the unpleasant swelling. Unfortunately, this hinders proper healing, so it not only causes painful symptoms, but also delays healing. Here, the pineapple enzyme 'bromelain' becomes actively involved, dissolves the protein components and prevents the swelling, thus accelerating the healing process.



Effect of bromelain against inflammations of all kinds

Bromelain is able to break down fibrin, inhibit blood clotting in the affected tissue, and transport metabolic waste and toxins out of the tissues. This has a decongestant, anti-inflammatory and fever-reducing effect.

Effect of bromelain on burns

Experience from doctors has shown that bromelain significantly reduces the mortality rate of third-degree burns. Burnt tissue regenerates faster, the risk of sepsis is reduced, and healing is quicker.

Effect of bromelain on sinusitis

Even in the case of sinusitis, the fact that bromelain prevents the formation of the pro-inflammatory prostaglandin 'thromboxane' is the factor which can alleviate and cure sinusitis.

Effect of bromelain on indigestion

Bromelain breaks down food components and thus relieves the strain on the digestive organs.

Effect of bromelain against intestinal parasites/worms

In the past, humans always resorted to the proven natural remedy pineapple when they were attacked by intestinal parasites. The proteolytic enzymes attack



the parasites in the gut and dissolve them; the remaining components are transported out of the body. Just the presence of bromelain in the body makes worms retreat.

Effect of bromelain on flatulence

Flatulence can occur after a heavy meal; bromelain can prevent it beforehand when taken immediately after a meal rich in protein and fat.

Effect of bromelain on bloating and constipation

A bromelain capsule, taken immediately after a meal, can work wonders and counteract the two unpleasant conditions of bloating and constipation.

Effect of bromelain/pineapple on weight loss

Bromelain's ability to break down protein supports digestion and is perfect for weight control. Food is used more efficiently, the body requires fewer calories, and more fats are burned. In addition, tissue water is eliminated and the body is detoxified in a healthy way. After attacks of gluttony, taking bromelain is recommended to stimulate the digestive juices. A complete detox day, consisting of fresh pineapple, can retroactively compensate for the resulting weight gain after sinful days.

Effect of pineapple against dementia



The niacin contained in pineapple improves cerebral circulation and thus acts against forgetfulness/dementia.

Pineapple's effect against depression

Pineapple contains a lot of niacin, a vital substance, which is known to counteract depression, as it is a precursor to the 'happiness messenger' serotonin. This effect is enhanced by the vitamin B12 and vanillin also contained in the pineapple.

Effect of pineapple against cold and flu

As already mentioned, pineapple not only fights fungi and bacteria, but also viruses – even flu viruses! The immune-strengthening effect, along with vital substances such as vitamin C, intensifies this effect.

Pineapple's effect against premature ageing

From the age of 35, the enzyme production in our bodies falls, which, among other things, heralds the biological ageing of our body. Pineapple enzymes can remedy this by preventing (even reversing) arterial calcification, keeping our blood fluid, strengthening our immune system, and ridding the intestines of waste products.

Effect of pineapple on infertility



Pineapple, like papaya, has an invigorating effect on both the female and male reproductive organs in that it revitalises all glands, including those responsible for reproduction.

Effect of pineapple on impotence

In addition to the gland-stimulating effect, pineapple contains vitamin A and minerals such as magnesium, manganese, selenium, iodine and zinc, vital substances which are recommended for impotence because they strengthen the male libido.

Effect of pineapple (bromelain) on cancer

Similar to papaya and its enzyme 'papain', pineapple and its enzyme 'bromelain' have been shown to have a positive effect on cancer in many studies and patient experiences. Bromelain increases the tumour necrosis factor, T-cell activation and disturbs the cell cycle of the cancer cell.

Like papaya, pineapple and its leaves have been used by the Indians of Central and South America for the treatment of cancer for hundreds of years. Numerous reports from people who had been abandoned by conventional medicine and were able to recover from cancer thanks to high doses of bromelain prove its importance in alternative cancer therapy.

But how does bromelain work against cancer?



Bromelain inhibits the growth of lung cancer, lymphoma and leukaemia by at least 80 % in laboratory tests

During in vitro tests, bromelain has been proven to inhibit cancer cell growth in leukaemia, lung and lymphoma cancer by at least 80 %.[52]

Bromelain is very successful against breast cancer, colon cancer and stomach cancer

High concentrations of 600 mg/day (product name 'Extranase'), when taken over several weeks, caused a '*considerable decline*' of malignant tumours, especially in breast, colon and stomach cancer, according to the French internist Gérard.

Bromelain prevents metastasis in the lungs

Bromelain has been proven to prevent metastasis in the lungs.[53]

Bromelain protects against skin cancer

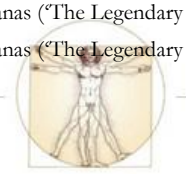
In animal testing, treatment of UV-irradiated mice with bromelain has been shown to provide significant protection against skin cancer compared to the control group.

Bromelain increases the effects of chemotherapy by up to 250 %

According to the Cancer Research Institute of the University of Hawaii, bromelain increases the efficacy of chemotherapeutic agents such as mitomycin C

[52] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.99

[53] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.99



and adriamycin by 250 %;[54] it also reduces the side effects of chemotherapy.

How do pineapple/bromelain work against cancer?

As you would expect, the mode of action of pineapple or bromelain against cancer is based on numerous factors:

- Certain substances in pineapple (for example, p-coumarin and chlorogen) prevent the conversion of food components into carcinogenic substances (such as the conversion of nitrates to nitrosamines during grilling).
- The detoxifying and deacidifying effect prevents the onset of cancer.
- Similar to papain, bromelain uncovers cancer cells and stimulates the immune system to detect and fight cancer cells.
- Bromelain increases the tumour necrosis factor (TNF) and induces the formation of various interleukins.
- The pineapple enzyme peroxidase in bromelain inhibits tumour growth.
- Bromelain promotes programmed cell death, known as apoptosis, in cancer cells.
- Protease F9 enhances the anti-tumour activity of human peripheral blood cells.
- Ananain reveals malignant cells, enabling the immune system to detect and fight them.

[54] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.135



- Bromelain inhibits the formation of fibrin and bradykinin and also stimulates the formation of plasmin.
- Bromelain reduces an elevated TGF-ß (transforming growth factor beta) in the blood, which in turn causes tumour-induced immunosuppression. TGF-ß is a protein containing sugars, which increasingly forms tumour cells, but suppresses the natural killer cells of our immune system and thus promotes carcinogenesis.
- Bromelain removes the adhesion molecule CD44 involved in metastasis from the lymphocytes, preventing the spread of cancer metastases.
- Bromelain increases the potential of our self-healing powers so much that the body is often empowered to deal with the problem of 'cancer' on its own.
- Bromelain relieves the side effects of chemotherapy and radiation treatment without detracting from the effectiveness of these therapies.

Representative scientific studies on bromelain

Study on the anti-inflammatory effect of bromelain in joint arthrosis by Fitzhugh et al. (2008)

Bromelain was shown to have a positive influence on the inflammatory process in joint arthrosis.



Study on the promotion of healing in Achilles tendon injuries by Aiyegbus Al et al.

Bromelain promotes the healing of Achilles tendon injuries. Nigerian scientists came to this conclusion after the number of cells responsible for healing the Achilles tendon increased significantly in animal experiments, and structure of the tendon tissue was shown to be healthy. '*Bromelain in the early phase of healing in acute crush Achilles tendon injury'*.

The death rate among patients at risk of heart attack falls considerably. 'Hanover Study' vs. 'Cleveland Clinic'

140 patients, all of whom had already had a heart attack, were treated with a bromelain preparation (anavit F3 or traumanase forte) and with magnesium and potassium orotate. Amazingly, the mortality rate was 2 % after two years, 2 % four years later and after 14 years it was just 4 %.

For comparison, the mortality rate with traditional medicine was 20 % after two years and a whopping 75 % after 14 years!

Bromelain strengthens immunity in breast cancer patients

In a study on 16 breast cancer patients, bromelain was able to the restore the



immunity of those with reduced immunity compared to healthy individuals.[55]

Bromelain inhibits the growth of lung cancer, lymphoma and leukaemia by at least 80 % in laboratory tests

As already mentioned above, bromelain has been proven to inhibit cancer cell growth in leukaemia, lung and lymphoma cancer by at least 80 %.[56]

Bromelain successful against breast cancer, colon cancer and stomach cancer

High concentrations of 600 mg/day over a period of use of several weeks caused a '**considerable decline'** of malignant tumours, especially in breast, colon and stomach cancer, according to the French internist Gérard.

Colon cancer patients live longer with bromelain and have fewer metastases

In a clinical trial, colon cancer patients had fewer metastases and were able to live longer compared to the control group.[57]

Bromelain prevents metastasis in the lungs

[55] Eckert et al. (1999)

[57] http://brigitte-van-hattem.suite101.de/bromelain-das-ananasenzym-a44123



Bromelain prevented metastasis in the lungs.[58]

Bromelain protects against skin cancer

In animal testing, treatment of UV-irradiated mice with bromelain has been shown to provide significant protection against skin cancer compared to the control group.

Bromelain increases the effects of chemotherapy by up to 250 %

According to the Cancer Research Institute of the University of Hawaii, bromelain increases the efficacy of chemotherapeutic agents (such as mitomycin C and Adriamycin) by 250 %;[59] and it also reduces the side effects of chemotherapy.

Bromelain shows anti-invasive properties in study

In preclinical studies, bromelain has been shown to have anti-invasive properties and to influence the expression of cell adhesion molecules.[60]

The survival time of patients with multiple myeloma is doubled with bromelain

Patients in the 3rd stage of multiple myeloma (bone-marrow cancer) lived for 83 months on average with enzyme therapy, while subjects in the control group lived for an average of 47 months.[61]

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[58] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.99

[59] Barbara Simonsohn: Die sagenhafte Heilkraft der Ananas ('The Legendary Healing Power of Pineapple') 4th Edition, 2012, p.135

[60] Tysnes et al. 2001

[61] Lova et al. 2001



Enzyme therapy improves quality of life and reduces side effects after radiotherapy and chemotherapy

In a large study on 3,500 patients, it was shown that enzyme intake improves quality of life and reduces the side effects of radiotherapy and chemotherapy.[62]

Enzymes protect the liver during chemotherapy

In a placebo-controlled study, proteolytic enzymes provided protection against liver enzyme increase during carboplatin chemotherapy.[63]

Side effects of irradiation diminished by enzyme therapy

For head and neck tumours, bronchial and cervical carcinomas, administration of enzymes could reduce the side effects of radiotherapy.[64]

Metastasis suppressed in Lewis lung carcinoma

Oral doses of bromelain prevented the metastasis of Lewis lung carcinoma in animal studies.[65]

How should bromelain be taken?

Most bromelain researchers, most notably Dr. Taussig, who spent over 30 years

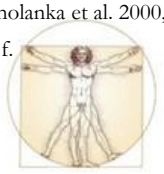
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[62] Beuth et. al 2001

[63] Lahousen et al. 1995

[64] Dale et al. 2001, Gujal et al. 2001, Hanul et al. 2000, Smolanka et al. 2000, Kaul et al. 1999

[65] Batkins et al. J CancerRes ClinOncol, 1988; 114, p.507 f.



of his professional life researching this phenomenal enzyme, recommends a high dose of bromelain to achieve meaningful results. For chronic diseases, 400-2400 mg bromelain per day is recommended (in oncology, daily doses of 400).

Bromelain should be taken in three portions, one hour before eating or two hours after each meal.

Which bromelain supplements are available on the market?

There are monopreparations which only contain bromelain on the one hand, and combination-preparations with several enzymes on the other. When buying, care should be taken that the enzymatic activity is at least 2.2 F.I.D. per mg.

Bromelain mono-preparations

Bromelain POS: contains 200 mg bromelain per capsule; application areas: Reduce inflammation, improve the flow properties of the blood, reduce protein deposits.

Mucozyme: contains 160-200 mg bromelain per capsule; application areas: swellings and injuries.

Proteozyme: contains 45 mg bromelain per capsule; application areas: Oedemas, inflammatory processes, swelling of the mucous membranes.

Bromelain combination preparations



Bromelain combination preparations combine bromelain with other useful enzymes, such as papain, derived from the papaya fruit.

Papaya35: contains 35 mg papain and 40 mg bromelain per capsule; application areas: defence against foreign cells.

Mulsal N: contains papain and trypsioxxn plus 45 mg bromelain per capsule; application areas: arthritis and other rheumatic diseases, ankylosing spondylitis, chronic inflammation of all kinds, and more.

Wobenzym N: contains 45 mg of bromelain per capsule, as well as papain, trypsin, pancreatin and chymotrypsin, and is probably the best known of all enzyme preparations; application areas: thrombosis, inflammation and more.

Side effects of pineapple/bromelain

Does pineapple or its enzyme bromelain cause side effects or interactions?

Pineapple has also been tried and tested in our latitudes for centuries as a popular food and has fundamentally confirmed its safety, even at high levels. People who suffer from gastritis and gastric ulcers may use bromelain supplements.

The enzyme bromelain is safe even at high doses. It should be noted that it has mild anticoagulant properties; furthermore, proteolytic enzymes may have allergenic potential.

Drug interactions are extremely rare, but it must be noted that bromelain increases the absorption (uptake) of other drugs, which may also increase their



effects. It is advisable to speak with an experienced naturopath to adjust the course of medication. The latter has the advantage that the side effects of the drug can also be reduced while it provides the same effect or a better one.

As with papaya, pregnant women should avoid unripe pineapple, as it may cause a miscarriage and is even used as an abortifacient by some Native American peoples.

ARONIA BERRIES

A native fruit as a blessing for our health

While most promises of health benefits are reserved for southern hemisphere fruits and vegetables which have such exotic names as 'noni' or 'aloe vera', a rather timid, native crop causes quite a stir with the simple name 'aronia berry' (also called 'apple berry' or 'black mountain ash').

Aronia berries and their origin

The extremely modest aronia berry is native to North America, where it served as a winter food for the Native Americans. At the start of the 18th century, it was brought to Russia and cultivated there.

In the middle of the 20th century, the aronia berry gained official recognition as a fruit species and was eventually cultivated and marketed on a wide scale. A



short time later, cultivation also began in Belarus, Moldova, the former East Germany and the Ukraine. The early 1980s then heralded the large-scale cultivation of aronia berries in Slovakia and Scandinavia. Aronia is traditionally cultivated in Eastern European countries; in Germany, however, there are only a few cultivation areas, such as in Coswig near Dresden and in Schirgiswalde in Lusatia, the most traditional and largest growing area in Germany. In Bavaria, Brandenburg, Lower Saxony and Leipzig, there are more, some new, albeit smaller plantations.

Botanical data

The aronia berry, also known as the 'apple berry' due to the similarity of the berry with a small apple, is a member of the Rosaceae with about three to nine species of the sub-species Maloideae. Among the most common species are the Aronia arbutifolia ('fruity red apple') and Aronia melanocarpa ('black mountain ash').

Appearance and taste

Aronia berries are similar in appearance to blueberries, blackish blue on the outside and dark red on the inside (pulp). The taste is most commonly described as tangy, which is due to the tannic acid content.

Aronia berries – the medicinal plant

Due to its high content of potentially beneficial ingredients, the aronia berry is a true blessing for both the prevention and treatment of several diseases, and



has produced amazing effects in a number of studies and reports by naturopaths. This has brought it official recognition as a medicinal plant in Russia and Poland, while in Germany, it was initially used as a dye due to its shell, which stains an intense reddish violet colour. In Eastern Europe, however, it has been used for medicinal purposes for some time, particularly for gastrointestinal diseases, high blood pressure, skin diseases and urinary tract infections. Its actual scope is much larger: The medicinal plant aronia can have a positive effect on many other diseases, not least the scourge of modern humanity: cancer! Thus, it astonishes the experts again and again...

The aronia berry harvest

Aronia berries are harvested from mid-August to September and require rapid processing (unrefrigerated within two weeks).

Growing your own aronia berries

Since aronia berries are very undemanding in terms of their environmental conditions, you can even grow them in your own garden. Aronia is also self-pollinating and can therefore be grown both in the garden and on the balcony as a single plant. The best time to grow is autumn; the aronia bush lasts for 20 years, harvested from the second year.[66]

Aronia berries – the active ingredients

[66] Renate Petra Mehrwald: Aronia – Königin der Blaublüter, Buchverlag für die Frau ('Aronia – Queen of the Blue Bloods', Publishing House for Women), 3rd Edition, 2012, p.54 f.



The aronia berry is full of highly effective ingredients; these include bioflavonoids, vitamins, minerals and trace elements.

Active ingredients of the aronia berry/apple berry in detail:

Vitamins in the aronia berry

Aronia berry contains, from the fat-soluble vitamins, vitamins A, provitamins A, E and K; of the water-soluble vitamins, it contains vitamins C, OPC, B1, B2 (riboflavin), B3 (niacin), B5, B6, B7, B9 (folic acid), B12, C and H.

Vitamin A/provitamin A = 1.1-2.4 g/100 ml of aronia juice

Vitamin E = 0.8–3.1 g/100ml

Vitamin E = 0.8–1.0 g/100ml

OPC/vitamin P

OPC, which, like some 50,000 other substances, is actually a polyphenol, but which has also been given the name 'vitamin P', is found in abundance in aronia berries. OPC holds a special status within the vitamins mentioned, as it is one of the most important vitamins in addition to vitamin C and has, among other things, an above-average ability to protect cells against attacks by free radicals. Thus, the antioxidant (cytoprotective) effect of OPC against free radicals is 18 to 20 times stronger than that of vitamin C and even 40 to 50 times stronger than that of vitamin E!

Furthermore, OPC increases the effect of vitamins C, E and A in the body by



a factor of 10, but, in contrast to these vitamins, it attaches directly to body proteins, especially collagen and elastin, thus rejuvenating our skin and connective tissue and – this deserves particular emphasis – rejuvenates our blood vessels, protects against atherosclerosis and can even expurgate them!

Just 24 hours after the very first intake of OPC, the resistance capability of the blood vessels doubles; it even triples over the course of regular continuous intake. OPC protects against UV rays, improves eyesight and flushes cholesterol out of our body.

Minerals in aronia

The aronia berry has an impressive mineral content, especially of iron and iodine. It provides us with 12 mg of iron per 100 ml of juice and about 0.0064 mg of iodine. It also contains potassium, calcium and magnesium.

Secondary plant substances in aronia/apple berries

Bioflavonoids, which belong to the group of polyphenols, are probably the most interesting active ingredients of aronia berries, as well as the most dominant in terms of quantity. These are biologically active substances that have all sorts of health effects; they are found in all parts of the plant, in the fruit pulp as well as in the plants, leaves and flowers.



Among other things, bioflavonoids protect against uncontrolled cell proliferation in the form of cancer, keep the blood fluid and protect it against clumping, which can lead to numerous cardiovascular diseases, including heart attacks and strokes. In addition, they keep our blood vessels elastic and plaque-free, regulate blood pressure, have anti-inflammatory and antimicrobial properties and optimise the immune system.

Ellagic acid/gallogen

Ellagic acid, also known as gallogen, is also a polyphenol, regenerates our cells and has also demonstrated protective potential in cancer studies.

According to Prof. Leitzmann and Dr. Watzl, the protective effect of ellagic acid is:

- antioxidant (fights harmful, free radicals),
- antimicrobial (fights bacteria),
- inhibits growth of degenerated cells,
- detoxifying.

Phenol

Another substance that has highly potent antioxidant properties is phenol. This primarily affects the redox properties and the ability to bind the aggressive oxygen and nitrogen molecules. It also detoxifies by binding certain metals.

Anthocyanins/proanthocyanins



Anthocyanins are water-soluble plant dyes from the flavonoid group which are found in almost all higher developed plants (here in flowers and pulp), but especially in berries, which give them their blue, red, purple or blue-black colouration. No other plant or food has as high an anthocyanin content as the aronia berry!

Anthocyanins are especially common in the aronia berry's skin, which is understandable: the evolutionary purpose behind this is the protection against pests, UV rays in strong sunlight and free radicals, which damage the cells from the outside and eventually destroy them. Due to their small size, which makes the fruit more susceptible to pests and UV rays, aronia berries have a particularly high concentration of these protective substances. On the other hand, the strong colours of the flavonoids attract pollinating insects and to help the plants reproduce.

While the second point is irrelevant to humans, we can easily take advantage of the first aspect, namely the protection against free radicals and ultraviolet rays to protect one's own body cells, by regularly consuming these plants, which have abundant anthocyanins. And indeed, the aronia berry has an amazing resistance to diseases and pests; it does not have to be sprayed with chemicals, which ensures gives it another high, bio-relevant value!

The destructive potential of free radicals

Free radicals are aggressive oxygen molecules that attack our cells around 10,000 times a day, not only causing physical ageing but also creating or promoting



many diseases. They occur during digestion, due to UV rays, environmental toxins, stress, excessive bodily strain, etc.

Diseases caused by free radicals

The following listed diseases are promoted by free radicals:

- cardiovascular disease
- diabetes
- cataracts
- cancer
- dementia
- Alzheimer's
- Parkinson's
- and others

The aronia berry as the richest source against destructive free radicals

Polyphenols have about 100 times more antioxidant potential than vitamins (vitamin C contributes just 15 % to the antioxidant protection of cells).

What makes the aronia berry so special and interesting to us is the fact that, in various investigations and studies, their antioxidant capacity was much higher than that of other fruits. Apart from the high proportion of polyphenols, this is



attributed, inter alia, to the high bioavailability of the aronia berry which also depends on the particle size – in the case of the aronia berry, this is in the nano range.

Comparison of the anthocyanin content of various fruits (per 100 g):[67]

Aronia berry 800 mg

Sweet cherry 180 mg

Blue grape 165 mg

Blueberry 165 mg

Blackberry 160 mg

Raspberry 40 mg

Strawberry 30 mg

The 'antioxidant capacity', which indicates the potential of a food to protect against destructive free radicals, is measured as the 'TEAC value' (trolox equivalent antioxidant capacity).

The aronia berry reached the fantastically high TEAC value of 64.8 mmol/l and thus not only surpassed fruits such as cranberries or pomegranates in terms of antioxidant (cell protecting) effect, but even lapped them multiple times.[68]

Here is a summary of the effect of secondary plant compounds:

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[67] Source: Deutsches Krebsforschungsinstitut Heidelberg (German Cancer Research Institute Heidelberg)

[68] Read more under 'Effect of the aronia berry' below.



- antioxidant
- antiviral
- antimicrobial
- antithrombotic
- builds up the immune system
- antimutagenic
- anticarcinogenic (fights carcinogenesis)
- regulates blood sugar levels
- regulates blood pressure
- protects blood vessels
- hypolipidemic (lowers cholesterol levels)
- antiproliferative

Effect of the aronia/apple berry

Findings on the effect and mode of action of aronia berries primarily come from Eastern Europe, where the berry has traditionally been recognised as a medicinal plant for many years. It has only been researched for a few years; the University of Potsdam and the University of Heidelberg are the main institutions actively pioneering this.

As reported by *Dresdener Neueste Nachrichten* (Dresden Latest News) on 11/12 August 2007, the scientist Prof. Dr. Sabine E. Kulling from the University of



Potsdam, after initial research in the context of a government-funded project, found that the secondary plant compounds from the aronia berry have a preventive effect on colon cancer and positive effects on blood sugar levels and cholesterol levels.[69]

General effect of the aronia berry

The aronia berry has a multifactorial effect and, in general,

- works in an antioxidant manner (cell protection against attacks by free radicals)
- strengthens the immune system
- anticarcinogenic (cancer prevention)
- anti-inflammatory
- antimutagenic
- regulates blood pressure
- encourages circulation
- protects blood vessels
- relaxes the coronary artery
- stimulates metabolism
- is a diuretic
- is astringent
- regenerative on muscle and bone

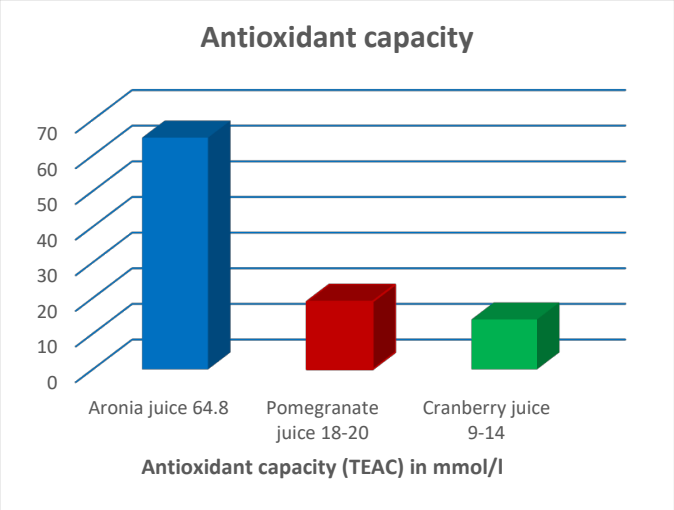
[69] Sigrid Grün and Jan Neidhardt: Aronia – Unentdeckte Heilpflanze ('Aronia – Undiscovered Medicinal Plant'), edition buntehunde GdbR, Regensburg, 2007, p. 40f.



- is an expectorant
- expels heavy metals
- promotes growth of children and foetuses

As already mentioned under 'Active ingredients', the aronia/apple berry is particularly notable for its exceptional potential for protecting against free radicals, which attack our cells making us old and ill. The free radicals are considered, among other things, to be direct or indirect causes of diseases in the cardiovascular system, cancer, joints, kidneys, eyes and other modern diseases.

According to research by the Potsdam research group, the aronia berry achieves the exceptionally high TEAC value of 64.8 mmol/l, even surpassing fruits such as pomegranate or cranberry!



Source: Aronia juice = analysis of fresh aronia juice, University of Potsdam Prof. Dr. Kulling, August 2006

Specific effect of aronia berries on diseases and various ailments

Healing mechanisms are attributed to the aronia berry for the following diseases and conditions:

- cardiovascular diseases (protection against heart attack and stroke)
- high blood pressure
- clots
- inflammation
- joint conditions (arthritis, activated arthrosis)
- diabetes mellitus
- cancer
- skin diseases, allergies
- asthma
- ageing
- stomach inflammation
- stomach lining inflammation
- intestinal disorders
- liver disease
- gall bladder diseases
- childhood diseases, such as scarlet fever and measles,
- eye diseases



- urethra infection
- kidney diseases
- thyroid disorder
- radiation injuries
- injuries in chemo- and radiotherapeutic treatments
- bacterial and viral illnesses
- neurodegeneration

Effect of aronia berries on cardiovascular diseases

According to one study, the patients with the highest flavonoid consumption had 50 % lower cardiovascular disease mortality compared to the control group, which is more than significant.

The ingredients of aronia berries, especially the flavonoids, which provide surprisingly high levels of protection against free radical attack, have the following effects on the cardiovascular system:

- inhibition of platelet aggregation (clumping of blood cells)
- anti-arteriosclerotic effects (protection against vascular calcification)
- cardioprotective effect (general protective effect of the cardiovascular system)
- improvement of blood fluidity
- anti-inflammatory effect
- blood pressure-regulatory effect



- relaxes coronary arteries

Effect of aronia berries on atherosclerosis

According to conventional medicine, atherosclerosis is the precursor to a heart attack or stroke. The strong antioxidant activity of aronia berries prevents the oxidation of LDL cholesterol and improves the ratio of HDL to LDL cholesterol. Both of these factors provide reliable protection against plaque deposits in the blood vessels, known as atherosclerosis.

Effect of aronia berries against high blood pressure (high blood pressure)

The bioflavonoids contained in aronia berries, with their vitamin P activity, in combination with other minerals and vitamins contained in aronia berries, have a positive effect on the elasticity and permeability of the blood vessels. The nervous system is calmed and cholesterol deposits, which cause atherosclerosis, are prevented. All this makes aronia berries a potent cure for high blood pressure.

The effectiveness of aronia berries in treating high blood pressure (high blood pressure) is demonstrated by the decision of the Ministry of Health of the former USSR of 4 April 1959 to use aronia berries for testing in the treatment of high blood pressure and atherosclerosis.[70] Just taking 200 ml of fresh aronia

[70] Albrecht 1993



berry juice twice a day for a few weeks can significantly reduce high blood pressure, which also effectively reduces the risk of heart attack and stroke.

Relaxing effect of aronia berries on the coronary arteries

David Bell and Kristin Gochenaur of Indiana University were able to demonstrate the relaxing effect on the coronary vessels in animal tests on pigs' hearts.[71]

Effect of aronia berries on cancer/malignant tumours

The flavonoids contained in aronia berries have been proven to provide protection against tumours in:

- breast cancer
- skin cancer
- oesophageal cancer
- colon cancer
- lung cancer

This is also due to the chemopreventive and antiproliferative properties, as well as the detoxification mechanisms of the flavonoids, which positively influence the apoptosis mechanisms as well as the immunomodulating properties.

The phenol 'gallogen', ellagic acid, is one of the other highly bioactive substances in aronia berries which has positive effects in cancer prevention as well

[71] Sigrid Grün and Jan Neidhardt: Aronia – Unentdeckte Heilpflanze ('Aronia - Undiscovered Medicinal Plant'), edition buntehunde GdbR, Regensburg, 2007, p. 28



as in cancer therapy.

Furthermore, the powerful antioxidant, detoxifying and antimutagenic potential of the aronia berry has a preventive effect on the development of tumours and is also therapeutically beneficial:

'*Aronia berry polyphenols can play an important role in cancer prevention and control because antioxidants work in all three phases: emergence, growth and progression of the carcinoma'.* (Prof. Dr. Iwona Wawer)

Positive effects of aronia during and after chemotherapy

Studies have shown that aronia berry extract can protect against oxidative stress in all phases of chemotherapy due to its antioxidant activity.[72]

Positive effect in radiotherapy

Cancer patients who had undergone radiotherapy were successfully treated with aronia berries.[73]

Effect of aronia/apple berry against inflammation

The flavonoids contained in the aronia berry have anti-inflammatory properties. The mechanisms behind this anti-inflammatory effect involve

- restricting cyclooxygenases,
- inhibiting lipooxygenases

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[72] Kedzierska M. et al.: Effects of the commercial extract of aronia on oxidative stress in blood platelets isolated from breast cancer patients after the surgery and various phases of the chemotherapy. Fitoterapia 2011 Nov 12. PMID: 22101070

[73] Renate Petra Mehrwald: Aronia – Königin der Blaublüter, Buchverlag für die Frau ('Aronia – Queen of the Blue Bloods', Publishing House for Women), 3rd Edition, 2012, p. 28 f.



- and blocking the enzyme 'phospholipase A2', which suppresses arachidonic acid, which in turn is the starting material for various inflammatory mediators.

Effect of aronia berries on arthritis and activated arthrosis

Again, the anti-inflammatory mechanisms mentioned, such as the restriction of the cyclooxygenases, the inhibition of lipoxygenases and the blocking of the enzyme 'phospholipase A2' take hold, all of which prevent the inflammatory, joint-destroying process inside the joint and have a positive influence on diseases such as arthritis or activated arthrosis.

Effect of aronia berries in diabetes mellitus

In a study by the Medical University of Plovdiv in Bulgaria, scientists were able to prove that the juice from the aronia melanocarpa not only did not increase the blood sugar level in Type 1 and Type 2 diabetes (the sweetness of the aronia berry is due to sorbitol, a replacement sugar suitable for diabetics!), but on the contrary, that 200 ml of aronia juice led to lower blood glucose levels than the initial values 60 minutes after ingestion!

Specifically, 16 patients with Type 1 diabetes and 25 patients with Type 2 diabetes (25 females and 16 males between the ages of 3 and 62 years), with symptoms lasting between one month and 13 years, were given 200 ml of aronia juice. The measurements gave 14.23 ± 1.32 mmol/l as an initial value. Exactly one hour after consuming 200 ml of aronia juice, the blood sugar had already



dropped to 11.4 ± 0.89 mmol/ l.

Another study examined the effects of regular aronia juice consumption on blood sugar levels over a period of three months. The initial blood sugar level was 13.28 ± 4.55 mmol/l and after three months' consumption of aronia juice (200 ml/day), it dropped to 9.10 ± 3.05 mmol/l. In addition to the hypoglycaemic effect, total cholesterol, lipid levels and HbA1c had also improved.

Effect of aronia on gastritis

The Ministry of Health in the former USSR also decided to use this berry for testing in the treatment of gastritis.[74]

Effect of aronia berries on thyroid diseases

The iodine contained in the aronia berry probably has a positive effect on certain thyroid disorders.

Effect of aronia berries in urinary tract infections

As a natural diuretic on the one hand and as a natural anti-inflammatory on the other, the aronia berry proves very efficient against urinary tract infections.

Aronia berry's effect against ageing

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[74] Albrecht 1993



The very high content of flavonoids, polyphenols and phenolic acid in the aronia berry (aronia is considered to be one of the richest sources of anthocyanins) provides excellent protection against free radicals, not only for numerous lifestyle diseases such as cancer, cardiovascular disease, diabetes or arthritis, but also for cell ageing.

Many age researchers argue that humans could live to around 120 years old if they were able to fend off the attacks of free radicals – a discipline that the aronia berry has mastered – because the berry has an above-average proportion of oligomeric procyanides (OPC), which have considerable cell-protection potential. Ellagic acid performs cell regeneration and cell repair.

Furthermore, the flavonoids have pronounced anti-inflammatory properties. Because inflammation promotes the shortening of telomeres on our chromosomes, the anti-inflammatory effect of aronia berries proves to give protection against premature ageing.

'*Ageing and neurodegeneration are increasingly associated with oxidative stress. Oxidative stress-induced neuronal degradation processes can be slowed by a change in diet, including supplementation of neuroprotective flavonoids'.* (Prof. Dr. Iwona Wawer)

Studies and research results for aronia berries (apple berries)

Most studies on the aronia berry come from Eastern Europe, where aronia has long been officially recognised as a natural remedy. In europe, research is still



in its infancy; only the universities of Heidelberg and Potsdam are investigating this medicinal plant as pioneers with astounding insights.

Aronia berry significantly lowers blood sugar levels in diabetes mellitus

The Medical University of Plovdiv in Bulgaria could prove that the juice from the aronia melanocarpa not only did not increase blood sugar levels in diabetes patients (type 1 and type 2), but on the contrary, the 200 ml of aronia juice led to lower blood sugar levels 60 minutes after ingestion! Specifically, 16 patients with type 1 diabetes and 25 patients with type 2 diabetes (25 females and 16 males between the ages of 3 and 62 years), with symptoms lasting between one month and 13 years, were given 200 ml of aronia juice. The measurements gave (before the consumption of aronia juice) 14.23 ± 1.32 mmol/l as an initial value. Exactly one hour after consuming the 200 ml aronia juice, the blood sugar value had decreased to 11.4 ± 0.89 mmol/l.

Aronia berry extract protects against oxidative stress resulting from surgery and chemotherapy

As already mentioned before, studies have shown that aronia berry extract can protect against oxidative stress due to its antioxidant effect after surgery and in all phases of chemotherapy.[75]

[75] Kedzierska M. et al.: Effects of the commercial extract of aronia on oxidative stress in blood platelets isolated from breast cancer patients after the surgery and various phases of the chemotherapy. Fitoterapia 2011 Nov 12. PMID: 22101070



Protected against radiation damage in studies

Cancer patients who have suffered somatic radiation damage after radiotherapy have been successfully treated in the long term.[76]

Aronia berries can remove heavy metals from the body

Eastern European studies have shown that aronia berries remove heavy metals from the body.[77]

Relaxing effect of aronia berries on the coronary arteries

Scientists of Indiana University could prove the relaxing effect on the coronary arteries of pigs' hearts in animal trials. The physiological similarity of the pig's heart to the human heart suggests that this effect is also to be expected in humans.[78]

Anti-inflammatory effect of aronia confirmed in study

A Bulgarian study, published in 1994, has confirmed the anti-inflammatory effect of the aronia berry (apple berry).[79]

Recommended intake for aronia berry

To prevent disease, it is advisable to drink one or two glasses (200 ml) with

[76] Renate Petra Mehrwald: Aronia – Königin der Blaublüter, Buchverlag für die Frau ('Aronia – Queen of the Blue Bloods', Publishing House for Women), 3rd Edition, 2012, p. 28 f.

[77] Renate Petra Mehrwald: Aronia – Königin der Blaublüter, Buchverlag für die Frau ('Aronia – Queen of the Blue Bloods', Publishing House for Women), 3rd Edition, 2012, p. 28

[78] Sigrid Grün and Jan Neidhardt: Aronia – Unentdeckte Heilpflanze ('Aronia - Undiscovered Medicinal Plant'), edition buntehunde GdbR, Regensburg, 2007, p. 28

[79] Sigrid Grün and Jan Neidhardt: Aronia – Unentdeckte Heilpflanze ('Aronia - Undiscovered Medicinal Plant'), edition buntehunde GdbR, Regensburg, 2007, p. 41



meals or immediately after meals (not on an empty stomach). If you do not make the juice yourself, you should make sure that it is protected from air and light, otherwise, it will almost certainly lose vital substances. If you make the juice yourself, it goes without saying that you have to keep it airtight and protected from exposure to light, for example in darkened glass bottles.

Aronia products

Aronia berries retain their healing properties both fresh and dried. When dried, they even offer a higher concentration of valuable ingredients.

Numerous other products can be made from aronia berries. Aronia juice and aronia nectar are the most popular. The benefit of the juice is that the fibres are already removed from the fruit and therefore digestion is accelerated. The vital substances therefore get into the blood and the cells much faster.

Other aronia berry products:

- aronia jam
- aronia honey
- aronia gel
- aronia spread
- aronia compote
- aronia fruit sauce
- aronia tea
- aronia wine



- aronia liqueur
- aronia cosmetics

Making your own aronia juice

It particularly makes sense for diabetics to make their own aronia juice to rule out the possibility of added sugar being present. The natural sweetness of the aronia, in contrast, is due to sorbitol, a natural sugar substitute that barely raises blood sugar levels. The juice yield is between 75 and 80 %.

The following instructions can be used to make a healthy aronia berry juice yourself:

1. Blend the berries in the blender.
2. Boil 1.2 l of water and mix the berries.
3. Cool the pot overnight, preferably in the fridge.
4. Press the liquid through a linen cloth and mix with approx. 200 g of sugar.

Buy aronia juice

When buying the aronia juice, it is important to be on the alert and make sure that it is 100 % pure aronia juice, so-called '100 % juice'. Often, supposed aronia juices are found in shops which only contain a small amount of aronia juice and more water or a juice mixture of several fruits. The juice should not have added



sugar or be mixed with preservatives. Furthermore, it should be packed airtight and protected from light.

Are there any interactions or side effects?

Like the currant, blueberry etc., the aronia berry is completely free of side effects or drug interactions. Nevertheless, it is advisable to start taking aronia slowly and initially dilute the juice with water (or herbal tea) in a ratio of 1:3 (aronia to water). This is because the pure juice may lead to initial problems in people with irritated gastric mucosa, and people who have a disturbed intestinal flora temporarily get diarrhoea.

ASTRAGALUS MEMBRANACEUS

A Chinese root with extraordinary abilities

The name

The botanical name is 'astragalus membranaceus' (also 'astragalus propinquus'), the pharmaceutical name is 'Astragali Radix', the German name is 'Mongolian



Tragant' (also 'tragacanth root') and the Chinese name is 'Huang Qi', 'Astragalus' is composed of the two Greek words 'astron' ('star') and 'gala' ('milk') and therefore means 'milk of the stars'. The ending 'membranaceus' describes the membranous root.

The Chinese name 'Huang Qi' in turn means 'yellow leader', which alone hints at the importance of the plant which has been used for about 4000 years within TCM (Traditional Chinese Medicine). In fact, astragalus is one of the most important plants of traditional Chinese medicine.

'Qi' is synonymous with 'life force' – just like ginseng, if it is stimulated, self-healing powers are activated, and many diseases and pathological disorders disappear of their own accord.

The botanical affiliation of Astragalus membranaceus

Astragalus is a flowering plant of the Fabaceae family (legumes) which is around 70 million years old. The plant subgroup in turn belongs to the butterfly plants.

Geographical origin

Astragalus membranaceus is native to northern China and is found in the mountainous regions, such as in the provinces of Heilongjiang, Shanxi or Inner Mongolia.

The taste

The plant itself and astragalus powder have a sweet taste and can therefore be

easily mixed with all drinks.

The active ingredients of Astragalus membranaceus

The ingredients of astragalus membranaceus which many studies have proven to have a positive effect on our health, performance and lifespan (see 'Astragalus Studies'), include:

- polysaccharides
- glycosides
- triterpenoids
- prenylflavonoids
- isoflavonoids (isoflavans, pterocarpane)
- folic acid
- cycloastragenol
- formononetin
- astragaloside 1-4
- astragalan
- daucosterol
- palmitic acid
- amino acids
- asparagine
- astragalus saponin A, B, C



- choline
- beta sitosterol 1
- soyasaponin
- betaine
- kumatakenin
- sucrose

Mode of action and effect of Astragalus membranaceus

As with all traditional Chinese remedies, it is the perfect interplay of Mother Nature's miraculously balanced ingredients that produces the amazing effects we have discussed in the section on the ingredients of Astralagus. In particular, the numerous polysaccharides, flavonoids and saponins occurring in roots, medicinal mushrooms and wild berries are increasingly becoming coveted objects of study and, in recent years, have proven to be extremely effective against numerous diseases and conditions in many ways.

The astragalosides present in astragalus complete this wonderful composition of Mother Nature's health-giving tools.

Which organs does astragalus have an effect on?

Chinese medicine views the body holistically and does not subdivide disease symptoms into symptoms or causes within individual organs. According to TCM, astragalus generally works on the body's core, including the



Effect of astragalus on the heart

Astragalus has an exceptionally powerful effect on the heart, ensuring greater circulation and efficient functioning of the heart muscle and protecting it from destructive oxidation processes.

Effect of astragalus on the lungs

Astragalus can strengthen lung function and counteract shortness of breath and asthma conditions.

Effect of astragalus on the spleen

In studies, astragalus has been shown to have a significant effect on spleen deficiency symptoms such as fatigue, diarrhoea, loss of appetite and increased perspiration.

In summary, Astragalus membranaceus has the following effects:

- antioxidant
- stimulates the immune system
- antitumoural
- antiviral
- antibacterial
- anti-inflammatory
- toning/revitalising
- protects the heart



- protects the nerves
- de-stressing
- rejuvenating
- detoxifying
- diuretic

Antioxidant effect of Astragalus membranaceus

In studies, astragalus has been shown to inhibit 40 % of lipid peroxidation (in vitro), which counteracts premature ageing among other things.

The immunostimulating effect of astragalus

Astragalus has proven to be a real immune booster; this is due to a multitude of factors and has been the subject of intensive research in the fields of cancer control and AIDS therapy.

Astragalus activates:

- macrophages,
- immunoglobulins,
- stem cell proliferation,
- interferon production,



- the T cells,
- the natural killer cells;
- furthermore, astragalus stimulates the function of the adrenal cortex and also supports the immune system.

Here, it is important to emphasise that astragalus does not just act as an immunity booster and stimulate the immune system regardless of the body's overall situation – it primarily acts as an immune regulator and secondarily as an immune booster, if the latter even comes into play at all! This is of particular interest for people who suffer from allergies, arthritis, lupus and similar diseases in which the immune system attacks its own body. In these cases, it should be expected that astragalus regulates the immune system rather than exacerbates the overall situation.

Effect of Astragalus membranaceus against cancer

In studies, Astragalus membranaceus has been shown to have significant effects on small-cell lung tumours, melanoma, and kidney cancer and has been shown to increase the positive effects of chemotherapy, while reducing its side effects. Furthermore, excessively short telomeres are considered to be unstable and susceptible to cancer. Astragalus protects telomeres from premature shortening and may also protect against cancer.



Effect of astragalus against cancer, confirmed by studies

Studies of astragalus and its effect on lung cancer

Ten out of twelve patients with small-cell lung cancer who were treated with astragalus achieved survival rates of 3 to 17 years.[80]

Astragalus effective in studies on kidney cancer and melanoma

In vitro testing of astragalus has demonstrated its antitumoural effects on melanoma and kidney cancer.[81]

New anti-cancer effect due to transcriptional activation of NSAID-activated genes

Astragalus saponins showed a novel anti-cancer effect through the activation of NSAID-activated genes.[82]

Antimutagenic effect of astragalus

The antimutagenic effect of astragalus has a preventive and therapeutic effect against cancer.

Astragalus enhances the effects of chemotherapy and prolongs life

In studies, astragalus has been shown to enhance the effects of chemotherapy and prevent relapses. In addition, lifespan was significantly increased and the

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[80] Cha R. J. et al.: Non-surgical treatment of small cell lung cancer with chemoradio-immunotherapy and traditional Chinese medicine. Chung Hua Nei Ko Tsa Chih 1994; 33, p. 462–466.

[81] Wang Y. et al.: Phytochemicals potentiate interleukin-2 generated lymphokine-activated killer cell cytotoxicity against murine renal cell carcinoma. Mol Biother 1992; 4, p. 143–146.

[82] Int J Cancer. 2009 Sep 1; 125 (5), p. 1082–1091. PMID: 19384947



toxic side effects of the chemotherapeutic agents were reduced.[83]

Antiviral effect of astragalus

Astragalus boosts the production of interferon, which is known to kill viral infections. Astragalus also inhibits the proliferation of certain viruses, such as Coxsackie, which can also cause inflammation in the heart muscle (myocarditis).

Antibacterial effect of astragalus

In vitro testing has shown that Astragalus membranaceus has a bactericidal effect on bacterial strains such as Streptococcus haemolyticus, Shigella dysenteriae, Diplococcus pneumoniae and Staphylococcus aureus.

Anti-inflammatory effect of astragalus

Studies have found astragalus to counter airway inflammation in chronic asthma.

Tonifying/revitalising effect of astragalus

The toning effect of Astragalus membranaceus is, among other things, due to the increased circulation of the cardiovascular system. The whole body is supplied with more oxygen and energy, which has a toning and revitalising effect.

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[83] Zee-Cheng R. K.: Shi-quan-da-bu-tang (ten significant tonic decoction), SQT. A potent Chinese biological response modifier in cancer immunotherapy, potentiation and detoxification of anticancer drugs. Methods Find Exp Clin Pharmacol.



Heart-protecting effect of astragalus

The cardio-protective effect is due to the increased blood flow and the efficient functioning caused by astragalus. In addition, the saponins in astragalus protect the heart muscle against dangerous lipid peroxidation as well as premature blood clotting.

Nerve protective effect of astragalus

Astragalus protects the dopaminergic neurons and thus combats Parkinson's.

Astragalus also acts against:

- loss of appetite
- listlessness
- chronic fatigue
- shortness of breath
- tendency to catch colds
- sweats
- puffiness (especially in the face and the extremities)
- diarrhoea (liquid stools)
- bloody stools
- bleeding in the genital area
- anal prolapse



- stomach prolapse
- uterine prolapse

Rejuvenating effect of astragalus

Its effect on the physical and mental rejuvenation alone brought Astragalus membranaceus almost explosive popularity in Western countries. This is thanks to the 2009 Nobel Laureates for Medicine, who have made outstanding contributions to research into telomeres, their associated 'immortality enzyme' telomerase, and the resulting insights into its links with astragalus, which will be made available in the near future.

This aspect is so crucial for our lives that we want to dedicate a specific section to it. Read the amazing details on the activation of the 'immortality enzyme' telomerase by Astragalus membranaceus in 'Rejuvenation with astragalus'.

Specific effects of Astragalus membranaceus on diseases and maladies

While Astragalus membranaceus has been one of the most important remedies of Traditional Chinese Medicine in China for 4000 years and has been used by healers in that country to treat many diseases, its great popularity and its proven, rejuvenating effect did not become apparent in our latitudes until after 2009 (see 'Rejuvenation with astragalus').

Astragalus has always been used for the following diseases and conditions:



- all illnesses associated with a weak immune system
- illnesses associated with a virus
- heart disease and heart failure
- high blood pressure
- liver disease
- kidney diseases
- nerve conditions
- Parkinson's
- all forms of allergies
- all inflammatory diseases (arthritis etc.)
- asthma
- infertility (male infertility)
- cancer
- HIV/AIDS
- autoimmune diseases (e.g. lupus)
- ulcers
- oedema
- wounds
- indigestion
- disorders of hormone balance
- deafness/paralysis of the limbs
- diabetes mellitus and its long-term effects



- chronic nephritis
- chronic fatigue syndrome
- albuminuria
- ascites

Specific effect on heart disease

As studies have shown (see point 'Astragalus Studies'), astragalus has a particularly positive effect on the following heart conditions:

- heart failure
- angina pectoris
- coronary heart disease
- myocarditis
- myocardial ischemia

Furthermore, astragalus is recommended for all heart diseases and general heart failure, if only due to its ability to promote blood circulation.

Improved heart perfusion from 5.09 to 5.95 l/min in patients with angina pectoris

In 20 patients treated with astragalus, it was possible to increase heart blood output from 5.09 to 5.95 l in a record time of just two weeks. This was checked with an echocardiogram.[84]

[84] Li S. Q. et al.: Clinical observation on the treatment of ischemic heart disease with Astragalus membranaceus. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 77-80.



Astragalus improves ECG levels in angina pectoris by 82.6 %

In one study, 92 patients with ischemic heart disease (angina pectoris) were treated with Astragalus membranaceus. In addition to a reduction in pectanginal complaints, ECG values improved by 82.6 %.[85]

Astragalus protects heart cells from lipid peroxidation

Saponins in astragalus protect the heart muscle from dangerous lipid peroxidation and blood clotting.[86]

Astragalus reduces heart rate in congestive heart failure and reduces discomfort

19 patients with congestive heart failure were treated with an astragalus ingredient called 'Astragaloside IV'. After two weeks, chest pain and breathing difficulties significantly improved. At the same time, the heart rate dropped from 88 to 64 bpm on average, which is due to a vitalisation of and increased circulation to the heart muscle.[87]

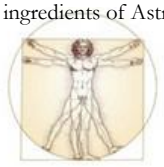
Studies have shown that astragalus has a cardioprotective effect in cases of myocardial ischemia

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[85] Luo H. M. et al.: Nuclear cardiology study on effective ingredients of Astragalus membranaceus in treating heart failure. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 707 ff.

[86] Purmova J. and Opletal L. Phytotherapeutic aspects of diseases of the cardiovascular system. 5. Saponins and possibilities of their use in prevention and therapy. Ceska Slov Farm 1995; 44, p. 246–251.

[87] Luo H. M. et al.: Nuclear cardiology study on effective ingredients of Astragalus membranaceus in treating heart failure. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 707 ff.



Astragalosides IV, found in Astragalus membranaceus, have demonstrated cardioprotective activity in myocardial ischemia both in vivo and in vitro.[88] Astragalus helps combat viral heart inflammation (myocarditis). Administration of Astragalus to patients with viral myocarditis resulted in an increase in T3, T4 and T4/T8 cell counts.[89]

Effect of astragalus on cancer

Astragalus has been used against cancer for millennia. Astragalus has shown excellent effects in studies with certain cancers in particular, such as small cell lung tumours, melanoma (skin cancer) and kidney cancer (see 'Astragalus studies').

Effect of astragalus in lung cancer

Ten out of 12 patients with small cell lung cancer who were treated with astragalus achieved survival rates of 3-17 years.[90]

Astragalus in studies on kidney cancer and melanoma

In vitro astragalus membranaceus has proved its antitumoural effects on melanoma and kidney cancer.[91]

Astragalus enhances the effects of chemotherapy and prolongs life

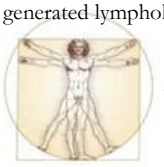
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[88] Planta Med. 2006 Jan; 72 (1), p. 4–8.

[89] Huang Z. Q. et al.: Effect of Astragalus membranaceus on T-lymphocyte subsets in patients with viral myocarditis. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 5, p. 328–330.

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In studies, astragalus has been shown to enhance the effects of chemotherapy and prevent relapses. In addition, lifespan was significantly increased and the toxic side effects of the chemotherapeutic agents were reduced.[92]

Effect on sperm activity, male infertility

In studies, astragalus increased sperm activity by 146 %, while the other 17 herbs tested failed to do so. Astragalus is thus ideally suited for increasing fertility in men with an existing desire to have children.

Effect on allergies

In numerous studies, astragalus has demonstrated a regulatory effect on the immune system, which is of paramount importance in allergic diseases.

Astragalus is used as a tragacanth extract to treat allergies, and here it promotes the synthesis of IgG antibodies and thus contributes to the elimination of allergens. The expression of T-bet mRNA and T helper 1 cytokines, such as IFN-γ, is promoted, the activity of genes involved in the inflammation process during an allergic reaction is regulated, and the release of histamine is inhibited, resulting in the prevention of allergy symptoms. Astragalus has proven its worth here against pollen, house dust mite and animal hair allergies.

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[92] Zee-Cheng RK. Shi-quan-da-bu-tang (ten significant tonic decoction), SQT. A potent Chinese biological response modifier in cancer immunotherapy, potentiation and detoxification of anticancer drugs. Methods Find Exp Clin Pharmacol.



Effect on asthma

Studies have shown that astragalus counteracts airway inflammation in chronic asthma.

Effect of astragalus on Parkinson's

Astragalus protects the dopaminergic neurons and also, in this way, helps combat Parkinson's.

Effect on diabetes and its long-term consequences

Astragalus counteracts the formation of advanced glycaemic end products (AGEs) which cause neuropathic complications in diabetes.

Rejuvenation with astragalus

Astragalus takes on the challenge of rejuvenation in a multitude of ways:

- antioxidant effect
- immunostimulatory effect
- antiglycation
- protection of telomeres from shortening
- extending effect of telomeres
- repair of DNA



Let's take a look back:

We are writing in the year 2009. Along with other highly promising projects, three Stockholm researchers have been nominated for the Nobel Prize for Medicine after making a truly sensational discovery that could play a crucial role in both cancer healing and anti-ageing.

The three molecular biologists, Jack W. Szostak, Elizabeth H. Blackburn, and Carol W. Greider of the Karolinska Institute in Stockholm provide radical answers on the function of telomeres on our chromosomes and the associated 'immortality enzyme' 'telomerase', and thus receive the coveted Nobel Prize for Medicine for 2009.

To explain further: With each cell division, the ends of the chromosomes, called telomeres, become shorter. However, if an enzyme called 'telomerase' is added to the telomeres, the chromosome ends of this enzyme are synthesised and re-attached.

This precise action occurs in cancer cells, meaning it can split indefinitely. Conversely, it is known that people suffering from 'old-age disease' lack the enzyme 'telomerase'.

Other progeria diseases, such as 'Werner syndrome', confirm this. Telomere length is a reliable measure of our age and is also a trigger for the unpleasant ageing phenomena known to us all.



Conversely, the telomerase mechanism makes the cells virtually immortal because telomerase rejuvenates the cell, or at least it can prevent further shortening of the telomeres, thus effectively reversing or stopping ageing.

Unfortunately, although the gene capable of turning on telomerase is present in every single human cell, it remains unused in all normal cells, except for germ cells, stem cells, and cancer cells, which are considered immortal because they can divide indefinitely.

Certain telomerase activators from astragalus root, such as astragaloside IV and cycloastragenol, now have the amazing ability to activate the gene and thereby activate telomerase in normal body cells, protecting telomeres from shortening and even triggering telomere extension.

'For the first time in the history of medicine, we have the potential to effectively reduce and possibly even completely eliminate the adverse effects of the ageing and degradation process associated with insufficient telomerase and short telomeres'. (Noel Thomas Patton, founder of TA Sciences)

The renowned Harvard University confirms the telomerase theory of ageing

In November 2010, *Harvard Medical School* created a sensation by publishing an article about a research experiment that not only succeeded in stopping mammalian ageing processes, but had even reversed them!

The telomerase activation described led to the biological rejuvenation of brain



cells, the spleen and the reproductive organs, and the biological age of mice equivalent to an 80-year-old man could be reversed to the age of young adults.

Another study by Harvard researchers confirmed that shortening telomeres are the main cause of biological ageing.

Also, studies at the University of Toronto in Canada have clearly shown that increasing telomerase activity in normal human cells with associated telomere extension leads to the extended lifespan we all hope for.[93]

What's more, certain diseases disappeared automatically as the cells were rejuvenated, such as Alzheimer's, arthritis and osteoporosis. The researchers rounded off their research with the following revolutionary conclusion: *'Ageing does not cause short telomeres, but short telomeres cause ageing'* and *'Diseases do not make you old, ageing leads to various diseases'.*

Usually, the pharmaceutical industry reacts very quickly to current, sensational research results, which it tries to convert into cold hard cash. In fact, it has since been researching a new substance that, according to the principle of telomerase, can extend the telomeres again, or at the very least, protect them from further shortening and thereby rejuvenate the cell or prevent it from ageing.

The Big Pharma approach always follows the same principles:

- look at nature's principle of action;

[93] Reconstitution of telomerase activity in normal human cells leads to elongation of telomeres and extended replicative life span; Homayoun Vaziri1 and Samuel Benchimol; Department of Medical Biophysics, Ontario Cancer Institute, University of Toronto, 610 University Avenue, Toronto, Ontario M5G 2M9, Canada



- extract individual substances which are responsible for the principle of action from nature, or attempt to make them synthetically;
- apply for a patent for the resulting isolated drug;
- develop a drug from it;
- commission (positive) studies;
- launch the marketing machinery;
- cash in to the tune of millions and billions.

All Big Pharma drugs are based almost exclusively on mechanisms which Big Pharma has taken, or has tried to take, from complex biochemical principles that have matured over millions of years in nature!

It is arrogant, ignorant, and simply presumptuous (and stupid) to assume that a team of professors and doctors would be able to understand and imitate developments in highly complex systems of nature, which have a biofunctional adaptive evolution of millions of years, in a matter of weeks or months. At this point, we cite the double Nobel laureate and vitamin researcher Linus Pauling, who really got to the heart of this modern problem:

'... anything that is not 'orthomolecular' (proper molecules known to the organism) in the treatment and prevention of chronic diseases will fail. The mechanism of our physical systems is reluctant, in the medium term, to react positively with non-orthomolecular ('toximolecular') substances. 'Conventional medicine' will try to compensate for the non-observance of this maxim – born of narrow-mindedness and ignorance of the laws of nature – with money, research giantism and propaganda. This endeavour will fail and result in a huge cost explosion



in health care, resulting in severe social upheaval, economic and political crises. Even industries that unite into huge conglomerates to cope with financing toximolecular, non-biological 'drugs' will fail. No money in the world would be able to reproduce or even surpass the development of drugs from hundreds of millions of years of biofunctional adaptive development'.

And if it were not enough that this highly questionable approach of Big Pharma places an unnecessary burden on insurance funds, causes cost explosions, and begs patients to pay more, by far the most significant drawback of this practice is that many useless medicines are produced, which have disproportionate benefit-risk profiles, which make patients already suffering from 'Disease A' suffer from 'Disease B' and then 'Disease C', and often even lead to premature death! Now, of course, one could ask the legitimate question: why is the pharmaceutical industry not exploring the natural object as a whole, for example, to use a potentially effective, complete fruit, a complete medicinal mushroom or herb against disease?

This question can be explained simply by way of the patent system:

In order to be able to approve a drug, corresponding studies must be submitted, which cost the pharmaceutical companies millions per individual approval study.

But it is impossible to patent natural remedies as a whole – logically, because an apple grows on the tree, a fungus in the forest. This state of affairs is omnipresent and familiar to everyone, does not correspond to any newly discovered, intellectual achievement that needs to be protected – and therefore is not worthy



of protection (patentable)! However, if one were to pursue approval studies for a drug that is not patentable in advance, the expensive information gained would be common knowledge and could therefore be used by the competition!

The pharmaceutical company, which has commissioned the expensive studies, would be left footing the bill for the costs, while the competition would be grateful for the free insights and market the drug itself!

Another scenario for better understanding:

Imagine you want to buy a car; instead of a car, you get a steering wheel and four wheels. Of course, such an incomplete vehicle cannot be driven and even if it could be driven, it would be anything but safe on the road...!

This is exactly what Big Pharma does: It isolates certain substances from a natural whole or attempts to recreate them synthetically. This is like taking an individual out of an orchestra and demanding the same piece of music in the same quality! It goes without saying that this will only end in failure!

In plain English:

The vast majority of drugs are nothing but unsuitable counterfeits of natural active ingredients – not only are they not very effective, but they also come with numerous side effects!

This little digression into the pharma industry's questionable approach to drug development was needed here to help you understand why the highly acclaimed



'pharmaceutical research', into which billions of dollars are pumped every year, is in fact failing!

But what does this have to do with astragalus as a telomerase activator?

On the basis on new findings on telomeres and the 'immortality enzyme', several drug companies are currently desperately trying to isolate telomerase in the usual way by isolating constituents of Astragalus membranaceus and to develop a patented drug that enables telomerase gene activity in somatic human cells and which can stop or even partially reverse ageing.

There is already a great deal of research under the name 'TA-65', a molecule isolated from the astragalus plant (see 'Astragalus Studies').

In their studies, Calvin B. Harley, Weimin Liu, Elsa Vera, Maria Blasco, William H. Andrews, Laura A. Briggs, and Joseph M. Raffaele (2011) also accurately identified the dry extracts of astragalus root which led to a reduction in outdated T cells and NK cells over a period of six to 12 months (see 'Astragalus Studies'). A veritable quantum leap in age research – and a whole new, powerful piece of knowledge that was only revealed in 2009 with the Nobel Prize for Medicine for Telomerase research, and most recently in 2011 for astragalus as a telomerase activator!

It takes some time to understand these sensational connections and to realise the implications for our lives as we gain knowledge as to how we can extend



our telomeres, rejuvenate ourselves, and significantly extend our lives while remaining in the best of health!

Research currently uses, among other things, Astragaloside IV and cycloastragenol (see also 'Astragalus Ingredients'), in order to provide the right weapons against ageing. Traces of Astragaloside IV and cycloastragenol occur in astragalus; it is estimated that you need about 30-60 grams of Astragalus membranaceus per day to get the recommended daily allowance of Astragaloside IV, an amount that would be hard to achieve!

It is not surprising, however, that the astragalus root as a whole increases the bioavailability of the Astragaloside IV, which is substantiated by a corresponding study.[94] Consequently, half the amount is enough, namely 15-30 g of the root powder per day, to achieve an equivalent effect of 30-60 g of Astragalus membranaceus. Of course, research into these complex mechanisms around chromosomes and telomeres and the enzyme 'telomerase' is still in early stages, or, to put it better, its infancy. Many scientists share the following thesis: *the right amount can prolong life, but too much of a good thing can be harmful!*

The suspicion that astragaloside IV activation of telomerase might cause cancer has not been confirmed – on the contrary: research confirms that excessively short telomerase strands can result in cell instability and in turn, cancer.

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[94] Transport and Bioavailability Studies of Astragaloside IV, an Active Ingredient in Radix Astragali; Yongchuan Gu1, Guangji Wang1, Guoyu Pan1, J. Paul Fawcett2,*, Jiye A.1, Jianguo Sun1Article first published online: 29 NOV 2004 DOI: 10.1111/j.1742–7843.2004.t01-1-pto950508.



Also: Astragalus membranaceus as a whole has even shown anticarcinogenic properties in studies (see 'Astragalus Studies'). The latter should provide some reassurance and perhaps lead to the consumption of the entire Astragalus membranaceus rather than individual isolated components, or at the very least a combination.

How many years younger can Astragalus membranaceus make you?

This is another very hypothetical and speculative issue, like all questions surrounding the hitherto poorly understood principle of telomerase. But if one trusts in studies that are cited (unfortunately often without a reference to the source) in US boards, by taking it regularly over one year, you could extend telomeres to the state they were in nine years ago. This would mean: one year of intake = nine years of biological rejuvenation (re-ageing). Further research is needed to show if this is feasible, but the knowledge acquired so far on the anti-ageing principle due to the telomerase activation is certainly very promising.

Astragalus membranaceus as natural doping in sports

If one analyses the results of Astragalus membranaceus studies on cardiac performance enhancement, it is clear that few synthetic doping agents can compete with this natural, wholesome and entirely legal substance. In a record time of two weeks, astragalus increased the average heart blood flow from 5.09 l/min to a fabulous 5.95 l/min and lowered the resting heart rate from 88 to 64 bpm – something that no training regime in the world would be able to achieve!



This was corroborated by an improvement of the ECG by 82.6 % in angina pectoris patients (see 'Astragalus Studies'). Although there are no studies on healthy persons or on well-trained endurance athletes, the available studies encourage us to give astragalus a chance in this regard!

Studies on astragalus

Ingredients of astragalus (astragaloside IV) activates telomerase

Dry extract of astragalus root has been shown to reduce obsolete T cells and NK cells in studies lasting six to twelve months.[95]

In studies, astragalus-derived molecules extend telomeres, heal organs and improve health

Studies at the National Cancer Research Centre in Spain, led by Maria Blasco, have shown that TA-65, a molecule derived from the astragalus plant, activates the telomerase enzyme, re-extending critically short telomeres, heals cells in various organ systems and extends the health lifespan.[96]

The increase in telomerase activity prolongs the telomeres and thus the lifespan

Increasing telomerase activity in normal human cells could extend lifespan.[97]

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[95] Calvin B. et al.: 'A natural product telomerase activator as part of a health maintenance program'. Rejuvenation Research, 2010, 14: in press. doi:10.1089/rej.2010.1085

[96] http://www.bioportfolio.com

[97] Department of Medical Biophysics, Ontario Cancer Institute, University of Toronto, 610 University Avenue, Toronto, Ontario M5G 2M9, Canada



The bioavailability of astragaloside IV is increased when the whole root is ingested

The study cited confirms this.[98]

Astragalus supports DNA repair and reduces oxidative stress

In studies, two isomers of the HDTIC 'Astragli Radix' slow down telomere shortening, reduce oxidative stress, and increase DNA repair in foetal fibroblast cells.[99]

Two isomers in astragalus reduce the spread of p16 and slow down age-ing

Astragalus contains two isomers that reduce the spread of p16 and thus slow down ageing.[100]

Astragalus improves brain function

In animal experiments, astragalus succeeded in improving the immune status and brain function.[101]

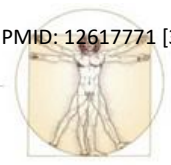
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[98] Transport and Bioavailability Studies of Astragaloside IV, an Active Ingredient in Radix Astragali Yongchuan Gu1, Guangji Wang1, Guoyu Pan1, J. Paul Fawcett2,*, Jiye A.1, Jianguo Sun1Article first published online: 29 NOV 2004 DOI: 10.1111/j.1742-7843.2004.t01-1-pto950508.x

[99] DNA Cell Biol. 2010 Jan; 29 (1), p. 33–39.PMID: 19839736

[100] Jian Zhang et al.: Xuanwu Hospital of Capital Medical University, Beijing 100053, China; Chin Med J (Engl.). 2008 Feb 5; 121 (3), p. 231–235. PMID: 18298915 [3]

[101] Acta Pharmacol Sin. 2003 Mar; 24 (3), p. 230–234. PMID: 12617771 [3]



Astragalus shows an antimutagenic effect in studies

The flavonoids present in astragalus have shown antimutagenic effects in studies.[102]

Astragalus strengthens the immune system

In animal experiments, astragalus increased the immunoglobulin IgG by 45 %.[103]

Antibacterial effects of astragalus proven in studies

Astragalus has been shown to have an antibacterial effect on intestinal bacteria, Shigella, but also against Staphylococcus aureus, Streptococcus haemolyticus and Diplococcus pneumoniae.[104]

In trials, astragalus has proven successful against allergies

The use of Lectranal, a drug based on astragalus extract, led to a reduction in allergic symptoms in a Croatian study (nasal discharge, itching of the nose, itchy, painful, watery, red eyes). The quality of life was improved and the sera IgE, IgG and eosinophils were affected in a positive manner.[105]

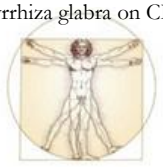
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[102] Zhongguo Zhong Yao Za Zhi. 2003 Dec; 28 (12), p. 1164–1167.

[103] Chu D. T. et al.: The in vitro potentiation of LAK cell cytotoxicity in cancer and AIDS patients induced by F3-a fractionated extract of astragalus membranaceus. Chung Hua Chung Liu Tsa Chih 1994; 16, p. 167–171.

[104] Alternative Medicine Review, Volume 3, Number 5, 1998

[105] Matkovic Z. et al., Efficacy and safety of astragalus membranaceus in the treatment of patients with seasonal allergic rhinitis, Phytother Res. 2010 Feb; 24 (2), p. 175–181. Wang G. et al., Effects of Astragalus membranaceus in promoting T-helper cell type 1 polarisation and interferon-gamma production by up-regulating T-bet expression in patients with asthma, Chin J Integr Med. 2006 Dec; 12 (4), p. 262–267. Brush, J. et al., The effect of Echinacea purpurea, astragalus membranaceus and Glycyrrhiza glabra on CD69 expression and immune cell activation in humans, Phytother Res. 2006; 20 (8), p. 687–695.



Astragalus helps combat viral heart inflammation (myocarditis)

Administration of Astragalus to patients with viral myocarditis resulted in an increase in T3, T4 and T4/T8 cell counts.[106]

Improved heart perfusion from 5.09 to 5.95 l/min in angina pectoris

In 20 patients treated with astragalus membranaceus, it was possible to increase heart blood output from 5.09 to 5.95 l in only two weeks, checked with an echocardiogram.[107]

Astragalus improves ECG levels in patients with angina pectoris by 82.6 %

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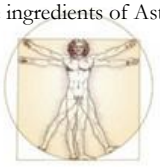
Astragalus protects heart cells from lipid peroxidation

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[106] Huang Z. Q. et al.: Effect of Astragalus membranaceus on T-lymphocyte subsets in patients with viral myocarditis. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 328–330.

[107] Li S. Q. et al.: Clinical observation on the treatment of ischemic heart disease with Astragalus membranaceus. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 77-80.

[108] Luo H. M. et al.: Nuclear cardiology study on effective ingredients of Astragalus membranaceus in treating heart failure. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 707–709.



Saponins in astragalus protect the heart muscle from dangerous lipid peroxidation and blood clotting.[109]

Astragalus reduces heart rate in congestive heart failure and reduces discomfort

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Studies have shown that astragalus has a cardioprotective effect in cases of myocardial ischemia

In studies, astragaloside IV present in Astragalus membranaceus has a cardioprotective effect in myocardial ischemia, both in vivo and in vitro.[111]

Astragalus counteracts chronic fatigue syndrome

In animal experiments, flavonoids from astragalus have been shown to improve

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[109] Purmova J. and Opletal L.: Phytotherapeutic aspects of diseases of the cardiovascular system. 5. Saponins and possibilities of their use in prevention and therapy. Ceska Slov Farm 1995; 44, p. 246–251

[110] Luo H. M. et al.: Nuclear cardiology study on effective ingredients of Astragalus membranaceus in treating heart failure. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1995; 15, p. 707 ff.

[111] Planta Med. 2006 Jan; 72 (1), p. 4–8.



chronic fatigue syndrome.[112]

Male infertility – Astragalus can increase sperm activity by 146 % in studies

In one study, out of 18 herbs tested, astragalus was the only one to stimulate sperm, and did so by 146 %.[113]

Studies confirm the anticarcinogenic effect of astragalus

Studies of astragalus and its effect on lung cancer

Ten out of 12 patients with small cell lung cancer who were treated with astragalus achieved survival rates of 3-17 years.[114]

Astragalus effective in studies on kidney cancer and melanoma

In vitro testing of astragalus membranaceus could demonstrate its antitumoural effects on melanoma and kidney cancer.[115]

Novel anti-cancer effect due to transcriptional activation of NSAID-activated genes

Astragalus saponins showed a novel anti-cancer effect through the activation of

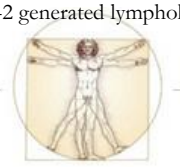
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[112] 2009 Feb 25; 122 (1), p. 28–34. Epub 2008 Dec 6. PMID: 19103273 [3]

[113] Hong YH. Oriental Materia Medica: A Concise Guide. Long Beach, CA: Oriental Healing Arts Institute; 1986.

[114] Cha R. J. et al.: Non-surgical treatment of small cell lung cancer with chemoradio-immunotherapy and traditional Chinese medicine. Chung Hua Nei Ko Tsa Chih 1994; 33, p. 462–466.

[115] Wang Y. et al.: Phytochemicals potentiate interleukin-2 generated lymphokine-activated killer cell cytotoxicity against murine renal cell carcinoma. Mol Biother 1992; 4, p. 143–146.



NSAID-activated genes.[116]

Astragalus enhances the effects of chemotherapy and prolongs life

In other studies, astragalus membranaceus has been shown to enhance the effects of chemotherapy and prevent relapses. In addition, lifespan was significantly increased and the toxic side effects of the chemotherapeutic agents were reduced.[117]

Positive effect of astragalus on lupus erythematosus

Astragalus was tested for its effect on systematic lupus erythematosus in 28 patients. NK cells were significantly lowered as a result (compared to standard values).[118]

Anti-inflammatory effects of astragalus proven in studies

The inhibition of NF-kappB and the expression of adhesion molecules result in anti-inflammatory activity by Astragaloside IV, an ingredient of Astragalus membranaceus.[119]

Astragalus' effect on viral diseases has been proven in studies

Astragalus was able to successfully inhibit the proliferation of Coxsackie virus

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[116] Int J Cancer. 2009 Sep 1; 125(5):1082–91. PMID: 19384947

[117] Zee-Cheng R. K.: Shi-quan-da-bu-tang (ten significant tonic decoction), SQT. A potent Chinese biological response modifier in cancer immunotherapy, potentiation and detoxification of anticancer drugs. Methods Find Exp Clin Pharmacol.

[118] Zhao X. Z.: Effects of Astragalus membranaceus and Tripterygium hypoglancum on natural killer cell activity of peripheral blood mononuclear cells in systemic lupus erythematous. Chung Kuo Chung Hsi I Chieh Ho Tsa Chih 1992; 12

[119] Thromb Haemost. 2003 Nov; 90 (5), p. 904–914. PMID: 14597987



(RNA virus) in animal testing.[120]

Astragalus Membranaceus tested as safe, even in high doses

To test the safety of astragalus, mice were given up to 100 grams per day, with no intoxication occurring as a result.

LD 50 (50 %, one dose which causes death) in mice is approximately 40 g per kg of body weight with intraperitoneal injection.[121]

Does astragalus cause any side effects?

You must bear in mind that this question is self-explanatory for Astragalus membranaceus when you consider that Astragalus membranaceus has been one of the most important medicinal herbs within Traditional Chinese Medicine for 4,000 years.

Since even water is known to be toxic above a certain amount, it is interesting to learn of the scientific data on Astragalus membranaceus.

In animal experiments, mice were given up to 100 grams per day with no intoxication occurring as a result. LD 50 (50 %, a dose that causes death) in mice is approximately 40 g per kg of body weight with intraperitoneal injection.[122] This means a person with an average weight of 75 kg would have to be injected with

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[120] Peng T. et al.: The inhibitory effect of astragalus membranaceus on coxsackie B3 virus RNA replication. Chin Med Sci J 1995; 10, p. 146–150.

[121] http://astragalus-astragaloside.org/2011/08/

[122] http://astragalus-astragaloside.org/2011/08/



3 kg of astragalus in one go to die – which is impossible from a practical point of view!

Recommended intake/dose of astragalus

What is the dose or recommended intake for Astragalus membranaceus?

This question can only be answered in a differentiated and partly hypothetical way, and this also requires some explanations.

For the prevention of diseases and preventive strengthening of the immune system, a daily intake of 5-10 g of Astragalus membranaceus is a good amount. 10-15 g is usually used to treat illnesses; 15-20 g daily (distributed over two to three servings a day) is suitable for athletic performance enhancement.

Many will associate the use of astragalus with rejuvenation or prolonging life, which makes a recommended dosage much more difficult and entirely hypothetical.

In fact, in the case of astragalus, we have one of the most promising nutritional supplements of our time, a natural substance that, according to studies, can extend life by many years and even decades!

One must first become aware of the importance of research on the telomerase function, which led to the Nobel Prize in Medicine in 2009 and subsequently found Astragalus membranaceus to be a telomerase activator. This has led to a



completely new era in gerontology. While gerontologists were previously researching agents that delay ageing, with astragalus, they have, for the first time, discovered a substance that not only slows ageing by affecting telomeres, but at the same time brings about a real rejuvenation – a completely new direction within gerontology. The term 're-ageing' was born!

On the other hand, these aspects are so new that science, despite its best intentions, is not able to provide verified facts with regard to a recommended dose, let alone a reliable intake regimen for the purpose of re-ageing/anti-ageing.

Astragalus re-ageing studies are based on the isolated ingredients 'astragaloside IV' and 'TA-65'. According to various pieces of information, 100 g of astragalus root contains 28 mg of astragaloside. If you want to get the recommended 5 mg astragaloside per day, you have to eat 17 g of astragalus root every day.[123]

Experience has shown with almost all organic sources that the entire fruit, mushroom or root, in the interaction of ALL of its ingredients, intensifies the desired effect of the ingredients isolated from it, often exponentially.

According to recent studies on the bioavailability of astragalosides IV[124], this is significantly increased by the intake of Astragalus membranaceus as a whole (tragacanth powder), which indicates the need for about 15-30 grams of astragalus powder per day.

In addition, more and more suppliers of astragalus IV will limit the duration of

[123] http://slightimmortality.blogspot.de/

[124] Transport and Bioavailability Studies of Astragaloside IV, an Active Ingredient in Radix Astragali; Yongchuan Gu1, Guangji Wang1, Guoyu Pan1, J. Paul Fawcett2,*, Jiye A.1, Jianguo Sun1Article first published online: 29 NOV 2004 DOI: 10.1111/j.1742–7843.2004.t01-1-pto950508.x



its use in their intake recommendation to a maximum of one year - which is certainly related to the question which is still looming: What happens if you activate your telomerase too much, too quickly?

It should not be forgotten that in contrast to the very new astragalus-isolated ingredient astragalus IV or TA-65, Astragalus membranaceus has more than 4,000 years of long-term exposure to millions of people – with no significant side effects!

Given the scarcity of the data at hand, it is at the discretion of each individual to decide for themselves whether to proceed 'at full throttle' or 'with caution'. Those who have no time to lose and are willing to take risks will certainly choose astragaloside IV and TA-65 in higher doses. Everyone else (people in their 40s or 50s) may be better advised to use a maximum dose of 15-30 grams of astragalus powder (equivalent to the actual intake of approximately 50-100 mg astragaloside IV) to prevent telomere shortening or slowly lengthen the telomeres.

Chitosan increases the bioavailability of astragalus

Research has shown that the bioavailability of astragalus increases when chitosan is taken at the same time. It is therefore advisable to consume additional chitosan, especially if you only use astragaloside IV or TA-65.



Should you avoid supposed telomerase inhibitors?

Some polyphenols found in plants are suspected to inhibit telomerase. These include:

- green tea
- resveratrol
- melatonin
- curcumin
- quercetin
- allicin
- silibinin

This is a hitherto unfounded suspicion, as no scientific evidence has been issued to date.

Activity of telomerase inhibitors not confirmed in the laboratory

On the contrary, Dr. Bill Andrews, founder of Sierra Science, a company directly involved in researching the extension of telomeres and the distribution of such substances, claims, at the *Reverse Aging Conference 2011*, to have tested all those substances suspected of blocking telomerase in the laboratory. However, none of these substances resulted in a significant suppression of telomerase!



Alternative approach

For those who prefer to be on the safe side and want to minimise the (as yet unconfirmed) cancer risk as much as possible, a procedure that provides for a cyclic switch between telomerase activators and telomerase inhibitors is recommended.

Specifically, this could include a two-week phase in which the telomerase is activated by telomerase activators, followed by a two-week phase in which (supposed) telomerase inhibitors are used. This is followed again by a two-week telomerase activation phase, etc.

Telomerase activators

The following natural substances activate telomerase:

- Astragalus membranaceus (as well as products thereof: astragloside IV, cycloastragenol, TA-65)
- ginkgo biloba
- silymarin
- colostrum (includes telomerase itself)
- omega-3 fatty acids[125]
- vitamin E[126]
- vitamin C[127]

[125] Farzaneh-Far R. et al. JAMA 3 January 2010; 303 (3), p. 250–257

[126] J Cell Biochem 2007, p. 102

[127] Lif Sci 1998, p. 63



- vitamin D[128]
- folic acid[129]
- dark chocolate

It should also be noted that milk and dairy products should suppress the inhibition of telomerase by polyphenols.

Furthermore, some experienced users recommend a cyclical intake – one month of astragaloside IV (according to the manufacturer's instructions), a five-month break, and so on. This is done to induce telomerase activation without risking the onset of cancer (which, to date, has not been confirmed to be caused in connection with telomerase activation).

Of course, these are purely hypothetical, entirely speculative models of how to take astragalus for telomerase activation. As long as no secure long-term studies are at hand, but experiences/findings from prolonged intake of numerous people are available, this will all continue to be pure speculation.

However, due to the lack of research data, no reliable facts, let alone reliable intake programmes, can be provided. On the other hand, it could take several decades – a period of time that only seems acceptable to the youngest among us.

Furthermore, it remains to be seen whether the pharmaceutical companies actually have an interest in exploring this important topic further and whether the

[128] Am J Clin Nutr 2007, p. 86

[129] J Nutr 2009, p. 139



state and the official media will one day provide detailed and truthful information. Just consider what it would mean for our pension funds if every German citizen lived for one year longer, and the revenue the pharmaceutical companies would lose out on if telomerase activation actually led to the healthy, long life we desire...

To prevent the industry and the state from getting in each other's way, it is conceivable that, one day, an astragalus-based drug will be produced, but will be unaffordable for the average citizen and will be reserved for the 'top ten thousands of the population. With the knowledge provided here you will then have sufficient information to achieve comparable results in a completely natural and cost-effective way!

BETA-CAROTENE

What is it and what does it act against?

Beta-carotene is just one of more than 400 carotenoids which naturally occur in plants and fruits and give them their colour. The special thing about it, however, is that it is most common of all. Beta-carotene is the precursor to vitamin A,



which is why it is often referred to as 'provitamin A'. Theoretically, a beta-carotene molecule can be split into two vitamin A molecules; in practice, however, only part of the beta-carotene in the human body is converted to vitamin A.

The second surprising aspect is that beta-carotene is the most active of all carotenoids in terms of vitamin A effect. As insignificant as this may sound to a layperson at first, on closer examination, beta-carotene is surprising as it plays a key role in many important processes within our bodies. It plays an important role in reproduction, growth, cell metabolism and cell protection, immunity and even the regulation of the fat metabolism. We need it for healthy skin and for our eyes and hair, and our mucous membranes also rely on beta-carotene. Beta-carotene is a very important antioxidant (radical scavenger) and, in this capacity, is a very powerful protector of our cells; it has been shown to protect effectively against even serious diseases, such as cancer and cardiovascular disease.

It is not an exotic substance, or even a new one, but a natural one as old as the plants that contain it. Therefore, beta-carotene has been a significant health-giving companion of homo sapiens since time immemorial.

Unfortunately, beta-carotene has remained in the shadows over the years. As surprising as this may seem, science has only been interested in it for some 40 years, but has gained breath-taking insights, which this section will examine. We see its industrial use in the form of natural dyes to give certain foods, such as margarine, butter or fruit juices, an appetising colour and preserve them in a natural way (similar to how it 'preserves' the human body!).



Beta-carotene provides you with a natural substance that, as verified by studies, can reduce myocardial infarction by up to 50 %, protects against cancer and, as a radical scavenger, offers comprehensive protection against countless other illnesses and premature biological ageing.

Which foods contain beta-carotene and in what quantities?

The name 'beta-carotene' suggests an increased occurrence in carrots, but this is not exclusively so. One of the best sources of beta-carotene is spirulina, an algae that contains as much carotene in 10 g as there is in 156 g of carrots.

Where is beta-carotene most common? What are the best sources?

The best sources of beta-carotene are, in addition to the spirulina algae: yellow, orange and dark green vegetables and fruits.

To be more precise, these are:

- yellow/orange fruits: apricots, nectarines, peaches, mangoes, papayas
- yellow/orange vegetables: pumpkin, carrots, sweet potatoes
- dark green leafy vegetables: broccoli, spinach, chicory, cress, endive, kale, lamb's lettuce

Other proven sources of beta-carotene (provitamin A) are: asparagus, tomatoes, cabbage, peas, corn, prunes, fennel, chard and sour cherries.



The following table describes the ratio of beta-carotene compared to other (less active) carotenoids in different foods (according to Leung):[130]

Food	Beta-carotene in %	Other carotenoids in %
Cereals:		
Maize	40	60
Others	50	50
Legumes:		
Lentils, beans, peas	50	50
Vegetables:		
Green vegetables (kale, spinach, broccoli, savoy cabbage)	75	25
Deep-yellow vegetables (carrots, turnip)	85	15

[130] Biesalski et al.: Ernährungsmedizin ('Nutritional Medicine'), 1995, Thieme-Verlag, Stuttgart



Potatoes	50	50
Others	50	50
Fruit:		
Deep-yellow fruit (i.e. melons, peaches, mirabelles, mangoes, apricots)	85	15
Others	75	25
Vegetable oils:		
Red palm oil	65	35

Source: Thieme-Verlag Stuttgart, Biesalski, Fürst, Kasper, Kluthe, Pölert, Puchstein, Stählein: Ernährungsmedizin ('Nutritional Medicine'), 1995



The following table[131] shows the carotene content of certain foods:

Food	Beta-carotene content (mg/kg)
FRUITS	
Apricots (dried)	36
Melons	20
Apricots (fresh)	15
Cherries	15
Fruit juice	5
Plums, bananas	2
Green olives	1.5
Avocado	1
Rhubarb, pineapple	0.6
Oranges	0.5
VEGETABLES	
Carrots	70
Spinach (cooked)	60
Beetroot (cooked)	50
Kale (cooked)	50
Broccoli (cooked)	50

[131] Biesalski et al.: Ernährungsmedizin ('Nutritional Medicine'), 1995, Thieme-Verlag, Stuttgart



Endives	20
Tomato juice	7
Tomatoes	5
Green beans	3

Source: Thieme-Verlag Stuttgart, Biesalski, Fürst, Kasper, Kluthe, Pölert, Puchstein, Stählein: Ernährungsmedizin ('Nutritional Medicine'), 1995

It is worth noting that the content of beta-carotene in fruits and vegetables can vary greatly; it also depends on the harvest time and the degree of ripeness. Furthermore, preparation before consumption plays an important role in terms of the bioavailability (absorption capacity) of the body. For example, it is known that the consumption of raw carrots does not easily lead to the desired supply of beta-carotene, since the 'release' of the beta-carotene from raw carrots, in which they are enclosed in crystalline form in indigestible cell membranes, requires a reduction of these cell membranes, such as by squeezing a carrot for carrot juice or preparing mashed carrot.

Obtaining beta-carotene

To produce beta-carotene capsules, extractions from the same yellow, orange and green fruits and vegetables are used, such as carrots, peppers, tomatoes and more recently a microalgal species called 'Dunaliella salina', which has the highest carotene content of all known plant species.

For this purpose, the alga is subjected to increased light irradiation, a nitrogen



deficiency and at the same time a high salt concentration; under these conditions, it produces high levels of carotenoid droplets that provide the raw material for beta-carotene preparations.

Absorption and storage of beta-carotene in the body

Upon ingestion, only 10-50 % of the total amount of beta-carotene taken is absorbed in the gastrointestinal tract. The enzymes convert the beta-carotene into retinol (vitamin A) in the enterocytes of the intestinal mucosa. As the intake increases, the proportion of reabsorbed beta-carotene decreases. Here, the body regulates the conversion itself and once it has absorbed enough vitamin A, it slows down the conversion of beta-carotene into vitamin A. This makes the intake of beta-carotene safe and certainly does not lead to a feared vitamin A hypervitaminosis due to an excessive intake of beta-carotene. A large surplus is mainly stored in the fatty tissue and in the skin and the higher amount causes a yellowish skin colour. When the intake of beta-carotene decreases, this regulates itself again.

How does beta-carotene work and what does it act against?

Before turning to the real benefits of beta-carotene, we think it is of the utmost importance to first clarify the old debate about the possible side effects of beta-carotene in smokers, which continues to cause persistent and unfounded uncertainty among many consumers. This debate has unnecessarily resulted in more people associating beta-carotene with something dangerous than seeing it for what it is: a godsend for our health!



Does beta-carotene harm smokers?

Sadly, many people heard about beta-carotene for the first time, when, in the 1990s, the relevant media jumped at the chance to criticise it; namely stating that beta-carotene, which had made a name for itself in prophylaxis and even in the treatment of cancer, would, on the contrary, actually promote lung cancer in smokers!

What is true and how can the facts actually be evaluated?

In two studies conducted over several years in the 1990s, beta-carotene increased lung cancer risk rather than decreasing it, as had been hoped.

The criticism of the criticism:

While these truly negative study results were widely swallowed by the media and the population was told that the 'highly praised' beta-carotene was anything but healthy, the two most important factors that led to the negative study results were almost invariably left unmentioned:

1) The test subjects were invariably heavy smokers!

2) The beta-carotene was taken in very high doses, which corresponded to 10-15 times the recommended daily allowance!



Conclusion:

The use of beta-carotene should only be questioned in the case of heavy smokers and very high dosages; under these two conditions, the risk of getting lung cancer may increase!

According to Prof. Dr. Biesalski from the University of Hohenheim, the risk does not lie in beta-carotene itself, but in smoking – and even for heavy smokers, beta-carotene intake is safe in doses up to 10 mg each day.[132] To sum up this controversial debate in the words of Prof. Biesalski: *'We do not have to protect ourselves from TOO MUCH beta-carotene, rather, we need to protect ourselves from having TOO LITTLE. Beta-carotene from foods, fortified juices or supplements in the appropriate doses can be considered safe!'*

Summary of the effects of beta-carotene

- Beta-carotene binds the chain-breaking, aggressive peroxy radical as an antioxidant.
- Beta-carotene captures the singlet oxygen and neutralises it.
- Beta-carotene reliably protects against UV rays and the resulting cell damage, including skin cancer.
- Beta-carotene counteracts the destructive lipid peroxidation that causes us

[132] http://www.zentrum-der-gesundheit.de/beta-carotin-ia.html



to age.

- Beta-carotene strengthens the immune system through the activation of T and B cells.
- Beta-carotene joins the group of key antioxidants and supports them in their work against damaging free radicals, which are considered to be the main trigger for most diseases and biological ageing.
- Beta-carotene regulates lipid metabolism – a fact that should be of particular interest to overweight people.

Effect of beta-carotene as an antioxidant

Oxidation is a destructive process that we all know best from rusting iron or fats becoming rancid. Similarly, destructive damage is caused by free radicals in our body if we do not protect ourselves against them.

In addition to antioxidants such as vitamin C, OPC, Q10, vitamin E, alpha-lipoic acid, selenium and others, beta-carotene plays a central role as an efficient antioxidant and is therefore added to butter and margarine to make it last longer.

Within these important functions, beta-carotene neutralises the attacking free radicals and protects our body cells from the damage that can cause premature ageing and many diseases.

Effect of beta-carotene as a scavenger of singlet oxygen

Singlet oxygen is produced beneath the skin under the influence of microwaves



or ultraviolet light, as we experience it in sunlight.

In the formation of harmful peroxides and hydroperoxides, the singlet oxygen reacts with many organic compounds, triggering whole chain reactions to free radical attacks and causing immense damage to the body.

Here beta-carotene has the extraordinary gift of intercepting and defusing this singlet oxygen by absorbing its energy and releasing it as heat – a process also known as 'quenching'.

Effect of beta-carotene on the immune system

In numerous studies, beta-carotene has proven its ability to stimulate the immune system time and again. In this function, it activates the immune system via several mechanisms:

- it activates T lymphocytes and killer cells;
- it promotes the growth of B and T lymphocytes;
- it additionally strengthens the cytotoxicity of macrophages.

Effect of beta-carotene on diseases and conditions

In its function as a highly potent antioxidant, ultimately as the protector of our cells, beta-carotene exerts a positive influence on an infinite number of diseases that are impossible to list here.

Beta-carotene has shown itself to be particularly effective in the following



diseases and conditions:

- heart disease
- atherosclerosis
- memory loss
- cancer (especially cancers of the breathing and digestive organs)
- radiation protection of the skin
- protection of the eyes (against macular degeneration)
- protection against intestinal polyps
- regulation of fat metabolism
- mucous membrane protection
- wound healing

Protective effect of beta-carotene against myocardial infarction

According to a study on 4,800 Dutch people at the Erasmus University in Rotterdam, an increased intake of beta-carotene reduces the risk of a heart attack by an unbelievable 45 %!

The study participants were between the ages of 55 and 95; those taking beta-carotene-rich foods in addition to beta-carotene supplements reduced their heart attack risk by as much as 50 %!

Researchers suspect the reasons for this reduction were the effect of beta-carotene as a radical scavenger and the direct influence of vitamin A (beta-carotene



is the precursor of vitamin A) on the fat metabolism.[133]

Protective effect of beta-carotene against atherosclerosis

Atherosclerosis, also commonly referred to as 'arterial calcification', is the most common cause of cardiovascular disease. A daily dose of 15-25 mg of beta-carotene can counteract atherosclerosis and subsequent diseases such as heart attack, stroke, coronary heart disease and circulatory disorders in the legs.

Effect of beta-carotene against cancer

Beta-carotene has proven its worth in cancer patients for years, both as a preventive and as an adjunct therapy, and is now part of many alternative cancer therapies.

Numerous studies have proven that people who have a high level of beta-carotene in their blood are less likely to develop cancer. In his time, one of the biggest advocates of beta-carotene in the fight against cancer was the late Dr. Nieper, who made a name for himself as a tireless advocate of natural medicine in diseases such as cancer or MS and was very successful in doing so. In addition to ordinary citizens, both Hollywood greats and nobles were among his patients.

Dr. Nieper was a pioneer in the field and was one of the first complementary oncologists to recognise that beta-carotene, through the activation of T-cells

[133] American Journal of Nutrition



('natural killer cells') and the thymus gland, was extremely successful in stimulating the immune system and was tailor-made for fighting cancer. He prescribed his cancer patients high doses of beta-carotene and achieved above-average cure rates in conjunction with other natural remedies.

Beta-carotene seems to be very helpful, especially with certain cancers; these include skin cancer, cervical cancer, lung cancer, oral cancer, gastric cancer, oesophageal cancer and nasopharyngeal cancer.

For example, the *Ärztezeitung* (Doctor's Journal) reported in its issue of 22 August 2000 that beta-carotene reduces the risk of developing lung, oesophageal and stomach cancer.

Effect of beta-carotene against cancer

Even with cancer, beta-carotene functions using various mechanisms:

- It stimulates the immune system,
- inactivates substances harmful to cells,
- controls cell growth and cell multiplication and
- inhibits the mutation of procarcinogens in carcinogens.

Beta-carotene in mouth cancer

In itself and in combination with vitamin E, beta-carotene has been shown to reduce degenerate damage in several studies.

Beta-carotene in intestinal polyps and colorectal cancer



In a study on 864 subjects, called the *Antioxidant Polyp Prevention Study,* beta-carotene could prove to reduce the risk of recurrent bowel polyps by 44 %. The prevention of intestinal cancer is also attributed to this.[134]

Beta-carotene in skin cancer

The effect of beta-carotene against skin cancer has been well established; for example, to prevent skin cancer, it is now recommended to take a dose of 15-30 mg/day four to six weeks before a holiday in a sunny place.

Beta-carotene for stomach cancer

In the five-year Linxian study on 30,000 Chinese people in 1993, the subjects (all non-smokers!) were given beta-carotene in combination with vitamin E and selenium. Mortality rates were thus reduced by 9 %, cancer deaths were reduced by 13 % and, with gastric cancer, significant success was achieved, with 21 % fewer deaths.[135]

Effect of beta-carotene on the eyes

Beta-carotene has proven itself in numerous ocular function disorders:

Beta-carotene protect eyes from macular degeneration

A study on 356 volunteers succeeded in unequivocally certifying beta-carotene

[134] Journal of the National Cancer Institute 2003; 95, p. 717–722

[135] J Natl Cancer Inst 85, 1993, p. 1483



as a significant protecting factor against age-related macular degeneration.

Beta-carotene and dry conjunctiva

Beta-carotene, or vitamin A converted from it, proves to be very helpful in case of excessively dry conjunctiva, when it comes about, for example, due to irritation caused by contact lenses. Here, beta-carotene (most efficiently in conjunction with omega-3 fatty acids) can replace the eye drops that would otherwise be necessary.

Beta-carotene and night blindness

Beta-carotene (or vitamin A) can counteract night and twilight vision disorders.

Beta-carotene is important for healthy skin and eyes

Beta-carotene is of paramount importance for the ability of healthy skin and eyes to function (beta-carotene is a component of the visual pigment!). If more beta-carotene is taken than is needed for vitamin A production, it will be deposited in the cells of the epidermis, where it will have a further positive impact on the health and protection of our skin.

Beta-carotene effect as mucosal protection



Since beta-carotene also affects the moisture balance, it has a pronounced mucosal protection and can be very helpful in this regard for diseases of the bronchi, the gastrointestinal tract and all kinds of allergies.

Beta-carotene accelerates wound healing and relieves burns

Beta-carotene also exerts an influence on the cell metabolism of the skin, accelerating wound healing and relieving burns.

Effect of beta-carotene on fat metabolism

As a Spanish study has shown, it is clear that vitamin A (beta-carotene is the precursor) not only has a significant influence on the protein but also on our fat metabolism and thus on our body fat percentage. Inadequate vitamin A distribution resulted in an increase in adipose tissue; a rich intake of vitamin A, however, caused the pounds to melt away again.[136]

[136] Cellular and Molecular Life Sciences, 2003, 60 (7), p. 1311–1321



Beta-carotene as an excellent UV protection

The negative development of the dwindling ozone layer is alarming. According to the World Meteorological Organisation (WMO), the destruction of the ozone layer over the Arctic has never been observed to this extent; it reduced by a further 40 % during the winter.

However, it is far from just the Arctic or Australia that are affected by it, but also Europe and thus us directly!

For example, doctors are already recommending applying sunscreen in April, since UV radiation is comparable to levels in midsummer. You should protect yourself from it accordingly!

It is precisely at this point that the beta-carotene plays its role as a natural UV protector masterfully.

Beta-carotene has a multifactorial effect here:

- It absorbs the UV rays and protects against the cell destruction caused by photooxidation.
- It prevents the formation of singlet oxygen and other energetic substances in the skin cells.
- It can, to some extent, revise already existing processes.

In various studies (see also 'Beta-carotene studies'), beta-carotene impressively showed that it can reliably protect the skin from sunburn.



In the Berlin-Eilath study by Professor Gollnick and his staff, holidaymakers were divided into two groups before they left: while one group received a placebo, the other group took 30 mg of beta-carotene ten weeks before they left.

In the course of the study, participants did not apply cream to their skin at a particular spot. Furthermore, both groups consumed no other beta-carotene-containing foods in order not to falsify the study results. After two weeks, it was clear that the group that consumed beta-carotene had significantly less skin redness than the control group. The result was scientifically confirmed by special dermatological test methods using a chronometer. Prof. Helmut Sies from the University Hospital of Düsseldorf confirms this with his opinion that photooxidative stress can be neutralized by beta-carotene.

The conclusion of the experts:

External UV protection in the form of sun creams is no longer sufficient. Rather, you should take double protection and protect yourself from the inside (with the use of beta-carotene) as well as from the outside with sunscreen.

Recommended intake of beta-carotene as UV protection:

According to the study, it is recommended to take 30 mg of beta-carotene for several weeks before your holiday (preferably four) to build up a corresponding plasma level in the body and to be able to start the holiday with adequate protection.

Recommended intake for beta-carotene



While the German Nutrition Society is silent on this topic and does not give a separate recommendation for beta-carotene, in the Netherlands, for example, 2.4 mg of beta-carotene per day is recommended. In the US, the National Cancer Institute (NCI) recommends 6 mg a day. Most vitamin researchers, according to Prof. Diplock, recommend a daily amount of carotenoids of 15 mg or at least 20-30 mg of beta-carotene every other day.

The preventive effect of beta-carotene, according to Prof. Biesalski, is best at plasma levels of 0.5 µmol/l or higher.[137] To achieve such a value, a daily intake of 2 to 5 mg beta-carotene is needed.

Beta-carotene deficiency

When is beta-carotene deficiency present?

A beta-carotene deficiency is rare, but vitamin A deficiency is the most common vitamin deficiency worldwide. Since beta-carotene is a precursor to vitamin A (retinol), vitamin A deficiency can be equated with beta-carotene deficiency.

Symptoms of vitamin A deficiency (based on beta-carotene deficiency)

Symptoms of vitamin A deficiency/beta-carotene deficiency include:

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[137] Maria-Elisabeth Lange-Ernst: Einfach gesund bleiben – warum L-Carnitin für Frauen so wichtig ist ('Just Stay Healthy - Why L-Carnitine is So Important for Women'), 2nd Edition, 2005, p. 30 f.



- growth defects
- susceptibility to infection
- dry skin
- acne
- poor eyesight
- night blindness
- cataracts
- disruption of senses (hearing, smell, taste)
- higher risk of cancer especially breast cancer, prostate cancer, lung cancer, uterine cancer, colon carcinoma
- possibly higher risk of cardiovascular disease

To measure the beta-carotene level in the body, high pressure liquid chromatography, so-called HPLC, is used. According to Prof. H.K. Biesalski, the mean beta-carotene plasma level is 0.3 to 0.6 µmol/l. It is a value that is subject to seasonal fluctuations.

How much beta-carotene must be taken to achieve this value?

To achieve a value of 0.5 µmol/l, a daily intake of 2 to 5 mg of beta-carotene is



necessary. In practice, it is far from easy to reach these levels with the help of natural food, because starting from 75 kg of vegetables and 85 kg of fruit, which for example Germans consume on average every year, a maximum of 1 mg of beta-carotene is obtained from the vegetable intake and to 0.5 mg in the form of consumed fruit. In addition, vitamin losses due to long periods of storage and transportation, growth promoters, food preparation and other factors must be taken into account, which further reduces beta-carotene intake. In fact, the average German consumes only 0.8 mg of beta-carotene daily. According to Prof. Biesalksi, it can be assumed that plasma levels below 0.3 µmol/l are to be regarded as a beta-carotene deficiency.

Although it is clear that by far the largest share of the population suffers from beta-carotene deficiency, there are certain groups of people who are particularly at risk:

Risk groups in which beta-carotene deficiency is common

- pregnant and breastfeeding women
- smokers
- people who consume alcohol
- groups of people with fat resorption difficulties
- rheumatics
- patients with liver cirrhosis



Beta-carotene studies

The health-promoting effects of beta-carotene have been clearly demonstrated in numerous representative studies.

Beta-carotene reduces the risk of myocardial infarction by 50 % in studies!

In a Dutch study by Erasmus University in Rotterdam with 4,800 participants between the ages of 55 and 95, an increased intake of beta-carotene reduced the risk of heart attack by 45 %!

Those who took beta-carotene pills in addition to eating a beta-carotene-rich diet even reduced their risk of heart attack by 50 %! The researchers suspect the reason for this in beta-carotene's function as a radical scavenger and in the direct influence of vitamin A (beta-carotene is the precursor of vitamin A) on the fat metabolism.[138]

Beta-carotene as UV protection

As already mentioned, in the 'Berlin-Eilath Study' led by Professor Gollnick and his staff, holidaymakers were divided into two groups before they left. While one group only took a placebo, the other group took 30 mg of beta-carotene

[138] American Journal of Nutrition



ten weeks before they left.

In the course of the study, participants did not apply cream to their skin at a particular spot. Furthermore, both groups did not consume any other beta-carotene-containing foods to prevent any falsification of the study results.

After two weeks, it was clear that the group that consumed beta-carotene had significantly less redness than the peer group. The result was scientifically confirmed by special dermatological test methods using a chronometer.

Beta-carotene protects the eye from macular degeneration

A study on 356 volunteers unequivocally certified beta-carotene as a significant protector against age-related macular degeneration.[139]

Beta-carotene protects against intestinal polyps and intestinal cancer in studies

In the study on 864 subjects, called the *Antioxidant Polyp Prevention Study,* beta-carotene reduced the risk of recurrent bowel polyps by 44 %. The prevention of intestinal cancer is also attributed to this.[140]

Beta-carotene reduces deaths from stomach cancer by 21 %

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[139] Maria-Elisabeth Lange-Ernst: Einfach gesund bleiben – warum L-Carnitin für Frauen so wichtig ist ('Just Stay Healthy - Why L-Carnitine is So Important for Women'), 2nd Edition, 2005, p. 173

[140] Journal of the National Cancer Institute 2003, 95, p. 717–722



In the five-year Linxian study from 1993, 30,000 Chinese subjects (non-smokers!) were given beta-carotene in combination with vitamin E and selenium. Mortality rates were thus reduced by 9 %, cancer deaths were reduced by 13 % and, with gastric cancer, significant success was achieved, with 21 % fewer deaths.[141]

Beta-carotene makes the pounds melt away

According to a Spanish study, vitamin A (beta-carotene is its precursor) clearly has a significant effect on our fat metabolism and therefore on our body fat percentage.

If insufficient vitamin A was administered in animal experiments, there was an increase in fatty tissue; a richer intake of vitamin A, however, made even more pounds melt away.[142]

Are there any side effects when taking beta-carotene?

As already discussed in the section 'Beta-carotene effect', beta-carotene made negative headlines when two studies suggested it would increase the risk of lung cancer in smokers instead of protecting them against it. What was not reported, however, is that, firstly, those involved were very heavy smokers and secondly, the intake of beta-carotene was in very high doses, which corresponded to 10 to 15 times the usual recommendation.

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[141] J Natl Cancer Inst 1993; 85, p. 1483

[142] Cellular and Molecular Life Sciences, 2003, 60 (7), p. 1311–1321



Even a high intake of beta-carotene cannot lead to oversupply, because the body, as already described, only converts as much beta-carotene into vitamin A as it requires at that moment. It stores the rest in the skin. The only side effect which can occur due to high amounts of natural beta-carotene is of a visual nature. This is a yellowing on the palms and soles of our feet. This results from taking more than 20 mg of beta-carotene daily, which accumulates under the skin and leads to so-called hypercarotinemia, which is completely harmless. If the intake of beta-carotene is stopped, or if the dosage is lowered, the hypercarotinemia disappears completely by itself.

Incidentally, naturopaths and alternative practitioners prescribe 180 mg of beta-carotene and more for certain diseases, without any significant side effects.

Interactions of beta-carotene

Does beta-carotene interact with other substances?

Beta-carotene levels may decrease with regular cigarette consumption and alcohol consumption.



Things to know in advance

Colostrum is more than a wonderful gift from Mother Nature. It is nature's greatest possible reassurance of newborn babies' survival chances, to ensure the survival of both the human and the animal race. Among the gifts of Mother Nature, colostrum plays a very special role, because it is not just a nutrient, but THE 'Number One' nutrient, with the longest tradition of intake and the highest conceivable possibility of intake – namely from when the first living creature was born and suckled.

To protect the newborn body by strengthening its defences against numerous viruses and bacteria, such as the typical form of blood poisoning, known as neonatal sepsis, and to give it the power to breathe, to communicate through sounds and to approach the maternal breast, to give it muscular power (in the case of animals) to move on with the mother and herd in search of food and water, just a few hours after birth, without being left alone, starving and dying of thirst, or being eaten by predators, Mother Nature had to come up with a very special strategy in order to quickly provide the newborn with a concentrated load of nutrients and vital substances which is second to none and ensures the survival of the newborn in the critical first days.

Logically, this reinsurance from Mother Nature cannot be done in any other way than through breast milk, because, apart from oxygen and heat, it is the



only factor that gives the newborn everything it needs to survive.

Colostrum is nothing but a first milk secretion that is produced in the breast glands of the mother during the first 24 to 72 hours after delivery. It contains over 80 different micronutrients which provide the life-sustaining immune and growth factors and give the newborn the immunity and strength to survive the most difficult phase of its life without coming to harm. In addition, newborns are given digestive control signals which help the gastrointestinal tract adapt and mature. Colostrum contains nutrients and the necessary calories to ensure the development of the brain and nervous system.

The intention and desire here are to make it possible to not only benefit from the fabulous health benefits in the first 24 to 28 hours, but also to benefit from the immune-building and fortifying properties of colostrum in adulthood.

The DNA sequences of various human and animal colostrum constituents were found to be nearly identical, and there was nothing to prevent colostrum extracted from the first milk of cows and goats (also called 'beestings') for human use in the form of a dietary supplement.

Now, it would be morally questionable to take something away from calves and kids, which they urgently need for their own lives. But it is reassuring to learn that the dams produce colostrum in excess and that humans only claim this excess for themselves. And so it is no coincidence that millions of people around the world are taking advantage of this gift from Mother Nature and the number of physicians who use colostrum in their practice, not only to relieve



symptoms of allergies, inflammation, infections (MS, AIDS, cancer) and muscle breakdown, but often even to heal them, is increasing.

Legend has it, however, that colostrum has been used for thousands of years, such as in ancient Egypt or ancient Greece, where it was specifically used by athletes; in India, it was even valued as a divine gift.

The first scientific investigations go back to Dr. Christoph W. Hufeland, who experimented with colostrum at the end of the 18th century.

The discovery of the antibiotic sidelined colostrum and it was forgotten. However, it enjoyed a remarkable renaissance thanks to a US publication in 1955 and has been intensively researched ever since. While colostrum, for example, is classified as a health food in Finland and can be found in every grocery store processed as cheese, it is not considered milk in most countries under the Milk Ordinance and therefore cannot be processed in food.

Discover some of the benefits which this nutrient offers to our health and strength and what well-known experts around the world think of colostrum. Read about the individual effects that colostrum has on diseases, backed up by specific studies.

Expert statements on colostrum

'*Colostrum contains a viral antibody that attacks viral invaders.* A *wide range of antiviral factors has been found in colostrum'.* (Dr. E. L. Palmer et al.; Journal of Medical Virology)



'Bovine colostrum immunoglobulins reduce and prevent viral and bacterial infections in immunodeficient patients: bone marrow recipients, preterm infants, AIDS, etc.' (New England Journal of Medicine)

'Colostrum is a highly concentrated mix of natural nutrients enriched with vital building blocks. Colostrum supports the immune system and gives people and animals the necessary strength for a good start to the day'. (Dr. Nico Prümmer)

'I prescribe colostrum to about one third of my patients. According to their own reports, these patients are flourishing after taking this dietary supplement, and their condition usually improves considerably. If we can help the patient feel better without the usual medicines, then we will. In my opinion, modern nutritional biochemistry is a very interesting field – and colostrum is part of it'. (Dr. Nikki Marie Welch)

'Colostrum contains nonspecific inhibitors which inhibit a wide range of respiratory diseases, especially influenza viruses. Colostrum is particularly known for its unique power against potentially fatal outbreaks of the Asian flu virus'. (Drs. Shortridge et al.; Journal of Tropical Pediatrics)

'PRP (proline-rich polypeptide) in bovine colostrum has the same ability to regulate the activity of the immune system activity as the hormones in the thymus gland. It activates an inactive immune system by helping it to fight against pathogenic organisms. PRP also suppresses an overactive immune system, as often occurs with autoimmune diseases. PRP is highly anti-inflammatory and it also appears to act on T cell precursors to produce helper T cells and suppressor T cells'. (Drs. Staroscik et al., Molecular Immunology)



'Colostrum and breast milk (from cows and humans) stimulates the immune system of the newborn; Unidentified proteins accelerate the maturation of cultured B lymphocytes (a type of white blood cell) and prepare them for the production of antibodies.' (Dr. Michael Julius, McGill University, Montreal, Science News)

'Glycoproteins in bovine colostrum inhibit the attachment of Helicobacter pylori bacteria which cause gastric ulcers. Colostrum contains large amounts of interleukin-10 (a potent anti-inflammatory agent) which is of great importance in reducing inflammation in arthritic joints and injured areas'. (Dr. Olle Hernell, University of Umeå, Sweden, Science)

'Based on the fact that colostrum is natural and the feedback from my clients, I believe that colostrum helps people with weak or unstable immune systems in a very effective and natural way. Just as it gives immunity to a newborn baby, colostrum helps every human develop a balanced, strong immune system over time. Thus, I often recommend colostrum when people are experiencing chronic infections or inflammations of any kind or other symptoms of significant weakness or immune system disturbance, such as hypertension. chronic fatigue, cancer, ulcers, irritable bowel syndrome, colitis etc. Clients who test the efficacy of colostrum by suspending ingestion report a clear, significant benefit that cannot be described in detail here'. (Dr. Horton Tatadan)

'*Human clinical study: bovine colostrum immune factors, taken orally, work against pathogenic organisms in the digestive tract. The consumption of bovine colostrum immunoglobulins could be a novel method of providing passive immune protection against a host of intestinal disorders causing antigens (viral and bacterial)'.* (Dr. R. McClead et al., Pediatrics Research)



'*The high efficiency of the ingredients in our colostrum preparations does not result from the amount used, but from their natural relationship to each other. The beneficial effects of colostrum, in terms of its multiple functions in the body, must be considered from the point of view of BIO-logical harmony'.* (Dagmara Mandalka, Dip. Chem.)

'*Because modern foods are getting poorer in essential nutrients and also contain some poisons or preservatives, we need extra power nutrition to maintain the balance of our bodies. Maintaining your health and improving your quality of life with colostrum's vital nutrients are our most important task'.* (Dr. Marco Prümmer, scientific consultancy Medsportiv GmbH, author of the book 'Kolostrum, Geschenk der Schöpfung' ('Colostrum, the Gift of Conception')

'*Studies with human volunteers have shown that maintaining the biological activity of IgG (immunoglobulin G) in the digestive juices of adults who have been given bovine colostrum orally suggests passive enteric (intestinal) immunisation for the prevention and treatment of acute bowel disease'.* (Dr. L.B. Khazenson; Microbial & Epidemial Immunobiology)

'*Colostrum stimulates the lymphatic tissue and thus provides support in aged or immunodeficient people. Nature has used the oral route for the development of the immune system since the origin of mammals (it is safe and effective). The oral administration of immune factors is simple, cheap, free of side effects and can be extremely useful in veterinary and human medicine for correcting immunodeficiencies'.* (Drs. Bocci, Bremen, Corradeschi, Luzzi and Paulesu, Journal Biology)

'Immunoglobulins in colostrum have been used successfully to treat thrombocytopenia, anaemia,



neutropenia, myasthenia gravis, Guilain Barre syndrome, multiple sclerosis systemic lupus, rheumatoid arthritis, bullus pemphigoid, Kawasaki's syndrome, chronic fatigue syndrome and Crohn's disease, along with other conditions'. (Dr. Dwyer; New England Journal of Medicine)

'Scientists have reported that colostrum stimulates the maturation of B lymphocytes and prepares them for the production of antibodies that promote the growth and differentiation of white blood cells. Similar activities in cow and human colostrum can also activate macrophages.
(Dr. M. Julius, McGill University, Montreal; Science News)

'It has been found that PRP is not species-specific (transferable for human use). It changes white blood cells to functionally active T cells. The results have been shown in the treatment of autoimmune diseases and cancer. An important immune modulator stimulates an underactive immune system and calms an overactive one'. (Drs. Janusz & Lisowski; Archives of Immunology)

'Bovine colostrum contains TGF-1, which has an important suppressive effect (anti-inflammatory) on cytotoxic substances. It prevents the cell growth of human osteosarcoma (cancer) cells (75 % prevention). It is a mediator of fibrosis and angiogenesis (healing of the heart muscle and blood vessels), (Roberts et al., 1986), accelerates wound healing (Sporn et al., 1983) and bone formation (Centrella et al., 1987)'. (Drs. Tokuyama and Tokuyama, Cancer Research Inst. Kanazawa Univ., Japan)

'Only the retinoic acid found in colostrum showed protection and reduced colonisation of the herpes virus. Although not a cure, retinoic acid effectively reduces levels of the herpes virus



(1/100 to 1/10 000 viruses remained active after treatment), which allowed the body's immune system to prevent an outbreak'. (Drs. Charles Isaacs et al.; Experimental Biology, Science)

'It has been discovered that growth factors in bovine colostrum are extremely effective in promoting wound healing. It is recommended for trauma and healing after surgery, both for external and internal use'. (Drs. Sporn et al.; Science)

'Immunoglobulins in colostrum are able to neutralise the most harmful bacteria, viruses and yeasts'. (Dr. Per Brandtzaeg, Annals of the New York Academy of Sciences)

'IGF-1, discovered in colostrum, stimulates bone and muscle growth and the regeneration of nerve cells. It was also discovered that external application to wounds resulted in more effective healing'. (Drs. Skottner, Arrhenius-Nyberg, Kanje and Fyklund, Acta. Paediatric Scandinavia, Sweden)

'IGF-1 (contained in colostrum) has anabolic and tissue-repairing properties. IGF-1 is the only growth factor that provides muscle growth while repairing tissue'. (Tollefsen, 1989)

'Old age is associated with reduced levels of growth hormone: GH and IGF-1. The onset of GH and IGF-1 increases the body weight and muscle growth of elderly people'. (Drs. Ullman, Sommerland & Skottner, Dept. of Pathology and Pharmacology, Univ. of Gothenburg, Sahlgren Hospital & HabiVitrum AB, Stockholm, Sweden)

'Bovine colostrum contains high levels of growth factors that promote normal cell growth and DNA synthesis'. (Drs. Oda, Shinnichi et al.; Comparative Biochemical Physiology)



'*I have found that colostrum helps with ailments that other treatments have not remedied, or cannot remedy'.* (Carl Hawkins, chiropractor)

'Concentrations of lactoferrin and transferrin in bovine colostrum were considered necessary to deliver iron into the blood. The highest concentrations of both substances were found in the first milking postpartum'. (Drs. Sanchez et al., Biological Chemistry)

'Colostrum contains retinoic acid, which helps fight the herpes virus. It also contains glycoproteins (kappa casein) that protect against bacteria that cause gastric ulcers'. (Dr. Raloff, Science News)

'Cartilage Inducing Factor-A (CIF-A) found in colostrum stimulates cartilage repair'. (Drs. Seyedin, Thompson, Bentz et al.; Journal of Biological Chemistry)

'Clinical studies have shown that IgE (immunoglobulin E) in bovine colostrum might be responsible for the regulation of allergic reactions'. (Drs. Tortora, Funke & Cast, Microbiology)

'Reducing viral levels in the body and stimulating the natural immune defence hold the greatest promise of helping our immune system keep the HIV virus at bay'. (Drs. Nowa & McMichael; Scientific American)

'In patients with high blood pressure, the blood pressure usually normalises after 3-4 months and patients with diabetes also regularly report to me that the blood sugar levels normalise'. (Dr. Marco Prümmer, general practitioner and sports medicine specialist)

Production and processing of colostrum



The gentle processing of colostrum is the immediate guarantee for the highest possible preservation of its fascinating nutrients. Ideally, colostrum is obtained from organic cattle, which rules out contamination with rearing hormones, pesticides and herbicides.

Colostrum for food supplement production is obtained within the first 36 hours after the birth of calves (bovine colostrum) or goats (goat colostrum). About 19 of the approximately 34 litres that a cow produces during this time otherwise remains unused; the calf only uses the remainder.

In the next step, the colostrum is cooled and then dried. At this point, it is important to note that the temperature must not exceed the limit of 28 °C, so that the valuable immune components are not destroyed.

Very often, casein is first removed to ensure better digestibility. Large molecular proteins, fats, impurities and germs are carefully separated; also, the use of heating and preservatives is largely avoided for the purposes of preserving bioactivity.

Colostrum is available in powder form, as capsules, tablets and chewable tablets, but also in liquid form.

Active ingredients and effect

The operating principle of colostrum is enormous. As an open-minded person interested in naturopathic treatments and disease prevention, you may wonder how the operating principles of natural plants and natural herbs fundamentally



differ from colostrum.

While medicinal plants promote healing within the body, colostrum not only promotes healing, but also provides the body with immunoglobulins and growth factors.

Active ingredients in colostrum

This natural product contains about 80 different micronutrients, which are responsible for the extremely potent effects of colostrum. It is therefore essential to breastfeed your child, as various studies[143] indicate that children who have not been breastfed are more likely to suffer from food allergies, eczema, respiratory allergies and digestive problems.

Researchers agree that they are a long way from having identified all the substance groups, let alone individual active ingredients, that provide the fantastic health benefits of colostrum, which adults can use to make their own colostrum supplements.

Among the most important active ingredients in colostrum are:

- antibodies/immunoglobulins

[143] Juto 1985



- leukocytes
- accessory factors
- proteins
- amino acids
- growth factors
- nucleotides
- vitamins
- minerals

Antibodies in colostrum

The antibodies in breast milk (37 have been identified so far) have a doubly important function: They are intended to protect the child from viruses and bacteria from the outside and, at the same time, kill infections that the mother may carry. The phagocytes (white blood cells) thus protect the child from bacilli attacking from both the inside and the outside.



The antibodies contained in colostrum protect the body:[144]

- Salmonella
- E. coli
- Bacteroides fragilis (colon bacteria)
- Shigella
- Bordetella pertussis (whooping cough bacteria)
- Vibrio cholerae
- Candida albicans
- Clostridium tetani
- Steptococcus mutans
- Steptococcus pneumoniae
- Clostridium diphtheria

All four important immunoglobulins are found in colostrum; these include: IgM, IgG, IgA and secretory IgA.

Studies have shown that bovine colostrum contains up to 40 times the amount of IgG as human colostrum.[145] In addition, studies have shown that the immunoglobulins contained in colostrum have special traps that neutralise many viruses, bacteria and fungi.[146] Colostrum has special antibodies that fight harmful

[144] Ogra 1983

[145] Bruce, C. E., Natural History, Feb. 1969

[146] Brandt-zaeg 1983



microorganisms and stimulate the antibodies to react to them.[147]

Colostrum contains a high proportion of immunoglobulins and other antibodies, some of which have yet to be researched in full, which ensure immunity against harmful intestinal bacteria, viruses and fungi. It has also been shown that colostrum exhibits its immune factors less in the tissue itself, but rather, in the stomach, intestine and bronchi.[148] A very important finding that underlines the effect of colostrum at any age. In order to avoid being destroyed in the stomach, colostrum immunoglobulin protein molecules have specific protease inhibitors that prevent the breakdown and destruction of immune factors.[149] The numerous leucocytes (white blood cells) and lymphocytes (T cells) in colostrum protect the organism from other pathogens and pathogens.

Leukocytes (white blood cells) in colostrum

Contrary to what, for example, medicinal plants can offer us, colostrum contains living white blood cells that can protect us from many pathogens; among the most important are macrophages, neutrophils and lymphocytes (predominantly T cells).

Accessory factors in colostrum

While the peroxidase enzymes contained in colostrum destroy pathogens by

[147] Ogra 1983

[148] Tyrell 1980

[149] von Fellenberg 1980



oxidation, the carbohydrates 'oligosaccharides' and 'polysaccharides' and the protein 'lactoferrin' contained in colostrum neutralise some bacteria strands.

Proteins/amino acids in colostrum

The symptoms of iron deficiency include headache, brittle nails and tingling in the hands and feet. The lactoferrin contained in colostrum has the property to bind iron. People who suffer from iron deficiency can experience better iron transport in the body due to iron binding. According to a study, the amino acid *proline* present in colostrum can increase the permeability of the dermal vessels and stimulate or restrict immune responses as needed.[150]

Growth factors in colostrum

The growth factors contained in colostrum (TGF = transforming growth factors) are polypeptides that promote, among other things, the cell growth and thus the ability of our tissue to repair itself.

According to one study, the promotion of cell division in bovine colostrum is 100 times greater than in human colostrum.[151]

The growth factors contained in colostrum have the following effects, among others:

- acceleration of growth and thus regeneration of injured muscles, tendons,

[150] Staroscik 1983

[151] Ballard 1981



ligaments, bones, cartilages, skin collagen and nerve tissue;

- encouragement of fat burning and protection of muscle tissue in diets;
- invigorating and constructive effect of the musculature in weight training;
- faster healing for burns, cuts, surgical wounds, skin abrasions and sore lips;
- regulation of blood sugar levels;
- repair of DNA and RNA in our body;
- increase in general well-being.

Nucleotides in colostrum

Colostrum contains adenosine monophosphoric acid, which regulates the cell metabolism and controls hormones, as well as substances that trigger enzyme reactions. It has been proven that bovine colostrum has seven different nucleotides that are important for cell repair and maintaining healthy cell function.[152]

Vitamins and minerals in colostrum

Among the most important vitamins and minerals found in colostrum, which play important roles in our body, are vitamins A, B12 and E, as well as the minerals iron, copper, magnesium, selenium and phosphorus.

General observed effect of colostrum

[152] Gil, Angel, Sanchez-Medina, Journal of Dairy Research, 1981, Vol 48, p. 35–44



The following listed effects have been observed in colostrum and demonstrated in numerous studies:

- strengthening defences by building the immune system;
- protection against bacteria and viruses
- repair of DNA and RNA
- anti-inflammatory effects
- blood sugar regulating mechanisms
- protection against autoimmune diseases such as asthma, allergy, arthritis, lupus, multiple sclerosis and others
- muscle strengthening and building effect
- protection against muscle loss and promotion of fat loss when dieting
- protection against cancer
- when used locally in the form of creams and ointments, faster wound healing (cuts, surgical wounds, skin abrasions, etc.), relieving burns;
- a sense of well-being via stimulation of the appropriate substances.



Human colostrum vs animal colostrum

Of course, the question arises as to whether the animal colostrum used in dietary supplements is just as effective for humans as colostrum from cattle and goats.

Scientific studies have shown that the colostrum from cattle and goats is not only digestible for humans, but even up to 40 times richer in immune factors than human colostrum and that the composition corresponds to that of human colostrum by as much as 99 %.

Furthermore, the studies indicate that, in contrast to human colostrum, colostrum from cattle and goats has appropriate protease inhibitors and glycoproteins that protect colostrum's active ingredients from being destroyed by adults' gastric acid. It can therefore be assumed that human colostrum is actually intended for the relatively gentle digestive juices of a newborn, while we adults can probably only benefit from animal colostrum.

Studies on the bioavailability of colostrum ingredients

Again and again, it is falsely argued that the immunoglobulins and the growth factors in colostrum are destroyed by gastric acid and therefore cannot be utilised by the body.

As Dr. Pineo and his colleagues managed to prove in 1975, bovine colostrum



contains a so-called glycoprotein, which in turn has protease inhibitors, which ensure that the immunoglobulin protease and the growth factors are not destroyed by gastric acids, even in the stomach of an adult.[153]

Furthermore, Dr. Sandholm and his team of scientists demonstrated that bovine colostrum has a very potent trypsin inhibitor that protects the immunoglobulins in colostrum from gastric acid breakdown.[154]

Bovine colostrum contains 40 times more immunoglobulins than human colostrum

Studies have shown that bovine colostrum contains up to 40 times the amount of IgG as human colostrum.[155]

Nucleotides in colostrum repair body cells and keep them healthy

It has been shown that bovine colostrum has seven different nucleotides which are important for cell repair and maintaining healthy cell function.[156]

Studies on colostrum in HIV/AIDS

In laboratory studies, the effects of lactoferrin, alpha-lactalbumin, beta-lactoglobulin A, and beta-lactoglobulin B on HIV-positive HIV-1 and HIV-2 viruses was examined. Strong antiviral activity against HIV-1 and HIV-2 has been demonstrated. This mechanism is probably due to the prevention of virus-cell

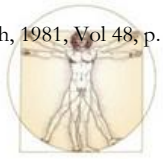
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[153] Pineo et al. Biochemical Biophysiology Acta (Amsterdam.) 1975, 379, p. 201–206

[154] Sandholm et al., Acta Veterinaria Scandinavia, 1980, Vol. 20, No. 4, p. 469–476.

[155] Bruce, C. E., Natural History, Feb. 1969

[156] Gil, Angel, Sanchez-Medina, Journal of Dairy Research, 1981, Vol 48, p. 35–44



fusion and virus entry into MT4 cells.[157] In another study, lactoferrin has been shown to inhibit HIV-1-induced cell diseases; here, lactoferrin is likely to act at the adsorption or penetration stage of the virus or at both stages.[158]

Studies on colostrum and comorbidities of HIV

Candidiasis

A very common concomitant disease of HIV patients is candidiasis of the oral mucosa, a disease of the skin or mucous membranes caused by fungi of the *Candida* genus.

In 1987, at the European conference on the clinical aspects of HIV infections, Danish researchers reported that a 10-day dose of colostrum pills (10 pts/day) is a treatment option for oral candidosis.[159]

[157] Swart 1996

[158] Harmsen 1995

[159] Christensen 1987



Cryptosporidiosis

Another very serious concomitant disease of HIV is cryptosporidiosis. It is a parasite infestation that leads to recurrent diarrhoea. Cryptosporidiosis is one of the main reasons why AIDS patients lose weight quickly, because the parasites deprive the affected body of nutrients, leading to malnutrition and the resulting weight loss.

In a study on 37 AIDS patients, 10 mg of the colostrum immunoglobulin 'lactobin' was orally administered to these subjects for ten days, resulting in a good therapeutic effect.

In 31 treatment periods with 29 HIV patients, 21 resulted in a transient (ten-day) or long-term (> four weeks) normalisation of bowel movement; the frequency of bowel movements decreased from the previous average of 7.4 per day to 2.2 per day.

19 of the patients had no diarrhoea for four weeks, in five patients the cryptosporidiosis completely disappeared after taking lactobin.[160]

Studies on colostrum in inflammations

[160] Beth M. Ley: Kolostrum – die natürliche Nahrungsergänzung ('Colostrum – The Natural Food Supplement'), 1997, p. 69



It has been proven that the ingredients contained in colostrum prevent a previously provoked inflammation.[161]

Individual effect in autoimmune diseases

In the case of autoimmune diseases, it is important that they are treated with an immune regulator that calms or stimulates the immune system when needed. This is exactly what a peptide in colostrum called 'Proline Rich Polypeptide' (PRP) can accomplish, thus providing relief to the patients individually.[162]

Studies on colostrum in diabetes

IGF-1 found in colostrum stimulates glucose utilisation and has proven successful in the treatment of diabetes as it is an effective alternative to insulin and, at the same time, identical to human IGF-1. The IGF level is naturally lower in diabetics than in healthy people.[163]

Studies on colostrum in arthritis

Arthritis, the most common form of inflammatory joint disease, is a degenerative disease that not only affects the joint itself, but also the surrounding tissue throughout the body. In most cases, hand, knee, shoulder, foot and hip joints

[161] Murphey 1993

[162] Janusz, Lisowski 1993, Arch. Immunol. Ther. Exp. Warz. Vol. 41 (5–6), p. 275–279

[163] Dohm, Elton et al.: Diabetes, 30 Sept. 1990, p. 1028–1032



are affected.

The joint is inflamed and thickens. This process usually causes bursts of severe pain. Arthritis can occur gradually, but also suddenly, it can affect one or more joints (polyarthritis).

Colostrum has a high proportion of interleukin 10, which studies have shown to be an extremely potent anti-inflammatory drug, especially for arthritic joints.[164]

Immunoglobulins are successful in treating many diseases

Anaemia, chronic fatigue syndrome, multiple sclerosis, arthritis, thrombocytopenia, neutropaenia, Guillain Barre syndrome, myasthenia gravis, Kawasaki syndrome, Crohn's disease and many other conditions have responded successfully to treatment with immunoglobulins.[165]

Studies on colostrum in multiple sclerosis (MS)

In a study on MS patients, bovine colostrum containing anti-measles -lactoglobulin was administered; fifteen of the MS patients were given 100 ml of colostrum with measles antibodies every day for 30 days, and five others were given colostrum without anti-measles lactoglobulin.

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[164] Hernell, Olle, University of Umeå, Sweden 1995, Science Apr., p. 231 f.

[165] Dwyer, New England Journal of Medicine, Jan. 1992, 9, V 326



Of the seven patients who received the colostrum with high levels of the measles antibody (NT titer 512-5120), five patients recovered (two showed no change). In the eight patients receiving colostrum with fewer antibodies (NT titre 8-32), improvement was observed in five subjects and no change was observed in three subjects. Among the five patients who received non-antibody colostrum, the condition of two subjects remained constant, with three of them suffering worsening symptoms. The changes were determined using the table of the *International Federation of Multiple Sclerosis Societies*.

The results of this study suggest that orally administered colostrum with measles antibodies improves the condition of patients with multiple sclerosis.[166]

Studies on colostrum in cancer

In Japanese studies, it has been shown that the peptide TGF (BC-1) present in colostrum suppressed the growth of osteosarcoma cells (MG-6 3) and had a significant effect on the size of the tumour.[167]

Further studies have shown that colostrum inhibited the proliferation of human

[166] Ebina 1985

[167] Tokuyama 1989



T cells by suppressing interleukin-2 production. Scientists suspect that lactoferrin contained in colostrum is capable of binding iron ions needed for tumour growth.

Lactoferrin appears to play additional roles in the fight against cancer according to scientific studies: thus, the molecular form of lactoferrin with ribonuclease activity might also be beneficial against breast cancer.[168]

Other studies have shown that the growth factors TGF (transforming growth factors) contained in colostrum have a cancer-inhibiting effect.[169] In another study, scientists were able to prove in animal experiments on mice that the lactoferrin in colostrum inhibits the growth of transplanted tumours by v-ras-transformed fibroblasts and the methylcholanthrene-induced fibrosarcoma. In addition, lactoferrin reduced colonisation of the lung of B16-F10 melanoma cells in genetically identical mice.[170] The researchers believe that lactoferrin might play a role in the fight against tumour formation and tumour growth.[171]

The glycoproteins contained in bovine colostrum inhibit the settlement of Helicobacter pylori bacteria, which are thought to cause gastric cancer.[172] Colostrum also shows results in sarcoma S-180.[173]

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[168] Adamik 1996

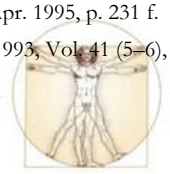
[169] Tokuyama 1989

[170] Beth M. Ley: Kolostrum – die natürliche Nahrungsergänzung ('Colostrum – The Natural Food Supplement'), 1997, p. 83

[171] Bezault 1994

[172] Hernell, Olle, University of Umeå, Sweden, Science Apr. 1995, p. 231 f.

[173] Janusz, Lisowski, Arch. Immunol. Ther. Exp. Warz. 1993, Vol. 41 (5–6), p. 275–279



Studies on colostrum in muscle building

Studies on growth factors in colostrum (IFG-1, PDGF, EGF and TGF-beta)

Colostrum has the most important growth factors that play a role in muscle building. These include IGF-1, platelet derived growth factor (PDGF), epidermal growth factor (EGF), and TGF-beta (transforming growth factor). All these factors stimulate cell division and tissue building.[174] In many bodybuilding forums, one repeatedly sees the argument that the immunoglobulins and the growth factors in colostrum are destroyed by gastric acid and therefore cannot be utilised by the body.

But as already mentioned before, Dr. Pineo and his colleagues managed to prove in 1975, bovine colostrum contains a so-called glycoprotein, which in turn has protease inhibitors, which ensure that the immunoglobulins and the growth factors are not destroyed by gastric acids, even in the stomach of an adult.[175]

Studies on IGF-1 as a muscle regenerator in colostrum

In addition to its growth-stimulating properties, IGF-1 can accelerate the regeneration of the muscle cell, which is very important for athletes and allows for harder and more frequent training sessions.

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[174] Burke 1996

[175] Pineo, A. et al.: Biochemical Biophysiology Acta, Amsterdam,1975, 379: p. 201–206



Investigations on Finnish Olympic skiers revealed that creatine levels lowered by half after four days of liquid colostrum intake, which is generally regarded as an indicator of faster regeneration. The athletes reported that they felt more comfortable and their performance improved. Scientists believe that the IGF-1 contained in colostrum can regenerate muscle cells more quickly.[176]

Studies on IGF-1 show that colostrum enhances the uptake efficiency of amino acids and carbohydrates

According to Dr. Edmund Burke, a lecturer in biology at the University of Colorado, colostrum probably helps athletes because it promotes the effective absorption of amino acids and carbohydrates in the digestive tract. IGF-1 and other factors seal the intestine to ulcers, which can reduce the effectiveness of nutrient uptake.[177]

Colostrum protects against shigellosis

Bovine immunoglobulin, taken orally, protects against the bacterial bowel disease shigellosis.[178]

Colostrum has an antibacterial effect

Oligosaccharides and polysaccharides in colostrum have the ability to bind and inhibit many bacteria.[179] Lactoferrin in colostrum is highly antibacterial.[180]

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[176] Anderson 1994

[177] Burke 1996

[178] Tacket, Binion, Bostwick et al.

[179] Klapper, D. G. et al.

[180] Spik, G. et al.



Colostrum accelerates wound healing

Whether taken externally or internally, the growth factors in colostrum can accelerate wound healing[181]

Protection of colostrum against bacteria and fungi

Colostrum contains antibodies which have an effect on Salmonella, E. coli, Shigella, V. cholea, Bacteriodes fragilis, Streptococcus pneumoniae, Bordetella pertussis, Clostridium diphteria, Clostridium tetani, Streptococcus mutans and Candida albicans.[182]

The IGF-1 in bovine colostrum is identical to human IGF-1

In studies, the sequence of IGF-1 has been shown to be identical to human IGF-1.[183]

Colostrum contains antibodies against the following bacterial, viral and fungal diseases

Appendicitis, aseptic or viral meningitis, bronchitis, bronchial and viral pneumonia, Candida albicans, cholera, diphtheria, gastroenteritis, polio, tetanus and typhoid.[184]

Passive immunisation and prevention of bowel disease with colostrum

Orally consumed colostrum was able to maintain its activity despite the adult's

[181] Sporn et al., 1983 Science, 219, p. 1329 ff.

[182] Ogram Pearay et al.

[183] Francis, G.L. et al., Biochem J., 1988, 251, pp. 95-103

[184] Ogra, Lesonsky, Fishout, Research, 1983, Buffalo University NY



digestive juices and can be used for passive immunisation as well as prophylactically and therapeutically against bowel disease.[185]

Colostrum heals/improves cryptosporidiosis in AIDS patients

25 AIDS patients suffering from cryptosporidiosis were each given 10g of bovine colostrum three times a day for 10 days. A complete remission was seen in 40 % of the subjects and a partial remission was observed in a further 24 %.[186]

Colostrum has an effect on hyperglycaemia/high blood sugar in diabetics

Colostrum IGF-1 stimulates glucose utilisation and may provide an alternative to insulin.[187]

Colostrum counteracts any allergies

The IGE in colostrum regulates allergic reactions and can help prevent them.[188]

Colostrum kills herpes viruses

The antibodies of colostrum were able to kill herpes simplex viruses.[189]

Study on the effectiveness and safety of colostrum

The oral intake of colostrum has been classified as effective and safe; there are

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[185] Khazenson, L.B., 1980

[186] Plettenberg, et al., 1993, Clinical Investigator, Vol. 71, p. 42–45

[187] Dohm, Elton, et al., Diabetes, 30 Sept. 1990, p. 1028–32

[188] Tortora, Funke, Cast, 1982 Microbiology

[189] Rouse, B. T. et al., 1976 Infection and Immunity, 13, p. 1433 f.



no known contraindications or overdoses.[190]

Colostrum in diseases

Proponents of the pharmaceutical industry and opponents of naturopathy very often bring up the supposedly low bioavailability of colostrum. It is therefore wrongly argued that the immunoglobulins and growth factors contained in colostrum would not survive the gastric passage and be destroyed by our stomach acid.

As Dr. Pineo and his colleagues managed to prove in 1975, bovine colostrum contains a so-called glycoprotein, which in turn contains protease inhibitors, which ensure that the immunoglobulins and the growth factors are not destroyed by gastric acids, even in the stomach of an adult.[191]

Furthermore, Dr. Sandholm and his team of scientists demonstrated that bovine colostrum has a very potent trypsin inhibitor that protects the immunoglobulins in colostrum from gastric acid breakdown.[192]

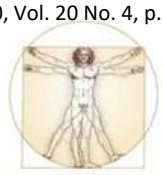
Colostrum has proven itself for many centuries in the diseases and disease states listed below:

Colostrum and its effect on autoimmune diseases/weak immune system

[190] Preston, R. 1987, International Institute of Nutritional Research

[191] Pineo, A. et al. Biochemical Biophysiology Acta (Amsterdam, 1975) 379, p. 201–206

[192] Sandholm et al.: Acta Veterinaria Scandinavia, 1980, Vol. 20 No. 4, p. 469–476 f.



Our immune system controls the body's defences, which protect us against diseases such as influenza, cold, bacterial and viral diseases. Our immune system shows natural weaknesses in old age, but external circumstances such as smoking, alcohol consumption, stress, environmental pollution and unhealthy diet can also weaken it.

A weakened immune system expresses itself for example by symptoms like:

- lethargy/lack of energy
- fatigue
- tendency to colds and infections
- loss of appetite
- weight loss
- swollen lymph nodes
- fever
- sweats
- diarrhoea
- skin rashes

Autoimmune diseases



Autoimmune diseases manifest themselves by the fact that our immune system is either too weak to protect us from external pathogens (flu viruses, bacteria, etc.), or it fails to recognise healthy body cells as such and attacks them. These autoimmune diseases include:

- HIV/AIDS
- inflammation
- arthritis
- allergies
- multiple sclerosis
- asthma
- cancer
- type 2 diabetes mellitus
- high blood pressure
- rheuma (e.g. arthritis)
- anaemia
- muscle weakness (myasthenia gravis)
- lupus erythematosus



How colostrum helps with autoimmune diseases/a weak immune system

The proline-containing polypeptides (PRPs) in colostrum regulate the immune system by stimulating or inhibiting immune responses as needed.[193] In this way, the prolactin-containing polypeptides in colostrum prevent the immune system from attacking the normal body cells, as is the case with the above diseases due to defective regulation.

Studies on colostrum and its effect on HIV/AIDS

One of the key components of colostrum is lactoferrin, which has demonstrated the powerful ability to act as a natural broad-spectrum antibiotic and antiviral in numerous scientific studies. While normal antibiotics only work against bacteria, not against viruses, colostrum can kill both bacteria and viruses.

Studies of HIV-1 and HIV-2 viruses in the laboratory have examined the effects of lactoferrin and other proteins that are also naturally present in colostrum. In addition to lactoferrin, these include alpha-lactalbumin, beta-lactoglobulin A and beta-lactoglobulin B. Strong antiviral activity against HIV-1 and HIV-2 has been demonstrated. This mechanism is probably due to the prevention of virus-cell fusion and virus entry into MT4 cells.[194]

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[193] Staroscik 1983

[194] Swart 1996



In another study, lactoferrin inhibited HIV -1-induced cell disease; here the lactoferrin is likely to act at the level of adsorption or penetration of the virus, or at both levels.[195]

Effect of colostrum on secondary diseases of HIV

A very common concomitant disease of HIV patients is candidiasis of the oral mucosa. It is a disease of the skin or mucous membranes due to fungal infection caused by fungi of the 'Candida' genus.

In the year 1987, at the European conference on the clinical aspects of HIV-infections, Danish researchers reported that a 10-day dose of colostrum pills (10 pts/day) is a treatment option for oral candidosis.[196]

Effect of colostrum on cryptosporidiosis

Another sequelae of HIV is cryptosporidiosis, a parasitic infection that causes recurrent diarrhoea. Cryptosporidiosis is one of the main reasons why AIDS patients lose weight quickly, because the parasites deprive the affected body of nutrients, leading to malnutrition and the resulting weight loss.

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[195] Harmsen 1995

[196] Christensen 1987



In a study on 37 AIDS patients, 10 mg of the colostrum immunoglobulin 'lactobin' was orally administered to these subjects for ten days, resulting in a good therapeutic effect.

In 31 treatment periods with 29 HIV patients, 21 resulted in a transient (ten-day) or long-term (> four weeks) normalisation of bowel movement; the frequency of bowel movements decreased from the previous average of 10 per day to 7.4 per day.

19 of the patients had no diarrhoea for four weeks; in five patients the cryptosporidiosis disappeared after taking lactobin.[197]

Effect of colostrum on inflammations

Inflammation is a natural mechanism of the body in response to mechanical, physical, chemical or bacterial, viral and fungal stimuli.

Any inflammation (as in the case of alopecia areata – circular hair loss) causes a defence reaction of the immune system, by leukocytes being released to destroy the invaders. This is conducive to our health insofar as not too many of the leukocytes are released because then they also attack healthy tissue.

Colostrum contains numerous ingredients that directly prevent inflammatory

[197] Beth M. Ley: Kolostrum – die natürliche Nahrungsergänzung ('Colostrum – The Natural Food Supplement'), 1997, p. 69



conditions, including:

- antioxidants
- anti-inflammatory and degradative enzymes
- activators of leukocytes
- anti-enzymes
- agents such as lysozyme, lactoferrin, secretory IgA

For example, studies have shown that ingredients contained in colostrum prevented previously provoked inflammation.[198]

Studies on colostrum and its effect on arthritis

Arthritis is a degenerative joint disease that not only affects the joint itself, but the surrounding tissue throughout the body. Most hand, knee, shoulder, foot or hip joints are affected. The joint is inflamed and thickened; this usually causes bursts of severe pain. Arthritis can occur gradually, but also suddenly, it can affect one or more joints (polyarthritis).

Colostrum has a high proportion of interleukin 10, which has been shown to be an extremely potent anti-inflammatory agent in studies, especially in arthritis.[199] Furthermore, in the case of rheumatoid arthritis and all other immune disorders, it is important that it is treated with an immune regulator that calms

[198] Murphey 1993

[199] Hernell, Olle, University of Umeå, Sweden, Science Apr. 1995, p. 231 f.



or stimulates the immune system when needed. This is exactly what a peptide in colostrum called 'proline-rich polypeptide' (PRP) can accomplish, thus providing relief to the patients individually.[200]

Effect of colostrum on arthritis

Allergies are caused by a hypersensitivity of the body to certain substances and substances, so-called allergens.

The most common allergies include:

- house dust allergy
- hay fever/pollen allergy
- latex allergy
- food allergy
- animal hair allergy
- sun allergy

The most common symptoms of allergies are:

- itchy skin

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[200] Janusz, Lisowski 1993, Arch. Immunol. Ther. Exp. Warz. Vol. 41 (5–6), p. 275–9



- watery eyes
- runny nose
- clogged sinuses
- daytime fatigue
- asthma
- food cravings
- hypertension (high blood pressure)
- depressive states
- depression
- eczema
- constipation
- dizziness
- headaches
- insomnia
- hyperactivity
- stomach cramps
- hypoglycaemia



How colostrum works in general against allergies

According to studies, children who have been breastfed are much less likely to suffer from allergies than children who have not been breastfed.[201] Colostrum has corresponding autoantibodies, such as the polymorphonuclear leukocytes which regulate immune responses in the body that lead to allergies.

Effect of colostrum on diabetes

IGF-1 found in colostrum stimulates glucose utilisation and proves successful in the treatment of diabetes, as it is an effective alternative to insulin and at the same time identical to human IGF-1. The IGF level is naturally lower in diabetics than in healthy people.[202]

Effect of colostrum on Alzheimer's

Several studies have shown the beneficial effect of colostrum on cognitive abilities, making it a promising treatment for Alzheimer's.

Studies on colostrum and its effect on multiple sclerosis

Multiple sclerosis, abbreviated as 'MS', is a chronic inflammatory disease of the central nervous system (CNS). In addition to epilepsy, multiple sclerosis is one of the most common neurological diseases in young people; the disease is usually diagnosed between the ages of 20 and 40 . There are 2.5 million people

[201] Vassilev 1996

[202] Dohm, Elton, et al., Diabetes, 30 Sept. 1990, p. 1028–1032



affected worldwide and more than 400 000 alone in the USA, and each week about 200 new cases in the USA are diagnosed[203].

In the case of multiple sclerosis, inflammatory foci, which are probably caused by misguided attacks of endogenous defence cells on the myelin sheaths of nerve cell processes, play a key role.

These inflammation foci have the unpleasant property of causing almost any neurological symptom, as they occur throughout the central nervous system. Because of this depressing fact, not so long ago, multiple sclerosis was referred to as the 'disease with a thousand faces'. If you look at the symptoms that gradually occur in the course of the illness, you realise the importance of getting this disease under control as soon as possible.

The following symptoms occur in multiple sclerosis in the following aggregation:

Complaints	**Frequency**
Loss of sensation in the legs	30
Abnormal fatigue/tiredness	20

[203] https://www.healthline.com/health/multiple-sclerosis/facts-statistics-infographic



Defecation disorders	20
Instability when walking and standing	18
Vision problems in one eye	16
Loss of sensation in the arms	10
Gait disorders due to spasticity (muscle spasm)	10
Loss of leg strength	10
Bladder dysfunction	6
Loss of arm strength	5
Paralysis of the face (trigeminal neuralgia)	5
Loss of sensation in the face	3
Lhermitte's sign (tingling in the neck when tilting the head)	3
Speech difficulties	2
Pain	2
Paralysis of a side of the body (hemiplegia)	2

Source: Kremer & Besser

Throughout the illness, the symptoms and their frequency have the following effects.

Symptoms of multiple sclerosis and their frequency in the course of the



disease

Virological and immunological studies indicate that multiple sclerosis is triggered by a viral infection, although the cause has not been fully clarified to this day.

The effect of colostrum on multiple sclerosis

In a study on MS patients, these subjects were given bovine colostrum containing anti-measles lactoglobulin. Fifteen of the MS patients were given 100ml of measles antibody colostrum daily for 30 days, and five others were given the colostrum without anti-measles lactoglobulin.

Of the seven patients who received the high measles antibody colostrum (NT titre 512-5120), five showed improvement (two showed no change). In eight patients receiving colostrum with fewer antibodies (NT titre 8-32), improvement was seen in five patients and no change was observed in three subjects.

In the five patients who received colostrum without antibodies, the condition of two subjects remained constant, in three it worsened. The changes were determined using the table of the International Federation of Multiple Sclerosis Societies.

The results of this study suggest that orally administered colostrum with measles



antibodies improves the condition of patients with multiple sclerosis.[204]

The effect of colostrum on asthma

The vast majority of asthma symptoms are directly related to inflammatory reactions that are considered to be an allergen or irritant defence.

The polymorphonuclear leucocytes contained in colostrum can help regulate the overreaction of the immune system and prevent or contain the allergy.

Effect of colostrum on cancer

One in three People in industrialized countries develops cancer, one in four dies of it. Despite billions of dollars of research and the fact we have been able to fly to the moon since the 1960s, there is no scientific advancement that could defy this terrible scourge on humanity.

Prevention and, in the case of a disease, a therapy that consists at least in part of natural remedies, such as bitter apricot kernels, as well as colostrum or natural vitamin C, are all the more important.

TGF in colostrum inhibits cancer growth

In studies in Japan, it has been shown that the peptide TGF (BC-1) present in colostrum suppressed the growth of osteosarcoma cells (MG-6 3) and had a significant effect on the size of the tumour.[205] Further studies have shown that

[204] Ebina 1985

[205] Tokuyama 1989



colostrum inhibits the proliferation of human T cells by suppressing interleukin-2 production.

Scientists suspect that lactoferrin contained in colostrum is capable of binding iron ions needed for tumour growth. Lactoferrin, according to scientific studies, seems to play additional roles in the fight against cancer: thus, the molecular form of lactoferrin with ribonuclease activity might also be beneficial against breast cancer.[206]

Other studies have shown that the growth factors TGF (transforming growth factors) contained in colostrum have a cancer-inhibiting effect.[207] The glycoproteins contained in bovine colostrum inhibit the settlement of Helicobacter pylori bacteria, which is believed to be the causative agent of gastric cancer.[208]

Colostrum inhibits cancer growth and metastasis development

In colostrum, lactoferrin inhibited the growth of transplanted tumours by v-ras-transformed fibroblasts and fibrosarcoma induced by methylcholanthrene in mice. In addition, lactoferrin reduced colonisation of the lung by B16-F10 melanoma cells in genetically identical mice.[209] The researchers believe that lactoferrin might play a role in the fight against tumour formation and tumour growth.[210]

Effect of colostrum for the prevention and treatment of bowel disease

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[206] Adamik 1996

[207] Tokuyama 1989

[208] Hernell, Olle, University of Umeå, Sweden, Science Apr. 1995, p. 231 f.

[209] Beth M. Ley: Kolostrum – die natürliche Nahrungsergänzung ('Colostrum – The Natural Food Supplement'), 1997, p. 83

[210] Bezault 1994



Dr. L.B. Khazenson and his team have been able to detect the maintenance of IgG biological activity in adult human digestive fluids after oral administration of colostrum, which suggests passive immunisation could be used to prevent and treat acute bowel disease.[211]

Colostrum – natural doping without side effects

Colostrum has shown amazing performance improvements in numerous studies in both aerobic and anaerobic training (see 'Building muscle with colostrum').

During stage tests, the relative oxygen uptake was improved, the heart rate dropped and lactate formation was significantly suppressed.

Colostrum as a healthy alternative to antibiotics

It is frightening to hear that 80 % of all bacteria are resistant to the antibiotic 'penicillin' – i.e. it has no effect on them.

Big Pharma knows how to react in its own way – by constantly producing new

[211] Khazenson, L. B., Microbial & Epidemical Immunobiology, 1980, No. 9, p. 101–106



antibiotics. However, it continues to market penicillin and other antibiotics, against which the bacteria have long been resistant, earning a pretty penny in the process.

And so, 8000 different (really different?) antibiotics with very questionable effect and with even more questionable side effects are currently in use.

In spite of all supposed 'efforts', patients acquired in the year 2011 721 800 infections at hospitals. According to the US Centers of Disease Control and Prevention 75 000 of them died.[212]

60 to 80 % of all patients no longer respond to antibiotic treatment, or only slightly.

Reasons for antibiotic resistance

The reasons for increasing antibiotic resistance, i.e. the non-response of the antibiotic to bacteria and viruses, are manifold. Among other things, antibiotics have lost their effect on us humans due to our unconscious daily consumption of meat contaminated with antibiotics and the body reacting with a kind of habituation.

Well, officially, giving antibiotics to animals destined for slaughter is intended to be a 'good' thing for us consumers. This is explained by the wish to protect consumers against BSE and other diseases; but in reality this absurd action is caused by baser motives, namely the use of antibiotics as a fattening aid and

[212] https://edition.cnn.com/2014/03/26/health/hospital-infections/index.html



thus the maximisation of profits from livestock.[213] The consequences of this very commercial and ruthless act for humans, including the endangerment of countless lives, were well known to and factored in by the people responsible from the very beginning.

While countries such as Sweden have a general ban on the use of antibiotics in animal feed, 18 million euros is spent every year on animal-fattening antibiotics. In the US, about half of the antibiotics produced are fed to slaughter animals.[214]

Other reasons for antibiotic resistance exist in the incorrect administration of the antibiotics within medical therapy. And so antibiotics are deliberately administered too often or in larger quantities, which results in familiarisation.

Whether it is a sore throat, earache or runny nose, hey presto, an antibiotic is prescribed. The fact that 80 to 90 % of these complaints are viral infections where antibiotics basically do not help is completely ignored. The danger of resistance/familiarisation manifests itself exactly at the moment when, one day, we really need to get rid of bacteria, viruses or fungi in the event of illness – a resistance then leads, in many cases, to death.

Side effects of antibiotics

While stomach and intestinal problems are commonly named as typical side

[213] http://www.vetcontact.com/de/art.php?a=2141&t=

[214] Beth M. Ley: Kolostrum – die natürliche Nahrungsergänzung ('Colostrum – The Natural Food Supplement'), 1997, p. 74



effects of antibiotics, relevant studies point to much more dangerous side effects. The antibiotic 'neomycin' leads to liver dysfunction, 'tetracyclines' leads to yellowing of children's teeth, and 'chloramphenicol' causes bone marrow suppression, known as 'anaemic intake'.

Furthermore, antibiotics have been linked to hyperactivity in children, allergies, hormonal disorders, psoriasis, Crohn's disease, ulcerative colitis, irritable bowel syndrome, multiple sclerosis and cancer.[215] Furthermore, antibiotics can destroy the vital intestinal bacteria and thus paralyse our intestinal flora.

Colostrum as a healthy alternative to antibiotics

It is precisely at this point that natural products such as colostrum or grapefruit seed extract gain in importance, as these have no known side effects, but unlike antibiotics are very successful and not only fight bacteria, but all imaginable pathogens.

The numerous antibodies present in colostrum (scientists have found 37) protect our bodies from

- Salmonella
- E. coli

[215] http://www.naturheilt.com/Inhalt/Antibio.htm



- Bacteroides fragilis (colon bacteria)
- Shigella
- Enteroviruses
- E. coli
- Rotavirus
- Poliomyelitis
- Herpes simplex
- Bordetella pertussis (whooping cough bacteria)
- Vibrio cholerae
- RS-Virus (Respiratory syncytial virus)
- Candida albicans and other yeasts
- Clostridium tetani
- Coxsackie viruses
- Steptococcus mutans
- ECHO and alpha viruses
- Steptococcus pneumoniae
- Clostridium diphtheria
- Clostridium difficile toxins A and B



This is a formidable range of viruses, bacteria and fungi. In contrast to conventional antibiotics, colostrum protects us against numerous parasite species that make life difficult for us and lead to numerous diseases.

As is well known, antibiotics also attack the bacteria of our intestinal flora, i.e. bacteria that are of immense importance for our digestion. This is ruled out with colostrum.

While many people are allergic to antibiotics, allergic reactions to colostrum are unknown.

Colostrum to counteract ageing

The preventive effect of colostrum against ageing leads to visible and invisible rejuvenation of the organism. Externally, rejuvenation is evident due to younger skin and the disappearance of wrinkles and age spots; internally, the decreased muscle mass increases, the body fat percentage decreases, and the bone density increases.

How does colostrum work against ageing?

Colostrum has many ingredients and properties which counteract the physiological ageing of our body. The antioxidant properties protect our cells from degeneration and the growth factors (e.g. IGF-1) accelerate the regeneration of our tissue.



Age enzyme 'telomerase'

Colostrum contains an enzyme called 'telomerase' which anti-ageing scientists believe may slow the ageing process. This enzyme is produced by the body in the smallest amounts and prevents inter alia the shortening of the chromosome strands during cell division. This process promotes the healing process of damaged cells, and many scientists cite the ageing of cells as having the ability to restore them, as evidenced by experiments on people with 'old-age disease' who lack the enzyme 'telomerase' altogether.

Colostrum repairs our genetic material DNA and RNA

In addition to these factors, colostrum has the so-called transformation growth factors 'TgF-a' and 'TgF-b'. These growth factors have the ability to repair the DNA and RNA, our genetic material.

Epithelial growth factor EGF stimulates skin growth and renewal

The epithelial growth factor EGF contained in colostrum stimulates skin cells and thus skin renewal. The skin becomes noticeably smoother and more supple in no time and wrinkles disappear.

Building muscle with colostrum

Last but not least, colostrum enjoys a strong fanbase among bodybuilders and strength athletes as well as athletes who want to improve their power output and have discovered the positive properties of colostrum for muscle growth



and strength enhancement.

Colostrum's popularity in bodybuilding has been fuelled by expert articles in *Iron Man* and *Muscle & Fitness*, publications which are considered reputable in the scene (see below). The benefits are obvious, as the use of anabolic steroids and growth hormones can lead to irreversible damage to health and even premature death. The excessive consumption of anabolic steroids has a particularly serious effect on our cardiovascular system, the liver, our endocrine gland system and our reproductive organs. For a manageable period of five or ten years, in which one strides, massive and defined, through the area, many anabolic steroids bear the price of a heart attack, liver damage, endocrine disruption and impotence and infertility. Cosmetic problems, such as acne and hair loss, are given tertiary importance in the light of the reported side effects of regular or excessive steroid abuse.

And so, natural bodybuilders or strength athletes, as well as steroid users looking for a healthy alternative to anabolic steroids and growth hormones, will be pleased to hear that the colostrum of cattle and goats seems, like no other natural dietary supplement, to achieve the effects of steroids and, according to the statement of some weight-gain experts, can even surpass them (see article from *Iron Man* below).

Growth factors in colostrum

The growth factors contained in colostrum allow an increase in performance and strength and muscle pains without side effects.



IGF-1 as a growth stimulator in colostrum

This is mainly due to insulin-like growth factors I and II, abbreviated as IGF-1 and IGF-2, which belong to the pro-insulin hormones and have the effect of anabolic steroids.

The IGF-1 in bovine colostrum is identical to human IGF-1

The sequence of IGF-1 has been shown in studies to be identical to human IGF-1.[216]

IGF-1 is the most important catalyst for muscle cell division and performs the following tasks:

IGF-1:

- activates protein synthesis in muscle;
- reduces muscle breakdown;
- causes the muscle cell to absorb more amino acids (muscle fibre thickening);
- activates muscle cell division (more muscle fibres).

IGF-1 as a regenerator in colostrum:

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[216] Francis, G. L. et al., Biochem J. 1988, 251, p. 95–103



In addition to its growth-stimulating properties, IGF-1 can accelerate the regeneration of the muscle cell, which is very important for athletes and allows for harder and more frequent training sessions.

Studies on Finnish Olympic skiers revealed that creatine levels lowered by half after four days of liquid colostrum intake, which is generally regarded as an indicator of faster regeneration. The athletes reported that they felt more comfortable and their performance improved.

Scientists believe that the IGF-1 contained in colostrum can regenerate muscle cells more quickly.[217]

IGF-1 increases the absorption efficiency of amino acids and carbohydrates:

According to Dr. Edmund Burke, a lecturer in biology at the University of Colorado, colostrum probably helps athletes because it promotes the effective absorption of amino acids and carbohydrates in the digestive tract. IGF-1 and other factors seal the intestine to ulcers, which can reduce the efficiency of nutrient uptake.[218]

In summary, the IGF-1 contained in colostrum supports muscle fibre proliferation and thickening, which anabolic steroids only cause conditionally (they only thicken muscle fibres) and synthetic growth hormones only with the acceptance of extreme side effects (growth not only of muscles, but also of internal organs

[217] Anderson 1994

[218] Burke 1996



with the expected side effects).

Furthermore, it promotes the absorption of crucial nutrients for muscle growth and power development, and also supports the regeneration of muscle cells.

Importantly, bovine colostrum has the identical amino acid sequence to IGF-1 produced in the liver, except for a 26-amino acid segment on the front of the molecule, which, after digestion in our stomach, is identical to human IGF-1.

PDGF, EGF and TGF-beta in colostrum

In colostrum, however, other growth factors are included, which promote cell division and thus muscle growth. These include platelet derived growth factor (PDGF), epidermal growth factor (EGF), and transforming growth factor (TGF) beta. All these factors stimulate cell division and tissue building.[219]

Expert article on colostrum and muscle building by Daniel Shawn, published in '*Iron Man*'

Excerpt:

Daniel Shawn from the magazine 'Iron Man':

'Plain and simple, IGF-1 is the be-all and end-all of anabolic peptide growth factors. Where

[219] Burke 1996



can you get it? COLOSTRUM'.

'I train regularly with weights myself and since I started taking colostrum, I have noticed clear improvements in my form. I can lift bigger weights than before and increase weights at shorter intervals. I recover more quickly after sets and have shorter breaks before going on to the next exercise. I feel full of energy after weight training, whereas, before, I was tired for an hour after training. The success can be seen for itself - my trousers are baggier and my shirts and jackets are tighter. And all of this without big adjustments to my diet (I still have a healthy appetite)'.

The original article from Daniel Shawn in Iron Man magazine:

COLOSTRUM: BIOTECHNOLOGY'S NEXT STEP
DANIEL SHAWN, B. S.
IRON MAN MAGAZINE
Introduction

You thought you have seen it all. The fads. The forays into shaman medicine. For the past twenty years you have waded through the hype and hooplah of advertising that promises you 'mega-gains for almost no effort'. Just buy the pill and you'll see.

No doubt you have tried it all as well. You survived the earliest steroids. You lived through the free-form vs. tri-peptides in the amino acids war. You sat and weighed the words of 'experts' who casually referred you to little-known-seldom-used literature to back their claims. And through it all, they never really



told you what it means or why it is important to 'trigger a release'.

To gain like the big boys, you have tried every esoteric metal and metalloid known to man, except for maybe arsenic and mercury. (Better check: maybe you have taken them too.) You have been forced to contend with an incessant barrage of dressed-up vitamins with new, fancy names and never-before-heard-of substances from herbs and small countries.

All you ever have been able to go buy is the one with the most likely story and the one the salesman happened to like that week. Getting tired of it all? Well it is high time. Because the rules of this game have just changed.

Now you are on the verge of riding a wave provided by big business, a high technology wave that will take you into the next century. No hype. No bull. The products are peptide growth factors and wave has a name: genetic engineering.

The compounds that are bound to radically change your life have nothing to do with 'enhancing your body's natural development capacity'. Today, that sounds pretty anaemic and passe'. These factors do not need to 'trigger releases' because they are themselves the anabolic hormones of interest.

The revolutionary peptides are insulin-like Growth Factor one (IGF-1) and Growth Hormone (GH), as you may already know. The revolution comes from biotechnologists who have tricked bacteria into producing kilograms of this stuff at a time.

What is more, the newest and latest information from highly credible research



journals is that credit to GH for all anabolism is simply not true. These are not enquirer articles that are saying this. The last three years of research are definitive and have made IGF-1 the clear and obvious anabolic peptide of choice.

But wait, you say. Genetically engineered peptides like IGF-1 are drugs. How can this revolution overtake the sport of bodybuilding if we are talking about controlled substances, more expensive and as tightly regulated as steroids? The answer, and the beauty of the argument, is that orally bioavailable IGF-1, and its growth factor friends, have been with us for a very long time. They are found naturally and in exceptionally high concentrations in a special kind of milk, a substance called COLOSTRUM.

Colostrum and the role of IGF-1

Q: How long is a very long time?

A: Ever since mammals have walked the earth. As you know, even before a mammalian baby is born, the mother is capable of producing milk. However, just after the birth event, there comes a signal from the body of the mother to principally include a boatload of growth factors in the mammary fluid, mostly IGF-1. This signal lasts and the growth factor content remains high for between 24 hours to at most 48 hours after birth. After this time normal milk production begins.

The added punch for Colostrum is that these growth factors, for reasons unclear, enter the bloodstream intact. Why is it not degraded like steak? Perhaps



due to the high concentration of other large proteins present which are much more likely to get worked on first. Some think there is an elusive 'transport factor' which guides the peptides to the bloodstream. Other more reasonable possibilities include the well-understood peptide transport vessels present in the small intestines, of which there exist several kinds. Aside from the scientific data, you should ask yourself, 'Why would nature include such precious growth factors as are found in Colostrum to have them simply converted to amino acids with no overt benefit to the newborn'? Nature would not.

It is best to discuss the functional properties of IGF-1 to explain exactly why it is so anabolic. In former times, IGF-1 was called 'Somatomedin C' and sometimes still is. IGF-1 is a small peptide related to insulin, thus the name 'Insulin-like Growth Factor'. However, it has a strikingly more potent anabolic than any known compound, even steroids. This is because steroids do not necessarily direct new muscle protein synthesis or differentiation, they merely force the muscle cells to retain nutrient building blocks (amino acids), enhance glycogen synthesis and occasionally divide. GH does the same type of thing but with the added step of early cellular differentiation. The most important fact and one that is often overlooked is that GH tells the muscle cell to make localised IGF-1 which readily takes over the anabolic activities of nutrient uptake, proliferation and differentiation.

After GH brings specific muscle cells, the ones which are getting the workout, to the stage where they are ready to differentiate, IGF-1 is synthesised to draw in more nutrients than they could ever use. It is now known that only through



action via the IGF-1 receptor can there be a loud and clear signal to the nucleus of the muscle cell, a direct instruction to make more muscle cells and make more muscle protein.

Just a few years ago, growth hormone was sometimes called 'somatotropin' from 'somato', related to the body, and 'tropin', having to do with nutrition or in this case anabolism and growth. And so the old name for GH meant 'body nutrient factor' or 'body growth factor.' In this context it is easy to see why IGF-1 was called 'somatomedin', from 'somato', given above and 'medin' meaning between. Thus the role of IGF-1 comes between the bodily effects of GH and actual anabolism. That is, without the intervening effects of IGF-1, GH would be much less significant as a growth enhancer, and the only reason why it works so well is because of your body's own IGF-1 production. AS you have been made well aware, one of the real problems with achieving an extreme muscular development lies not just in harnessing anabolism but in preventing catabolism. It is worthwhile to bring up this point because it has been repeatedly demonstrated that even in old age and starvation conditions, IGF-1 acts primarily to prevent weight loss. In a protein-rich diet with sufficient IGF-1 the cell can therefore be expected to devote all biochemical energy to anabolism, focusing on growth.

Luckily for every newborn that has ever existed, nature has been aware of this fact and has included IGF-1 in high concentration in Colostrum. Colostrum has the responsibility of jump-starting the newborn growth and immune systems with lots of factors which help elongate bone and cartilage, develop muscle, and



ward off infections of all types. What follows is a brief list of some of the important compounds, which contribute to the anabolic effects of Colostrum.

The Factors

Colostrum contains other protein factors besides IGF-1, which have very important anabolic properties, these are: Interleukin One (IL-1), a factor called FGF, and EGF. Apart from those, there exist other growth factors and nutrients of value to the serious lifter, but none are even near the concentration or possess the directly anabolic effects of IGF-1 on muscle. The role of Interleukin One (IL-1) in Colostrum is obviously that of an immune modulator, but it also has the effect of producing basic fibroblast growth factor (bFGF). You might say 'so what, who wants more fibroblasts?' Good question. Consider what benefits can be had by Colostrum growth factors in a difficult muscle or tendon injury, where fibroblasts are the first line of repair. But more importantly and apart from that, both acidic and basic FGF have been long known to stimulate proliferation of muscle cells, and acidic FGF is known to be present in Colostrum. But clearly, the single most important effect of bFGF is its induction of more IGF-1 receptors in muscle, thus paving the way for that tissue to go anabolic.

Remember, all that a muscle tissue with IGF-1 receptors needs is just a bit of IGF-1 and away it goes, increasing cellular division, changing the structure of the dividing cells, synthesising more new protein, increasing efficiency of nutrient uptake. What this means is anabolism: and anabolism means mass.



EGF is another characterised growth factor known to be present in Colostrum. To say the very least about EGF, it has potent anabolic activity in many tissues, including muscle. Several experiments show that GH is responsible only up to a point in muscle development, at which time factors such as EGF become increasingly important for continued anabolism. However, it is reasonable to conclude that the primary effect of EGF in Colostrum is to radically enhance the gross uptake of many nutrients, perhaps including the peptide growth factors by intestinal cells. There exist other growth factors in Colostrum, which are not even characterised as yet. The Harvard study which is being referred to has found a compound similar to a small protein growth factor called PDGF. The other study reveals two brand new compounds similar to EGF and other compounds called TGF-A & B. The role of these compounds coupled with IGF-1 have been found to be biochemically unsurpassed in their role in cartilage and muscle repair.

Conclusion

You know what you want because you know what you need. What you are interested in is satellite muscle cell division and differentiation. There is no other compound in the universe, to date, which can help you with that problem better than IGF-1.

NOT STEROIDS. Not biotechnology and it's genetically engineered GH. Not 'releasing factors'. Not even a strict, pure amino acid and glycogen diet. Plain



and simple, IGF-1 is the end-all and the be-all of anabolic peptide growth factors.

Where can you get it?

COLOSTRUM. That is, you can only get IGF-1 in Colostrum unless the FDA approves a genetically engineered form for over-the-counter sale. And we all know this is something they are not likely to do with the millions biotechnology has riding on keeping this product controlled and expensive.

IRON MAN MAGAZINE
REPRINT OF ARTICLE

Does colostrum cause any side effects?

With so many advantages and benefits, the naturally sceptical person tends to ask for the catch - or else to voice the question: does colostrum have any side effects?

Colostrum has been used by humans for thousands of years, but was apparently forgotten until a few decades ago and has only been rediscovered for several years.

During the entire time, there have been no reports of side effects; even in people with lactose hypersensitivity colostrum should cause no problems. Dr. Robert



Preston of the International Institute of Nutritional Research believes that colostrum is completely safe and it is hard to imagine another food that is more natural and beneficial.

Other doctors also issue colostrum with an unrestricted Certificate of Good Standing:

'When I discovered colostrum, I discovered that it had been extensively studied by well-known physicians, scientists, and organisations. This gave me a far more reassuring feeling than many other untested remedies'. (Dr. Nikki Marie Welch)

'The beauty of it is that patients can try it without fear of adverse effects. Because it's a valuable natural substance, there are no problems with potential side effects'. (Carl Hawkins, Chiropractor)

Study on the safety of colostrum

The oral intake of colostrum is classified as effective and safe; there are no known contraindications or overdoses.[220]

[220] Preston, R. 1987, International Institute of Nutritional Research



TURMERIC (CURCUMIN)

What is it and what does it help counteract?

Turmeric is known to many cooking enthusiasts as part of curry powder under the synonym 'Indian saffron' and in addition to taste, gives the dish its yellow colour, which is why turmeric is known as 'Gelbwurz' ('yellow root') in German. Whether in curry or Worcester sauce, you can be sure to find turmeric playing its part. Revered in India as a 'sacred plant' since time immemorial, turmeric is much more than a spice; it is an excellent medicinal plant that positively influences many an ailment and can have a positive effect on some serious diseases, often healing them completely Curcumin, which is found in turmeric, is once again causing a sensation in research circles; its effect cannot be compared to any other natural substance!

Turmeric – the botanical information

Turmeric, with the botanical name 'curcuma longa', belongs to the plant family Zinigiberaceae, the ginger family. The plant itself grows reed-like in the upper part, and the leaves have a light green colour and reach a length of up to one metre. It has strong rhizomes, and it is this precise root that we use in the kitchen and in natural medicine.

Turmeric – the origin

The turmeric plant has been around in India, Southeast Asia, Java and Vietnam



for about 5,000 years.

Industrial use of curcumin

In the food industry, the intense orange-yellow curcumin is recognised as a food additive and bears the number E 100. This is mainly used for colouring numerous foods, as we know from beta-carotene.

For products ranging from margarine to jam and mustard, curcumin is blended to achieve a brownish hue. But it also serves as a flavour carrier and flavouring and is used, for example, in curry powder.

Furthermore, the intense yellow colour of curcuminoids is used as a dye in cosmetics as well as within the clothing industry.

Medical importance of turmeric (curcumin)

Not only is turmeric a spice, but with the important active ingredient 'curcumin', it is an important medicinal plant within Traditional Chinese Medicine (TCM) and Indian medicine (Ayurveda).

The first written records of its medical application date from around 5000 years ago. Curcumin was first mentioned as a remedy in the scriptures of Hinduism. Curcumin has been extensively researched in modern Western medicine for about 50 years.

The medical application is quite broad and ranges from Alzheimer's to diabetes and cancer; the rhizome (root), first ground and then dried, is usually used in



powdered form. The example of cancer illustrates how effective it can be. There are experts who believe that there is no cancer that would not respond to treatment with curcumin!

Furthermore, curcumin protects the heart from heart attacks, the brain from strokes and the liver from cirrhosis; it lowers blood sugar levels and also protects against the dreaded consequences of diabetes.

These following sections are dedicated to the objective evaluation of the medicinal effects of curcumin and turmeric, respectively.

Active ingredients in turmeric

Which active ingredients are found in turmeric?

Naturalists agree that not all active ingredients from turmeric can be identified; many are still missing names and definitions. Of the approximately 400 active ingredients identified, curcumin stands out as one of 90 different curcumoids, including turmeric.

Active ingredient groups in turmeric

The following groups of active ingredients are found in turmeric:

- vitamins
- minerals



- trace elements
- carbohydrates
- protein
- fatty acids
- secondary plant substances
- enzymes
- hormones
- essential oils
- bitter substances

The macronutrients of turmeric per 100g are:

36 g protein

28 g carbohydrate

14 g fat

This makes up about 350 kilocalories.

One teaspoon of turmeric contains (in mg):

Vitamins

Vitamin E	62
Choline	44



Vitamin A	32
Folic acid	17
Niacin	9.12
Vitamin C	1.1
Vitamin K	1
Vitamin B6	0.68
Vitamin B5	0.46
Riboflavin	0.2
Thiamine	0.05

Minerals

Potassium	1260
Magnesium	208
Phosphorus	172
Calcium	120
Selenium	60
Manganese	36.4



Fatty acids

Saturated fatty acids	1.98
Polyunsaturated fatty acids	0.52
Monounsaturated fatty acids	0.36

How does the curcumin in turmeric work, and what does it counteract?

Turmeric is impressive as it is extremely effective against numerous diseases. This is due to the synergetic interaction of the individual active ingredients: curcumin, xanthohriziol, calcium, potassium, magnesium, iron and phosphorus. Curcumin has particularly proven itself as a potent aid against autoimmune diseases, such as arthritis, multiple sclerosis, diabetes mellitus (type 1) or inflammatory bowel disease. Its range of action is also worthy of note. This is how curcumin actually works in virtually every one of our 37,2 trillion body cells![221]

Before we take a closer look at the specific effect of curcumin, the main points regarding its general effects are described below:

General effect of curcumin

- Curcumin has an antioxidant (cell-protecting) effect.
- Curcumin has an anti-inflammatory effect.

[221] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric – The Healing Power of the Magic Tuber'), 6/2012 p. 68



- It shows an immunomodulatory (immune system-building) effect.
- It has an antibacterial effect.
- Curcumin shows antifungal (antifungal) effects.
- It firms cell membranes.
- It regulates genes.
- It is neuroprotective.
- It is chemopreventive.
- It is choleretic.
- It is anti-inflammatory.
- It oxygenates.
- It is cholekinetic.
- It is anti-ischemic.
- It promotes healing.
- It is a chloretic.
- It is an insecticide.
- It has a detoxifying effect on the organism.
- Curcumin has an anti-carcinogenic (anti-cancer) effect.
- It lowers cholesterol/lipids.
- Curcumin has a hepatoprotective (liver-protecting) effect.
- Curcumin has an antihypertensive effect.

Antioxidant (cell protecting) effect of curcumin



The best possible way to prevent disease and ageing continues to be the protection of our cells against free radical attacks resulting from the metabolism, respiratory air, air pollution, tobacco smoke and other factors, which aggressively attack each of our cells, leading to loss of function, mutations, and other effects that manifest in countless illnesses, including cancer.

The only way to protect yourself is by modifying your behaviour and taking antioxidants. These antioxidants include the classics vitamin C, coenzyme Q10, beta-carotene, selenium, vitamin E and less efficient substances, including curcumin from turmeric.

How does curcumin have an antioxidant effect?

By inhibiting lipoxygenase (LOX) and cyclooxygenase-2 (COX-2), curcumin strongly counteracts the attacking free radicals!

Gene-regulating effect of turmeric

Tests known as microarray analyses have identified a large number of genes, the activation of which is influenced by curcumin. These are genes that are responsible for apoptosis (programme cell death of the cancer cells), but also responsible for cell division and cell differentiation.

Anti-inflammatory (anti-inflammatory) effect

The anti-inflammatory effect of curcumin is due to a reduction of inflammatory



parameters, such as kappaB, interleukin 1 and 6, TNF, COX-2 and LOX. Furthermore, curcumin inhibits the synthesis of prostaglandin E2, which also causes inflammatory reactions in the body.

Immunomodulatory effect of curcumin

Curcumin also increases the activity of T lymphocytes and B lymphocytes and stimulates macrophages and other immune cells. It is considered by many to be the most potent immunomodulatory herbal agent. This makes curcumin the drug of choice not least in the fight against autoimmune diseases such as arthritis, MS, psoriasis and others.

Anticarcinogenic (anti-cancer) effect

The way in which curcumin influences cancer can accurately be described as holistic and multifactorial. A separate point is dedicated to this important topic: 'Curcumin and its effect on cancer'

Oxygenating effect of curcumin

Due to its influence on iron utilisation and its blood-thinning properties, curcumin is able to increase the oxygen content in the blood just one hour after intake.

Neuroprotective effect of curcumin

Curcumin promotes the proliferation of embryonic, neural progenitor cells and thus the neurogenesis in the hippocampus and has a neuroprotective effect as



a result of this. Furthermore, curcumin protects against adverse effects of colchicine and phenotoin and also prevents abeta deposits, which can lead to Alzheimer's.

Detoxifying effect of turmeric

The curcuminoids contained in turmeric stimulate the production of bile as a cholagogue. Because turmeric improves the bile flow, it transports innumerable toxins and pollutants directly into the intestine. Turmeric also contains a variety of curcumoids that activate glutathione S-transferase, an enzyme that breaks down toxic substances.

Turmeric/curcumin has a positive influence on the following illnesses and conditions:

- cardiovascular disease
- protection against heart attack
- protection against stroke
- protection against thrombosis
- varicose veins
- protection against viral infections
- protection from fungi
- herpes virus 1
- intestinal polyps
- Alzheimer's



- poor concentration
- tumorigenesis/Cancer
- inflammatory diseases
- arthritis
- arthrosis
- psoriasis
- infections
- skin diseases
- acne
- itching
- hives
- multiple sclerosis
- depression
- impotence
- menstrual cramps (PMS)
- gallstones
- kidney stones
- irritable bladder
- flatulence
- gastrointestinal problems
- chronic fatigue
- psoriasis



- allergies
- insect bites
- respiratory diseases
- sleep disorders
- asthma
- bronchitis
- pulmonary fibrosis
- cystic fibrosis
- Bowel disease (Crohn's disease, ulcerative colitis)
- diarrhoea
- cough
- epilepsy
- liver disease
- glaucoma
- Kennedy's disease (spinal muscular atrophy)
- premature ageing
- gum inflammation
- uveitis (inflammation of the middle layer of eye skin)
- excess weight
- post-menopausal symptoms
- HIV/AIDS



Effect of curcumin on cardiovascular diseases

Atherosclerosis poses the highest risk of heart attacks and strokes. However, this can only occur when food cholesterol oxidises in the blood vessels and forms plaques that damage and constrict the blood vessels. If the blood flow to the heart is obstructed, it may result in a heart attack. The blockage of an artery to the brain causes a stroke.

Curcumin prevents cholesterol oxidation

The curcumin in turmeric prevents this process by stopping the oxidation of cholesterol. It also reduces the amount of blood cholesterol circulating in the blood by reduction of cholesterol levels. Just 2600 mg turmeric powder or 3 x 2 turmeric capsules a day can normalise the cholesterol level in many people in a relatively short time.

In one study, the level of LDL cholesterol was reduced by 10.9 % after twelve weeks of treatment with alcoholic turmeric extract. Triglyceride levels fell 6.1 %.[222]

Curcumin lowers homocysteine levels

The vitamin B6 contained in curcumin also reduces the level of homocysteine, which is considered to be another major factor in the development of atherosclerosis, with the associated risks of a heart attack or stroke.

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[222] Häringer, E.: Curcuma longa L. reduces functional dyspepsia and regulates elevated lipid levels, Pharm. Ztg. (Pharmaceutical Magazine) 2003; 148, p. 3396.



Curcumin counteracts destructive inflammation within the blood vessels

Inflammation in blood vessels is another negative aspect which leads to their gradual destruction. As an antagonist of arachidonic acid, curcumin counteracts the inflammation in the blood vessels.

Curcumin increases blood circulation and lowers high blood pressure

Curcumin has antihypertensive properties; it dilutes our blood.

Curcumin prevents ischemia

Its anti-ischemic properties protect against deficient circulation, which is the cause of heart attacks, strokes and thrombosis.

Curcumin protects against myocardial hypertrophy, heart attacks and the effects of diabetes on the heart

In studies, curcumin has been shown to protect against myocardial growth (myocardial hypertrophy), myocardial infarction and diabetes complications.

Effect against thrombosis

The blood-thinning properties of curcumin can counteract thrombosis.

General effect of curcumin on brain performance and protection of the brain



Curcumin promotes the production of embryonic, neural progenitor cells and thus neurogenesis. In addition, curcumin can both prevent protein deposits in the brain and dissolve existing deposits, even at very low doses, according to Gregory Cole of the University of California (LA).[223]

In summary, curcumin reduces neurodegenerative processes, counteracts protein deposits in the brain and even dissolves them. It also neutralises inflammatory processes and efficiently counteracts free radical attacks.

These mechanisms are also confirmed by a study by Harvard University in Boston. The researchers also came to the conclusion that curcumin inhibits the death of neurites.

Effect on poor concentration – learning difficulties

In a study on 1010 persons aged between 60 and 93 years, the intake of curcumin rich curry resulted in higher MMSE values. This mini-mental state examination provides information about and is also the indicator of the mental capacity of humans.[224]

Effect of curcumin on Alzheimer's

Curcumin has been proven to protect the brain from neurodegenerative diseases in many studies. Similar to atherosclerosis, Alzheimer's disease is thought

[223] Journal of Biological Chemistry

[224] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric - The Healing Power of the Magic Tuber'), 6/2012 p. 49



to be caused by the deposit of plaques (amyloid plaques) in the area where the nerve cells are located. This leads to the interruption of the neurological conduction of signals with corresponding loss of function.

Since this deposition is only possible under oxidation and curcumin is able to prevent it as a powerful antioxidant, it can effectively protect against Alzheimer's.

Interestingly, it can also positively affect pre-existing Alzheimer's by passing through the blood-brain barrier and can dissolve the existing deposits in the brain, as Gregory Cole of the University of California has found. This extremely important aspect of Alzheimer's treatment was published in the Journal of Biological Chemistry.

According to a study at the Chinese University of Hong Kong, curcumin is likely to dissolve β-amyloid deposits in the brain. It also activates the Nrf2 transcription factor, thereby enhancing the spread and activity of heme oxygenase-1 in cell cultures of neurons and astrocytes.

Effect against inflammatory diseases, including arthritis.

Arthritis is an autoimmune disease. Due to its proven immunomodulating effect, curcumin can condition the immune system to prevent the inflammatory reactions. In a double-blind study, the intake of curcumin in had the following effects on

- decreasing joint swelling



- decreasing morning stiffness
- improved mobility

Specifically, inflammatory reactions are suppressed via the following mechanisms:

- COX-2 inhibition
- inhibition of lipoxygenase (LOX)
- inhibition of NF-kb
- inhibition of prostaglandin E2 synthesis
- formation of inducible NO synthase (iNOS)

Furthermore, curcumin inhibits the production of proinflammatory messengers such as interleukins 1, 2, 6, 8 and 12, interferon-gamma and tumour necrosis factor-alpha.

Inflammatory diseases are also significantly caused by free radicals. Curcumin has extremely strong antioxidant properties and can efficiently counteract this formation mechanism. Another mechanism within arthritis is histamine release, which curcumin can also affect. Numerous studies have shown curcumin to be just as effective or even more effective against inflammation in the body than the traditional inflammation blockers of conventional medicine (ibuprofen, aspirin, etc.), and without any side effects!

The effect of curcumin on arthritis is so convincing that even the WHO (World Health Organization) recommends its use to tackle arthritis and rheumatism.



Here, curcumin can replace side-effect-producing NSAIDs whose long-term use often leads to gastrointestinal problems and even heart disease.

Curcumin combats uveitis (inflammation of the middle eye skin)

In a study on 32 patients given 375 mg of curcumin 3 times a day for three months, 13 of the patients were permanently cured, and the condition improved in 30 overall.

Effect of curcumin on arthrosis

The advanced stage of arthrosis is characterised by joint pain and restricted mobility. In a double-blind study, a curcumin-phospholide complex demonstrated a significant improvement in the pain symptoms and mobility of arthrosis patients.[225] Among other things, this can be explained by the anti-inflammatory properties of curcumin, which alleviate the symptoms of swelling, pain, inflammation and redness and allow the tissue to regenerate. Here, curcumin can replace side-effect-producing NSAIDs.

Effect against cirrhosis of the liver and liver fibrosis

Curcumin has been shown to protect against liver fibrosis and cirrhosis due to fatty liver by activating PPAR gamma.[226] It also protects the liver from alcohol damage.

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[225] Belcaro et al.: Product-evaluation registry of Meriva®, a curcumin-phosphatidylcholine complex, for the complementary management of arthrosis. Panminerva Med. (2010) Jun; 52 (2 Suppl 1), pp. 55-62, PMID 20657536

[226] Br J Pharmacol. August 2009; 157 (8), p. 1352 f.



Effect of curcumin against cancer and tumorigenesis

The effect of curcumin on carcinogenesis is very comprehensive and therefore deserves its own section, 'Curcumin and its effect on cancer'.

Effect of curcumin against allergies

Allergies are caused by release of histamine. Curcumin has been shown to counteract histamine release and can thus prevent, or at least alleviate, allergies. The anti-inflammatory, antioxidant effect enhances the anti-allergic effect of curcumin.

Effect of curcumin on post-menopausal symptoms

A study by Dr. Beatrice E. Bachmeier suggests that curcumin acts as a vegetable oestrogen, can compensate for natural oestrogen losses after menopause and relieve the associated symptoms.[227]

Liver-strengthening effect of curcumin

Curcumin has pronounced hepatoprotective properties. The bitter substances

[227] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric – The Healing Power of the Magic Tuber'), 6/2012 p. 52



contained in it promote bile production, meaning that fatty acids can be split more easily, which relieves the liver significantly.

Effect of curcumin against herpes virus

In a 2008 Michigan State University study, even low levels of curcumin were shown to disrupt the spread of herpes virus-1.

Effect of curcumin on asthma and general respiratory diseases

The anti-inflammatory, antioxidant and histamine-releasing effects of curcumin may counteract allergic asthma and numerous respiratory diseases (including respiratory distress syndrome, allergic asthma, ALI, COPD). In contrast to standard cortisone-based drugs, treatment with curcumin is completely free of side effects.

Effect of turmeric on diabetes mellitus

Curcuma has hypoglycaemic properties and can therefore successfully influence diabetes causally – and without side effects!

Curcumin prevents negative consequences of diabetes mellitus

Advanced-stage diabetes is associated with many unpleasant sequelae, can en-



courage heart attacks, and lead to leg amputations, as it promotes the destruction of the blood vessels. In particular, the small blood vessels in the retina are at risk, and so advanced diabetes often leads to blindness.

In experiments, curcumin has been shown to reduce oxidative stress and to induce anti-inflammatory processes in the retina that protect it from destruction.[228] At the same time, curcumin counteracts diabetes-2 complications, such as neuropathy, retinopathy, liver fibrosis, and nephropathy, by increasing PPARgamma activity.[229] According to a 2005 study, curcumin delays the development of cataracts resulting from hyperglycaemia in rats.

How curcumin works in inflammatory bowel disease (Crohn's disease, ulcerative colitis)

By preventing the inflammatory response to toxins in the gut, curcumin has a beneficial effect on inflammatory bowel diseases such as Crohn's disease and ulcerative colitis.[230]

Effect of curcumin on pulmonary fibrosis

Nicotine, fumes, chemotherapy and radiation can cause lung damage and pulmonary fibrosis. Here, curcumin has shown in various experiments that it can provide protections against these.

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[228] Kowluru et al.: Effects of curcumin on retinal oxidative stress and inflammation in diabetes Nutr Metab (Lond). (2007) Apr 16; 4, p. 8, PMID 17437639

[229] Stefanska B.: Br J Pharmacol. 2012 Mar 27

[230] Curr Pharm Des. 2009; 15 (18), p. 2087-2094



Effect of curcumin on cystic fibrosis

According to a report in the journal *Science*, curcumin was able to prove itself in the treatment of cystic fibrosis. In animal experiments, a promising effect on this life-threatening disease has been revealed.

Effect of curcumin on gallstones

Curcumin optimises the work of the gallbladder and improves the bile flow – both have been shown to counteract the formation of gallstones.

Curcumin has an effect on Kennedy's disease (spinal muscular atrophy)

Kennedy's disease only affects men. Symptoms include muscle weakness and difficulty swallowing; even speaking is difficult for those affected at an advanced stage. At the University of Rochester, a substance called ASC-J9, which is similar to a component of curcumin, was recently tested in animal experiments.

Curcumin works against depression and low mood

Since curcumin interferes with serotonin synthesis and produces so-called neurotrophins in the brain, substances that protect against depression, low mood and anxiety, it effectively counteracts depression, anxiety and low mood!

Curcumoids in turmeric act as monoamine oxidase inhibitors (MAO inhibitors)



and are far superior in their effect to the synthetic MAO inhibitors of the pharmaceutical industry in treating depression – and completely without side effects!

'Curcumin and piperine, combined as psychodrugs, are a useful and potent natural alternative in the treatment of depression'. (Dr. Kulkarni of Panjab University.)[231]

Effect of curcumin against ageing

Curcumin activates genes responsible for cell division and differentiation. Cell division is a prerequisite for the rejuvenation of all tissue forms. Furthermore, it promotes collagen synthesis and thus the rebuilding of collagens, which lead to skin renewal and the disappearance of wrinkles.

With its neuroprotective effect and the resulting protection against Alzheimer's and dementia, curcumin is a true, functional anti-ageing agent.

With its arterioprotective effect, curcumin completely lives up to the motto '*A person is as old as their blood vessels*'. As a potent blocker of NF-ϰB, it eliminates age-related inflammation in the body ('inflammageing'), which can cause numerous neurodegenerative diseases in old age.

Effect of curcumin against bacterial infections

[231] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric – The Healing Power of the Magic Tuber'), 6/2012 p. 132



In in vitro studies, curcumin prevented infection-related symptoms and adherence of the Neisseria gonorrhoea bacterium; this is due to its high essential oil content.

Effect of curcumin on HIV/AIDS

Not even the HIV virus escapes the antiviral, immune-strengthening effect of curcumin. Curcumin interferes with the CBP (P300/CREB-binding protein) and thus the proliferation of HIV.

Curcumin and its effect on cancer

The effect of curcumin on cancer is clearly demonstrated by an impressive number of studies (over 3000) covering almost all cancers; the German, Austrian and US Oncology Association recommend curcuma as adjunctive therapy. At a medical congress in the USA in 2005, curcuma was recognised as the only natural remedy that can be used for the preventive and therapeutic treatment of cancer – irrespective of the type of cancer! This should be given in as high a dose as possible and under medical supervision.[232] In an international comparison, the morbidity rate of breast, prostate, large intestine and lung cancer in India is ten times less than in the USA from a statistical point of view. This is attributed to the daily amount of curcumin in the traditional Indian diet!

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[232] http://www.bankhofer-gesundheitstipps.de/artikel/98-Curcuma-als-Heilmittel-Staerkt-die-Leber,-schuetzt-vor-Diabetes-und-Cholesterin.html



'*No cancer has been found, to my knowledge, which is not affected by curcumin!*' (Professor Bharat Aggarwal Ph. D. Anderson's Department of Therapeutics). '*No cancer has been found, to my knowledge, which curcumin does not effect!*'

Let's take a closer look ...

How and for which types of cancer has the use of turmeric proven to be effective?

Curcumin takes up the fight against cancer through several simultaneous mechanisms:

- It stimulates the immune system.
- As a transcription factor, it inhibits the formation and
- propagation of metastases (proliferation) at the genetic level.
- It activates genes that are responsible for apoptosis (programmed cell death of the cancer cells).
- It has antiangiogenic effects (prevents the development of blood vessels in tumour tissue).
- It makes the cell membrane of cancer cells more permeable and therefore more vulnerable to the immune system, chemotherapy, radiotherapy etc.
- It acts as a proteasome inhibitor.
- It counteracts inflammation by deactivating the protein NF-kB.
- It promotes apoptosis (programmed cell death of the cancer cell) by shutting off two proteins that block it, driving the cancer cells to suicide.



- Because it interferes with the ubiquitin-proteasome system of the cancer cells, these can no longer produce pollutants and perish.
- It prevents the mutation of pre-loaded cells into cancer cells.
- As a powerful antioxidant, it has a positive effect in all stages of carcinogenesis.

Which types of cancer does turmeric or curcumin have an effect on?

Numerous oncologists from all over the world believe that curcumin invariably produces positive effects on every type of cancer. The literature discusses the following types of cancers that respond positively to the use of turmeric/curcumin:

- colon cancer
- breast cancer
- prostate cancer
- lung cancer
- skin cancer
- cervical cancer

Effect on colon cancer

Curcumin counteracts colon cancer by preventing the development of intestinal polyps and promoting the redevelopment of existing ones. This effect is considered significant as the number of polyps decreases by 60 % and the size of



each polyp reduces by half![233]

Effect of curcumin on breast cancer

In animal studies, curcumin has been shown to inhibit metastasis and reduce its spread to the lungs.[234] Here, curcumin acts as a transcription factor responsible for the regulation of all genes necessary for carcinogenesis. It shuts them off, preventing the growth and spread of breast cancer.

An interesting synergy of effects arises between the conventional medicine 'paclitaxel' and curcumin. This combination is expected to significantly improve the treatment of breast cancer with paclitaxel. In animal studies, Bharat Aggarwal and his colleagues from the University of Houston (Texas) in the direct test of curcumin with the chemotherapeutic drug 'paclitaxel' could prove that curcumin was even more successful in breast cancer with regard to the spread of metastases to the lungs than the chemotherapeutic agent. Paclitaxel could only improve its effects in combination with curcumin.[235]

This is how curcumin works on skin cancer

In in vitro studies on cancer cells, curcumin was able to activate apoptosis (the cell suicide programme) by suppressing two proteins whose purpose is to prevent suicide of cancer cells.

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[233] Cruz-Corres et al.: Combination treatment with curcumin and quercetin of adenomas in familial adenomatous polyposis, Clin Gastroenterol Hepatol. August; 4 (8), p. 1035-1038 (2006), PMID 16757216

[234] Aggarwal et al .: Curcumin suppresses the paclitaxel-induced nuclear factor-kappaB pathway in breast cancer cells and inhibits lung metastasis of human breast cancer in nude mice, Clin Cancer Res. Oct. 15; 11 (20), p. 7490-7498 (2005), PMID 16243823

[235] ClinCancerRes. 2005 Oct 15; 11 (20) p. 7490-7498. Curcumin suppresses the paclitaxel-induced nuclear factor-kappaB pathway in breast cancer cells and inhibits lung metastasis of human breast cancer in nude mice.



Curcumin inhibits the spread of cancer

Curcumin can prevent any further spread of about 40 % of all lung, colon, prostate and skin tumours.

Curcumin supports chemotherapy

In general, it is common for cancer cells to develop resistance during chemotherapy, with no effect remaining. Curcumin counteracts the resistance of cancer cells to chemotherapy. Furthermore, curcumin acts synergistically with chemotherapeutic agents and improves their effect as a so-called chemosensitiser. As previously described, curcumin potentiates the effects of paclitaxel in breast cancer therapy. In summary, a synergistic effect-enhancement was observed in the following chemotherapies:[236]

- Paclitaxel
- Taxol
- Doxorubicin
- 5-FU
- Vincristine
- Melphalan
- Butyrate
- Cisplatin

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[236] Nutr Cancer. 2010; 62 (7), p. 919–930. Curcumin, the golden spice from Indian saffron, is a chemosensitiser and radiosensitiser for tumours and chemoprotector and radioprotector for normal organs. Goel A, Aggarwal BB. Source: Department of Internal Medicine, Baylor University Medical Center, Dallas, Texas, USA.



- Celecoxib
- Vinorelbine
- Gemcitabine
- Oxaliplatin
- Etoposide
- Sulfinosine
- Thalidomide
- Bortezomib

Curcumin optimises the effect of radiotherapy

As a so-called radiosensitiser, curcumin improves the response rate of radiotherapy in studies. [237, 238]

In the online edition of 29 April 2010, the magazine *Focus* confirmed these effects and described the successful efforts of cancer researchers to prepare chemotherapy or radiotherapy with nanoparticles of curcumin. The ovarian cancer cells previously treated with curcumin responded much better to both chemotherapy and radiation!

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[237] Int J Radiat Oncol Biol Phys. 2009 Oct 1; 75 (2), p. 534-542

[238] Clin Cancer Res. 2008 Apr 1; 14 (7), p. 2128-2136



Curcumin helps with weight loss.

- It activates the bile flow and promotes fat digestion.
- It increases blood circulation and fat metabolism.
- It breaks the insulin resistance of the cell.
- It speeds up the digestive process; the fatty acids are transported out of the intestine faster, before they can be stored as body fat.
- It counteracts hyperlipidaemia, hyperglycemia and other symptoms that may interfere with weight loss.
- It stimulates the body's synthesis of hormone neurotransmitters that have a positive effect on weight loss.
- It inhibits the development of blood vessels in adipose tissue and thus their growth and spread.
- It interferes with the synthesis of fatty acids and increases the fatty acid breakdown processes (beta-oxidation).
- It promotes the cell death of fat cells, the so-called adipocytes.[239]

An investigation of the European Journal of Nutrition led to the following conclusion:

'*Implementing the use of curcumin in clinical practice for the treatment and prevention of*

[239] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric – The Healing Power of the Magic Tuber'), 6/2012 p. 88



chronic diseases associated with obesity is possible. In addition, the relatively low cost of curcumin makes it possible to make this part of your regular diet. Curcumin is safe and proven to be effective'.

Furthermore, the researchers conclude:

'Our results clearly show that curcumin has a remarkable health benefit at the cellular level and in the whole organism for the prevention of obesity and the associated metabolic disturbances'.

'Our results convey the hope that curcumin can prevent excess weight and obesity'. Ejaz from Tufts University in Medford, after her studies showed that mice fed high levels of fat and supplemented with curcumin were able to reduce their body weight.[240]

'*These results show that curcumin clearly has fat-lowering properties*', says Dr. E.M. Jang from Sunchon National University in Jeonnam, South Korea, after learning from studies that curcumin increases fat-burning enzymes.[241]

Studies and scientific work on curcumin from the turmeric plant

The turmeric plant and its active ingredient 'curcumin' have been intensively researched for around 50 years. There are now more than 3,700 studies on this remarkable spice.

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[240] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric - The Healing Power of the Magic Tuber'), 6/2012 p. 49

[241] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric – The Healing Power of the Magic Tuber'), 6/2012 p. 91



Studies on the brain-protecting effect of curcumin

- Curcumin promotes neurogenesis in the hippocampus by promoting the proliferation of neural progenitor cells (nerve cells).[242]
- Curcumin protects against abeta deposits in the brain, which are thought to cause Alzheimer's.[243]
- Curcumin protects against the negative effects of phenotoin therapy on the brain.[244]

Studies on the effects of curcumin on Alzheimer's and Parkinson's

Promising results from studies are encouraging for Alzheimer's and Parkinson's patients.[245]

Studies on the antitumour effect of curcumin

- Curcumin has an effect on the androgen receptor and thus counteracts prostate cancer.[246]
- In ovarian cancer, curcumin causes apoptosis of the cancer cells and can thus improve the effects of therapy.[247]
- In lung cancer, curcumin also initiates the programmed death of cancer cells.[248]

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[242] Biol Chem. May 2008 23; 283 (21), p. 14497-14505

[243] Exp Neurol. September 2009

[244] Brain Res. September 2009

[245] Doggui S.J. Alzheimers Dis. March 2012

[246] Anticancer Agents Med Chem. September 2009

[247] Mol Carcinog, August 2009

[248] Yang CL et al.: DNA Cell Biol. June 2011



- In pituitary tumours, curcumin has a hormonal effect on the cancer cells and thus leads to antitumoural effects.[249]
- Curcumin inhibits metastasis.[250]
- Curcumin prevents the growth of cancer cells in malignant melanoma in vitro.[251]
- Curcumin can prevent any further spread of about 40 % of all lung, colon, prostate and skin tumours.

Curcumin optimises the effect of radiotherapy

As a radiosensitiser, curcumin improves the response rate of radiotherapy in studies.[252] [253]

Curcumin potentiates the effects of chemotherapy

Curcumin potentiates the effect of the chemotherapeutic agent gemcitabine, which is used, for example, in pancreatic carcinomas.[254] It works synergistically with chemotherapeutic agents and improves their effect as a so-called chemo-sensitiser.

In summary, synergistic enhancement has been observed in the chemotherapies

[249] Endocrinology. August 2008; 149 (8), p. 4158-4167

[250] 2005, 11, 7490-7498

[251] Cancer 2005, Online Edition, DOI: 10.1002/cncr.21216

[252] Int J Radiat Oncol Biol Phys. 2009 Oct 1; 75 (2), p. 534-542

[253] Clin Cancer Res. 2008 Apr 1; 14 (7), p. 2128-2136

[254] Cancer Res. 2007 Apr 15; 67 (8), p. 3853-3861



listed below:[255]

- Paclitaxel
- Taxol
- Doxorubicin
- 5-FU
- Vincristine
- Melphalan
- Butyrate
- Cisplatin
- Celecoxib
- Vinorelbine
- Gemcitabine
- Oxaliplatin
- Etoposide
- Sulfinosine
- Thalidomide
- Bortezomib

Curcumin more successful than chemotherapy alone

In an animal study, Bharat Aggarwal and his colleagues from the University of

[255] Nutr Cancer. 2010; 62 (7), p. 919-1930. Curcumin, the golden spice from Indian saffron, is a chemosensitiser and radiosensitiser for tumours and chemoprotector and radioprotector for normal organs. Goel A, Aggarwal BB. Source: Department of Internal Medicine, Baylor University Medical Center, Dallas, Texas, USA.



Houston (TX) were able to prove in the direct test of curcumin with the chemotherapeutic drug *paclitaxel* that curcumin alone was more successful in breast cancer than the chemotherapeutic agent. In combination with curcumin, paclitaxel was able to improve its effect.

Studies on the cardioprotective properties of curcumin

Curcumin was able to minimise the risk of heart attack and the consequences of a heart attack in an animal study.[256]

Curcumin protects against liver cirrhosis and liver fibrosis in studies

Curcumin has been shown to protect against liver fibrosis and cirrhosis in the case of fatty liver by activating PPAR gamma.[257]

Curcumin protects against inflammatory bowel disease (Crohn's disease, ulcerative colitis)

By preventing the inflammatory response to toxins in the gut, curcumin has a positive effect against inflammatory bowel diseases such as Crohn's disease, ulcerative colitis[258].

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[256] Adv Exp Med Biol. 2007; 595, p. 359-377

[257] Br J Pharmacol. August 2009; 157 (8), p. 1352 f.

[258] Curr Pharm Des. 2009;15(18), p. 2087–2094



Curcumin prevents negative consequences of diabetes mellitus in studies

In experiments, curcumin has been shown to reduce oxidative stress and to detect retinal anti-inflammatory processes that cause them to be protected from destruction.[259] In addition, curcumin counteracts Type 2 diabetes complications such as neuropathy, retinopathy, liver fibrosis, and nephropathy by increasing PPARgamma activity.[260] According to a 2005 study, curcumin in rats delays the development of cataracts resulting from hyperglycemia.

Curcumin is used in studies of uveitis (inflammation of the middle eye skin)

In a very interesting study on 32 patients given 375 mg curcumin 3 times a day for only three months, 13 of the patients were permanently cured, and the condition improved in 30 overall

Curcumin usage

What should you know about using curcumin?

Always opt for organic curcumin! You can buy turmeric/curcumin in powder form in almost any grocery store. Organic certification is an important aspect of the buying decision, to ensure you get radiation-free turmeric, for example.

Dosage

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[259] Kowluru et al.: Effects of curcumin on retinal oxidative stress and inflammation in diabetes Nutr Metab (Lond). (2007) Apr 16; 4, p. 8, PMID 17437639

[260] Stefanska B.: Br J Pharmacol. 2012 Mar 27



In most cases, 1-3 g is recommended for prevention purposes, 2-3 times a day. Therapeutic doses can be many times higher and should only be taken under the supervision of a doctor or alternative practitioner!

Turmeric in capsule form

Turmeric in capsule form offers several advantages: the active ingredients are released only in the intestine, without burdening the stomach unnecessarily beforehand. At the same time, taking capsules does not affect the taste buds.

Storage

As with all foods whose vital substances you want to protect, it should be stored in a cool place, in a closed container and in the dark.

Is taking curcumin associated with any side effects?

As always, it is the dose that makes the poison! Isolated curcumin derived from turmeric and synthetic Big Pharma plagiarisms can cause diarrhoea, nausea and irregular blood pressure at high doses (between 2 and 12 g). On the other hand, taking turmeric is relatively harmless on the whole.[261] Pregnant and breastfeeding mothers should, as a precaution, refrain from taking curcumin.

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[261] Klaus Oberbeil: Kurkuma – die heilende Kraft der Zauberknolle ('Turmeric – The Healing Power of the Magic Tuber'), 6/2012 p. 71



DHEA – DEHYDROEPIANDROSTERONE

'The number of areas where supplementing with DHEA can be helpful is just stunning because it can help treat such a wide range of disorders'. (Dr. Julian Whitaker, Editor of *Health and Healing*)

DHEA (short for dehydroepiandrosterone) is a hormone produced in the adrenal gland, which is thought to play the role of a so-called buffer hormone which affects other hormones. Furthermore, DHEA is the precursor for both male and female sex hormones. As recent studies suggest, however, it is much more than 'just' a prohormone, because it is clearly a natural substance with completely independent, diverse effects in both humans and animals.

In men, DHEA is produced exclusively in the adrenal cortex; in women, a larger part (30 %) is formed in the ovaries; men always have slightly more DHEA than women. DHEA production in the body is not only sex-dependent, but also age-dependent. The level of DHEA is also subject to a daily rhythm. In the first years of life, only small amounts of DHEA are produced, and at the age of six to seven larger amounts are detectable; the highest level is reached at 25 years of age; then, the level drops steadily from there – it stands at 10 % at the age of 75 and at 5 % at the age of 85.



Within the cell, dehydroepiandrosterone is split as a prohormone into male hormones (androgens) and female hormones (oestrogens).

The importance of just one substance that benefits our hormones specifically becomes clear when you realise the actual, very wide-ranging effects and regulatory functions of hormones on our body cells. From controlling our egg and sperm cells and aiding fertilisation to the growth of an unborn child in the womb, the regulation of the birth process, the development of the human body, the regulation of the immune system, the utilisation of nutrients and so on... hormones control our bodies' vital functions.

DHEA was first discovered in urine by Butenandt and Dannenbaum in 1934; it was first isolated from the blood in 1954 and DHEA has been considered a so-called anti-ageing hormone since the 1980s.

As dry and complex as this may sound at first, taking DHEA as a nutritional supplement seems to have a positive effect on the above mechanisms in the body. DHEA is sold as a supplement in the big health stores in the US and has been taken by millions of Americans, without side effects, for many years.

The fact that this obviously makes sense is illustrated by around 4,000 publications from studies and other scientific research that attests to significant effectiveness of DHEA in preventing and treating numerous diseases and, moreover, in delaying ageing. In particular, two statements by renowned DHEA researchers listed below have made people sit up and take note:



'DHEA prolongs life and increases the quality of life over the extra years'. (Dr. Arthur Schwartz, Temple University, Philadelphia, USA)

'The number of areas where supplementing with DHEA can be helpful is just stunning because it can help treat such a wide range of disorders'. (Dr. Julian Whitaker, Editor of *Health and Healing*)

The following chapters have been devoted in full to this remarkable messenger and will systematically introduce you to interesting interrelationships and details relating to dehydroepiandrosterone.

Expert testimonies

In the case of DHEA, the positive statements of a growing body of experts from around the world point to an extremely interesting dietary supplement that can protect us from a number of diseases, have a positive effect on them and even delay biological ageing:

'DHEA prolongs life and increases the quality of life over the extra years'. Dr. Arthur Schwartz (Temple University, Philadelphia, USA)

'The number of areas where supplementing with DHEA can be helpful is just stunning because it can help treat such a wide range of disorders'. (Dr. Julian Whitaker, Editor of *Health and Healing*)



'Whenever DHEA has been tested in a simulated environment for carcinogenesis and tumour induction, it has had preventive effects'. (Dr. W. Regelson, *Medical College, Virginia*)

'When you give people DHEA, they actually feel more efficient and can concentrate better. Initial indications even suggest that DHEA can inhibit cancer growth and bone ageing'. (Dr. Wiebke Arlt, University Hospital Würzburg)

'Dehydroepiandrosterone, like melatonin, also appears to be an economic hormone that protects the body from unnecessarily wasting energy and thus prolongs its life'. (Prof. Dr. Huber)

'DHEA *affects diabetes, cancer, tumourigenesis, skin condition, fatigue, depression, memory and immune responses. With this broad spectrum of clinical applications, it's amazing that more books have not been written about* DHEA*!'* (Mohammed Kalimi and Dr. W. Regelson)

Effect of dehydroepiandrosterone

The quote by Dr. Julian Whitaker, editor of the renowned US health magazine *Health and Healing*, describes the effect of DHEA perfectly.

'The number of areas where supplementing with DHEA can be helpful is just stunning because it can help treat such a wide range of disorders'. (Dr. Julian Whitaker, Editor of *Health and Healing*)

DHEA works in many ways: it regulates the release of various hormones and can counteract age-related or disease-related hormone deficiency. It is precisely this hormone deficiency that plays a primary role in numerous diseases and in physiological ageing, and DHEA tackles the root of this problem.



An aged immune system is frail and no longer comparable to the defence system of a young organism. According to Dr. Daynes, DHEA can 're-format' an aged immune system so that it can work efficiently again. The refresh effect of a weak and/or aged immune system can be so powerful that many researchers speak of a veritable immune system rocket. DHEA does much more than this; it clearly functions as a biologically potent substance in its own right and has a comprehensive effect on our physique.

General effect of DHEA

The general effect of DHEA is described as follows:

- It strengthens the immune system,
- protects the cardiovascular system,
- has an antioxidant effect,
- is antiviral,
- mood-lifting,
- stress-reducing,
- regulates the metabolism,
- strengthens muscles,
- is anticarcinogenic (counteracts the development of cancer)
- increases libido (sexual desire is increased),
- lowers insulin and increases insulin sensitivity.

Disease-specific and age-specific effects



Specifically, DHEA can influence the following illnesses and conditions:

- diabetes
- cardiovascular diseases (protection against heart attack and stroke)
- atherosclerosis
- cancer
- depression
- schizophrenia
- depressive states
- stress
- chronic fatigue
- Alzheimer's
- Parkinson's
- skin problems
- excess weight/obesity
- osteoporosis
- multiple sclerosis (MS)
- biological ageing phenomena
- menopausal complaints
- weak immune system
- declining brain power (forgetfulness, concentration problems, etc.)



- HIV/AIDS
- lupus

Effect of DHEA on diabetes

DHEA can clearly stabilise the sugar metabolism by increasing IGF1 (insulin-like growth factor) production and can have a positive effect on Type 2 diabetes. In studies, DHEA has been shown to increase insulin sensitivity while preventing most typical secondary diseases among diabetics. This occurs through the production of insulin-producing cells, which is promoted by DHEA.

Effect of DHEA on cancer

DHEA has been shown to be one of the most efficient anticarcinogens in many studies, both in vitro and in vivo; it is particularly effective against breast, lung, colon and skin cancer. In his studies, Dr. Schwartz from *Temple University*, USA, observed a reduction in cancer rates of up to 80 %.

In a British study[262], 5,000 women were monitored and it was found that most of the 27 women who developed breast cancer had abnormally low levels of DHEA, some as early as nine years before the onset of cancer. Other studies, including those at Temple University, have shown that DHEA can prevent

[262] Bulbrook, 1962, 1971



breast, lung and colorectal cancer. Dr. W. Regelsen of the Medical College in Virginia, who has been researching DHEA for many years, says: '*Whenever DHEA has been tested in a simulation environment for carcinogenesis and tumour induction, DHEA has preventive effects'.*

How does DHEA work against cancer?

Dr. Schwartz found in his research that the addition of DHEA to cancer-infected cells makes them markedly resistant to the DNA mutation that would typically occur otherwise, keeps them more consistent and alive for longer. In animal tests at Temple University, mice treated with the same carcinogens and with DHEA at the same time did not develop breast cancer.

In general, the addition of DHEA protected cell cultures from toxic carcinogenic factors. However, here it is important to differentiate, since if oestrogen levels are low, DHEA may play the role of oestrogen and stimulate tumour growth.

Preventive use of DHEA can protect against uterine cancer by preventing the unwanted build-up of the uterus lining. According to Dr. Schwartz, who has been conducting this intensive research for many years, DHEA can suppress G6PDH enzyme (glucose-6-phosphate dehydrogenase). This is certainly desirable during cancer therapy, as G6PDH stimulates a chemical called NADPH, which activates carcinogenic (i.e. cancer-causing) substances.

Effect of DHEA on the heart



DHEA counteracts both stress and depression and physiologically reduces the tendency of platelets to aggregate, which is known to cause heart attacks and strokes, and lowers high blood pressure.

A 12-year study on 240 men aged 50 to 79 studied the impact of DHEA on lifespan. An increase in the DHEA concentration by 1 mg/litre greatly reduced the risk of heart attacks and reduce the incidence of myocardial infarction by 48 %.

DHEA attaches to specific receptors of the intima (vessel wall) and releases nitric oxide (NO). This nitric oxide has a vasodilatory effect and increases blood circulation.

DHEA has also been shown in studies to increase blood flow to the blood vessels by optimising the endothelial function and thus the ability to dilate.

As it also promotes lipid breakdown in the liver, it actively lowers cholesterol levels as 'bad' LDL cholesterol is excreted more.

DHEA intake sensationally reduced arterial calcification in rabbits by 50 % in the John Hopkins Department of Medicine in 1988; it is assumed that it would have similar effects on humans.

Protection against stroke

Stroke is often caused by stress, high blood pressure, and platelet clumping. DHEA reduces platelets' sensitivity to stress and tendency to form clumps and



also significantly lowers high blood pressure and can prevent strokes through these mechanisms.

Furthermore, the DHEA attaches to specific receptors of the intima (vessel wall) and releases nitric oxide (NO). This nitric oxide has a vasodilatory effect and increases blood circulation. It protects against blood vessel deposits, the dreaded atherosclerosis, and even reduces them by 50 % in animal experiments.

Overall, it is all the mechanisms together that can safely prevent a stroke.

Effect of DHEA on stress

In its capacity as a strong antiglucocorticoid, DHEA counteracts the stress-causing corticosteroid and thus the physiological side of stress development.

Effect on the skin texture

DHEA improves sebum production and prevents age spots; men also experience smoother, wrinkle-free skin after a short time.

Effect on excess weight

In parallel with research on the anti-cancer effects of DHEA, it has also been tested on genetically obese mice, with the result that the group of obese mice receiving DHEA did not put on weight, despite their higher caloric intake, and also lived longer. In further experiments on rats, feeding DHEA to obese rats led to weight loss; the tendency to develop diabetes was significantly reduced.



How does DHEA counteract obesity?

In men, taking DHEA beyond the age of 40 leads to a regeneration in testosterone synthesis, which in turn leads to a more favourable ratio of muscle to fat mass. DHEA also inhibits fat synthesis in both sexes by suppressing the enzyme glucose-6-phosphate dehydrogenase (G6PDH), which in turn breaks down glucose (carbohydrates).

Building muscle with DHEA – the anabolic effect

DHEA has an anabolic – and therefore a muscle-building – effect. In a study that examined the anabolic effect of DHEA, young men increased their fat-free body mass by a whopping 4.5 kg over a four-week period. The high dose of 1600 mg DHEA/day that was used is also noteworthy here (see also 'DHEA studies').

Effect against osteoporosis

Postmenopausal women become particularly susceptible to pathological bone loss, known as osteoporosis. By balancing hormone levels and bringing them back to those of a young person, DHEA successfully prevents osteoporosis. Here, DHEA lowers the IL-6 level, which is responsible, among other things, for the production of osteoclasts known to break down the bone substance.

Effect on brain performance

Research by Dr. E. Roberts indicates that even a small amount of DHEA is



sufficient to duplicate the number of nerve cells (neurons) in the brain. In addition, DHEA increases nerve cell cooperation and protects it from degenerating, which can lead to Alzheimer's, Parkinson's and other brain diseases. In animal experiments, long-term memory has been increased, and researchers assume it would have a similar effect on humans. In animal experiments, DHEA was able to significantly improve cognitive functions (see 'DHEA studies').

Effect of DHEA on Alzheimer's

DHEA's protection against degenerative processes in the brain, increase in neurons, and the transmission of signals between them, counteract Alzheimer's and other brain diseases.

Effect of DHEA against ageing

DHEA is considered to be one of the most reliable bio-markers for determining age status and has impressively managed to extend life by 50 % in animal studies. Animals fed with DHEA not only lived about 50 % longer than their peers, they also looked significantly younger.

A twelve-year study on 240 men between the ages of 50 and 79 revealed something astonishing. According to this study, there is a reverse correlation between DHEA levels and mortality; in other words, the higher the DHEA level, the longer the subjects lived, and the lower the level, the sooner they died. Here, a 1 mg/litre increase in DHEA concentration corresponded to a full 48 % decrease in heart attack mortality, which cannot be emphasised enough, given the



sad fact that one in two people dies of cardiovascular disease.

Further studies showed that taking DHEA leads to an improvement in skin texture, an increase in libido and well-being as well as increased fat loss. Women experience normal vaginal and prostatic secretion again and sexual intercourse can take place without additional aids.

Incidentally, DHEA, which is supplied from outside as a dietary supplement, is accepted as the body's own and can compensate well for age-related loss as a result of the decline in the body's production of the substance.

Possible explanation of how it works

In the course of our life, our production of sex hormones decreases steadily from the age of 35, which is considered an important aspect of physical ageing.

DHEA has the ability to restore male (testosterone) and female (oestrogen) hormones to their youthful levels, which has a profound effect on our entire body, from skin texture and muscle condition to sexual desire and bone density.

DHEA acts as a buffer hormone and buffers stress-related hormones in this function. Stress is commonly known as Killer Number 1. The DHEA level acts in the opposite way to the production of the stress hormone 'corticoid' in the body.

Furthermore, DHEA helps cells work more efficiently; this energy saving also has a life-prolonging effect. The antioxidant action protects our body cells from



attack by voracious free radicals, which are primarily responsible for biological ageing.

Strengthening effect on libido and potency

DHEA plays a role in sexual function. By virtually reconditioning male and female hormone production in men and women respectively and compensating for age-related production decreases, it has a positive effect on sexual desire and virility in both sexes. This has also been confirmed in studies. (see 'DHEA studies').

Effect on menopausal symptoms

The regulation of the hormonal balance reduces or completely eliminates the menopausal symptoms of hot flushes, sweats, migraines and digestive problems, and even bone loss.

Typical postmenopausal oestrogen deficiency can be avoided by taking DHEA orally, because DHEA has the ability to bring oestrogen synthesis in the woman's adrenal glands back to normal after menopause, thereby rendering oestrogenic replacement therapy superfluous after a short time.

These astonishing insights, completely ignored by German medicine, were presented by Dr. Pierre Diamond from the *Centre Hospitalier de l'Université Laval* at



a congress in Quebec, Canada.

Effect on energy and vitality

In a study at the University of San Diego, California, vitality and energy were increased by 82 % in women and 67 % in men after just a few weeks of use (see chapter "studies")

Effect against HIV virus and AIDS

Similar to patients with breast cancer, significantly lower DHEA levels have been observed in the blood of HIV patients.

DHEA exerts its antiviral activity via the stimulation of white blood cells, ca-toxinin and lymphoid organs, and has been shown to prevent the spread of type 1 HIV in the human body (see 'DHEA studies').

Study and research outcomes regarding DHEA

With more than 4,000 scientific publications, DHEA has been well-researched and has shown positive results in both humans and animals in atherosclerosis, cancer, weight loss, and longer lifespan.

DHEA shows antioxidant (cell-protecting) properties in studies, protecting our



cells from destructive free radicals.[263]

Excellent effect against stress confirmed in studies

In studies, DHEA shows stress-reducing properties by acting as a strong antiglucocorticoid to counteract the stressor 'corticosteroid'.[264]

Studies on the effects of DHEA on anxiety

As a neurosteroid, DHEA has a regulating effect on the psyche and counteracts anxiety.[265]

In studies DHEA prevents cancer by 80 %

Studies by Dr. Schwartz showed an impressive reduction in tumour rates by up to 80 %. [266]

Studies on DHEA levels in breast cancer

In British studies on more than 5,000 women from 1962 and 1971, amazing findings came to light. The studies showed that women with breast cancer had abnormally low DHEA levels.[267]

In studies, DHEA increases insulin sensitivity and lowers insulin levels

By promoting the production of insulin-producing cells, DHEA has been

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[263] Biochem. J. 301, 1994, p. 753-758

[264] Loria R. M.: Antiglucocorticoid function of androstenetriol. Psychoneuroendocrinology 1997; 22 Suppl 1, p. 103-108

[265] Dubrovsky B., 1997, 49, p. 51-55.

[266] Schwartz 1981, 1984

[267] Bulbrook et al., 1962, 1972



shown to increase insulin sensitivity and lower insulin levels in studies. Decreased insulin sensitivity is equivalent to insulin resistance, which is the causative and central disorder in diabetes.[268]

In studies, DHEA significantly reduces the risk of heart attack

In trials, DHEA has demonstrated the ability to significantly reduce the risk of heart attack.[269]

Lower DHEA scores measured in heart disease

Another study on 242 men between the ages of 50 and 79 has shown that lower levels of DHEA are measurable in heart patients.[270]

Within an observation period of two and four years, it was found that men with low DHEA levels have significantly higher mortality due to cardiovascular failure.[271]

Studies show that DHEA improves circulation in blood vessels

In trials, DHEA has been shown to significantly improve dilatation capacity and perfusion in arteries by optimising endothelial function.[272]

DHEA reduces vascular calcification (atherosclerosis) in animal trials by 50 %

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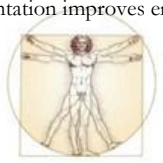
[268] Am. J. Med. Sci. 1993, 306, p. 320-324; Villareal, D.T. et al.: JAMA 2004, 292, p. 2243-2248

[269] Am. J. Med. Sci., 1996, 311, p. 205-210

[270] Barrett-Connor, E. et al.: NEJM, 1986, 315, p. 1519-1524

[271] Berr, C.: Proc Natl Acad Sci USA 1996, 93, p. 13410-13415

[272] Kawano H. et al.: Dehydroepiandrosterone supplementation improves endothelial function and insulin sensitivity in men. J Clin Endocrinol Metab 2003, 88, p. 3190-3195.



At the John Hopkins Department of Medicine in 1988, taking DHEA reduced arterial calcification (atherosclerosis) in rabbits by 50 %, which should be considered a sensational result.

DHEA protects against viral infections in studies

By boosting interferon production, DHEA has been shown to protect against viral infections. Both oral and subcutaneous doses of DHEA have been shown to protect mice and rats from fatal infections in animal experiments.[273]

DHEA counteracts lupus in studies

In one study, DHEA was able to demonstrate its effectiveness against systematic lupus erythematosus.[274]

Studies aimed at optimising brain performance

DHEA activates the metabolism of the forebrain and other sections of the brain and can optimise nerve cell activity.[275]

DHEA increases cognitive properties

In animal experiments, DHEA significantly improved cognitive properties.[276]

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[273] J. Endocrinol. 1996, 150, p. 209-220

[274] Derksen R. H .: Semin Arthritis Rheum. 1998, 27, p. 335-347

[275] J. Neurosci. 1996, 16, p. 1193-1202

[276] Wolf, T. and Kirschbaum, C.: Brain Research Reviews 1999, 30, 264-288, 1999



DHEA improves skin texture in studies

In one study, DHEA was shown to lead to improvements in skin texture.[277]

In studies, DHEA suppresses the human HIV virus

In one study, DHEA was able to suppress the spread of type 1 HIV in humans.[278]

In another study, DHEA was able to show positive effects on mood and fatigue in 45 AIDS patients.[279]

DHEA boosts sexual desire in women

In a double-blind study, one group of women received 50 mg daily of DHEA over a four-month period, while the control group received a placebo (a dummy treatment).

Through psychological questionnaires, a total increase of 5 times as much propensity for sexual thoughts and sexual interest was observed throughout the study. As a result of the study, it could be stated that those women who took DHEA developed an increasing interest in sex while taking DHEA.[280]

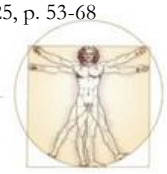
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[277] Baulieu, E.-E., et al.: DHEA sulphate, and ageing: Contribution of the DHEAge Study to a sociobiomedical issue, PNAS 2002, 97, 4279–4284.

[278] J. INfect. Dis 1992; 165, p. 413

[279] Rabkin J.G. et al.: Psychoneuroendocrinology 2000, 25, p. 53-68

[280] Fc N. Engl. J. Med. 1999; 341, p. 1013-1020



DHEA causes increased bone density in studies

In women over the age of 70, one study found that bone density increased.[281]

Improvement in physical and mental well-being from DHEA proven in studies

Within a three-month study, an improvement in physical and mental well-being was noted.[282]

Low level of DHEA detected in the blood of HIV patients

Studies indicate that most HIV sufferers have significantly lower levels of DHEA in their blood than non-infected people.[283]

Increase in vitality by up to 82 % in studies

In a study at the University of San Diego, California, vitality and energy increased by 82 % in women and 67 % in men after just a few weeks of taking DHEA.

Anabolic effects of DHEA confirmed in studies

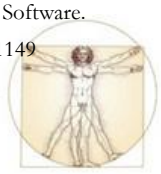
In a study examining the anabolic effect of DHEA, young men were able to

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[281] Baulieu E.-E. et al.: Proc Natl Acad Sci U S A. 2000 Apr 11; 97 (8), p. 4279-4284.

[282] Huppert FA, Van Niekerk JK., Herbert J. (2003) Dehydroepiandrosterone (DHEA) supplementation for cognitive function (Cochrane Review). In: The Cochrane Library, Issue 1 2003. Oxford: Update Software.

[283] J. of the American Medical Association 1989, 261, p. 1149



increase their fat-free body mass (= muscle) by a whopping 4.5 kg over a four-week period; this was, however, achieved with a high dose of 1600 mg DHEA/day.[284]

DHEA intake

Which groups of people should consider taking DHEA?

DHEA is one of the hormones that declines greatly in old age; for example, the proportion of DHEA among 30-year-olds is already dropping markedly, and by up to as much as 80-90 % at the age of 75 and over.

Fortunately, DHEA, taken as a dietary supplement, can compensate for the age-related decline in the body and contribute to the benefits described. Thus, for those who have already passed their thirties, many age researchers recommend an additional intake of DHEA to compensate.

Ingestion and dosage

While DHEA has been sold over the counter in every US health store since

[284] J Clin Endocrinol Metab 1988, 66, p. 57-61



1994 (mostly in a dosage of 25-50 mg) and has been taken daily by millions of Americans without significant side effects, it is not officially authorised in the EU as a (non-prescription) dietary supplement.

The dose of 25-50 mg a day is perfect for preventive purposes. In one study, a dose of 50 mg DHEA a day in people of both sexes aged 40 and 70 doubled the level of DHEA after two weeks, with the subjects feeling more stress-free, more energetic, and sleeping better as a result. In the case of medical indications (diseases), substitution by appropriately qualified personnel (alternative practitioners, naturopaths, complementary oncologists and the like) is recommended.

DHEA – side effects and contraindications

Does dehydroepiandrosterone cause any side effects and are there contraindications?

In clinical trials, 6-8 grams of DHEA were administered to humans in the United States with no indications of poisoning. In the event of overdose, DHEA may cause androgenic effects in women in the form of increased hair growth and mild acne in individual cases.

Women who want to have children, pregnant women and breastfeeding women should therefore refrain from taking DHEA.

Interactions with other drugs

When taking medicines which interfere with the hormonal system (cholesterol-



reducers, cortisol, serotonin and dopamine, etc.) or which affect the function of the adrenals or the hypothalamus, one should also refrain from taking DHEA, or consult a professional therapist.

In principle, healthy persons under the age of 30 are advised against taking it.

DMAE – DIMETHYLAMINOETHANOL

DMAE – What is it?

A very chemical-sounding name for a natural substance produced by the body which can do more for our health and ageing than the layperson (and even your doctor!) would suspect at first glance...

But what is this substance called 'dimethylaminoethanol' with the acronym DMAE, and what exactly can DMAE do for us?

Dimethylaminoethanol is a substance that is always naturally present in small amounts in the brain and can be proven to improve brain function and physique via additional supplementation. It joins the category of nootropic substances and is known as a so-called nootropic. These are substances that can optimise brain functions. They can restore certain areas of the nervous system and affect consciousness.



As a nootropic substance, DMAE does not interfere with the subcortical processes known from the reticular or limbic system, but instead acts directly on the cortical system.

The positive influence of serotonin production has the effect of improving mood, which impacts the cell membranes in the brain:

- It counteracts stress,
- improves brain performance,
- increases memory efficiency,
- optimises powers of concentration
- and counteracts fatigue, apathy and anxiety.

It is not surprising that DMAE is a central focus of research into neurodegenerative diseases such as Alzheimer's disease.

In addition, DMAE has made a name for itself as a fountain of youth, especially in the field of anti-ageing, with its ability to extend the life of our cells.

Find out more interesting details about this remarkable natural substance on the following pages.

DMAE content

Which foods contain dimethylaminoethanol?



Oily fish contains high amounts of DMAE; the highest levels are found in sardines, anchovies, salmon and anchovies. These animals are also the sources for the raw material extraction of DMAE.

Effects of DMAE

Before we come to the things DMAE works 'against', i.e. to the specific effect of DMAE against illnesses and physical ailments, we first of all examine the 'how', i.e. the way DMAE works.

Its mode of action is very complex; it encompasses, but is not limited to, the following mechanisms:

- It protects cell membranes from destruction.
- It promotes resilience and elasticity in the body cells.
- It stimulates certain areas of the brain and helps them manage tasks more efficiently.
- It increases the concentration of the neurotransmitters 'actylcholine' and 'choline', thereby improving the transmission of nerve impulses and increasing the efficiency of the brain.
- It generally increases the number of messenger substances in the brain.
- It promotes the production of serotonin.
- It increases attentiveness and lifts a person's mood.
- It boosts neuromotor control.



- It increases the interaction between the two halves of the brain, synchronising their work more efficiently.
- By activating antioxidative enzymes, it prevents the accumulation of lipofuscin and age-related pigment which accumulate in the brain and heart muscle.
- As an antioxidant, it protects the nerve cells from attacks and destruction caused by free radicals.
- It removes protein deposits in the brain which have
- accumulated over time and which lead brain disorders that are typical with age.
- It increases the life span of brain cells.
- It strengthens internal organs, especially the heart, kidneys and liver.
- It strengthens the entire connective tissue, smoothens skin folds and counteracts new wrinkle formation.
- It contributes to muscle strengthening.
- It promotes a healthy sleep cycle.

The protection of cells and cell membranes by DMAE cannot be overstated because it has a direct effect on all our organs and their functions. Dimethylaminoethanol is able to increase the vitality of every body cell and increase its lifespan and thus our own lifespan.

A special role is played by the DMAE within our main control centre, the brain. The protection of the brain from free radicals, the blocking of ageing pigments



in the brain, the removal of water-insoluble protein deposits, the functional synchronisation of both halves of the brain, the increase in neuromotor control and the increase of the neurotransmitters 'acetylcholine' and 'choline' lead to a remarkable protection and optimisation of all motor and cognitive abilities, such as the ability to learn, memory, the ability to pay attention, sense of orientation, creativity, reasoning and imagination as well as articulation.

Furthermore, DMAE improves mood; it also counteracts depression, apathy and anxiety.

Specific effect on diseases and conditions

The main indications include the improvement of brain functions and the increase of brain performance and mood. In addition, DMAE is used for anti-ageing purposes.

In summary, DMAE is proven to demonstrate the following abilities:

- Increase in brain power,
- improved learning and willingness to learn,
- improved memory capability (memory optimisation),
- improved ability to concentrate,
- counteracting apathy,
- improving mood,
- optimisation of sleeping and waking phases,
- increase in physical and mental energy,



- partial reversal of existing ageing processes, especially in the brain,
- protection against new ageing processes (especially in the brain),
- strengthening of the entire connective tissue and skin tightening.

This is reflected positively in the following illnesses and pathologies:

- learning difficulties
- poor concentration
- memory impairment
- Alzheimer's disease
- dementia/senile dementia
- apathy
- depression
- insomnia
- chronic fatigue
- late dyskinesia (dyskinesia tarda)
- akathisia
- brain ageing
- depressive states
- ADHD/attention deficit
- hyperactivity
- hyperkinesis
- skin ageing
- ageing spots



- connective tissue weakness

Performance enhancing effect of DMAE on the brain

By increasing the messenger substances in the brain, especially neurotransmitters such as acetylcholine, the transmission of nerve impulses is improved. DMAE also improves the interaction and thus the synchronisation of the two halves of the brain, which can thus accomplish their tasks more efficiently in harmony. The neuromotor control is increased, and the brain performance and brain functions are optimised.

Consequences of the performance-enhancing effect on the brain

The increase in brain performance has a positive effect on:

- the memory,
- general thinking ability,
- the ability to learn (for example, learning vocabulary is easier),
- the willingness to learn (is increased)
- and the ability to concentrate.

Effect on sleep disorders

DMAE ensures a healthy, deep sleep in the medium term by normalising the



sleeping pattern. During the night your sleep is deep and relaxed, during the day, you are well-rested and rarely tired.

Effect against depression

Dimethylaminoethanol promotes the production of serotonin, which is also popularly known as the 'happiness hormone', and can help with depression.

Effect on connective tissue and the skin

DMAE has a positive effect on the connective tissue's cellular structure and can thus keep our connective tissue, skin, tendons and ligaments taut, healthy and youthful, even in old age. The cosmetics industry has also got wind of this and now offers skin creams based on DMAE.

Effect as a natural anti-ageing substance

DMAE can confidently be described as a 'fountain of youth for body and soul'. At a young age, the body produces enough DMAE itself. Unfortunately, with advancing age, this production diminishes, resulting in membrane damage. This in turn means that cell toxins and waste can no longer be effectively transported out of the body, which leads to cell ageing.

In the end, this also evokes the much-despised signs of ageing: brain performance diminishes, connective tissue relaxes, wrinkles set in, and the ratio of muscle to fat changes in favour of the latter.

This ageing process, considered unavoidable until recently, can be counteracted



by targeted use of DMAE.

The protection of cells and cell membranes (DMAE increases the resistance and the elasticity of the cells) prolongs their lifespan, which is soon reflected externally in the form of a firmer and wrinkle-free skin.

But the internal aspects are much more important, such as our organs, the brain, blood vessels and nerve cells, all of which benefit from DMAE and whose biological ageing is delayed. In particular, the heart, kidneys and liver are strengthened, which on its own, according to statistics, results in significant life extension. Apathy, senile dementia and Alzheimer's are counteracted.

Effect of DMAE on age spots

While age spots on the skin damage appearance, age spots also occur in the heart and brain. DMAE knows how to stop these mechanisms, both in our internal organs and on the skin!

DMAE studies

Study on the effects of DMAE on depression and fatigue

A study on 100 subjects showed that DMAE fights mild depression and fatigue; sleep also improved.

DMAE dissolves harmful protein deposits in the brain in studies



In an animal study, it has been demonstrated that DMAE can dissolve harmful, water-insoluble protein deposits that are caused by free radicals and increase with age.

Anxiety has been reduced in studies

Patients suffering from anxiety were able to reduce it using DMAE as medication. Neuromotor coordination was improved and the vocabulary memory increased.

DMAE prevent signs of ageing and -pigments in the brain and heart in studies

In studies, DMAE was able to limit the production of lipofuscin, the so-called age pigments in the brain and the heart muscle.

DMAE inhibits the progression of late dyskinesia and helps with akathisia

In studies, DMAE was able to inhibit the disease progression of tardive dyskinesia (movement disorders) and alleviate the typical symptoms of akathisia (restlessness and convulsive movement).



Taking DMAE

Dosage and intake

Starting with 150 mg of pure DMAE capsules, take 1 to 4 capsules approximately half an hour before breakfast with plenty of fluids. This dose should be reduced if unpleasant side effects occur in the form of headache, insomnia or muscle tension/pain.

Side effects

Are there any side effects or contraindications in the case of DMAE?

Normally, no side effects should be expected from DMAE as an endogenous substance. Overdose may cause symptoms such as headache, joint tension and insomnia, but will disappear if the dose is reduced.

Manic-depressive and epileptic patients should ask their therapist before taking it because DMAE may increase depressive episodes in individual cases.



GINKGO

What is ginkgo?

Ginkgo is probably the oldest plant our planet has ever produced and has been on our planet for about 200 million years.

Ginkgo biloba is the last survivor of the ginkgoaceous plant family and belongs to neither the coniferous nor deciduous tree groups. It stands somewhere in between, and is therefore a modern botanical phenomenon.

Its longevity (often 4000 years!) and resilience is legendary, and the ginkgo tree has an absolutely incredible resistance to heat, cold, pollution, toxins, radiation, viruses, bacteria, fungi and all kinds of diseases. It not only survived the dinosaurs, but also the displacement of the continents and many other disasters, including the Hiroshima bomb.

While all the other plants died in the affected area, this tree survived only a few hundred metres from the bomb site. The following spring, it produced many fresh shoots and flowers, which made it a symbol of hope and the 'tree of hope' in Japan. It is certain that no other creature has survived so many epochs and disasters as the ginkgo tree. All of this quickly made the tree legendary in Asia; one could say it has become a temple tree that Asians worship. But its resistance to ageing and all sorts of natural enemies has made people sit up and take notice – if these amazing qualities could be transferred to humans, would people enjoy



its fruits?

Ginkgo has been regarded as a 'sacred tree' in Asia for more than 2,000 years and has been used in the field of natural medicine to combat a variety of diseases and ailments for around 5000 years, and that's certainly no coincidence!

Ginkgo biloba – the naming

The name 'ginkgo' is Japanese and is made up of the words 'gin', which means silver, and 'kyo', which means apricot: 'silver apricot'.

The fact that we call the plant 'gingko' and not 'gingkyo', as it should be, is probably due to a small spelling error by ginkgo discoverer Engelbert Kaempfer.

'Biloba', in turn, stands for the unique, two-lobed leaves of the plant. Together, ginkgo biloba means 'two-lobed silver apricot'.

There are many other names for ginkgo: These range from 'Fan Tree', 'Fan Leaf Tree' and 'Girl's Hair Tree' to 'Temple Tree' and 'Silver Plum'.

Ginkgo – the appearance

The tree reaches a height of about 30-40 m; its bark is very cork-like and develops distinct cracks over its long life. The two-part, fan-like leaf of the ginkgo, which was associated with yin and yang and the related philosophy very early



on in Asia, is unique. From September to October, green-yellow fruits of about 3 cm in size, which also contain the seeds, grow on the gingko tree. Incidentally, the ginkgo tree is a barker; it therefore exists in female and male form, and pollination takes place by wind.

Ginkgo as a remedy

Ginkgo is one of the oldest natural remedies ever and can lay claim to a natural healing tradition in Asia over 2,000 years old; for a few years now, people in North America and Europe have been paying more attention.

The seeds and extracts from the ginkgo leaves are used and processed in the Western world to make ginkgo tea, ginkgo drops, ginkgo pills or ginkgo tablets for naturopathic purposes. Among other things, circulatory disorders, stomach disorders, tinnitus, asthma, bronchitis, dementia, Alzheimer's, vascular occlusion, consequences of diabetes and cardiovascular diseases are treated with ginkgo, and its effects on cancer have repeatedly made scientists sit up and take notice.

Ginkgo is cultivated in Europe

The Chinese started to cultivate the ginkgo tree in the 11th century AD. In Europe, the first ginkgo tree was planted in the botanical garden of the Dutch University of Utrecht in 1730.



Last but not least, the fame of the ginkgo tree in Europe is due to Johann Wolfgang von Goethe, who dedicated his own verse to it in 1815:

'Ginkgo biloba

To my garden here translated,
Foliage of this eastern tree
Nourishes the initiated
With its meaning's mystery.

Is its leaf one self divided,
Forked into a shape of strife?
Or have two of them decided
On a symbiotic life?

This I answer without trouble
And am qualified to know:
I am single, I am double,
And my poems tell you so.'

The following sections are devoted to the detailed yet objective information about this very special tree with its amazing qualities which humans have been benefiting from for millennia.



Active ingredients in ginkgo biloba

It is the flavonoids and terpenoids that are abundant in ginkgo which are primarily responsible for the positive effect on our health. They belong to the two active ingredient groups of ginkgo flavone glycosides and terpene lactones. It is therefore not a matter of individual active ingredients that achieve this wide-ranging effect; rather, it is the perfect composition of several groups that work together synergistically.

It must be emphasised, however, that ginkgo has certain active substances that are not in any other fruit: so-called ginkgolides. This is another important reason for the unique effect of ginkgo on our bodies, and the synthesis of ginkgolides in the plant cells even helped the researcher E.J. Corey win the Nobel Prize for Chemistry!

As far as macronutrients are concerned, ginkgo seeds are 4.3 % protein, 37.8 % carbohydrates and 1.7 % fats.

The outstanding robustness and effectiveness of the ginkgo against numerous diseases is certainly no less attributable to the unique ingredients that only occur in ginkgo, such as the ginkgo flavone glycosides, ginkgol, ginnol and bilobalide.

Despite immense attempts by Big Pharma to artificially recreate the substances present in ginkgo so that they can patent them accordingly, such attempts have failed due to its incredible complexity.

Active ingredients in ginkgo seeds



Of the ingredients and active ingredients, only 21 have received official approval as therapeutic agents:

- ginkgol
- ginkgolic acid
- ginkgolide A, B, C, J, M
- kaempferol
- syringetin-3-O-rutinoside
- ginnol
- bibobol
- bilobalide
- vitamin C
- thiamine (vitamin B)
- niacin
- potassium
- copper
- sugar
- alcohol
- pinit
- starch
- resin
- acetic acid
- methoxypyridoxine



- flavonoids
- quercetin
- isorhamnetin
- biflavones
- ginkgetin
- bilobetin
- amentoflavone
- isoginkgetin
- shikimic acid
- wax
- paraffins
- sitoserin
- esters

Effect of ginkgo biloba

Ginkgo biloba's legendary resistance to ageing, heat, cold, pollution, poisons, radiation and any disease made people listen right away – what could the possibilities be if we were to consume its components? Can these amazing benefits really be transferred to humans in any way?

In fact, numerous studies suggest this! In order to better understand the subject, it makes sense first to examine gingko's general mode of action before discussing its special effect on diseases and conditions.



General effects of ginkgo biloba

The general effects of ginkgo biloba can be described as:

- antibacterial
- antifungal
- anti-helminthic
- antioxidant/cytoprotective
- encourages circulation
- neuroprotective
- hypoxia-inhibitive
- antiallergic
- anti-cancerous
- carminative
- relaxing
- analgesic

Antibacterial and antifungal action

The antibacterial and antifungal effects of ginkgo are mainly due to the flavonoids, especially the ginkgolic acids and ginnol contained in it. Ginkgo biloba increases the number of macrophages (natural phagocytes), which can then have a stronger impact on bacteria and fungi.



Anti-helminthic effect

The anti-helminthic effect is mainly produced by the ginkgo seeds.

Antioxidant, cell-protecting effect

The many antioxidant substances also provide excellent protection against harmful oxidation stress. This realisation led the company *Dr. Willmar Schwabe* to bring the very first extract from the ginkgo tree onto the market in 1965. Much has happened since, and the extracts are stronger and more effective today. The standard ginkgo concentrate contains 24 % flavone glycosides and 6 % terpenes; this ensures the preparations are comparable and consistently effective.

The flavonoids are particularly impressive in their antioxidant effect, especially quercetin and kaempferol. Both can neutralise the attacks of free radicals and prevent cell damage in a very effective way. Considering that, according to many scientists, the oxidation of cells is the main cause of ageing and countless diseases, this aspect cannot be emphasised highly enough.

Circulation-enhancing effect

The 'juice' of our lives is our blood, and ginkgo biloba's main effects are increasing circulation and the protecting human tissue and organs. By making the blood more fluid and allowing blood to flow through tissue, ginkgo achieves an optimised supply of nutrients and oxygen, which leads to the improvement of, and even healing of, many diseases.



The circulation-promoting effect of ginkgo is multi-faceted:

- on the one hand, ginkgo actively counteracts the platelet activating factor (PAF) and prevents the blood clumping, where platelets stick together.
- on the other hand, the metabolism of the vascular walls is influenced so that they relax and expand, and the blood can flow better.
- Furthermore, the antioxidant properties of ginkgo make the blood cell membranes of leucocytes and erythrocytes more flexible and allow blood cells to flow more easily through the smaller capillaries.

Incidentally, clear evidence of ginkgo's effectiveness on circulatory disorders was produced by a group of German researchers in the 1960s. By 1992, medicines containing ginkgo had taken up at least one-third of all circulation-enhancing medicines in the entire German market, reaching a sales volume of 370 million marks.[285]

Hypoxia-inhibiting effect

Specialists understand hypoxia to be an oxygen deficiency, in which the cardiovascular system cannot transport sufficient blood – and therefore oxygen – to its destination. This can be the case, for example, as a result of atherosclerosis (vascular calcification), leading to heart attacks and strokes, often resulting in



death. Thus, after 20-30 seconds of oxygen deprivation, brain cells begin to die.

Ginkgo extracts have the remarkable ability to help brain cells survive despite this oxygen deficiency by building hypoxia tolerance. Furthermore, atherosclerosis is avoided by preventing the oxidation of LDL cholesterol and also the platelet activating factor which encourages the blood components (platelets) to attach to the arteries.

Antiallergic effect

Asthma, hay fever, and other forms of allergy can be alleviated by using ginkgo extracts. This is associated with the above-mentioned PAF (platelet-activating factor) and ginkgo's ability to prevent platelets from clotting, as PAF induces inflammatory processes and bronchial activity.[286]

Neuroprotective (nerve protecting) effect

Studies have shown that ginkgo extracts protect nerve cells from oxidative stress and oxygen deficiency due to circulatory problems and high levels of nitric oxide. In animal studies, ginkgo extracts reduced the death of nerve cells by artificially induced oxidative stress (through the production of amyloid peptide). These neuroprotective properties, which undoubtedly belong to the group of

[286] http://en.wikipedia.org/wiki/Rupatadin



natural nootropics, are associated with the ingredient 'bilobalide' in particular.

In conjunction with its neuroprotective effect, it has the potential to work wonders on our main control centre: our rain. Ginkgo also acts in another, highly interesting way, namely protecting against the age or disease-related degradation of so-called transmitter receptors in the brain. The neurotransmitters, whose task it is to transmit signals between the nerve cells, or neurons, dock onto them.

It is worth considering that mental illnesses such as depression, anxiety, dementia and reduced brain performance, are normally triggered at this exact point and ginkgo can provide outstanding relief here; gingko can be classified as both a promising therapy and a preventive measure.

Cancer-inhibiting effect

According to recent studies, ginkgo biloba also appears to have an anticancer effect and to increase the efficacy of chemotherapy in at least some cancers, including breast, colon, ovarian, and pancreatic cancer. Studies suggest that the antitumour effect is due to the prevention of proliferation, the delay of the cell cycle and apoptosis, (see more in the section 'Ginkgo and its effect on cancer').

Relaxing effect

The circulation-enhancing and nerve-protecting effect of ginkgo has a calming



effect on the entire body and can therefore counteract stress states as well as erectile problems in men.

Analgesic effect

The analgesic effect is due to drugs such as ginkgetin, ginnol, flavone glycoside, quercetin, isothamnetin, kaempferol, lactones.

The smear: *'Ginkgo is ineffective'*

The truth about the current studies and reports that denigrate ginkgo biloba in the media, which are largely sponsored by Big Pharma, is made clear by skimming through the 3018 credible studies at www.pubmed.com. The first scientific treatise on ginkgo was written in 1595 by Li Shi-Chen from China and included no less than 52 volumes! Furthermore, in 1994, the Federal Health Office itself, no less, wrote a monograph on ginkgo leaf extracts and thus practically certified their effectiveness in circulatory disorders and declining brain output.[287]

Special effect on diseases and maladies

Traditional Chinese Medicine (TCM) uses the seeds, leaves and roots of ginkgo biloba, which are processed and absorbed in different ways, usually in the form of ginkgo tea.

Within Western naturopathy, ginkgo is mostly used in concentrates in the form

[287] Dr. Jörg Zittlau, 'Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 15



of ginkgo extracts, wrapped in a capsule, as a compact or in drop form.

Effect of ginkgo seeds

For example, the seeds are used for asthma, coughs, alcoholism, tuberculosis, mucosal inflammation, circulatory problems, encouraging sperm promotion, against cancer, worm infestation, fever, excessive sweating, kidney disease and bladder infections.

Effect of ginkgo leaves and root

The effect of the leaves is attributable mainly to the two active ingredient groups, flavonoids and terpenoids.

Ginkgo leaf extracts, for example, are used to optimise brain function, wounds, and the root causes of stomach discomfort, hyperactivity, arthritis and menstrual problems. For this purpose, a ginkgo tea from the components of the ginkgo plant is usually consumed.

The following conditions are mainly treated with ginkgo within TCM:

- asthma
- cough
- immune deficiency
- kidney diseases



- bronchitis
- allergies
- gonorrhoea
- cough
- tuberculosis
- skin diseases
- bladder infection
- irritable bladder
- tuberculosis
- mucosal inflammation
- arthritis
- premenstrual syndrome
- hyperactivity
- blennorrhoea
- vaginal fluid
- menstrual problems
- decreased sperm production
- stomach problems
- consequences of diabetes
- prevention of burnout
- restlessness
- diarrhoea (diarrhoea)



- fever
- libido problems
- gastritis
- cancer
- consequences of alcoholism
- phlebitis
- general strengthening of Chi

Focused use of ginkgo in Western naturopathy

Here we have Dr. Willmar Schwabe to thank for the 'EGb-761', a concentrate obtained from ginkgo leaves which has been the subject of numerous Western studies since 1965.

Ginkgo biloba is used in:

- circulatory disorders
- improvement of blood fluidity
- high blood pressure (high blood pressure)
- cardiovascular diseases (protection against heart attack and stroke)
- consequences of stroke
- brain oedema
- thrombosis
- claudication



- smoker's leg
- atherosclerosis (vascular calcification)
- forgetfulness
- dementia
- difficulty concentrating
- loss of memory and learning ability
- Alzheimer's
- multiple sclerosis (MS)
- senility
- macular degeneration
- migraines
- bronchitis
- asthma
- depression
- wound healing
- frostbite
- varicose veins
- oedema
- blurred vision
- stomach problems
- potency problems
- chronic fatigue



- attention deficit
- hyperactivity
- ADHD
- Parkinson's
- vitiligo
- worm infestation
- dizziness
- kidney diseases
- tinnitus
- night blindness
- glaucoma
- as a cosmetic

Effect of ginkgo on circulatory disorders

Circulatory disorders are ginkgo's main field of action and are, at the same time, the main reason for the effect against numerous diseases and conditions which are directly or indirectly related to circulatory problems. Ginkgo optimises both the cerebral circulation (in the brain) as well as the peripheral circulation (limbs) and other organs (such as heart, middle and inner ear, etc.).

By acting on the metabolism of the vessel wall, ginkgo extracts expand the



smallest and medium-sized blood vessels, thus improving blood flow.

Furthermore, the fluidity of the blood and the microcirculation is improved by the fact that ginkgo actively inhibits the platelet activating factor (PAF), whereby platelets stick/clump, which otherwise can cause a blockage in the smallest blood vessels.

The antioxidant effect of ginkgo means that the blood cell membranes of the leukocytes and erythrocytes remain more flexible and the blood can thus pass through the narrowest parts of the blood vessels more easily.

In summary, ginkgo has a positive influence on the following blood parameters:[288]

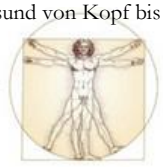
- viscosity of blood plasma
- viscosity of whole blood
- PAF (platelet activating factor)
- mobility of blood cells
- fibrinogen values

These effects on the bloodstream result in the following benefits:[289]

- Ginkgo prevents infarction, thrombosis, embolism, oedema, tissue damage due to oxygen deficiency, dysfunction of all tissue forms and organs, and cell death.
- In this way, ginkgo improves the performance of the brain, the entire body

[288] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 91

[289] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 91 f.



including all organs, blood circulation, oxygen supply and the removal of metabolic waste.
- Ginkgo protects and promotes the brain and nerve cells.
- Ginkgo protects against susceptibility to oxygen deficiency (hypoxia tolerance is increased).

Effect of ginkgo tea against high blood pressure

Ginkgo has a hypotensive, or, strictly speaking, a blood pressure-regulating effect! It relaxes and dilates blood vessels, inhibits blood clotting (PAF) and keeps blood cells flexible, allowing blood to flow better and lowering high blood pressure.

Furthermore, ginkgo, as an antioxidant, counteracts the oxidation that is the prerequisite for LDL cholesterol to be harmful to blood vessel walls. In comparative studies from 1972, ginkgo extracts easily matched the usual vasodilation drugs, and the researchers even rated the effect of ginkgo as more constant, and completely without side effects! Ginkgo tea is particularly suitable here because of the flavonoids dissolved in it.[290]

Effect on cardiovascular diseases

It is mainly the blood-thinning and antioxidant mechanisms of ginkgo biloba that have a positive impact on cardiovascular diseases. Atherosclerosis (vascular calcification) is caused by the oxidation of LDL cholesterol which is deposited

[290] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 53



on the intima (inner wall of the blood vessels). This results in numerous cardiovascular diseases, and according to conventional medicine, atherosclerosis is the main cause of heart attacks and strokes.

The antioxidants contained in ginkgo prevent the oxidation of LDL cholesterol; at the same time, the blood is diluted, meaning more oxygen can be transported to where it is needed. The cause of heart attacks and strokes as well as other cardiovascular diseases is prevented. Ginkgo is therefore suitable both as a part of therapy and preventively to avoid heart attacks.

Protective effect of ginkgo extracts before or after a stroke

Strokes can have several causes: They can be caused by a burst blood vessel or (usually) a clogged blood vessel in the brain. Oxygen deficiency, as it occurs during a stroke, leads to oxidative stress with resulting brain cell destruction. After 20 to 30 seconds, the first brain cells die off. Apparently, ginkgo extracts can protect against the consequences of this dreaded lack of oxygen by increasing the tolerance to so-called hypoxia (the lack of oxygen). Thus, the survival time in animal experiments with ginkgo extracts increased by a factor of 6!

In another animal experiment at Johns Hopkins University in Baltimore, the intake of gingko reduced the sequelae of an artificially induced stroke by 48 % and loss of brain function by 51 % compared to the control group.

The scientists explained that this was down to the increase in the enzyme HO1,



which acts as a strong radical scavenger and thus prevents brain damage. However, according to the latest findings, the active ingredient *bilobalide* contained in ginkgo biloba contributes to keeping brain cells alive for prolonged periods despite a shortage of oxygen; here, the tolerance time can be increased by 20 %.[291]

The role of ginkgo as a repair promoter within all human tissue forms that have suffered damage due to a lack of blood flow is also undisputed. The hypoxia-tolerant, nootropic and circulation-promoting effect can significantly reduce the consequences of a stroke. Immediately after a stroke which has come about due to a broken capillary, the use of ginkgo can be counterproductive, since the bleeding must be stopped as fast as possible.

It is therefore necessary to check the cause of the stroke beforehand!

Protective effect against cerebral oedema

Cerebral oedema (in the form of water retention in the brain) can be caused by numerous affects and diseases, such as tumours, inflammation, arterial degeneration and hypoxia. The oedema exerts pressure on the finest capillaries in the brain, thus preventing the supply of oxygen and nutrients. In animal experiments, the development of externally provoked cerebral oedema was successfully prevented by ginkgo extracts; here, too, the inhibition of PAF plays a central role.

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[291] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 94



This is how ginkgo works on oedema

Ginkgo biloba is not only effective for cerebral oedema, but also for other oedemas that may develop after an injury. By preventing blood clumping, the PAF, gingko prevents the tendency for oedema to form.

Effect on intermittent claudication and smoker's leg

The so-called intermittent claudication is manifested by a narrowing of the arteries in the legs and forced walking pauses due to increased tingling and convulsive pain in the calves. In German, it is known as Schaufensterkrankheit ('shop window disease') because the sufferers often stop and look at the shop windows to 'explain' their stopping.

The reason for the constriction of the blood vessels is atherosclerosis, blood vessel calcification, which often results from diabetes mellitus and lipid metabolism problems, but also from the unhealthy lifestyle of smokers. Since ginkgo is known to improve circulation in body tissue and also to counteract atherosclerosis, it can be very helpful against intermittent claudication. The first signs of improvement are evident after six weeks of taking ginkgo preparations.

Also, in several studies on intermittent claudication, ginkgo extracts have been found to be equal or superior to common drugs, but without side effects. 120-160 mg is recommended, distributed over three doses.[292]

[292] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 73



How ginkgo works against thrombosis

By actively counteracting the platelet-activating factor (PAF), ginkgo prevents platelets from sticking to one another and thus blood clots and the development of thromboses.

Effect on dizziness

Dizziness manifests itself as a spacial-awareness disorder; your vision turns dark, you stagger, everything revolves around you. The main reason for dizziness is a circulatory disorder in various brain regions and sensory organs. Ginkgo biloba extracts can provide relief without side effects due to the circulation-enhancing effect and are worth a try in any case!

Effect on bronchitis

The effect of ginkgo on bronchitis and coughs is due to its antibiotic properties. This is where the ginkgo seeds stand out.

Effect against immune deficiency

An immune deficiency manifests itself mostly in the form of numerous infections, as wide ranging as skin fungi and others. Because ginkgo, as a radical scavenger, relieves the immune system and activates natural phagocytes (macrophages), it strengthens our immune system and can effectively prevent or remedy existing immune deficiency.

Effect on dementia and Alzheimer's



In the US, ginkgo is a recognised anti-dementia drug. Ginkgo acts as a nerve cell protector; the neurotransmitters (messenger substances in the brain) are activated and the energy metabolism of the brain is optimised, especially in the area of the hippocampus, which is affected in Alzheimer's patients. Memory, learning, concentration and cognitive abilities are significantly increased.

The effectiveness of ginkgo against dementia was impressively demonstrated in a large-scale, randomised meta-analysis in 2010 on 1838 patients with ginkgo extract EGB761.[293]

In laboratory and animal experiments, the administration of ginkgo extract reduced the typical cell death of nerve cells associated with progressive Alzheimer's by storing proteins (ß-amyloid).

Extracts from the ginkgo tree increase the number of receptors in the brain, promote the uptake of choline and the production of acetylcholine, which benefits brain functions impaired by Alzheimer's.

Many doctors now use ginkgo biloba as a long-term treatment; for example, the evaluation of 13,000 patient records has shown that, above all, memory and alertness improve significantly as a result of the treatment.[294] (see chapter "studies")

Effect on multiple sclerosis

[293] Wang et al. 2010

[294] Silvia Aulehla: Vorbeugen und heilen mit der Kraft des Ginkgo ('Prevention and Cure with the Power of Ginkgo') 1997, p. 27



Studies also suggest that ginkgo may be helpful in neurological disorders in the brain due to multiple sclerosis (MS). The two secondary plant substances 'terpene lactones' and 'ginkgolides' are thought to play a particular role here.

Effect on concentration problems and learning difficulties

By activating the neurotransmitters in the brain and optimising the energy metabolism, improving the blood circulation and thus the oxygen supply and having a positive effect on the nervous system, ginkgo actively counteracts concentration problems and learning difficulties.

In studies, the combination of ginkgo with ginseng has led to an increased release of neurotransmitters that are responsible for learning and memory. This has been demonstrated in 265 subjects who showed improved both short-term and long-term memory.[295]

Effect on migraines

The fact that ginkgo biloba relaxes blood vessels and promotes circulation can also help with migraine, as recent studies prove.

Effect of ginkgo on headaches

Ginkgo can be very helpful in releasing tense muscles and increasing blood flow, especially in the event of a tension-headache.

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[295] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 39



Effect against hearing loss

In addition to hearing loss and tinnitus ginkgo is also predestined for the treatment of deafness. Improving blood flow within the finest capillary of the inner ear can significantly improve hearing in a few days to weeks. In a study on 350 hearing impaired persons, taking four to six ginkgo lozenges achieved a subjectively improved level of hearing in 82 % of the subjects (287 subjects).[296]

Effect on tinnitus and hearing loss

Tinnitus is manifested by permanent or temporary noises in the ear in the form of ringing, hissing or whistling noises. These are usually associated with a perfusion disorder of the inner ear, more specifically the hair cells of the inner ear, which belong to the sensory cells in the ear.

Ginkgo can help with tinnitus thanks to its proven circulatory properties. Here, symptoms should improve after six to eight weeks, if they do not, the prospects for later improvement are rather worse. Particularly with new cases of tinnitus, the chances of relief or recovery are quite good; in one study, ginkgo relieved half of the 72 patients and outperformed the effects of a common chemical drug. Other studies even showed a symptom improvement rate of over 80 %. The fastest and most efficient form is the infusion of 200 mg over a few days.

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[296] Silvia Aulehla: Vorbeugen und heilen mit der Kraft des Ginkgo ('Prevention and Cure with the Power of Ginkgo') 1997, p. 27



However, taking tablets over several weeks may also be sufficiently effective for less intense symptoms.

Effect on bladder infection/cystitis

It is well known that ginkgo seeds have antibiotic properties, so they can treat the cause of cystitis (bacterial infection). 5-10 g of ginkgo nuts ground as a powder, dissolved in liquid and taken 3 times a day, can be very efficient in managing this painful condition.

Protection against the effects of diabetes

Among the many negative consequences of diabetes is macular degeneration, the destruction of the retina. Between 12,000 and 24,000 new cases of **blindness** from **diabetic** retinopathy occur in the United States **each year**, according to CDC.[297]

The reason for this is the disturbance of the cell metabolism due to a lack of blood flow and the lack of supply of oxygen and nutrients to the retina as a result. By increasing the blood flow to the macula, ginkgo can successfully counteract this problem.

Impaired eyesight and eye problems in general

[297] https://www.allaboutvision.com/conditions/diabetic.htm



The visual function of the eye is dependent on being connected to the brain, which in turn occurs via nerves and blood vessels. By improving blood flow, ginkgo supplies the retina and optic nerve with oxygen and nutrients to an optimal degree; the eye ages more slowly and even an existing visual impairment can be remedied again.

How ginkgo biloba works against macular degeneration

Smoking, high blood pressure and diabetes, but also normal ageing, often lead to degeneration of the retina; its cells are no longer adequately perfused and thus poorly supplied with oxygen and nutrients, whereby cell metabolism and then the retina suffer as a result. Ginkgo increases the blood supply to the retina and can optimise cell metabolism and regenerate the retina.

Effect on glaucoma

The neuroprotective and antioxidant properties of ginkgo are ideal for the treatment of glaucoma.

Effect of ginkgo on vitiligo

Vitiligo, also known as 'white spot disease', is a visible skin disease that results in pigment dissolution.

Those affected suffer from increasing numbers of white spots on the skin, which are not contagious, but can be a mental burden for the person concerned.



The cause has not yet been finally clarified. In fact, according to a study presented in autumn 2003, ginkgo biloba halted the progression of pigment dissolution in 80 % of those treated. In 10 of the 25 patients treated, there was a marked or even complete return of the original skin colour. Drinking gingko tea or taking 160-240 mg ginkgo extract per day is recommended.[298]

Effect of ginkgo biloba on depression

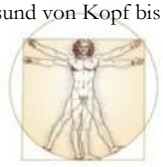
Depression is caused not least by the disturbance of neurotransmitters, since ginkgo, as already explained, can activate and reorganise the neurotransmitters. Depression that occurs organically in the brain can be particularly relieved with the help of ginkgo. Ginkgo extracts exert their influence on the serotonin receptor in the brain and can thus prevent depression. In a German study on 40 patients suffering from depression, 240 mg ginkgo extract was able to bring about a significant improvement, whereas antidepressants on their own did not have any effect on this group of people.[299] The Austrian psychiatrist Prof. Harald Schubert also noted that his symptoms improved by 50 % after a four-week course of therapy and that he achieved further improvement with ginkgo after further treatment. [3][300]

Ginkgo and its effects on hyperactivity (ADHD) and attention deficit

[298] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 57

[299] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 57

[300] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 116



It has been shown that these symptoms are related to the activity of neurotransmitters in the brain. According to therapists, taking ginkgo extracts may be a real help.

How ginkgo biloba works on arthritis

Arthritis is an inflammatory joint disease that occurs in bouts, severely restricting the quality of life of the person affected and potentially progressing as far as destroying the entire joint and even affecting the bone. As noted earlier, ginkgo restricts the coagulation factor PAF, which is also involved in the inflammatory responses of the immune system. Ginkgolides also inhibit the activity of leukocytes, the white blood cells that overreact in autoimmune diseases such as arthritis and mistakenly attack your own cells.

In studies, a ginkgo flavonoid was injected, which, without side effects, achieved similar efficacy to the analgesic 'indomethacin'.

Ginkgo extracts can also be taken orally; slightly higher doses should be taken for stronger pain (240 mg for severe pain, otherwise 120 mg per day).

Ginkgo tea, which has many water-soluble flavonoids that have a positive influence on arthritis, is very suitable.[301]

Effect against impotence

Even the smooth muscles, in the case of the penis, experience increased blood

[301] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 45



circulation thanks to gingko; the muscles fill up more easily with blood, which helps with erections. Additionally, ginkgo has a relaxing effect on the psyche, which is known to also impact virility.

How ginkgo works against asthma

Asthma has traditionally been treated with ginkgo in China for centuries. Asthma attacks are linked to the coagulation factor PAF (the platelet-activating factor). This leads to inflammatory processes and triggers bronchial activity by releasing substances that constrict the respiratory tract. Ginkgo inhibits the PAF via the flavone glycosides ginkgolide A, B and C contained therein, but especially ginkgolide B latch onto the PAF receptors and thus limit their effectiveness. In this way, ginkgo proves to be potentially effective in asthma. According to a report by the magazine *Prostaglandins*, ginkgo extract was able to prevent breathlessness for six hours in the presence of allergens.[302]

Effect against allergies (hay fever, hives etc.)

The coagulation factor PAF also plays a significant role in allergies. Because these are restricted by ginkgo biloba, it actively counteracts allergic symptoms.

Effect on gastritis

Helicobacter pylori is considered to cause gastritis; here, the flavonoids of the

[302] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 47



ginkgo plant play a primary role, as confirmed in a Chinese study.

Effect against premenstrual syndrome (PMS)

The unpleasant symptoms of premenstrual syndrome (PMS) include poor mood, abdominal pain, headache, itching, facial water retention, and back pain. According to studies, ginkgo can not only reduce water retention, but also alleviate other PMS syndromes, such as headaches, and also improve general mood.

Use of ginkgo extracts in cosmetics

The cosmetics industry has also recognised the popularity and benefits of ginkgo and is using it in more and more cosmetic products, from a ginkgo anti-wrinkle cream to ginkgo lotions, ginkgo hair tonic and ginkgo shampoos. It is questionable whether the ginkgo reaches the tissue at the required depth, but the idea of using the circulation-enhancing properties of ginkgo is quite understandable.

Also, ginkgo cream can protect against sunburn due to the high content of effective flavonoids, and it can also provide relief after burning.

Ginkgo and its effect on cancer

Ginkgo biloba reduces the risk of ovarian cancer. Women with BRCA1 mutations are at higher risk of developing ovarian cancer. The options to reduce this



risk are largely limited to prophylactic surgery, but this can result in a reduction in quality of life and permanent infertility. Ginkgo biloba can prevent ovarian cancer, whether it has arisen due to mutations or not.[303]

Ginkgo extract inhibits the progression of human colon adenocarcinoma

In in vitro tests (see chapter "studies"), the ginkgo extract EGb 761 reduced the progression of human colon cancer cells. Therapeutic effects may be related to increased caspase-3 activity, upregulation of p53, and downregulation of bcl-2 genes.[304]

Ginkgolic acid shows an antitumour effect

In in vitro tests, ginkgolic acid inhibited the growth of tumourigenic cell lines both in terms of dosage and time period.

The antitumoural effect was due to the inhibition of proliferation, the delay of the cell cycle and apoptosis. According to the researchers, ginkgolic acid is a candidate for an antitumour drug.[305]

Ginkgo enhances the positive effects of chemotherapy

The role of the ginkgo during chemotherapy, which in itself is only relevant for a few cancers, is particularly noteworthy. This can improve strongly when

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[303] Eur J Cancer Prev. 2011 Nov; 20(6), p. 508–517.

[304] Chen X. H. et al.: Cell Physiol Biochem. 2011; 27 (3-4), pp. 227-232. Epub 2011 Apr 1.

[305] Chemotherapy. 2010; 56 (5), p. 393–402. Epub 2010 Oct 1



chemotherapy is used in combination with ginkgo preparations. For example, in the tumour biology department in Freiburg, cancer patients with breast cancer, colon cancer and pancreatic cancer were given ginkgo in addition to chemo-infusions, thereby increasing the effect. The researchers substantiate this desirable effect with the effect of ginkgo on the membranes of the tumour cells, which structurally change so that the chemotherapy can have a better effect.[306] In the case of ovarian cancer, one study has shown that the combination of ginkgo biloba with chemotherapy works better than chemotherapy alone.[307]

Ginkgo protects against the side effects of irradiation with iodine 131

Thyroid cancer patients treated with iodine 131 had lower stress levels in a study with ginkgo biloba. The conclusion of the study was that ginkgo may protect against oxidative and genotoxic damage resulting from treatment with iodine 131.[308]

Ginkgo biloba improves cognitive skills in brain tumour patients

In a study on brain tumour patients who underwent radiation exposure, the administration of ginkgo supplements (40 mg ginkgo extract 3 times a day) significantly improved cognitive ability, attention, concentration, and mood and quality of life in general.[309]

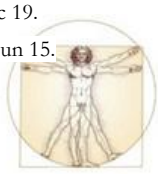
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[306] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 127

[307] Jiang W. et al.: Integr Cancer Ther. 2012 Apr 13. [Epub ahead of print]

[308] Thyroid. 2012 Mar; 22 (3), p. 318-324. Epub 2011 Dec 19.

[309] J Neurooncol 2012 Sep ;109(2) S.357-363 Epub2012 Jun 15.



Ginkgo biloba as protection against premature ageing

Hindu medicine refers to ginkgo biloba as an 'elixir of life that stops the destruction of the body and enables two thousand summers of life'.

In addition to protecting against free radicals shown by numerous studies, which in turn are proven to be responsible for ageing (as well as numerous diseases), studies have shown an activating effect on telomerase.

Telomerase is an enzyme that protects the telomeres, also called 'flames of life', because they sit at the ends of the chromosomes and prevent them from shortening and the whole body from ageing. Here, ginkgo can activate the telomerase and trigger the protective effect on the telomeres.[310]

French researchers measured the brain waves of older subjects between the ages of 83 and 87 with EEG. After only three weeks, there were significant improvements, and after six weeks, EEG measurements of the brain matched those of able-bodied, healthy people.[311]

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[310]Dong X. X. et al.: 2007 Feb; 49 (2), p. 111-115.

[311] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 98



Ginkgo studies

*Ginkgo extracts successful against dementia in studies on 1838 patient*s

The effectiveness of ginkgo against dementia was impressively demonstrated in a large-scale randomised meta-analysis in 2010 on 1838 patients with the ginkgo extract EGB761.[312]

Ginkgo in studies on 13,000 patients successfully against Alzheimer's

The evaluation of 13,000 patient protocols led to the conclusion that, above all, memory and alertness improved significantly due to treatment. [313]

Ginkgo increases short-term and long-term memory in studies on 265 subjects

In 265 subjects, the effectiveness of ginkgo was demonstrated by improving both short-term and long-term memory.[314]

Ginkgo biloba reduces the risk of ovarian cancer

Ginkgo biloba can prevent ovarian cancer which is both due to mutations and without mutations.[315]

Ginkgo extract inhibits the progression of human colon adenocarcinoma

In vitro, the ginkgo extract EGb 761 reduced the progression of human colon

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[312] Wang et al., 2010

[313] Silvia Aulehla: Vorbeugen und heilen mit der Kraft des Ginkgo ('Prevention and Cure with the Power of Ginkgo') 1997, p. 27

[314] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 39

[315] Eur J Cancer Prev. 2011 Nov; 20 (6), p. 508-17.



cancer cells. Therapeutic effects may be related to increased caspase-3 activity, high-level regulation of p53, and downregulation of bcl-2 genes.[316]

Ginkgolic acid has an antitumour effect

In in vitro tests, ginkgolic acid inhibited the growth of tumourigenic cell lines both in terms of dosage and time period. Tumours were counteracted due to prevention of proliferation, cell cycle delay and apoptosis, and is, according to the researchers, a potential antitumour drug.[317]

Ginkgo enhances the positive effects of chemotherapy (chemosensitiser!)

In the tumour biology department in Freiburg, cancer patients with breast cancer, colon cancer and pancreatic cancer were given ginkgo in addition to chemo-infusions, thereby increasing the effect. The researchers substantiate this desirable effect with the effect of ginkgo on the membranes of the tumour cells, which structurally change so that the chemotherapy can have a better effect.[318]

In ovarian cancer, one study has shown that the combination of ginkgo biloba with chemotherapy works better than chemotherapy alone.[319]

Ginkgo protects against side effects of irradiation with iodine 131 (radiation protector!)

Thyroid cancer patients treated with iodine 131 had lower stress levels in a study

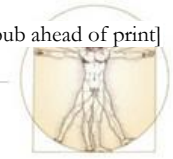
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[316] Chen X. H. et al.: Cell Physiol Biochem. 2011; 27 (3-4) p. 227-232. Epub 2011 Apr 1.

[317]Chemotherapy. 2010; 56 (5), p. 393-402. Epub 2010 Oct 1

[318] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 127

[319] Jiang W. et al.: Integr Cancer Ther. 2012 Apr 13. [Epub ahead of print]



with ginkgo biloba. The conclusion of the study was that ginkgo may protect against oxidative and genotoxic damage resulting from treatment with iodine 131.[320]

Ginkgo biloba improves cognitive skills in brain tumour patients

In a study on brain tumour patients who underwent radiation exposure, the administration of ginkgo supplements (40 mg ginkgo extract 3 times a day) significantly improved cognitive ability, attention, concentration, mood and quality of life in general.[321]

In studies, ginkgo is more successful than medication at dilating blood vessels

In comparative studies from 1972, the vasodilation effects of ginkgo extracts could easily match those of conventional drugs. The researchers even classified this effect as constant and completely free from side effects! Here, ginkgo tea is particularly suitable because of the flavonoids dissolved in it.[322]

Ginkgo increases brain oxygen tolerance time in studies by 20 %

According to the latest findings, the active ingredient *bilobalide* contained in

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[320] Thyroid. 2012 Mar; 22 (3) p. 318–e24. Epub 2011 Dec 19.

[321] E J.Neutrooncol 2012 Sep ;109(2)p.357-63 E

[322] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 53



ginkgo biloba contributes to keeping brain cells alive for prolonged periods despite a shortage of oxygen; here, the tolerance time can be increased by 20 %.[323]

Ginkgo biloba successful against asthma in studies

According to a report by the magazine 'Prostaglandins', ginkgo extract was able to prevent shortness of breath for six hours despite allergens.[324]

The preparation of ginkgo biloba and its application

The preparation of ginkgo tea can be made from both the ginkgo seeds and the ginkgo leaves.

Preparation of ginkgo tea from ginkgo leaves

Mince the ginkgo leaves and boil 1 glass of water at the same time. Add the chopped leaves to the water, allow to steep for about 10 minutes, then strain. Drink at least three cups during the day.

Preparation of ginkgo tea from ginkgo seeds

To prepare the gingko seeds, first chop the seeds and dry the resulting powder. Boil 1 litre of water and simmer approx. 5 g of this powder until half the water has evaporated. Strain and drink the entire contents spread over three servings a day.

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[323] Peter Köhler: Die Heilkraft des Ginkgo. Natürlich gesund von Kopf bis Fuß ('The Healing Power of Ginkgo. Naturally Healthy from Head to Toe'), 1998, p. 94

[324] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 47



Ginkgo biloba – applications

The various ginkgo preparations

While ginkgo is drunk mostly in its original form as ginkgo tea in China, here, in addition to ginkgo tea, it also comes in the form of tablets, lozenges, drops, tinctures, ampoules, infusions and – as has recently come to light in the cosmetics industry – as cream, lotion, hair tonic and shampoo. A special effect is attributed to ginkgo extracts, which are extracted in over 20 complex steps from ginkgo ingredients and are now standardised. Infusions with a higher concentration are suitable for more severe circulatory symptoms, such as smoker's leg, gangrene, Raynaud's disease and the like, and are always administered by a doctor.

Dosage

Of course, the dosage of ginkgo in serious illnesses is best decided by an experienced alternative practitioner or naturopath.

The most common single dose of ginkgo extract contains 40 mg of dry extract. Other common doses range from 40 to a maximum of 240 mg, depending on the indication. By way of example, in circulatory disorders, 120-160 mg is usually distributed over three daily doses.

For bladder infection, cough, asthma, menstrual cramps, stomach problems, alcohol intoxication or tuberculosis, it is preferable to boil and drink ginkgo tea



made from 10 g of ginkgo seeds.

Duration of treatment: A positive effect should only be expected after taking ginkgo extract for six to eight weeks.

A monograph on the 'dry extract of ginkgo biloba leaves' published by the Federal Ministry of Justice, states:

'The duration of treatment with ginkgo biloba depends on the severity of the illnesses. Treatment should last at least eight weeks for chronic diseases. The doctor should check after three months of treatment to see if the treatment should continue'.

It also states:

'In arterial circulatory disorders of the legs, an improvement in walking performance is usually achieved only with a treatment duration of at least six weeks. With dizziness and ear ringing, caused by age or lack of circulation, treatment lasting more than six to eight weeks does not seem to provide any further therapeutic benefits'.[325]

Side effects and interactions of ginkgo

Here, one must make a clear distinction between the different ginkgo forms and products. In rare cases, taking ginkgo biloba may cause side effects, often in the form of allergic reactions (redness, itching). This is usually due to the ginkgolic acid in the seeds, against which people may occasionally have allergic reactions.

[325] Silvia Aulehla: Vorbeugen und heilen mit der Kraft des Ginkgo ('Prevention and Cure with the Power of Ginkgo') 1997, p. 22



In addition, the gastric mucosa may be irritated, which may cause stomach discomfort. In rare cases, intestinal pain and headaches may occur.

Excessive consumption of ginkgo seeds should be avoided, since the positive effects can then become negative and can produce neurotoxin-like symptoms, which are due to the antagonist of Vitamin B6 called 4-methoxypyridoxine.

As a precaution, small children should not consume ginkgo seeds.

A daily dose of 20-30 ginkgo nuts (seeds) should not be exceeded, while extracts and preparations of ginkgo leaves are considered low risk. For example, their frequency of side effects is estimated to be below 1 %, which is well below the side effects of most medications![326]

In a monograph on the 'dry extract of ginkgo biloba leaves', published by the Federal Ministry of Justice, the following statement is made about one of the possible side effects of ginkgo biloba:[327]

'Side effects from the use of ginkgo extracts are very rare. Taking high-dose preparations can sometimes cause mild gastrointestinal complaints, headache or allergic skin symptoms. Isolated infusion of venous wall irritation has been observed, especially if the cannula is not properly located in the vein. In case of hypersensitivity to ginkgo biloba extracts, the doctor must consider whether they need to be discontinued.'

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[326] Dr. Jörg Zittlau: Heilmittel Ginkgo – alles über die positive Wirkung auf Körper, Geist und Seele ('Remedy Ginkgo – Everything about the Positive Effect on Body, Mind and Soul') 2006, p. 28

[327] Silvia Aulehla: Vorbeugen und heilen mit der Kraft des Ginkgo ('Prevention and Cure with the Power of Ginkgo') 1997, p. 22



Interactions with drugs

When taking coagulants, you may need to refrain from ginkgo, likewise after surgery, so as not to hinder the desired blood coagulation. This is related to the inhibition of PAF and its tendency to dilute the blood.

GLUCOSAMINE & CHONDROITIN

'Mrs Meier, it is age-related wear – you have to accept it, because we cannot do anything'. Have you heard this sentence before?

Contrary to what orthodox medicine would have us believe, cartilage, bones, tendons and ligaments, as well as connective tissue, are living matter and therefore capable of regeneration, provided that the necessary building materials are available.

While orthodox medicine speaks of 'age-related wear and tear' as in the case of a machine, on the contrary, in every cell of our body there is a constant buildup and breakdown of ALL tissue forms – in contrast to wheel bearings and other artificial joint forms, articular cartilage can regenerate. The basis for this is provided by the two nutrients discussed here, 'glucosamine' and 'chondroitin'.

As little as one should separate twins, one should leave certain co-partners to-



gether within the vital substances, if their synergetic effect promises an enhancement of positive properties.

This is also the reason why we provide information about glucosamine and chondroitin in a joint section.

What is glucosamine? What is chondroitin?

Glucosamine is the generally accepted common name for 2-amino-2-deoxy-α/β-D-glucopyranose. It is thus a derivative of D-glucose, which is only affected by the substitution of the hydroxy group, chondroitin sulphate is a sulphated glycosaminoglycan (GAG) or mucopolysaccharide, which consists of a chain of alternating sugar derivatives (N-acetylgalactosamine (GalNAc) and glucuronic acid) ...

STOP! This is how the classical definition of glucosamine and chondroitin, which you find in specialised lexicons, begins: abstract, incomprehensible, and in most cases incomplete.

This text is different, because we pursue the ambitious goal of knowledge that is informative, detailed and yet understandable for ordinary people to pass on, eliminating confusion and providing clear answers to open questions on 'glucosamine and chondroitin'.



Modern way of life as the primary cause of joint problems

DESIRED situation:

In order to keep our joints alive for as long as possible and to protect against signs of wear and tear (arthrosis) and other diseases (arthritis, gout, rheumatism, etc.), it is essential to provide sufficient nutrients to the body around the clock and transport them to the joint through moderate movement.

CURRENT situation:

Many diseases – including, but not limited to, diseases of the musculoskeletal system – should be directly considered as a consequence of the changed lifestyle of modern humans. According to Professor Joachim Grifka of the University Hospital Regensburg, for example already at least 5 million Germans per year are affected by the widespread disease arthrosis.

Increasing joint wear and stiff and painful joints are the inevitable consequences of ageing. In 2017, nearly one fifth (19%) of the EU population was aged 65 and more. And according to current estimates, the share of people aged 80 years or more should more than double by 2080 to reach 13% of the whole population.[328]

[328] http://ec.europa.eu/eurostat/statistics-explained/index.php/Population_structure_and_ageing



All this, while the proportion of working-age people will shrink. Thus, while there is a clear need to educate people about prevention measures and our social network threatens to collapse, certain stakeholders are preventing the dissemination of information about preventive and therapeutically effective natural supplements such as glucosamine and chondroitin.

In terms of joint diseases, it is not only the lack of movement stimuli in everyday working life, but also the vastly different nutritional situation which has a negative impact here. Since the cartilaginous tissue in adults contains no vessels and nerves, it feeds on so-called diffusion, which, in the case of joints, is the physical movement triggered mechanically by an external stimulus which triggers the exchange of substances (metabolism).

Purely by moving the joints, the synovial fluid located in the joint cavity and in the joint space is vigorously mixed and pressurised. This pressure is absolutely necessary to transport the synovial fluid with its nutrients deep inside the joint to the articular cartilage. The pressurised synovial fluid enters the inner wall of the capsule when the joints move, which, in contrast to the articular cartilage, is provided with nerves and blood vessels. In the capsule wall, the synovial fluid absorbs the nutrients there and transports them under the pressure of joint movement into the joint space and then to the articular cartilage, which depends on these nutrients.

If joints are not moved, the capsule wall continues to produce nutrients that are essential for the articular cartilage, but because of the lack of movement (and



the resulting lack of diffusion and pressure), it cannot transmit these to the articular cartilage – which is then literally stunted by nutrient deficiency and gradually degenerates.

Remedy for joint problems

Moderate joint movement adapted to the body's own physical condition is therefore the absolute prerequisite for supplying the cartilage with nutrients – something which, in modern times, due to facilitated work, can often only be done by targeted sports movements in leisure time or via rehabilitation measures. Movement is therefore the most important prerequisite for transporting the nutrients to the articular cartilage, for which they represent food. But before this can be successful, of course, care must be taken to ensure that the joint nutrients are produced in the capsule wall at all. This can only be guaranteed by appropriate nutrition.

Thus, the logical order for optimum joint nutrition is as follows:

- Through nutrition, we supply our body with the necessary raw materials, which are then available to the joint capsule wall in order to produce the nutrients that articular cartilage requires.
- Through sport and exercise, we ensure that the nutrients produced in the joint capsule can even be transported into the articular cartilage via the synovial fluid.



BUT:

Today's living conditions (environmental pollution, toxins in our food, the increase in physical and mental stress and much more) generally require an increased nutrient intake, which goes far beyond the previous minimum requirement.

At the same time, the vitamin and nutrient content in our food has dropped dramatically due to modern processing, depleted soils, air pollution, long storage and rapid growth.

In addition to Theodosakis, many other physicians point out that arthrosis is at least partially considered to be a nutritional deficiency disease in connective tissue and cartilage, for example, caused by an insufficient supply of joint nutrients that have largely disappeared from modern food due to contemporary industrial processing methods, for example.

Furthermore, today's diet, with its high protein content, saturated fats and excessive amounts of salt and sugar, encourages joint disease. In addition, people are increasingly consuming stimulants, such as smoking or the consumption of caffeine and alcohol.

Avoiding the abovementioned stimulants – or at least restricting them –, consuming less meat in favour of eating more fish (especially coldwater fish) and a higher proportion of vegetables and fruits would, by nutritional intake, help to create a healthy basis which is both preventive and curative.



Glucosamine and chondroitin as a special food for the joints

But since the hyaline cartilage has a very slow metabolism, it is – aside from vitamins and minerals – indispensable to provide this with special nutrition which, in biochemical terms, closely resembles its own structures. We agree with the opinion of leading researchers and nutritionists, such as Kristine Dark of Pennsylvania State University, that a normal diet is not enough to ensure the supply of the essential building blocks for cartilage building. It can provide, at most, a supportive basis for this.

It is precisely at this point that the so-called chondroprotective i.e. joint-protecting and joint-building nutritional supplements 'glucosamine' and 'chondroitin' come into play. Unfortunately, both joint nutrients hardly feature in a typical diet in their original form. Glucosamine and chondroitin are only found in large quantities in animal cartilage tissue or in the shells of crab, shrimp, lobster and clams – that is, in things which are not on the human menu at all. However, for a positive effect on our joints – and this has been shown impressively by studies – we need these substances in sufficient quantities day after day. So, it is good news that these joint nutrients are now available as dietary supplements.

Glucosamine and chondroitin – the synergistic effect

Interestingly, some researchers argue that the body makes or converts its own chondroitins from glucosamine. The real synergetic advantage of these two nat-



ural substances, however, manifests itself in the fact that they assume completely different functions in the joint, which, together, achieve the beneficial, regenerative effect: while glucosamine sulphate provides the joint with the nutrients needed to regenerate and rebuild articular cartilage and is even an essential component of synovial fluid and cartilage, chondroitin sulphate has a positive impact on the water content of articular cartilage and regulates its elasticity.

Positive effects of glucosamine and chondroitin – a summary:

Glucosamine and chondroitin are:

- soothing
- anti-inflammatory
- cartilage-protecting
- cartilage-developing

In addition, both agents have a positive effect on all connective tissue and tissue forms which consist of collagens; thus, they not only protect and strengthen inside the joint, but also strengthen our tendons, ligaments and bone structures via so-called 'chondral ossification' (formation of bone tissue). In addition, they keep our arteries elastic and also counteract the formation of wrinkles, thus helping to keep our skin young.

Expert opinions:



Since glucosamine and chondroitin are extremely controversial dietary supplements, we will allow a few experts to give their opinion first before discussing the positive effects of these two vital substances on our joints in more detail and examining the available studies, in order to reassure you at this juncture that the further study of these two highly effective, natural joint nutrients is worthy of your time:

'*The medical evidence suggests the use of glucosamine sulphate to alleviate arthrosis symptoms and possibly inhibit disease progression',* researchers at Creighton University in Omaha, Nebraska, found in 20 randomised controlled trials involving more than 2,500 patients.)[329]

'Glucosamine sulphate is a physiological substance that has been shown to slow down arthritis progression. The benefit-risk profile is favourable' (Prof. Dr. med. R. Jakob, Chief Physician Orthopaedic Clinic, Freiburg)

'*It appears that these components (glucosamine and chondroitin sulphate) play a role in the efficient treatment of joint disease'*. (*Journal of the American Medical Association* as an assessment of 15 clinical studies on glucosamine and chondroitin sulphate in March 2000)

'*Glucosamine is an important building block of the cartilage and inner skin of the joint. It ensures sufficient joint lubrication and thus smooth joint function'*. (Brigitte van Hattem, medical journalist)

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[329] Published in the *New York Times* on 21 January 2008.



'Glucosamine sulphate is an intermediary in the biosynthesis of cartilage tissue. It stimulates the formation of proteoglycans. Glucosamine sulphate thus promotes the regeneration of cartilage and bone tissue'. (Norbert Fuchs, 'Mit Nährstoffen heilen' ('Healing with nutrients'))

'*Glucosamine is a mucopolysaccharide, an amino sugar, a vital building block not only for cartilage, ligaments, tendons and bones, but also for connective tissue, arterial walls and skin. Chondroitin is also a molecular sugar compound and is one of the basic components of cartilage'.* (René Gräber, naturopath, www.gesund-heilfasten.de)

'*As a substance produced by the body itself, glucosamine stimulates the cartilage cells to form collagen, inhibits the release of cartilage-destroying enzymes and breaks down inflammatory mediators'.* (Sven-David Müller Northmann, 'Handbuch der Vitalstoffe' ('Handbook of Vital Nutrients')

After having gained an insight into the physiological correlations in the preceding chapters, we now turn our attention to the substances in more detail:

While chondroitin has been in the headlines for some time now thanks to certain prominent professional athletes, according to their statements, these athletes' sport-damaged joints have chondroitin to thank for their functionality during their athletic careers, glucosamine is the younger sibling in this regard, which produces regular, all the more controversial headlines which mainly revolve around the question of whether glucosamine works or not...

The deterioration or destruction of the hyaline cartilage, which acts as a natural



buffer between the bones, preventing them from rubbing against each other, is the main problem in joint problems and the associated pain. The cartilage consists of 70-80 % of water, in which glucosaminglycane (GAG), chondroitin, hyaluronic acid and collagen can be found.

Glucosamine as the body's own substance

Glucosaminoglycans (GAGs) are derivatives of glucose, which have additionally bound nitrogen – which is why they are referred to as 'glucosamine' rather than 'glucose' As a result, their properties change from the sticky-sweet sugar solution of a glucose to a mucilaginous mass, which makes the synovial fluid a lubricant and shock absorber at the same time.

The most important component of hyaline cartilage and synovial fluid is GAG hyaluronic acid, which in turn accounts for 50 % of glucosamine.

Chondroitin as the body's own substance

Chondroitin consists of the two sugar-like building blocks galactosamine and glocoronic acid, which, like hyaluronic acid, are made up into long chains in which the two simple sugars always alternate. In contrast to hyaluronic acid, these still contain a sulphur-containing subgroup, which is why they are also called 'chondroitin sulphate' as well as chondroitin.

As a component of cartilage, chondroitin, among other things, has the task of providing resistance to pressure – if there is a deficiency of chondroitin, this is directly accompanied by arthrosis (joint wear).



Since the chondroitin molecule is about 250 times larger than the glucosamine molecule, glucosamine is better absorbed in the digestive tract and fed faster to the rest of the body.

Conclusion:

Both substances are natural components of the articular cartilage, both working synergistically with each other and doing completely different tasks which aid the preservation and rebuilding of the cartilage. After this brief anatomical excursion, it should be clear to even semi-intelligent people, even without any evidence, that dietary supplementation with substances that are the main components of the organ to be treated (in this case, our joints) is an optimal means of promoting its regeneration.

Just as a power athlete feeds protein to muscles for muscle building and regeneration from the outside, paying as much attention as possible to protein, which has an amino acid profile that is as similar as possible to the musculature, it is exactly the same with glucosamine and chondroitin in the case of joints.

Is it not the case that calcium is recommended to strengthen bones, which are known to mostly consist of calcium?

Is it not true that we rely on collagen creams to provide the skin, which is mostly made up of collagens, with their material and to relieve wrinkles?

The logical premise is ALWAYS:



Give the body the building material it is made of so that it can rebuild and repair what it is made of.

And why should it be any different for our joints?

Thankfully, dietary supplements have been around for quite some time, including the two most important building materials for our joints: glucosamine and chondroitin.

Glucosamine production

Glucosamine is mostly derived from marine sources, shellfish such as crab, shrimp and prawns. The chitin contained in the exoskeleton forms the starting material and is a polymer of N-acetyl-D-glucosamine.

Furthermore, glucosamine can also be produced synthetically. The so-called biological or ecological glucosamine is obtained, for example, from a fungus called 'Aspergillus niger', which thrives on maize cultures. This is particularly suitable for people allergic to shellfish or vegetarians.

Chondroitin production

Chondroitin is derived from the cartilage tissue of pigs and cows, but shark and bird cartilage are also used. The composition of the product varies because chondroitin occurs in many forms in nature and cannot be defined as a single substance.

Studies and effects



After letting the experts speak under the heading 'expert opinions' and already revealing some study results, then providing you with the logically comprehensible physiological and functional points of view on the topic, we will now focus on the controversial study results on glucosamine and chondroitin:

Does glucosamine and chondroitin work or not? – studies give mixed answers – we explain why.

If one researches the subject of 'glucosamine' on the internet, it quickly becomes apparent that one stumbles over completely contradictory study results, which usually either suggest glucosamine has considerable cartilage-regenerating and sustaining properties or the complete opposite, namely that glucosamine is completely ineffective.

'***Do not trust any study that you did not fake yourself.'***

A well-known credo, which unfortunately also applies in the case of negative studies on 'glucosamine and chondroitin'. Without wishing to elaborate on the subject, the results of studies using study methodology and drug formulations can be legally manipulated in the desired direction – a common method, unfortunately, of denigrating natural products or natural remedies and of protecting drug sales.

If one questions the motivations for these negative 'studies' that deny glucosamine and chondroitin any positive effect on our joints, one should first of all become aware of some facts:



- Both glucosamine and chondroitin are natural products, which are therefore fundamentally unpatentable.
- A non-patentable substance does not justify expensive licensing studies for a pharmaceutical company, as required by the EU for new medicines, nor any subsequent multi-million marketing campaign to successfully market the new drug.

Nevertheless, if a pharmaceutical company agrees, it will automatically accept that competitors will also lay claim to the studies, which are now universally valid and published, and, due to the costs saved for the millions it would take to conduct the study, only a short time later, will bring a much cheaper drug onto the market with the same active ingredient.

However, if these low-cost (non-patentable) natural products, such as glucosamine and chondroitin, have a favourable 'benefit-risk profile', they are in direct competition with the expensive drugs made by Big Pharma from the time of market launch, which are also associated with significant side effects – they then automatically become the target of the mighty Big Pharma, which will spare no effort and money in killing off a competitor which is better, safer and cheaper.

A couple of facts:



- For example 2.5 million hip replacements and 4.7 million knee replacements alone in USA[330] are performed annually, mostly due to worn articular cartilage (arthritis).

- As a rule, such a procedure is preceded by years or even decades of suffering, which entails being prescribed innumerable painkillers and so-called cartilage-building preparations which are less effective, but which come with many unpleasant side effects.

But to suppress this process with low-cost natural products such as glucosamine and chondroitin, which have few side effects, or none at all, would mean that the pharmaceutical industry would miss out on billions in revenue.

It goes without saying that this is not easily accepted by Big Pharma, which earns billions of euros from the diseases. Glucosamine and chondroitin are just two of countless examples that have also met with this fate and which continue to fall victim to regular misleading, manipulated studies.

Therefore, any successful studies, especially in the case of glucosamine, are denigrated, and suddenly other manipulated studies appear to refute the effects of glucosamine.

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[330] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4551172/



It is particularly sad and significant that these manipulated negative studies are published by official arthrosis, arthritis – and rheumatism associations, which should actually serve the sufferers of these conditions, and not Big Pharma!

Since these associations wield considerable clout and great power, they also command high 'authority' in search engine results – this leads to the negative studies automatically appearing high up on the first page of the results and misinforming people who are looking for help.

In most cases, it is falsely argued that glucosamine does not have the proper bioavailability for the body to be absorbed into articular cartilage.

This irritating falsehood has been refuted in studies. Radioactively marking glucosamine has made it possible to test the bioavailability of glucosamine after parenteral or oral administration, whereby the uptake and transport of glucosamine to articular cartilage can also be reliably monitored. Clear evidence has been provided that glucosamine taken orally or parenterally has good bioavailability and is preferentially incorporated into articular cartilage.[331]

In order to gain recognition for a drug, it must undergo a lengthy procedure and prove its effectiveness via large-scale approval studies. The recognition of a well-known drug for arthrosis a few years ago, whose main active ingredient

[331] Setnikar I. et al.: 1984, 1986, 1993



is nothing other than D-glucosamine sulphate, unequivocally confirmed the efficacy of glucosamine and should therefore silence any sceptic.

Proof from studies with glucosamine

Evaluation of 20 studies with over 2500 patients

'*The medical evidence supports the use of glucosamine sulphate to alleviate arthrosis symptoms and possibly inhibit the progression of the disease'*. This is the overall conclusion of researchers at Creighton University in Omaha, Nebraska, who evaluated 20 randomised, controlled trials involving over 2,500 patients.[332]

Evaluation of a three-year study on 212 patients with gonarthrosis

A Belgian team of scientists headed by Professor Jean-Yves Reginster conducted a three-year randomised and placebo-controlled study in 212 patients with gonarthrosis. Patients were given a daily dose of 1500 mg glucosamine sulphate, while the control group was given a placebo (a dummy treatment). The test criterion was the joint space, which, in patients with arthritis, steadily decreases until the joints rub against each other.

As a result, Professor Reginster was able to state the following:

- during the three years, subjects who took glucosamine showed no joint

[332] Published in the *New York Times* on 21 January 2008



space narrowing and no loss of cartilage.

- In the patients who took the placebo, the joint gap decreased by an average of 0.31 ml, which corresponds to the normal wear and tear of arthritis sufferers (on average 0.1-0.6 ml per year).
- Furthermore, the glucosamine group was able to improve its functional parameters by an average of 20-25 % in contrast to the placebo group.

Conclusion of the scientists: orally ingested glucosamine is able to stop the natural course of arthrosis.[333]

Structure modification measurable

	Placebo	**Glucosamine**
JSW before treatment (mm)	539 (0.12)	5.23 (0.13)
JSW after 3 years (mm)	-0.31 (0.13)	+0.07 (0.12)*
WOMAC before treatment	939.7 (47.1)	1030.2 (46.0)

[333] Reginster JY et al., Lancet 2001, 357, p. 251-256



% Change after 3 years	+9.8 (12.30)	-24.3 (6.30) +

Mean values (and standard deviations). * p = 0.038 and + p = 0.016 (ANOVA) vs. placebo

JSW = visually measured joint space width JSN = ⌀ Joint space narrowing

Table: Width of articular cartilage before and after therapy with glucosamine sulphate vs. placebo according to Reginster, 1999

Another study in 2002 with a similar design was able to confirm these results.[334]

Glucosamine prevents prosthetic intervention in long-term studies

Endoprosthetic procedures (operations involving the use of artificial joints) should be a last resort since they lead to lifelong disability.

Long-term data on the intake of glucosamine are all the more gratifying; after five years of regular daily intake of 1500 mg, the need for prosthetic surgery fell by 57 % compared to the placebo group. In addition, significant pain reduction and functional improvement were observed.[335]

Glucosamine more successful than conventional analgesic in studies of

[334] Pavelka K. et al., Arch Intern Med 2002, 162, p. 2113-2123

[335] Source: Press Conference of the company Opfermann Arzneimittel on the topic 'Arthrosis and its consequences - experts evaluate glucosamine' Baden-Baden, 1 May 2008 (Adlexis) (tB).



arthrosis pain

A Spanish-Portuguese study on 318 arthrosis patients showed that glucosamine produced better results than acetaminophen (paracetamol) after the daily intake of a dose of 1500 mg over 6 months. Aside from resulting in better anti-arthritic activity, glucosamine has been shown to improve patient mobility, as might be expected.[336]

Does glucosamine only have an effect on knee arthrosis?

This is a question that is asked again and again and probably only because most studies on glucosamine have, by coincidence, been performed on knee arthrosis patients.

It is idle and almost grotesque to debate whether an active ingredient, which is orally administered and distributed throughout the body, only has a local effect, in a particular place. It would be as if a strength athlete took a particular type of protein and only their biceps grew, while all other muscle groups stayed the same size. Of course, it is in the interest of certain groups to assert this – after all, they don't want to be knocked off their perch...

Bioavailability of glucosamine confirmed in studies

Radioactively marking glucosamine made it possible to test the bioavailability of glucosamine after parenteral or oral administration, whereby the uptake and transport of glucosamine to articular cartilage could also be reliably monitored.

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[336] G. Herrero-Beaumont et al.: Effects of Glucosamine Sulphate on 6-Month Control of Knee Arthrosis Symptoms vs Placebo and Acetaminophen.



Evidence has been provided that glucosamine taken orally or parenterally has good bioavailability and is preferentially incorporated into articular cartilage.[337]

Tolerability of glucosamine confirmed in studies

Studies have shown that glucosamine has comparable tolerability to placebo (a dummy treatment) and is significantly better tolerated than conventional drugs for joint wear.[338]

Studies on chondroitin

In the case of chondroitin, numerous studies also provide proof of the effectiveness of this nutrient and demonstrate its high value in the health of our joints.

An evaluation of 15 studies of chondroitin in 2000 by the team of scientists from the Arthrosis Centre of the University School of Medicine*, Boston, USA) showed that chondroitin is able to relieve the symptoms of joint pain.*

A recent two-year study led by Prof. Beat A. Michel at the Rheumatism Clinic of the University Hospital *in Zurich affirms that chondroitin sulphate has significantly better results compared to a placebo.*

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[337] Setnikar I. et al. 1984, 1986, 1993

[338] Reginster JY et al., Lancet 2001; 357, p. 251-56



Glucosamine differences

Various types of glucosamine

In a needlessly confusing way, the various manifestations of glucosamine come in the utmost abundance; more precisely, there are five types of glucosamine:

1) D-glucosamine sulphate (2KCI), obtained from shellfish (crab, lobster, shrimp)
2) D-glucosamine sulphate (NaCl)
3) D-glucosamine hydrochloride (HCL) – derived either from shellfish or of plant origin
4) N-acetyl-glucosamine (NAG)
5) Poly-N-acetyl-glucosamine (poly-NAG)

Which type of glucosamine is the best?

Immediately after the problem explained above regarding whether glucosamine works at all (we were able to state this clearly), there are many online debates about which of the named species is most effective. Opinions vary widely depending on the provider.



Effectiveness

Glucosamine

Glucosamine sulphate made from shellfish (crab, lobster and shrimp) allows us to absorb and process up to 65 % in our body.

Glucosamine hydrochloride

Glucosamine hydrochloride is derived from shellfish or vegetable products and allows up to 85 % absorption and processing by our body.

N-acetyl-glucosamine (NAG)

Another alternative to the first two species is N-acetyl-glucosamine (NAG). The difference to glucosamine sulphate and glucosamine hydrochloride lies in a larger, more complex molecule. With regard to the uptake and utilisation of glucosamine, however, according to studies, this type is considered inferior and therefore not a real alternative.

Poly-N-acetyl-glucosamine (poly-NAG)

Although a study in humans with poly-N-acetyl-glucosamine showed successful conversion of both molecules to glucosamine compared to glucosamine sulphate and glucosamine-hydrochloride, in terms of absorption (uptake by the



body), it could not compete with the two, which is why this form should be considered inferior.

Proportion of glucosamine in products could change its effectiveness

Of course, the proportion of the actual active ingredient in the capsule makes a difference to the capsule's effectiveness.

There are many suppliers who falsely claim that all of their glucosamine products have 99.99 % purity. This statement alone indicates an ignorance of the nutrient or an attempt at fraud, because before the plant variant of glucosamine was discovered, glucosamine processed from shellfish had to be stabilised with potassium chloride (KCl) or sodium chloride (NaCl). This means that the proportion of glucosamine in glucosamine sulphate of animal origin can be 95 % at most and not the promised 99.99 %.

Glucosamine allergies and possible contamination

An important aspect in choosing glucosamine should not go unmentioned, namely the allergy to shellfish, which affects a small number of people. However, if such an allergy is present, it is better to resort to glucosamine hydrochloride instead of glucosamine sulphate.

Occasionally, people avoid eating seafood for fear of the environmental impact on the ocean. Even in this case, it is better to resort to herbal glucosamine hydrochloride.



Conclusion on the safety of glucosamine

The herbal glucosamine hydrochloride variant seems to be the safest form. Glucosamine sulphate, on the other hand, is a good alternative if you do not have shellfish allergies and are not concerned about marine pollution.

Tip!

Pay attention to the small print.

Small test

Glucosamine sulphate, made from the shellfish chitin shell, smells and actually tastes a bit fishy.

Glucosamine hydrochloride which does not come from vegetable production does not necessarily smell very fishy, but has a slightly fishy aftertaste.

Conclusion on the effectiveness of the different types of glucosamine

If one considers the different numbers rationally, which express the absorption and processing capacity of our body for different glucosamine types as a percentage, two glucosamine types can be recommended, namely glucosamine sulphate (65 % convertible) and glucosamine hydrochloride (HCL), 85 % of which can be converted by the body.

The difference of 20 % can be easily compensated by a higher dosage. Since glucosamine sulphate contains a maximum of 95 % glucosamine, 5 % is added



to reach 100 %, so the same result can be achieved with a higher dosage of 25 % (one quarter). Since glucosamine hydrochloride is naturally more expensive, this slightly higher intake is not a significant factor.

However, due to very contradictory study results, there are two approaches to assessing the efficacy of the different types of glucosamine:

1) Theoretical facts on the basis of the above numbers, which affirm that glucosamine hydrochloride (HCL) has a higher theoretical effectiveness due to a conversion rate of about 85 % compared to 65 % of glucosamine sulphate.

2) Practical facts, based on a total of 20 randomised, controlled trials involving over 2500 patients which affirm that glucosamine sulphate is more effective than glucosamine hydrochloride.

'The medical evidence suggests the use of glucosamine sulphate to alleviate arthrosis symptoms and possibly inhibit the progression of the disease'.

This is the overall assessment of 20 randomised controlled trials involving over 2,500 patients, compiled and evaluated by researchers from Creighton University in Omaha, Nebraska, and published in the New York Times on 21 January 2008.

Since there is little chance of 20 studies being manipulated, there are many indications that glucosamine sulphate can be used.

Dosing regimen



Since natural products are not chemicals, patience is always the key for sustained success. For example, studies on mild to moderate gonarthrosis (knee arthrosis), after as little as a four-week treatment period, determined an effect which was comparable to drugs (non-steroidal anti-inflammatory drugs), but with significantly better tolerability.

Four to eight weeks is the commonly reported period of time generally indicated for symptom relief, but you should take the remedies for about 3 months without a break in treatment, so that they can take full effect.

Dosage of glucosamine and chondroitin

The usual daily dose of glucosamine is up to 1500 mg, administered as a single dose or divided into three doses of 500 mg each, taken with meals and sufficient water. The intake of chondroitin should be around 700-1200 mg/day.

Prof. Dr. R. Jakob also recommends taking glucosamine for at least six to twelve months before judging success, as the cartilage rebuilds itself very slowly based on its metabolism. Furthermore, a 'plentiful' supplement is worthwhile, since any joint-preserving, cartilage-regenerating therapy relies on the supply of building blocks for the synthesis of macromolecules in the form of a dietary supplement.

Contraindications and side effects

In principle, the well-known strict, statutory classification of glucosamine and chondroitin as a dietary supplement already provides a conclusion on their



safety. Dietary supplements are classified as food, and food must be safe.

Article 14 of Regulation (EC) No 178/2002 of the *German Food Supplements Regulation* states in Article 14 – 'Requirements for Food Safety':

(1) Foods which are not safe may not be placed on the market.

(2a) Foods are considered unsafe if they are deemed to be harmful to health.

Most researchers in the field report that glucosamine has consistently good to very good tolerability and efficacy; decades of use all over the world are testament to this. In the case of glucosamine sulphate, according to Dr. Thomas Kausch, medical director of Kliniken Bad Neuenahr, a sufficient dosage, which is 1500 mg of D-glucosamine sulphate a day, is effective.[339]

Tolerability of glucosamine confirmed in studies

Studies have shown that glucosamine has comparable tolerability to a placebo (a dummy treatment) and is significantly better tolerated than conventional drugs for joint wear.[340]

You should still consult your doctor before taking glucosamine/chondroitin in the following cases:

- If you want to use glucosamine and chondroitin of animal origin and are not sure if you are allergic to shellfish.

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[339] Dr. Thomas Kausch, Medical Director of the Kliniken Bad Neuenahr, Source: Adlexis GmbH, BPI – November 2006

[340] Reginster JY et al., Lancet 2001, 357, p. 251-56



- It is believed that glucosamine is involved in carbohydrate metabolism; if you are a diabetic, you should consult your doctor beforehand. This is true in all cases of glucose tolerance.
- Taking antibiotics may increase or decrease the effect, depending on the drug.
- If you are taking blood-liquefying medicines called anticoagulants because the blood-liquefying substance 'heparin' is also one of the glycosaminoglycans (GAGs).
- Furthermore, treatment of pregnant women, nursing women and children under the age of 18 is not recommended due to a lack of data.

Complementary measures

Contrary to what orthodox medicine would have us believe, cartilage, bones, tendons and ligaments, as well as connective tissue, are living matter and therefore capable of regeneration, provided that the necessary building materials are available and can be transported to the cartilage by means of corresponding movement of the joint.

While orthodox medicine likes to talk about 'age-related wear and tear' as in the case of a machine, on the contrary, in each of our body cells, there is a constant buildup and breakdown of ALL tissue forms – in contrast to any wheel bearings



and other artificial joint forms, articular cartilage can regenerate.

The American orthopaedist Jason Theodosakis has developed a novel treatment for arthrosis that is based on various nutrients and can lead to a complete re-building of the articular cartilage. His observations indicate that the substances in question must be nutrients which meet the following conditions:

- Increase in the synthesis of cartilage cells (glucosamino-glycans, collagen, proteoglycans, proteins, DNA and RNA)
- Increase in the synthesis of hyaluronic acid (the substance that ensures the synovium and cartilage are lubricated and the synovial fluid is viscose).
- They must stop cartilage-degrading, harmful enzymes.
- They must mobilise fibrin, platelets, cholesterol and lipids in the synovial membrane.
- They must contain the state of inflammation of the synovium.
- They must relieve joint pain.

No drug in the world is capable of doing that. Only the interaction of different nutrients is able to accomplish this 'miracle'.

As already explained in detail, the supply of the joints with glucosamine and chondroitin represents the basis in the form of the actual building materials.

In order to reduce the inflammation common in the course of the disease, certain vitamins and fatty acids are recommended, especially vitamin E and omega-



3 fatty acids.

Furthermore, in inflammation, so-called rampion has proven itself as a remedy.

MSM as an anti-inflammatory nutrient

MSM (Methyl Sulphonyl Methane) is a sulphur-containing compound that has anti-inflammatory properties and provides pain relief in joint inflammation, but also tendon and mucous membrane inflammation.

Silicon/silica

In the presence of silicon, the chondrocytes (cells in the joint capsule), which renew the degrading cartilage throughout our lives, show an increase in activity of 243 %. In addition, silicon has an anti-inflammatory effect on the joint, enhances the ability of hyaline cartilage to bind water, and at the same time increases cartilaginous elasticity.

Vitamins and antioxidants

As well as playing a key role in numerous life-threatening diseases such as cancer or cardiovascular diseases and all age-related symptoms, free radicals also play a key role in most joint diseases.

The antioxidant network, in the form of OPC, vitamin C, vitamin E, coenzyme Q10, selenium, zinc and beta-carotene, can reliably neutralise free radicals and greatly slow down or even prevent the consequences described. In addition, a healthy, varied mixed diet and the additional supply of B vitamins, copper and



zinc as well as movement therapy adapted to the condition have also proven to be very effective.

GOTU KOLA

What is it?

Although the name may suggest it, gotu kola is not a new drink from the famous Coca Cola company, but a medicinal plant that has been used for millennia within Traditional Chinese Medicine (TCM) and Indian Ayurveda.

Indians have loved gotu kola since time immemorial. 'Tiger weed' is another name for gotu kola, since tigers are said to have gained their strength by eating gotu kola.

Probably the most famous proponent and user of 'fo-ti-tieng' (the Chinese name for gotu kola) was at the same time, the oldest ever man on record, Li Ching-Yuen.

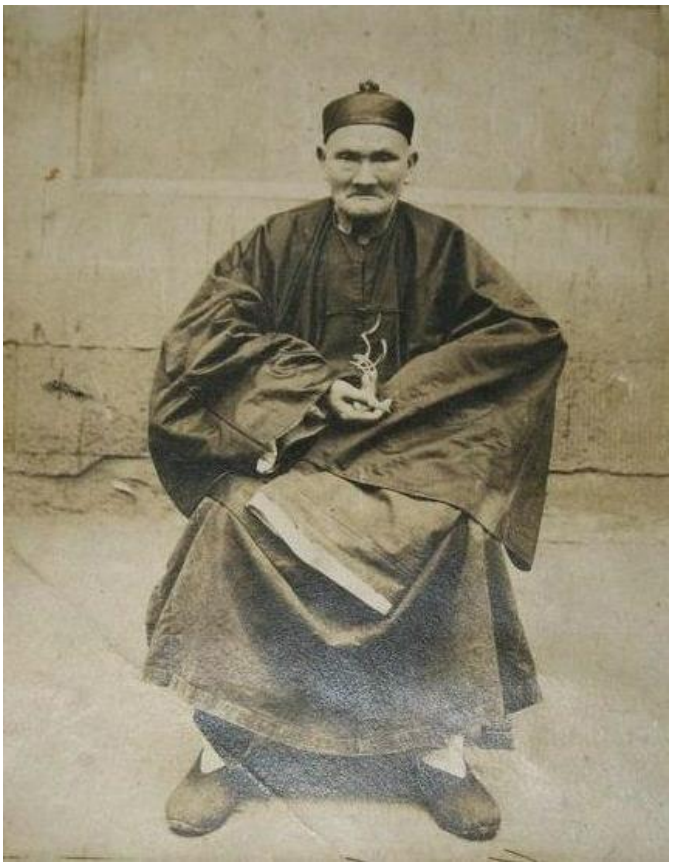
Li Ching-Yuen gained his fame when he passed away on March 5, 1933 at the tender age of 256, surviving 23 wives in the process. This is not necessarily a story from the land of myths and legends, as his age has been officially endorsed by the Chinese government, as the *New York Times* and the *London Times* reported based on their own research.



He claims to have gained his knowledge of longevity from a monk he met in Sichuan province near the Tibetan border. According to him, the monk was well over 300 years old and as agile as a monkey, as strong as a tiger and as wise as a dragon.

The photo on the left was taken in 1927 during a visit to General Yang Sen, who summoned Li Ching-Yuen, fascinated by his youthfulness, strength and bravery despite his advanced age.





Allegedly, studies on gotu kola have detected a vitamin that is not found in any other known plant species and has therefore been christened 'youth vitamin X'. It is said to influence our glandular system and revitalise the entire body. But the fact is that gotu kola is able to renew the blood cells, which in itself already has a rejuvenating effect.

But what is this mysterious plant with a most distinctive name?

The botanical name is 'Centella asiatica'; gotu kola is also known as 'Indian centella', 'Asian pennywort' and 'tiger grass'. The country-specific names are all the more varied; gotu kola also has the following names, which depend on the region:

Muttil, Asiatic Pennywort, Brahma-manduuki, Brahmamanduki, Indian Pennywort, Khulakudi, Maanduuki, Mandukaparni, Sin-mnar Tholkuri, Manduukaparnikaa, Karbrahmi, Saraswati, Vallarai, Tsubokura.

Gotu kola comes from the plant genus centella within the umbelliferae family. Gotu kola is native to tropical America, India, Africa, China, Southeast Asia, Madagascar, West Pakistan and the Pacific Islands. Wherever there is a warm and humid climate, the herbaceous plant grows along the ground. From spring to summer, 2-5 mm-large, oval or round reddish flowers grow on the plant.

How does gotu kola work, and what does it work against?

In the *Shennong Herbal*, the oldest Chinese herbal advisor, gotu kola is mentioned as far back as 2,000 years ago. In Ayurvedic medicine, gotu kola is considered a 'spiritual herb' and used when one wants to revitalise nerve and brain cells. Traditional Chinese Medicine assumes that gotu kola promotes the development of the crown chakra, the energy centre at the top of the head. Used in China and India for thousands of years, gotu kola is also enjoying increasing popularity in our latitudes.

Active ingredients of gotu kola



The ingredients and contents of gotu kola include:

- vitamin A
- vitamin B
- vitamin C
- vitamin E
- bacoside A and B
- calcium
- magnesium
- selenium
- iron
- beta-carotene
- arginine
- hydrocotyline
- asiatic acid
- madecass acid
- free triterpenes
- triterpenoid saponins
- triterpenoid saponins
- flavonol glycosides
- brahminoside
- brahmoside
- thankuniside



- asiaticoside,
- madecassoside
- vellarin
- thankunic acid
- betulic acid
- isobrahmic acid
- quercentin
- kampherol

General effect of gotu kola

The general effect of gotu kola can be described as follows:

- it stimulates the immune system,
- strengthens the cardiovascular system,
- relaxes and regenerates the blood vessels,
- renews the blood cells,
- has an antioxidant effect,
- rejuvenates,
- is anti-inflammatory,
- detoxifying,
- diuretic and dehydrating,
- antipyretic,
- promotes wound healing,



- counteracts stress,
- promotes memory,
- has an antifungal effect (against fungus production),
- is antibiotic
- and cytostatic.



Specific effects of gotu kola on diseases and conditions

The very broad general effects described above already suggest that it can counteract many diseases and conditions.

Gotu kola can be used both inside and outside the body for:

- cardiovascular disease
- vascular disease / venous disease
- phlebitis
- atherosclerosis
- high blood pressure
- asthma
- gastrointestinal disease
- gastrointestinal ulcers, stress-related
- rheumatism (e.g. arthritis)
- immune diseases
- varicose veins
- chronic skin diseases
- dermatitis
- psoriasis
- eczema
- leprosy
- arthrosis



- arthritis
- lupus
- diarrhoea
- malaria
- senility / memory impairment
- Alzheimer's
- ulcers
- liver disease
- herpes
- insomnia
- STDs
- dysuria
- skin tightening
- skin rejuvenation
- cellulitis
- acne
- stretch marks
- psoriasis
- haemorrhoids
- respiratory diseases
- measles
- dental disease



- exhaustion
- stress
- psychosis
- anxiety
- epilepsy
- neuritis
- urinary tract infections
- bacterial infections
- fungal infection
- psoriasis
- libido problems
- wound healing
- burns
- scarring
- joint diseases
- premature greying
- spider veins
- oedemas

Effect of gotu kola on cardiovascular diseases

Gotu kola relaxes the blood vessels and keeps them elastic. The bacosides inside release nitrogen and thus relax the main artery (aorta) and the veins and keep the blood vessels elastic. This optimises blood flow.



Gotu kola works against high blood pressure

By keeping the blood vessels elastic, keeping them soft and increasing blood flow, high blood pressure is significantly reduced during the day with just a few fresh gotu kola leaves.

Gotu kola works against atherosclerosis

Arteriosclerotic changes are the main cause of serious heart disease and venous disease, including heart attack and stroke. The positive influence of gotu kola on our connective tissue together with the collagen fibres, which are components of arteries and veins, counteract atherosclerosis. In studies, gotu kola has been shown to counteract venous insufficiency, spider veins, intermittent claudication and oedemas.

Effect of gotu kola on blood cell regeneration

The stimulation of the reticuloendothelial system by the asiaticosides stimulates blood cell regeneration. New blood cells develop and old blood cells are flushed out.

Effect of gotu kola on venous disease (heavy legs, intermittent claudication, etc.)

The pronounced effect on our circulation system has now also been scientifically proven. Gotu kola helps with phlebitis, swollen legs, intermittent claudication, tingling in the legs and the like.



Effect of gotu kola against phlebitis

Phlebitis is the highlight of gotu kola's indications. In studies, gotu kola has achieved a success rate of between 70 and 90 %. A study on 125 patients with phlebitis and brittle capillaries achieved a 90 % success rate using gotu kola (see Chapter "studies").

Gotu kola as an anti-ageing agent

As already explained, the oldest person who ever lived is said to have also used gotu kola. It cannot be said with 100 % certainty whether this was true or not. But the fact is that gotu kola has an effect on several mechanisms that decide whether you are 'young' or 'old'.

- Gotu kola promotes blood cell renewal,
- counteracts atherosclerosis,
- keeps the cardiovascular system young,
- counteracts skin ageing,
- dementia and Alzheimer's,
- counteracts age-related cartilage degradation (arthrosis)
- and premature hair greying.

Skin tightening and skin rejuvenating effects of gotu kola

Gotu kola supports the collagen structure and thus the firmness and youthfulness of the skin.



The fact that the French Bayer subsidiary SERDEX has had five skin care effects of gotu kola patented also proves this good effect, as it is well known that patent applications in the cosmetics sector are regularly rejected because of undetectable effects.[341]

Wound healing effect of gotu kola

The triterpenoids contained in gotu kola have a wound-healing effect, making it wonderfully suitable for external injuries, burns and various skin diseases.

Effect of gotu kola against scars

The collagen-building effect of gotu kola, which promotes the cell renewal of the skin, can even remedy older scars. In this instance, gotu kola is applied internally and externally as an ointment.

Effect against ulcers

The influence of gotu kola on collagen synthesis and the activation of keratin formation counteract ulcers.

Effect of gotu kola on arthritis

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[341] Biopirate BAYER: Natural products as a cheap resource



The anti-inflammatory effect of gotu kola counteracts arthritis.

Effect of gotu kola against arthrosis

The collagen-strengthening effect of gotu kola supports the regeneration of hyaline cartilage. Furthermore, gotu kola supports the formation of chondroitin, an essential component of articular cartilage.

Effect of gotu kola against stress

Gotu kola is a highly regarded nerve tonic within traditional Chinese medicine and ayurvedic medicine and has a depressant effect on the body but is not a classic tranquilliser.

Effect of gotu kola against memory weakness and senility

Gotu kola protects the brain from free radical damage, improves blood circulation to the brain, and works like ginkgo biloba. Furthermore, the protein 'bacoside' nourishes the brain cells.

In studies, gotu kola has shown a positive influence on the memory and counteracted senility. Indians believe that the excellent memory of elephants is down to the fact that they eat gotu kola.

According to Ayurvedic teachings, gotu kola can reconcile the two halves of the brain, increase intelligence and positively influence emotions.



Gotu kola and its effects on fears and stress

Gotu kola has been shown to have an anxiolytic, sedative effect in studies, which is attributed to the 'cholinergic mechanism'.

Effect of gotu kola against cellulitis

Gotu kola acts on the fibroblasts in the connective tissue and is thus effective against cellulite, which is reflected in studies by a success rate of up to 80 %.

Gotu kola for beauty

In addition to its positive effect against cellulitis, gotu kola tightens the connective tissue and proves to be very beneficial for the skin. It stimulates collagen synthesis and promotes the healthy growth of our nails.

Studies on gotu kola

Gotu kola shows an 80 % success rate in the prevention and treatment of cellulitis

Gotu kola has had sensational success in the prevention and treatment of cellulitis.

Studies show gotu kola has a 70 to 90 % success rate in treating phlebitis



In several studies, gotu kola has achieved a success rate of between 70 and 90 %. A study on 125 patients with phlebitis and brittle capillaries achieved a 90 % success rate using gotu kola, as published by the Gazette Medicale de France in 1971.

Gotu kola has positive effects on memory

Gotu kola has shown a positive effect on the memory in studies.

Gotu kola successful in studies against arthrosis

In vitro and in vivo cartilage degradation has been prevented by a standardised centella asiatica fraction. [342]

Use of gotu kola

Gotu kola can be used both internally and externally. Corresponding products can be found in the form of:

- teas
- dried herbs
- tinctures
- capsules
- tablets and

[342] Exp Biol. Med. (Maywood)



- ointments

in dried form, the leaves are wonderful for infusing a healthy tea; fresh leaves can be incorporated into a salad.

Infusion of gotu kola herbal tea

To maintain the optimal antioxidant effect of the tea, it is recommended to boil the herbs for 10 minutes at 100 °C.

Dosage

Within the ayurvedic treatment, a maximum of two cups or 2-3 g powder mixed in fruit juices, or 2 x 30 drops of the extract, is taken per day.

Should you expect side effects when taking gotu kola?

Gotu kola is fundamentally safe. At higher doses, it may occasionally cause headache, stomach upset, nausea, dizziness, and increase pre-existing itching.

Overdose may cause extreme drowsiness or loss of consciousness.



A miracle fruit?

The industry makes some very grandiose promises! They claim that pomegranate can stop the ageing process, normalise blood pressure, fight cancer, counteract digestive problems and strengthen libido and virility.

And that's not all: it is said to defy cardiovascular diseases and help fight arthritis, Alzheimer's and dementia, to name just a few of pomegranate's many benefits...

Mother Nature endowed pomegranate, nicknamed the 'paradise apple', with numerous nutrients, such as vitamins, minerals, trace elements, phytochemicals and fatty acids – bio-active substances which should justify these benefits with one feature or another that is worthy of note for our health and well-being.

For example, because of their unique bioavailability of 95 %, the cell-protecting polyphenols in pomegranate are many times better than those of other medicinal plants (for example, three times as strong as green tea or red wine).

Associated with eternal youth and fertility for centuries, the 'apple of Aphrodite', as it is also respectfully referred to, is said to ensure a long, healthy, energetic life. What do people want more?

Pomegranate has the weight of reputable tradition behind it: The Chinese associate it with longevity, in the Orient, it is considered a symbol of immortality. It



is even thought that pomegranate, mentioned in both the Old Testament and much later in Shakespeare's 'Romeo and Juliet', is one of the oldest crops ever, as evidenced by references in mythology.

In short: pomegranate is one of the oldest medicinal fruits humanity possesses!

On the other hand, pomegranate is so 'trendy' that all of Hollywood gushes about it; Kate Moss, Madonna and Mick Jagger swear by it, among others. No other fruit has received as much attention from the scientific community as the pomegranate.

A balancing act between myth and truth, between tradition, trendy hype and modern science?

In these sections, we want to counter this view and provide you with the facts about pomegranate...

Pomegranate from a botanical point of view

The scientific name for pomegranate is 'Punica granatum'. Although its outer appearance is like that of an apple, it is actually a berry that grows on a bush or on a tree up to 5m high.

Unlike the normal apple, not everyone associates the pomegranate with a concrete 'image'. It has an intense, blood-red colour, a diameter of about 8 cm and weighs up to 500 g. The hard, 3-4 mm thick shell protects it from frost and external impact. It makes preservation largely unnecessary because the tough



shell makes it possible to store pomegranate safely for weeks.

We owe this circumstance to the very early importation of pomegranate to Central Europe from its regions of origin – Asia, the Caucasus and Turkey. The only disadvantage is its handling, because you cannot eat the pomegranate, which is incidentally classified as a berry in botany, like a normal apple.

The edible part of pomegranate

The edible part of the pomegranate is the pomegranate seeds, which consist of a juicy seed coat and the seed itself. A single fruit has 400 to 600 seeds, which are covered by a white tissue that tastes slightly bitter. Depending on the degree of maturation, the seeds of pomegranate taste slightly sour or sweet. The pomegranate owes its name to these many seeds, because the Latin 'granatus' means 'rich in grain'.

As we will learn later, however, the seeds are not the only parts of the fruit used by indigenous peoples. The rind, fruits, flowers, roots and shell are all used in traditional folk medicine.

The home of the pomegranate

The pomegranate is native to the subtropical areas around the Mediterranean countries, Israel, Turkey, North India and West Asia as well as Madeira.

How the pomegranate conquered the world

The campaigns of Pharaoh Thutmose III brought the pomegranate to Egypt



from Syria and Palestine around 1500 BC. From there, traveling merchants brought it to Greece, from which it was transported by colonists to southern Italy. From Italy, pomegranate conquered Spain, and American colonists eventually took it to North America.

Expert and press comments

'*One of the oldest crops of humanity has recently attracted the interest of science: Punica granatum - the pomegranate. Results from more than 200 recent publications show that this ancient fruit has considerable therapeutic potential'.* (Dr. Stefanie Burkhardt-Sischka, *comed* 12/2007)

'*Controlled studies led by Dr. Aviram suggests that pomegranate juice provides optimal protection for the cardiovascular system'.* (Nature *& Healing* 5/2005)

'In terms of its ingredients, pomegranate is a real wonder fruit with a wide variety of health-giving ingredients'. (Dr. Michaela Döll 'Heilfrucht Granatapfel' ('Pomegranate, the healing fruit'))

'*Due to its many healthy ingredients, pomegranate is in fact able to improve fertility at least a little'.* (Dr. Stephanie Grabhorn)

'*A variety of healing powers are attributed to pomegranate: high blood pressure, cholesterol, cardiovascular disease, arthritis , menopausal symptoms; the bright red juice of the pomegranate can benefit all of these. It is considered an aphrodisiac, anti-inflammatory and may even prevent cancer. Not least because of this, the pomegranate is celebrated in the USA as 'superfood', i.e. a food with high levels of disease-inhibiting nutrients. The seeds and the juice are rich in*



vitamins, iron, potassium and fibre and full of antioxidants that counteract the ageing process'. (Laura Wieland, 'Granatapfel – die Vitamin-Bombe' ('Pomegranate – the vitamin bomb'), *Der Tagesspiegel* 23 November 2008)

'*The interest in pomegranate from physicians and nutritionists has increased enormously in recent years. No other fruit has been the subject of publication in so many scientific studies in recognised journals in recent years. The studies have focused on the significant antioxidant potential of pomegranate. The positive effect of this fruit on cardiovascular diseases, diabetes mellitus, osteoporosis and chronic inflammatory processes is considered proven'.* (Diabetes-informationszentrum.de, 24 November 2009)

Pomegranate use

Pomegranate can be used in a variety of ways and has traditionally been used in different ways by different peoples. In the Orient, it is an important part of the daily diet and all of it is consumed. The strong colour, which stubbornly clings to textiles, is also used to colour carpets. In India, pomegranate is used as a spice, but also as a food and also as a dye for textiles. Aboriginal peoples used all the ingredients of the pomegranate for the treatment of all sorts of suffering, such as diarrhoea, ulcers, parodontosis, throat infections and oral aphthae.

The trend in Western Europe and the United States with the wellness movement led to a small 'hype' around the pomegranate; for example, there are 90,000 German-languages searches for 'pomegranate' on Google every month.

Its use extends from juices and nutritional supplements to ensure a longer life



in optimal health, to cosmetics, for example, to preserve the beauty of the skin.

Pomegranate – the variety of products

You can consume the pomegranate as a fruit or in the form of juices, concentrates, capsules or as a cosmetic. To eat the kernels, halve the fruit or peel it like an orange. The seeds can now be picked easily with a fork.

You can also make pomegranate juice yourself. To do this, pick out the many red seeds and then process them with a blender or a juicer. This is probably a bit inconvenient, but in well-stocked supermarkets and health food stores, you can buy the juice for around 8-12 euros per litre. The popularity and the versatility of applications has meant that the pomegranate is available in various forms in shops:

Pomegranate in liquid form

- Pomegranate juice
- Pomegranate concentrates
- Pomegranate syrup
- Pomegranate rind tea
- Pomegranate seed oil

Pomegranate in capsule form

- in its pure form
- in combination with other active ingredients (vitamins, antioxidants, etc.)



- pomegranate seed oil capsules

At this point, it is very important to point out that the conviction of all experts is that it is not individual isolated compounds from pomegranate that lead to its amazing success, but the interaction of ALL the natural ingredients! For example, in the case of cancer, studies show that pomegranate juice in its entirety is clearly superior in terms of effect to isolated enzymes such as ellagic acid, punicalagin and other pomegranate extracts.

Pomegranate as cosmetics

- Pomegranate creams
- Pomegranate lotions
- Pomegranate masks
- Pomegranate deodorants
- Pomegranate seed oil

Shelf life of pomegranate

Freshly harvested pomegranates last a very long time; they keep in the refrigerator for several weeks and can even keep for several months at temperatures of 0-5 °C. Even if the rind shows signs of ageing, the seeds reliably protected by it are usually still edible without any loss of quality.

Active ingredients in pomegranate



What distinguishes the pomegranate is its pronounced variety of active ingredients, such as vitamins, minerals, trace elements, phytochemicals and fatty acids.

Acting like an orchestra, these highly bioactive substances can combat many illnesses in unison and contribute to a fulfilling, longer life; they offer three to ten times more protection against oxidants than our native fruits.

So far, the following active substances or drug groups have been identified:

- vitamins (vitamins B1, B2, C, OPC, beta-carotene)
- minerals (magnesium, calcium, phosphorus, potassium, iron)
- secondary plant substances (e.g. flavonoids, ellagitannins, phenolic acids)
- essential fatty acids (linolenic acid)

Phytochemicals in pomegranate

For the most part, phytochemicals account for the remarkable effect of pomegranate on our health; therefore, they should be given special attention. Science is still in its infancy in this regard, but more and more recent findings are revealing what phytochemicals can do for our health.

Secondary plant substances have the following effects:

- antioxidant,
- antimicrobial,
- antiviral,



- antithrombotic (counters blood clumping),
- boosts the immune system,
- anticarcinogenic (tumour-suppressive),
- antimutagenic,
- carminative,
- regulates blood pressure,
- regulates blood sugar level,
- antiproliferative
- and lowers lipids (reduction of cholesterol level).

Pomegranate contains many flavonoids, including polyphenols, anthocyanins, and quercetin, as well as ellagitannins, such as punicalagin, and phenolic acids, such as gallic and ellagic acid.

Pomegranate contains the following phytochemicals:

- polyphenols
- carotenoids
- phytic acid
- protease inhibitors
- sulphides
- glucosinolates
- saponins



- monoterpenes
- phytoestrogens
- phytosterols

Polyphenols in pomegranate

Polyphenols are aromatic compounds that occur as flavourings, colours and tannins in the plant world. They counteract free radicals, inflammation and even cancer. Pomegranate juice contains around 0.2-1 % polyphenol content, exceeding that of cranberries, blueberries, red wine or even green tea. The cell-protecting effect of pomegranate, which is up to three times as powerful as that of green tea or red wine, has been shown in studies. Normally, phenols do not absorb well and are therefore inadequately absorbed by the human body. Pomegranate phenols, which are 100 % water-soluble and have a bioavailability (processing ability of the organism) of 95 %, are an exception here. This proves that pomegranate phenols are the most potent agents against cell attacks that science has ever encountered in food.[343]

The following polyphenols have been identified in pomegranate:

- ellagic acid

[343] Dr. Alexander R. Bind: Der Granatapfel – Wunder des ewigen Lebens ('The Pomegranate – Miracle of Eternal Life'), 2011, p. 24



- ellagitannins
- gallic acid
- chlorogenic acid
- coumaric acid
- protocatechuic acid
- caffeic acid
- ferulic acid

Their effects are described in detail below:

Chlorogenic acid

The effect of chlorogenic acid is:

- antioxidant (cell protection)
- anti-inflammatory
- antimicrobial
- antiviral
- soothing
- histamine-blocking (counteracts allergies)
- blood sugar-regulating (important for diabetes!)

It is also believed that chlorogenic acid can support the liver, kidneys, blood vessels and nerves.



Ellagic acid

The content of ellagic acid in the pomegranate, a secondary plant compound with pronounced bioactive effect, is particularly noteworthy. As already mentioned in the chapter "Aronia", the protective effects of ellagic acid, according to Prof. Leitzmann and Dr. Watzl, are:

- antioxidant – counteracting free radicals,
- antimicrobial – counteracting bacteria,
- inhibits the growth of degenerated cells
- and is detoxifying.

Protocatechuic acid

- antioxidant
- antiviral
- antimicrobial
- nerve protection against poisons

Coumaric acid

- antioxidant
- anti-inflammatory
- regulates blood sugar
- antimicrobial

Ferulic acid



- antioxidant
- accelerates wound healing
- regulates the fat metabolism
- regulates digestion

Caffeic acid

- antioxidant
- regulates the fat metabolism
- accelerates wound healing
- antimicrobial
- antiviral

Flavonoids in pomegranate

The flavonoids are characterised by the fact that they all fight against the destructive free radicals that continuously attack our body cells and lead to diseases and biological ageing; rutin and quercetin are particularly significant here. The following are included:

- proanthocyanidins
- anthocyanins
- flavonols
- epigallocatechin
- epigallocatechin gallate



The flavonoids in pomegranate take on even more functions:

- antioxidant function
- protection against blood clots (thrombi) which cause
- strokes.
- antimicrobial effect
- effect against inflammation in the body

Phytoestrogens in pomegranate

In addition to the flavonoids and the phenolic acids, the phytoestrogens, as third parties in the team, play an important role within the drug groups in pomegranate.

They are in the seed oil of numerous seeds and are very similar to the human sex hormone oestrogen in terms of biochemical structure. The plant oestrogens compete with the body's own oestrogen to dock onto oestrogen receptors and can therefore trigger a diverse effect in the body, including the protection against hormone-dependent cancers such as breast or prostate cancer.



Nutrition and vitality table

The nutrients and vital substances in the fresh pomegranate (100 g)	
Carbohydrates:	16.70g
of which fructose (fructose):	7.36 g
Glucose (glucose):	9.05 g
Sucrose (beet sugar):	0.28 g
of which dietary fibre:	2.24 g
Protein:	0.70 g
of which essential amino acids:	0.22 mg
nonessential amino acids:	0.23 mg
Fats:	0.60 g
of which saturated fatty acids:	0.14 g
monounsaturated fatty acids:	0.10 g
polyunsaturated fatty acids:	0.24 g
Energy:	78 kcal / 326 kJ
Vitamin profile	
Vitamin A:	7 ug



Vitamin B1:	50 ug
Vitamin B2:	20 ug
Vitamin B3:	300 ug
Vitamin B5:	600 ug
Vitamin B6:	105 ug
Vitamin B7:	2 ug
Vitamin B9:	5 ug
Vitamin C:	7 mg
Vitamin E:	200 ug
Vitamin K:	10 ug
Folic acid:	7 ug
Mineral profile	
Bulk elements:	
Calcium:	8 mg
Magnesium:	3 mg
Potassium:	290 mg
Chlorine:	40 mg
Phosphorus:	17 mg



Sodium:	7 mg
Sulphur:	15 mg
Trace elements:	
Iron:	500 ug
Iodine:	70 ug
Fluorine:	20 ug
Copper:	70 ug
Zinc:	280 ug
Manganese:	130 ug

Effect of pomegranate

The extremely diverse spectrum of vital substances in pomegranate almost inevitably leads to a variety of positive effects on all kinds of diseases. Especially in diseases of the cardiovascular system as well as cancer, which, sadly, are the two most common causes of death and have not been controlled in any way by conventional medicine to date, the active ingredients in pomegranate are extremely interesting because, as natural ACE inhibitors, they reduce blood pressure, are able to normalise cholesterol very effectively, and even reverse atherosclerosis (vascular calcification), as well as its bioactive agents, which counteract cancer development and actively fight cancer.



It therefore makes sense to initially examine the general effect on the body and, subsequently, the specific effect on diseases. Again, it is important to note that the amazing effect of pomegranate is due to the interaction of ALL its natural ingredients and that individual isolated ingredients cannot have nearly as good an impact in this regard. For example, it is known that ellagic acid, in isolation, has little effect, because it is not soluble in water and thus absorption into the body is practically non-existent. Punicalagins, on the other hand, are 100 % water-soluble and 95 % are taken up by our bodies. They piggyback the ellagic acid, transport it into our body and release it. Once in the intestine, ellagic acid is transformed into urolithines, which then offer protection against diseases such as cancer.

General effect of pomegranate on our bodies

- antioxidant effect (protection against free radicals)
- immunomodulatory effect (strengthening the immune system)
- antibiotic effect (protection against bacteria)
- detoxifying effect (alcohol, nicotine etc.)
- anticancerogenic effect (protection against cancer)
- anti-arteriosclerotic effect (protection against vascular calcification)
- anti-inflammatory effect
- protection against UV rays
- promotes repair of damaged cells
- cholesterol-lowering effect



- blood pressure regulation
- regulation of blood lipid levels
- hormone regulation
- encourages circulation
- digestion-regulating

The effect of the individual plant components of the pomegranate in detail:[344]

Plant component	Substances	Application	Operation
Fruit juice/pulp	Ellagitannins (e.g. punicalagin), phenolic acids (e.g. caffeic	blood tonic anti-inflammatory, cooling	antioxidant anti-inflammatory anticarcinogenic,

[344] http://www.drjacobsinstitut.de/?Granatapfel



	acid), flavo-noids (e.g. quercetin, rutin, kaempfer ol) catechins, anthocya-nins, ellagic acid,	and re-freshing	antiarte-rio-scle-rotic anti-oestro-genic
Rind	Ellagitan-nins, fla-vonoids, ellagic acid, an-thocya-nidins (sugar-free), traces of	Ulcers, diar-rhoea, intesti-nal in-fection, parodo ntosis, aphthae	adstrin-gent antioxi-dant antimi-crobial anti-ma-larial ef-fect



	pelle-tierines		
Seeds	Ellagic acid, punicic acid Uncon-firmed: estradiol, testos-terone, estriol	Contra-ception, meno-pause, pre-vents abor-tion of the em-bryo	Oestro-gen anti-oestro-genic
Blos-soms	Asiatic acid, maslic acid, ur-solic acid, ellagic acid	Diabe-tes	antidia-betic by insulin sensitiser and al-pha-glu-cosidase activity



Leaves	Apigenin, luteolin		Gestagen-like, anxi-olytic anticar-cinogenic,
Bark / root	Ellagitan-nins, alka-loids like pelle-tierine	de-worm-ing deaths known	neuro-toxic (pelle-tierine)

Antibiotic property

The tannins, ellagitannins and phenolic acid contained in pomegranate have been shown to have an antimicrobial effect on bacteria, fungi and other parasites in studies.

Cardiovascular system

The cardiovascular system is a prime example of how effectively the pomegranate can prevent and even cure disease. Here, the pomegranate proves to be multi-talented and multifactorial:



- reducation of the cholesterol level: by acting on the fat metabolism, the polyphenols contained in pomegranate can positively influence the cholesterol level by reduction of bad cholesterol (LDL) and significantly increasing good cholesterol (see under 'Studies' for more information).
- antithrombotic effect: clumped platelets thicken our blood, resulting in high blood pressure, and may lead to stroke and heart attacks. The polyphenols contained in the pomegranate antithrombotically counteract platelet clumping.
- hypotensive effect: again, it is the polyphenols in pomegranate that have been shown to significantly lower blood pressure in studies (see 'Studies' section).
- circulation-promoting effect: myocardial perfusion increases with the consumption of pomegranate juice.
- antiarteriosclerotic effect: due to the inhibition of foam cell formation, the anti-inflammatory effect and the reduction of cholesterol oxidation, pomegranate optimally counteracts vascular calcification – atherosclerosis.

Protection against brain damage and stroke

Studies from 2005 have shown protection against brain damage and stroke in mice, which occur as a result of oxygen deficiency. The mice pups of pomegranate-fed mice had 60 % less brain damage at birth than the control group.

Effect on the lungs



The ellagic acid in the pomegranate unfolds its effect directly in the bronchi of the lungs. There, the ellagic acid accumulates in addition to the breath and, as an effective antioxidant, successfully neutralises harmful air constituents which are created by air pollution.

Furthermore, the polyphenols act against viruses and bacteria and thus affect the health of the bronchi and the entire lung.

Effect on the gastrointestinal tract

The polyphenols of pomegranate already develop their positive effect in the gastrointestinal tract. Due to the fact that the polyphenols cannot all leave the intestine into the blood due to their molecular structure, they work longer within the intestine. Here, they help the body maintain healthy intestinal flora by killing harmful bacteria and disease-causing viruses.

Effect on the brain and nerves

Corresponding studies have shown that the flavonoids in pomegranate can improve brain performance. Pomegranate phenolic acids protect the body's nerves from the destructive degradation processes caused by free radicals.

Effect on the skin



Free radicals, as the main cause of ageing processes, are also merciless in causing skin ageing.

'Cosmetics', both internal and external, are necessary to prevent premature ageing! Here, the antioxidants of pomegranate on the inside of the inner skin layers and externally in the form of pomegranate creams and lotions protect the outer skin layer against the attacks of free radicals.

Effect on our musculoskeletal system

The ingredients of pomegranate can make a significant contribution to osteoporosis (bone loss) with their phytoestrogens. The antioxidant and anti-inflammatory components can inhibit cartilaginous enzymes from working and counteract inflammatory mechanisms.

Effect on liver and pancreas

In the liver, polyphenols can promote those enzymes that are responsible for detoxification. Furthermore, they work as antioxidants to protect the liver, which also releases free radicals during detoxification. The pomegranate ellagic acid can also protect the pancreas by preventing inflammation.

Special effect on the following diseases and conditions



- cardiovascular disease
- atherosclerosis
- high blood pressure
- high cholesterol
- cancer
- arthritis
- intestinal inflammation
- Alzheimer's
- dementia
- diabetes
- flu/influenza
- premenstrual syndrome (PMS)
- HIV/AIDS
- brain protection of newborns
- chronic fatigue syndrome
- listlessness
- digestion problems
- inflammation
- infections
- impotence
- excess weight
- dental plaque



Effect against arthritis

The anti-inflammatory effect of pomegranate works to alleviate symptoms such as arthritis. In this way, pomegranate protects the destruction of cartilage cells by arthritis. Here, polyphenols have an anti-inflammatory effect on the eicosanoid metabolism.

Effect against atherosclerosis

According to a long-term study, pomegranate juice can stop the development of atherosclerosis (deposits in blood vessels) and even reverse them by up to 30 % (see 'Studies' section).

Pomegranate juice increases the blood flow to the heart

In a study published in the *Journal of Cardiology,* 45 patients with coronary heart disease drank 240 ml of pomegranate juice from concentrate over a period of three months; the circulation of myocardium in myocardial scintigraphy improved under stress by 17 % and angina pectoris incidents fell by half. In the control group (which did not drink pomegranate juice), the patients deteriorated by 18 %.

Effect of pomegranate juice against high blood pressure

Regulating the ACE enzyme (in line with the synthetic ACE inhibitor principle, with no side effects), high blood pressure can be reduced by 5 % after two weeks and by 21 % after one year – by taking 50 ml pomegranate concentrate



daily.

Effect on cancer

The effect of the pomegranate against cancer is multifactorial and is due to the interaction of antioxidants, anti-inflammatory substances, phytohormonal substances and the substances involved in the development of the immune system and the cell signal pathways.

In summary, one assumes the following principles of action in pomegranate in the fight against cancer:

- Renewal of degenerated cancer cells: According to studies, pomegranate can regenerate degenerated (cancer) cells and turn them back into healthy cells. This is attributed to the flavonoids in the pomegranate.
- Transfer of cancer cells into programmed cell death: Alternatively, the flavonoids may cause the cancer cells to be driven to programmed cell death.
- Inhibition of cancer-promoting enzymes: Enzymes such as aromatase and 17-ß hydroxysteroid dehydrogenase, matrix metalloproteases, ornithine decarboxylase and CYP enzymes have carcinogenic effects. The inhibition of these enzymes proves to be extremely effective in the prevention and therapy of malignant tumours.
- Regulation of hormone metabolism: Another option that pomegranate



uses against cancer, especially against so-called hormone-dependent cancers, such as breast cancer and prostate cancer, is the regulation of the oestrogen metabolism which is due to plant oestrogens contained in the juice and polyphenols contained in the seeds.

- Inhibition of cancer-promoting signal pathways: Due to the phosphorylation inhibition of the MAP c-met and AKT kinases, corresponding cancer-promoting signal pathways are inhibited.
- Reduction of neoangiogenesis (neoplasm of tumour vessels): Studies have shown that the ingredients of pomegranate cause a significant suppression of neoplasm of tumour vessels.
- Binding of carcinogenic metals: By binding potentially carcinogenic metals to the polyphenols in the pomegranate, this can have a positive effect on the cancer process or prevent cancer.
- Antioxidant effect: Last but not least, pomegranate owes its effect against malignant tumours due to the cell-protecting effect against free radicals to the flavonoids contained in it.

All these general effects are exhibited by pomegranate:

- breast cancer
- colon cancer
- ovarian cancer



- lung cancer
- stomach cancer
- prostate cancer
- liver tumours
- stomach cancer
- skin cancer
- thyroid cancer
- leukemia
- lung cancer
- pancreatic cancer
- liver cancer
- melanoma



Effect of pomegranate against hormone-dependent cancers

Effect of pomegranate against breast cancer

Researchers Kim, Lansky and colleagues were able to prove that pomegranate has an anti-oestrogenic effect in studies in 2002. Pomegranate owes this to the polyphenols contained within it. Furthermore, the researchers were able to show that pomegranate blocks the enzyme 'aromatase' and thus reduces oestrogen synthesis in adipose tissue.

In this way, pomegranate acts against so-called 'hormone-dependent carcinomas', cancers that are triggered by hormone action. These include both breast cancer and prostate cancer.

Effect of pomegranate on:

- breast cancer
- colon cancer
- ovarian cancer
- lung cancer
- stomach cancer
- prostate cancer
- liver tumours
- stomach cancer
- skin cancer
- thyroid cancer



- leukemia
- lung cancer
- pancreatic cancer
- liver cancer
- melanoma

The flavonoid in the pomegranate, called apigenin, has, in recent studies, been shown to have a positive effect on the above-mentioned cancerous tumours, preventing their cancerous growth and metastasis. The latter is very high, considering that 90 % of all people who die of cancer do not die from the primary tumour, but from its metastases. In a multi-year study, 93 % of cancers were prevented from recurring in patients who had taken a mixture of flavonoids with apigenin after a colorectal cancer operation, while, in the control group (without apigenin consumption), the cancer recurred in nearly half of the patients. The effect is explained by the inhibitory property of apigenin on

- cancer proliferation,
- cancer growth
- as well as metastasis.

Effect against hormone-dependent cancers

As described above, researchers Kim, Lansky and colleagues were able to prove that pomegranate has an anti-oestrogenic effect in studies in 2002. Pomegranate owes this to the polyphenols contained within it. Furthermore, the researchers



were able to show that pomegranate blocks the enzyme 'aromatase' and thus reduces oestrogen synthesis in adipose tissue.

Effect on intestinal inflammation

In a similar way as with arthritis, pomegranate can counteract inflammatory bowel disease.

Effect against influenza

The antiviral and antimicrobial effects of pomegranate make it a healthy alternative to flu shots, which come with side effects.

Effect against Alzheimer's

The protective effect of pomegranate in Alzheimer's is due to the polyphenols in vegetables and fruits. In one study, their effect reduced the risk of Alzheimer's disease by 75 %.

Effect on HIV/AIDS

The US research team led by Prof. Neurath was able to detect substances in pomegranate juice which can prevent the penetration of HIV into the cell and thus the infection.

Effect in newborn babies against brain damage

During pregnancy, if taken regularly, the pomegranate can protect the brain of the unborn baby from brain damage.



Effect on menopausal symptoms

The high oestrogen content in pomegranate adopts a natural hormone regulation in the body and counteracts menopausal symptoms after the menopause. Pomegranate owes this effect to the active substance 'oestrone', which has a regulating and beneficial effect on the libido, the vaginal mucous membrane and the uterus.

Effect against premenstrual syndrome (PMS)

The pomegranate is no less effective in premenstrual syndrome (PMS). The active ingredients that help alleviate or prevent premenstrual symptoms include apigenin and luteolin, as well as phytoestrogens that can regulate oestrogen levels.

Effect against diabetes

Pomegranate lowers the intake of sugar in the intestine, prevents too high a blood sugar level and thus prevents diabetes.

Effect on digestive problems

The bitter ingredients of the pomegranate are responsible for its positive effect



on digestive problems.

Effect on impotence

According to studies (see chapter 'studies'), the polyphenols contained in the pomegranate were able to bring about an improvement in the condition of 47 % of all subjects.

Effect on excess weight

The abundant polyphenols in the pomegranate affect both our lipid metabolism and the absorption and utilisation of dietary sugar. In numerous studies, the phenolic acids in pomegranate have proven to have a positive effect on excess weight, which pomegranate, as a weight-loss agent promotes along with a sensible diet.

Pomegranate studies

So far, there are about 250 studies on the positive effect of pomegranate.

Effect of pomegranate on cardiovascular diseases

Studies on the effect of pomegranate juice on oxidative stress and atherosclerosis

Oxidative stress is considered to be a major factor in the development of ath-



erosclerosis. Several long-term studies have shown that pomegranate juice significantly reduces oxidative characteristics in the blood compared to the control group. Even after three years of continuous pomegranate juice consumption, the condition was maintained.

According to a study published in the *American Journal of Clinical Nutrition*, just 60 ml of pomegranate juice per day improved antioxidant protection by an average of 9 % after one week. Another study showed an increase in antioxidant protection by a remarkable 130 % after one year of consumption.

In studies, pomegranate can reverse atherosclerosis by 30 %

According to another study published in Israel in 2004, consuming 50 ml of pomegranate juice concentrate (diluted 1:5 to make 250 ml of juice) every day for one year stopped the development of atherosclerosis in the carotid artery and reduced the narrowing of the carotid artery caused by atherosclerosis (thickness of intima and media) by as much as 30 %. However, the deposits in the peer group with no intake of pomegranate juice increased by another 9 % during that period. After only 14 weeks, participants who drank pomegranate showed reduced LDL cholesterol ('bad' cholesterol), while their HDL cholesterol ('good' cholesterol) increased. Furthermore, the activity of paraoxonase, an important vascular protection factor, was increased by 83 %.

Effects on cardiac circulation and angina pectoris



In a double-blind study, cardiac blood flow in 45 subjects with coronary heart disease improved by a remarkable 17 % in just three months, and the number of anginal attacks was even reduced by 50 %![345]

Lowering blood pressure by 5 % after two weeks using pomegranate juice

In a study conducted in Israel, the research team succeeded in achieving a blood pressure reduction of 5 % after only two weeks of consumption of 50 ml of pomegranate juice per day. The researchers attribute this to the same modes of action that occur in synthetic ACE inhibitors, namely the regulation of the ACE enzyme.

Study on the reduction of blood pressure by 21 % after one year

Within only one year, systolic blood pressure was reduced by an average of 21 % in one study. This effect is due to the reduction of angiotensin converting enzyme (ACE) activity by 36 %.[346]

In studies, pomegranate reduced 'bad' cholesterol and increases 'good' cholesterol

In a study, Dr. Aviram was able to reduce the oxidation of 'bad' LDL cholesterol by up to 90 % and increase the oxidation of 'good cholesterol' by 20 % after just 14 weeks.

[345] http://www.medizinauskunft.de

[346] http://www.drjacobsinstitut.de/?Granatapfel



Studies against oxidative stress and atherosclerosis

Oxidative stress is considered to be the decisive factor for the development of vascular calcification, atherosclerosis. Several long-term studies have shown that pomegranate juice significantly reduced oxidative properties in the blood compared to the control group. Even after three years of continuous pomegranate juice consumption, the condition was maintained.[347]

In another study, the test subjects' antioxidant status increased by 130 % per day after just one glass of pomegranate juice per day!

In studies, pomegranate protects against brain damage and stroke

A study by Loren and colleagues in 2005 found that mice pups born to mothers fed with pomegranate had 60 % less brain damage due to hypoxia at birth. This is also an important insight with regard to oxygen prophylaxis.

[347] Aviram et al., 2000 and 2004; Loren et al., 2005; Azadzoi et al., 2005



Studies on the effect on numerous cancers

In laboratory and animal experiments as well as in epidemiological studies, the ingredient 'apigenin' inhibited the growth and metastasis of the following cancers:[348]

- breast cancer
- colon cancer
- lung cancer
- stomach cancer
- thyroid cancer
- liver cancer
- melanoma
- ovarian cancer
- skin cancer
- prostate cancer
- pancreatic cancer
- leukemia

Studies on the effect on various cancers

Numerous studies by several researchers have demonstrated the inhibition of

[348] http://www.curado.de/schilddruesenkrebs/Krebstherapie-und-Apigenin-Erfolgreiche-deutsche-klinische-Studie-12338/



cancer growth and metastasis in breast, prostate, colon, and lung cancers.[349]

Studies on the effect of pomegranate against breast cancer

Researchers Kim, Lansky and colleagues could prove that pomegranate has an anti-oestrogenic effect in studies in 2002. Pomegranate owes this to the polyphenols contained within it. Furthermore, the researchers were able to show that pomegranate blocks the enzyme 'aromatase' and thus reduces oestrogen synthesis in adipose tissue.

Inhibition of breast cancer growth by 80 % demonstrated in studies

An international research team has achieved an 80 % growth inhibition of breast cancer cells using fermented pomegranate polyphenols. It is worth noting that the fermented pomegranate juice polyphenols outperformed the fresh juice by a factor of two.[350]

Effect of pomegranate against prostate cancer has been proven in studies

Pomegranate had an effect in 80 % of 48 prostate cancer patients in one study. The PSA value is recognised worldwide as an indicator of prostate cancer development. Prognosis and life expectancy decrease as PSA increases.

At the University of California in July 2006, Allan Pantuck's team was able to slow down PSA by one glass of pomegranate juice per day, doubling it to 54 months, instead of falling to 15 months as before.[351]

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[349] Kim et al., 2002; Toi et al., 2003; Albrecht et al., 2004; Seeram et al., 2004, Kawaii and Lansky, 2004; Larrosa et al. 2005; Malik et al. 2005; Lansky et al., 2005; Afaq et al., 2005 I and II; Pantuck et al., 2006, Syed et al. 2006, Khan, 2007-I and II

[350] Kim et al., 2002a

[351] Clinical Cancer Research



Studies on the effect on leukemia

In a study in 2004, the researchers Lansky and Kawaii were able to prove that fermented pomegranate polyphenols convert degenerate leukemia cells back to healthy cells or drive them into programmed suicide. By suppressing the formation of new blood vessels (neoangiogenesis), they greatly suppressed their spread.

Studies on the effect on lung cancer

Two studies from 2007 showed that lung tumours shrank by 62 % after 140 days and by 66 % after 240 days in animal experiments.[352]

Pomegranate successful in diabetes studies

Reduction of oxidative stress: In a study on ten non-insulin-dependent diabetes patients, oxidative stress (lowering of lipid peroxides) in the blood was reduced by 56 %; the 10 % sugar content of the juice did not have a negative effect on the blood sugar level.[353]

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[352] Dr. Alexander R. Bind: Der Granatapfel – Wunder des ewigen Lebens ('The Pomegranate – Miracle of Eternal Life'), 2011, p. 34

[353] phytodoc.de/heilpflanze/granatapfel/wirkung



Effect against atherosclerosis and high cholesterol in diabetics

In several studies, scientists demonstrated an anti-atherogenic and cholesterol-lowering effect in diabetics, without any negative influence on the blood sugar level.[354]

Studies on the protective effect of pomegranate against Alzheimer's

In 2006, the scientists Hartman and colleagues succeeded in proving the neuroprotective effect of pomegranate juice by reducing the deposition of beta-amyloid by 50 % and thus also significantly reducing the risk of succumbing to Alzheimer's.

Antimicrobial effect in studies

In a study on 60 volunteers, an 84 % reduction of bacteria in dental plaque was achieved with an alcoholic dry extract of pomegranate.

Studies on the anti-inflammatory effect of pomegranate

Pomegranate juice has shown in studies that it can reduce inflammation by inhibiting metalloproteases, NFkappaB, TNF-alpha, and COX-2.[355]

Studies on the effect on arthritis

In studies, an inhibition of metalloproteases, NFkappaB, TNF-alpha and COX-

[354] Rosenblat et al., 2004; Rozenberg et al., 2006; Esmaillzadeh et al., 2006

[355] Sved et al., 2006; Khan et al., 2007, Huang et al., 2005; Ahmed et al., 2005; Afaq et al., 2005; Schubert et al., 1999 and 2002



2 and thus inhibition of arthritis-specific arthritis was found in arthritic patients.[356]

Another study analysed the activity of inflammatory enzymes in animal experiments. The first value fell by 7 %, the second by as much as 26 %![357]

Pomegranate juice can prevent HIV infection

The US research team led by Prof. Neurath was able to detect substances in pomegranate juice which can prevent the penetration of HIV into the cell and thus the infection.[358]

In studies, pomegranate helps combat impotence

In studies, the polyphenols contained in the pomegranate were able to bring about an improvement in the condition of 47 % of all subjects.[359]

Pay attention when buying pomegranate juice!

As with all things in everyday life, it is important to take a closer look at food and make purchasing decisions according to rational criteria.

Before you reach for the desired products, it is recommended to check the following criteria:

- Controlled organic farming: The quality of the pomegranate, and therefore the effectiveness of its ingredients depends on the soil conditions, freedom

[356] Sved et al., 2006; Khan et al., 2007, Huang et al., 2005; Ahmed et al., 2005; Afaq et al., 2005; Schubert et al., 1999 and 2002

[357] Dr. Alexander R. Bind: Der Granatapfel – Wunder des ewigen Lebens ('The Pomegranate – Miracle of Eternal Life'), 2011, p. 37

[358] Dr. Alexander R. Bind: Der Granatapfel – Wunder des ewigen Lebens ('The Pomegranate – Miracle of Eternal Life'), 2011, p. 40

[359] Dr. Alexander R. Bind: Der Granatapfel – Wunder des ewigen Lebens ('The Pomegranate – Miracle of Eternal Life'), 2011, p. 35

from plant protection products and fertilisers, artificial growth promoters, food irradiation and genetic engineering. Pomegranates from certified organic farming ('Bio-Siegel' in Germany, 'Organic' abroad) provide the assurance for this.

- Production process: A traditional, naturopathic production process preserves the maximum nutritional value of the pomegranate.

- Note the country of origin: The country of origin can also offer certain reassurances. For example, pomegranates from Iran are often genetically manipulated, while those from the US are more likely to be contaminated with pesticides – whereas pomegranates from India have the reputation of being mostly free of genetic engineering, fertilisers and pesticides.

- TEAC value: The TEAC value, TEAC standing for 'Trolox Equivalent Antioxidative Capacity', represents the antioxidant capacity of a substance, i.e. its ability to protect our cells from free radicals. If such a TEAC value is shown on the product, it should be as high as possible. This is a quality criterion that plays an important role, especially with pomegranate products – after all, we buy them to protect us from free radicals.

- Outer texture: It is advisable to opt for pomegranate fruits which are relatively heavy for their size, because they are particularly juicy. The shell should have as little external damage as possible.



Things to know in advance

Grapefruit seed extract, grapefruit-seed extract, GSE... two different spellings and an abbreviation for a phenomenal natural product that rivals antibiotics, disinfectants and even cosmetics in its protective effect!

And as if that were not enough, grapefruit seed extract comes with many other unmissable benefits for our health.

The applications seem to be inexhaustible, and researchers around the world agree that GSE is by far the most interesting antiparasitic preservative and sanitiser of the future.

Grapefruit seed extract – the story of its discovery

Like most achievements in world history, grapefruit seed extract and its broad spectrum of applications were discovered by accident; thoroughly researching it should reveal astonishing results.

It all started with chance observations of grapefruit seeds, when, in 1980, an amateur gardener made the astounding discovery that grapefruit seeds, unlike



all other botanicals, hardly decomposed at all on the compost heap. It was probably just a coincidence that this amateur gardener, named Dr. Jacob Harich, was a physician by profession, specialising in 'immunology', which led him to embrace this inexplicable phenomenon.

He realised very quickly that the grapefruit seeds obviously owe this phenomenon to a potent protective mechanism that preserves biological decomposition. If this property could be transferred to humans with the oral intake of grapefruit seed extract and provide stiff competition to conventional antibiotics with all their side effects, this would be a milestone for medicine.

Initial research revealed a much broader effect-spectrum than antibiotics, with another key difference: there were no side effects.

Further research has shown that grapefruit seed extract has much greater potential than anyone would have dreamed of and, unlike antibiotics, is tremendously effective against viruses, fungi and parasites.

The inspiration for the revelation of this phenomenal extract was laid by the authors of the book 'Das Wunder im Kern der Grapefruit' ('The Miracle of the Grapefruit Seed') in the spring of 1996. The reaction to the book was as phenomenal as the effect of the plant extract, or, to be more precise, the news about the phenomenal effect of grapefruit seed extract spread like wildfire by word of mouth, and the publishers could hardly keep up with demand. After its release, the book became a bestseller in no time, because while the grapefruit extract has been steadily gaining popularity in eco-circles in the US and the UK for



years, there was no official guide for the actual use of grapefruit extract.

The book reached its 16th edition in record time. The interest of the media was not in short supply; health journalists began their research on the effect of grapefruit seed extract (GSE) and wrote countless articles in numerous newspapers, magazines and journals, including renowned weekly German-language publications such as *Hörzu*, *Funk Uhr* or *Fernsehwoche*.

The trade press joined with reports on the 'miracle extract from grapefruit', including German-language publications like *Bio Spezial*, *Pharmazeutische Zeitung/Apothekerzeitung* and *Natur&Heilen*. At the same time, press releases from the USA, Australia, England, Ireland, Norway, Denmark, Switzerland and Austria appeared, and the authors' experiences were not only confirmed by expert research, but also expanded and incorporated into other editions.

The demand of foreign book publishers for translations of the bestseller 'Das Wunder im Kern der Grapefruit' ('The Miracle of the Grapefruit Seed') into other languages exceeded all the authors' expectations, and grapefruit seed extract began its worldwide triumph.

In the following sections, we will reveal how the extract is faring, the setback which almost prevented the sale of grapefruit seed extract, which studies prove its effectiveness, the conditions that grapefruit seed extract can help treat and what its concrete usage looks like.

Grapefruit seed extract is a highly concentrated, pure plant extract, which is



obtained from the shells and kernels of grapefruit. Its antimicrobial properties can be used very effectively for a wide variety of applications.

Cores and skins are dried and made into a fine powder, diluted with purified water and distilled. At low temperatures, the distilled mass produces a pure concentrated powder (Citricidal®), which is then dissolved in vegetable glycerine.

The main constituents of grapefruit seed extract are Citricidal® and glycerine, ascorbic acid (vitamin C), bioflavonoids, vitamins, amino acids, fatty acids etc. The higher the content of Citricidal®, the more concentrated the extract, which is completely non-toxic to humans, animals and plants. Nevertheless, it should never be used undiluted.

Active ingredients in the grapefruit kernel

It is the interplay of uniquely harmonised ingredients that give the grapefruit kernel these phenomenal properties in the fight against parasites. It contains a number of very effective protective agents, including glycosides, limonoids and **flavonoids**:

- hesperidin
- naringin
- limonin
- rutin
- quercetin



- kaempferol
- poncirin

These flavonoids belong to a group of phytochemicals that often have healing properties. They strengthen our immune defence by stimulating our immune system through the gut, resulting in increased production of antibodies which then successfully fight bacteria, viruses and fungi. Kaempferol additionally inhibits the growth of certain bacteria, viruses and fungi directly.

The glycosides contained in the grapefruit kernel are in turn compounds of flavonoids with different sugars:

- hesperidin
- naringin
- poncirin
- dihydrokaempferol
- quercetin
- neohesperidin
- kaempferol
- isosakuranetin

Limonoids give citrus fruits their bitter taste and prevent parasites ingesting food and thus their growth and reproduction.



Effects of grapefruit seed extract

The wide-ranging effects of grapefruit seed extract astonish many researchers around the world; they cover all areas of parasite control, starting with bacteria, viruses, fungi and other parasites that make life difficult for humans (and our pets).

It is believed that grapefruit seed extract exerts its effect within the cytoplasmic membrane of the microorganisms. According to scientists, the active ingredients lead to a disorganisation of the cytoplasmic membrane, which prevents the absorption of amino acids, which causes the parasite to starve.

At the same time, the cell components with a low molecular weight seep out of the cytoplasmic membrane, which in turn causes the microorganism to bleed.

Grapefruit seed extract can be taken internally and externally, depending on the application area. Studies have shown that grapefruit seed extract has the ability to kill over 800 different bacteria and viruses.



Main features of grapefruit seed extract

Bactericidal effect

The antiseptic and bactericidal effect of grapefruit seed extract makes it an ideal natural disinfectant for all infectious diseases, inflammatory processes and blemishes.

Studies have shown that grapefruit seed extract has an antibacterial effect even at a dilution ratio of 1:1000.

While antibiotics cannot differentiate between good and bad bacteria (e.g. the vital bacteria in the intestinal flora), taking grapefruit seed extract at normal dosage does not destroy the positive intestinal flora bacteria.

Antiviral effect

The antiviral effect of grapefruit seed extract is effective in all diseases caused by viruses.

Fungal-killing effect

Fungi attach themselves to the skin in various places (best known example: Athlete's foot), but also infest internal organs and can cause immense damage to health in the affected area.

The fungicidal and antifungal activity of grapefruit seed extract tackles all sorts of fungal infection that makes life difficult for us.



Excessive use of antibiotics and taking other medicines actually promotes the production of fungi in the body and on the body. According to recent studies, grapefruit seed extract has an effect on over 100 different types of fungi.

Immune building effect

Grapefruit seed extract has immune-enhancing properties and thus protects us from attack by pathogens. While antibiotics and other medicines weaken the immune system as a side effect, according to studies, taking grapefruit seed extract actually strengthens our immune system.

Thus, grapefruit seed extract works in two ways: It destroys the unwanted parasites and also strengthens the immune system, which then takes on the fight against parasites.

Conserving effect

When food spoils, this process is due to decomposition by bacteria. Grapefruit seed extract has an antibacterial effect and is therefore well suited to be a preservative. But cosmetics also contain chemical preservatives which are not exactly health-promoting; grapefruit seed extract can also be a good alternative here.



Disinfecting effect

Due to its antibacterial, antiviral, fungicidal, wide-ranging effect, grapefruit seed extract can be used in the household, in medicine, industry and agriculture as a disinfectant.

The Americans are the pioneers here: grapefruit seed extract is added to household cleaners, carpet cleaners and water for rinsing, and even hospitals use it as a disinfectant.

Active ingredients of grapefruit seed extract

It is the interplay of uniquely harmonised ingredients that give the grapefruit kernel these phenomenal properties in the fight against parasites.

Grapefruit seeds have a number of very effective protective agents, and the highly potent ingredients of grapefruit seed extract include glycosides, limonoids and flavonoids. Flavonoids contained in the grapefruit kernel include:

- hesperidin
- naringin
- limonin
- rutin
- quercetin



- kaempferol
- poncirin

Flavonoids belong to a group of phytochemicals that often have healing properties. The grapefruit seed flavonoids listed above strengthen our immune system by stimulating our intestinal immune system, leading to increased antibody production. The antibodies successfully fight bacteria, viruses and fungi.

In addition, the flavonoid 'kaempferol' is able to directly inhibit the growth of certain bacteria, viruses and fungi.

Glycosides, in turn, are compounds of flavonoids with different sugars, called glycosides. The glycosides contained in the grapefruit kernel include:

- hesperidin
- naringin
- quercetin
- neohesperidin
- kaempferol
- isosakuranetin

Limonoids give citrus fruits their bitter taste and prevent parasites ingesting food and thus their growth and reproduction.



When does grapefruit seed extract begin to work?

Depending on the disease and severity, it may take several weeks or months until the desired success occurs, especially in cases of internal fungal diseases and long and chronic illnesses. As with all natural remedies, grapefruit seed extract also requires patience and not giving up too soon.

Grapefruit seed extract as a 'herbal antibiotic'

Grapefruit seed extract has rapidly earned its reputation as a 'herbal antibiotic' because of its powerful effect against all sorts of bacteria, viruses and fungi and can be considered a blessing given the negative development regarding conventional antibiotics.

If we look at statistics, it becomes quite clear that we have to take a giant step back to the Middle Ages because of our resistance to traditional antibiotics and we must face the awful reality that we are quite defenceless against bacteria and viruses, just like the people of that time. It is terrible to hear that 80 % of all bacteria are resistant to penicillin, meaning it has no effect on them.

The pharmaceutical industry knows how to respond in its own way by producing new antibiotics all the time, but penicillin and other antibiotics to which bacteria have long been resistant continue to circulate and make a huge amount of money as a result.



And so, 8000 different (really different?) antibiotics with very questionable effect and with even more questionable side effects are currently in use.

Reasons for antibiotic resistance:

The reasons for increasing antibiotic resistance, i.e. the antibiotic's lack of response to bacteria and viruses, are manifold. Antibiotics have lost their effect on us humans due to our unconscious daily consumption of meat contaminated with antibiotics and the body reacting with a kind of habituation.

Well, officially, giving the animals antibiotics is intended to be 'good' for us consumers. This is explained by the wish to protect consumers against BSE and other diseases; but in reality this absurd action is due to baser motives, namely the use of antibiotics as a fattening aid and thus the maximisation of profits from livestock.

The consequences of this very commercial and ruthless act for humans, including the endangerment of countless lives, were well known to and factored in by the people responsible from the very beginning.

Grapefruit seed extract as a healthy alternative to antibiotics

It is precisely at this point that grapefruit seed extract gains in importance, as it



has no known side effects when processed and used correctly, but unlike antibiotics, it not only fights bacteria, but all imaginable pathogens, bacteria, viruses and fungi.[360]

Here, grapefruit seed extract, even at high doses, is non-toxic and causes no adverse reactions on the skin, even after prolonged use.[361] While many people are allergic to antibiotics, allergic reactions to grapefruit seed extract are very rare, provided the user is not allergic to citrus fruits.

Grapefruit seed extract circumvents the typical resistance to antibiotics our body develops by having a much more complex structure, meaning that viruses cannot find the right key to adapt to their attacker.

Hopefully, the development here will follow the development in the USA, where grapefruit seed extract is commonly used, even in clinics and hospitals.

Use of grapefruit seed extract

[360] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 167

[361] Jorg Linditsch: ABC des Grapefruitkern ('ABC of the Grapefruit Seed'), 1997, p. 21



Properly used, grapefruit seed extract is safe (see 'Side Effects'), but you should still follow some general principles when using grapefruit seed extract.

- Grapefruit seed extract is a concentrate and must never be taken internally if it is undiluted.
- Externally, grapefruit seed extract is almost always used diluted, with a few exceptions.
- If the application causes skin irritation, wash grapefruit seed extract with plenty of water.
- If the extract comes into contact with the eyes, wash immediately with plenty of warm water and consult a doctor.
- To ensure the longest possible shelf life of grapefruit seed extract, it should be kept in an airtight container in a cool, dark place.
- Grapefruit seed extract should be kept out of the reach of children.
- If grapefruit seed extract changes its colour, smell or texture, you should refrain from using it.
- In the event of acute accidents, injuries and illnesses, you should always consult a doctor and evaluate the use of grapefruit seed extract accordingly.
- If self-medication with grapefruit seed extract does not lead to the desired effect, but to sustained symptoms, you should also consult a doctor.



Internal application of grapefruit seed extract

There are some important basic rules for both internal and external use which should not be skirted here. All dosage instructions refer to the commercial dilution of 1/3 grapefruit seed extract, which in turn consists of 60 % grapefruit seed and 40 % glycerine veg. U.S.P.

Basic rule 1:

Take 3-15 drops 2-3 times a day, which should be slowly increased, with the maximum dose being reached after one week. This step-by-step increase is especially necessary if there is a suspected case of intestinal fungi (Candida albicans). This is so important because the aforementioned bacteria can cause headache and dizziness when killed by grapefruit seed extract, which is also referred to as 'Herxheimer reaction'.

Basic rule 2:

The daily dose is 5 drops per 10kg of body weight (in special exceptional cases, this dose can be doubled).

Basic rule 3:

Grapefruit seed extract is always taken diluted, preferably in a 200 ml glass with water or fruit juice in it.



Basic rule 4:

The duration of use depends on the type of illness and should be continued for at least a week after the symptoms have resolved. For a number of parasites, such as intestinal fungi and certain bacteria (Helicobacter pylori, etc.), internal intake should last at least six weeks.

Applications from A-Z[362]

Fatigue: internal intake

AIDS: effect is still being researched, internal intake recommended

Allergies: often caused by fungi, internal intake

Amoebic dysentery: continue to take even after the symptoms have resolved, internal intake

Angina or tonsillitis: internal intake and gargling with 10 drops per 200 ml

Arthritis/joint inflammation: internal intake for several months often helpful

Asthma: in some cases, internal intake helps, 1-3 months of use

[362] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 169



Stomach pain: often, internal intake helps

Flatulence: often caused by germs, fungi or parasites, internal intake

Cystitis/bladder problems: internal intake

Bronchitis: internal intake and gargling with 10 drops per 200 ml

Breast inflammation = mastitis: internal intake + diluted and applied externally, 8 drops per tablespoon of oil (apply to chest), even for inflammation of cow udders

Candida albicans (yeast fungus): internal intake 3-4 months duration (start with 3 drops)

Cholera: take 20-30 drops per glass every 3 hours

Chronic fatigue: often fungi, bacteria, internal intake 3-4 months

Colitis = enteritis: internal intake with chamomile tea, antioxidant inner intake

Crohn's disease: internal intake + antioxidant inner intake

Enteritis: internal intake (see under Colitis)

Depression: sometimes caused by fungi or parasites, internal intake

Circulatory disorders: sometimes caused by mould fungus 'mucor', trial with internal intake



Diarrhoea: internal intake

Inflammation: often caused by pathogens, internal intake

Vomiting: often caused by pathogens, internal intake

Colds: internal intake + gargle 10 drops per 200 ml + grapefruit extract nasal spray

Fibrosis: can be triggered by candida fungi, internal intake 3-4 months

Fever: internal intake, possibly gargling + nasal spray

Gastritis, gastric ulcer: often caused by Helicobacter pylori, internal intake

Memory impairment: sometimes caused by candida, internal intake

Gout: sometimes caused by candida fungi, internal intake

Flu: internal intake + gargling 10 drops per 200 ml + GSE nasal spray

Endocrine disorders: Candida fungi release 100 different toxins, some have hormone-like effects, internal intake

Cough: internal intake + gargling 10 drops per 200 ml

Weakened immune system: internal intake

General infectious diseases: internal intake

Lack of concentration: often pathogens are involved, internal intake



Headaches, migraines: these have many different causes, bacteria and fungi sometimes involved, internal intake

Malaria: Helicobacter pylori; there are indications that GSE works

Mastitis: internal intake (see breast inflammation), internal intake + diluted and applied externally, 8 drops per tablespoon of oil

Menstrual cramps: Candida can be to blame, internal intake

Migraines: internal intake (see under Headaches)

Otitis = otitis media: internal use +diluted and applied externally, 2 drops per tablespoon of oil, warm the oil and drizzle into ear frequently

Crohn's disease : see Crohn's disease

Sinusitis: internal intake, GSE nasal spray

Parasites (internal): the range extends from the smallest parasites to the tape-worm, a 'worm cure' with GSE is recommended twice a year, internal intake

Fungal diseases: see intake scheme for Candida albicans

Prostate problems: sometimes Candida is involved, see the intake schedule for 'Candida'

Rheumatism: is often a consequence of deposition of toxins, internal intake

Dysentery: see the intake schedule for amoebic dysentery



Runny nose = rhinitis: internal intake + grapefruit extract nasal spray

Nausea: internal intake

Prevention of travel sickness: drink 4-8 DROPS PER GLASS 3 times a day

Worm infestation: see intake scheme for parasitic infection

External application

The following basic rules apply to the external application of grapefruit seed extract:

Basic rule 1:

Apply diluted, except for warts and nail fungus

Basic rule 2:

Always use diluted on skin and mucous membranes with water, glycerine or, ideally, organic jojoba oil.

External application from A-Z[363]

Acariasis, acarinosis: see the intake scheme for scabies

[363] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 169



Acne: internal intake + 5 drops on wet washcloths, apply, wash off

Aphthae (ulcers of the oral mucosa): 10 drops per 200 ml of water, rinse

Rashes, skin rashes: it is worth trying 3-5 drops per tablespoon of oil, 2-3 times a day

Leg ulcers: see intake scheme for 'open legs'

Leech bites: drizzle 1 drop of extract on the bite site

Dermatitis: 3-5 drops per tablespoon of oil, rub in 2-3 times a day

Plantar warts: sand down, apply 2 x 1 drops pure

Athlete's foot: pure or slightly diluted with water or oil. Additionally, use GSE body and foot powder.

Ulcers: 10 drops per 200 ml of lukewarm water, rinse, gargle, dab

Shingles (herpes): INNER INTAKE + 3-5 drops per tablespoon of oil, apply twice daily to the affected area of the skin

Strep throat, sore throat: INNER INTAKE + 10 drops per 200 ml of water, gargle

Skin abrasions: 1 drop per tablespoon of water, apply frequently

Skin rashes: see intake scheme for 'Rashes'



Skin tetters: see intake scheme for 'Rashes'

Skin fungi: 5 drops in a damp hand, apply frequently every day

Hoarseness: see intake scheme for 'Throat infection'

Herpes simplex (cold sores): 5 drops per tablespoon of oil, apply frequently

Herpes zoster: see intake scheme for 'Shingles'

Callus: 30 drops in the foot bath facilitate removal and disinfection

Cough: see intake scheme for 'Throat infection'

Insect bites: apply 1 drop onto the stitching point with a damp finger

Caries: rinse 1-2 drops on a damp toothbrush and 10 drops per 200 ml

Laryngitis: see intake scheme for 'Throat infection'

Head lice: mix 10 drops with a little shower gel, leave for 30 mins to take effect, rinse well, repeat after three days (protect eyes)

Supplementary notes on internal applications of grapefruit seed extract

Grapefruit seed extract and its effect on colds and flu

The most common causes of colds and flu are infections caused by viruses. The



antiviral effect of grapefruit seed extract can provide a quick remedy here. For this purpose, dissolve 5-15 drops of grapefruit seed extract in a glass of water and drink 2-3 times daily.

Grapefruit seed extract and its effect on bronchitis

Bronchitis is based on a respiratory tract infection, here grapefruit seed extract can be of great help. Drink a solution of 10 drops of grapefruit seed extract in a glass of water, 3 times a day. In addition, the external application is recommended in the form of daily gargling (dilution ratio: see above).

Grapefruit seed extract and its effect on diarrhoea

Diarrhoea can be caused by pathogens in the intestine. Dilute 5-15 drops of grapefruit seed extract in a glass of water and drink 3 times a day.

Grapefruit seed extract against cystitis

The anti-inflammatory effect of grapefruit seed extract can be very helpful in cystitis. Dissolve about 10 drops of grapefruit seed extract in a glass of water and drink 3 times a day.

Supplementary notes on external applications of grapefruit seed extract



Grapefruit seed extract and its effect on sore throat and pharyngitis

Sore throat and pharyngitis are almost exclusively caused by bacterial infestation in the throat. Due to its antibacterial effect, grapefruit seed extract is perfect for treating this.

Gargle daily 4-6 times with a grapefruit seed extract water solution (10 drops diluted in a glass of water).

Grapefruit seed extract and its effect on hoarseness

Hoarseness can have multiple causes, mostly due to over-exertion of vocal cords or laryngitis. If the latter is the case, then grapefruit seed extract can help. Dissolve 3 drops of grapefruit seed extract in a glass of water and gargle 3 times a day.

Grapefruit seed extract in gastrointestinal influenza

Gastrointestinal influenza is caused by pathogens, which makes grapefruit seed extract the perfect treatment, due to its antibacterial effect. Dilute 5-15 drops of grapefruit seed extract in a glass of water and drink 2-3 times daily.

Grapefruit seed extract and its effect on gastric ulcers

In addition to a stressful lifestyle and improper diet (stimulants such as coffee



and cigarettes), the bacterium Helicobacter Pylori is suspected as being responsible for stomach ulcers.

If the latter applies, grapefruit seed extract is predestined to kill this bacterium. Dilute 5-15 drops of grapefruit seed extract in a glass of water and drink 2-3 times daily on an empty stomach.

Grapefruit seed extract against 'scabies'

Moisten the affected area slightly, distribute 5 drops of grapefruit seed extract in the washcloth, rub on the skin area and leave to soak.

Grapefruit seed extract and its effect on abscesses and boils

Apply a few drops of grapefruit seed extract, diluted in a little water, onto the affected area 3 times a day. For severely infected abscesses, it is possible to soak a gauze bandage in the solution and apply a compress (duration 8-12 hours). In addition, grapefruit seed extract should be taken 2-3 times a day (5-15 drops in a glass of water).

Grapefruit seed extract and its effect on acne/pimples

Pick up grapefruit seed extract in damp hands and rub it on the face, leave to soak for a few minutes, then rinse thoroughly and dry.

Grapefruit seed extract against aphthae

Dissolve 10 drops in a glass of water and rinse the mouth several times a day.



Grapefruit seed extract against laryngitis

Dissolve 10 drops of GSE in a glass of lukewarm water and gargle 3 times a day.

Grapefruit seed extract and its effect on tonsillitis

Dissolve 10 drops of GSE in a glass of lukewarm water and gargle 5 times a day.

Grapefruit seed extract and its effect on nettle fever

Mix 10 drops of GSE with an egg cup of oil and apply to the affected area.

Grapefruit seed extract and its effect on periodontitis

Apply 1-3 drops of grapefruit seed extract to the toothbrush and brush teeth thoroughly 3 times a day. GSE can also be used with mouthwash to accompany brushing.

Grapefruit seed extract against dermatitis

Dermatitis is an allergic skin reaction resulting from mental stress or skin inflammation.

In such a case, you can apply grapefruit seed oil to the area several times a day (acquired from the pharmacy or made at home: 80 drops of grapefruit seed



extract per 100 ml base oil). Taking a regular full bath enriched with 20-30 drops of grapefruit seed extract is also recommended as accompanying treatment

Grapefruit seed extract against rashes

Mix 10 drops of grapefruit seed extract in an egg cup full of oil and apply to the affected area 2-3 times a day.

Grapefruit seed extract against skin abrasions

For disinfection, dilute a few drops with water and apply to the wound.

Grapefruit seed extract against eczema

Eczema is mostly based on hormonal or metabolic disorders or allergic reactions. Apply grapefruit seed oil 2-3 times a day and allow to work.

Grapefruit seed extract against rashes and itching

Rub the affected areas 2-3 times a day with grapefruit seed oil or grapefruit cream.

Grapefruit seed extract against bite injuries

Grapefruit seed extract is suitable for the sterilisation of animal bites; in the first three days, you should drip some grapefruit seed extract diluted with water in a 1:1 ration onto the wound every day.

Grapefruit seed extract against insect bites



Wasp stings, bee stings or mosquito bites have one thing in common: they are painful and can transmit infections and cause allergic reactions. Dilute grapefruit seed extract with a little water and rub on the affected area several times a day.

Grapefruit seed extract against herpes

Herpes is caused by viruses and is thus predestined to be treated with grapefruit seed extract.

Grapefruit seed extract and its effect on cold sores

Rub the affected area several times a day with grapefruit cream

Grapefruit seed extract and its effect on genital herpes

Here, rinsing baths and rinses with grapefruit seed extract are recommended

Grapefruit seed extract against lice

Grapefruit seed extract literally tackles the lice problem at the root by killing the head lice and removing their laid eggs.

Approximately 30-50 drops of grapefruit seed extract should be mixed with 50 ml of natural shampoo and massaged in thoroughly; leave for about half an hour and then rinse.



Grapefruit seed extract and its effect on dandruff

The reasons for dandruff can be manifold; often, it is a fungal and bacterial attack that leads to dandruff.

Mix about 30-50 drops of grapefruit seed extract with 50 ml of natural shampoo, apply to the scalp, massage in and allow to react for a few minutes before rinsing thoroughly.

Grapefruit seed extract and its effect on shingles

Apply grapefruit seed oil several times daily to the affected area. Internally, the healing process can be assisted by diluting 5-15 drops of grapefruit seed oil in a glass of water and drinking this solution 2-3 times a day.

Grapefruit seed extract against athlete's foot

Athlete's foot really prospers and thrives in a damp, warm, dark environment; the feet offer the ideal conditions for it. Due to its fungicidal effect, grapefruit seed extract is therefore ideal for external use against athlete's foot.

Mix 100 ml of alcohol with 60-80 drops of grapefruit seed extract and dab onto the fungus twice daily.

Grapefruit seed extract against nail fungus



Because of its anti-inflammatory and fungicidal properties, grapefruit seed extract is ideal for treating of nail fungus.

Dilute 15-20 drops of grapefruit seed extract in a glass of water and rub the affected areas with the liquid 2-3 times a day.

Grapefruit seed extract against sunburn

Grapefruit seed extract can help relieve sunburn and protect the skin from infection. Rub some grapefruit seed oil on the affected areas.

Grapefruit seed extract and its effect on earache and otitis

Earache is very often based on inflammatory processes; here, treatment with grapefruit seed extract can help.

Drizzle 10 drops of grapefruit seed extract with organic jojoba oil or wheat germ oil into the ear canal and then close with a little cotton wool to prevent leakage.

Grapefruit seed extract and its effect on neurodermitis

Neurodermitis is still considered incurable; the reasons for its occurrence may be mental or allergic reactions. Massage the affected areas with grapefruit seed oil twice a day.



Grapefruit seed extract against psoriasis

Massage the affected skin area with grapefruit seed oil twice daily.

Grapefruit seed extract against bad breath

Bad breath is mostly due to a bacterial colonisation in the mouth and especially on the tongue. Dissolve approximately 10 drops of grapefruit seed extract in a glass of water and gargle several times a day.

Grapefruit seed extract and its effect on influenza prevention

Those who are prone to infections such as influenza can take 3-5 drops as a precautionary measure; orange juice is the perfect choice here.

A regular application of grapefruit seed extract 1-2 times a year has been proven to be a preventive detoxification measure.

Use of grapefruit seed extract for body care

Due to its nature and effect, the use of grapefruit seed extract is not only intended for the prevention or treatment of diseases but may well be used for personal care purposes.

Acne/blackheads



Remove blackheads and disinfect the affected area with grapefruit seed extract

Genital cleaning

Mix a few drops of grapefruit seed extract in washing water or on a damp wash-cloth.

Bad breath

Dilute 3-9 drops in a glass of water and gargle several times a day.

Dandruff on the scalp

No, it does not help against grey hair, but it certainly does against dandruff. Mix 5-10 drops of grapefruit seed extract in the shampoo and massage on the scalp and hair for 2 minutes. Initially apply 2-3 times a week, later once a week.

Sweaty feet

Mix 10 drops of GSE in a regular egg cup and rub in the affected area with grapefruit seed extract in the morning and evening.

Body odour

Put about 15-20 drops of grapefruit seed extract in a cup of water and pour the contents into a pump spray bottle, shake vigorously and spray under the arms.

Use of grapefruit seed extract in animals



Of course, our beloved domestic and farm animals can benefit from the benefits of grapefruit seed extract.

Application of grapefruit seed extract for algae infestation in aquariums

First, add a few drops of GSE in 1 litre of water and add to the aquarium water. Proceed step by step and slowly apply the dose required.

Use of grapefruit seed extract in pets and livestock

For all other animals, you can give 0.5 drops or 5 mg of powder per kg of body weight; the following table may serve as a guide:

Use of grapefruit seed extract in pets and livestock		
Body weight	*Liquid form GSE (drops)*	*Powdered GSE*
1 kg	0.5 drops	5 mg
2 kg	1	10 mg
3 kg	1.5	15 mg
4 kg	2	20 mg
5 kg	2.5	25 mg
6 kg	3	30 mg
7 kg	3.5	35 mg



8 kg	4	40 mg
9 kg	4.5	45 mg
10 kg	5	50 mg
15 kg	7.5	75 mg
20 kg	10	100 mg
25 kg	12.5	125 mg
30 kg	15	150 mg
40 kg	20	200 mg
50 kg	25	250 mg
60 kg	30	300 mg
70 kg	35	350 mg
80 kg	40	400 mg
90 kg	45	450 mg
100 kg	50	500 mg
150 kg	75	750 mg
200 kg, etc.	100	1000 mg

Use of grapefruit seed extract on plants

Even plants usually respond very well to application with grapefruit seed extract.



Here, mixing the water with the appropriate amount of grapefruit seed extract and applying with spray bottles is recommended.

Grapefruit seed extract and its effect on scale insects

15 drops in 250 ml of water, spray this solution on the plants from all sides and repeat the treatment after two weeks.

Mold growth in potted plants

Add 10 drops to 250 ml of water, spray the plants.

Use of grapefruit seed extract in household tasks

Already in use in the US, grapefruit seed extract is a housework novelty in this country, but a very promising one.

Disinfection of food

Place fruits, vegetables, salads, meat or fish in a grapefruit seed extract/water mixture in a ratio of 20 drops of GSE per litre of water for a few minutes.

Preservation of food

Place food in a GSE/water mixture of 20 drops per 1 litre of water for a few minutes.

Floor cleaning



To disinfect the floor, apply 30-50 drops of GSE to a bucket of water.

Toilet cleaning

Add a few drops of GSE to regular toilet cleaner.

Household cleaners

10-20 drops of GSE per litre of water

Room spray

For example, to disinfect a hospital room, a room spray with 40 drops of GSE per ½ litre of water is suitable.

Mould on walls, wallpaper etc.

Requires higher concentration of GSE - you have to test it yourself.

Extraction and production of grapefruit seed extract

As the name already implies, grapefruit seed extract is a purely natural plant extract derived from the grapefruit seeds and grapefruit pulp membrane.

First, the grapefruit seeds are crushed using a machine, then the desired ingredients are extracted with special solvents. The extractants used determine which ingredients are extracted – in the case of grapefruit seed extract, glycerine is used as the solvent.



Here, however, the quality of the final product is already evident according to whether synthetic or natural glycerine has been used to produce it. Ideally, natural glycerine should be used, which is based on coconut fat, for example.

The extract then consists, as in the case of Citricidal®, of 60 % grapefruit seed and 40 % glycerol.

Usually, the extract offered on the market is already somewhat diluted; it usually contains 33 % grapefruit seed ingredients and 67 % glycerine or water.

Making grapefruit seed extract at home

As a basic active ingredient, grapefruit seed extract must be diluted or processed accordingly before it is used; it is either powdered, capsule-shaped, tablet-shaped or available as an aqueous solution.

In terms of effect, no difference has been found between the purchased and home-made grapefruit seed powder.

If you want to make powder from grapefruit seeds, you have to dry them first. To do this, place the grapefruit seeds in a baking oven with moderate heat of approx. 40-50 ° C and with the oven door slightly ajar.

Following this drying process, the kernels are ground to powder in a flour mill. Then sieve the peel residues out by sending the material to be ground through a fine sieve.

The powder is equivalent to powdered grapefruit seed extract, which is now



ready for use.

Those who prefer the liquid version should mix the powder in 1/3 to 2/3 glycerine (preferably coconut-based). 10 mg of the powder extract correspond to a drop of the liquid extract.

Grapefruit seed extract studies

The following records refer to studies of the base extract in the dilution of 60 % grapefruit seed and 40 % glycerol.

Citricadal® study: 10-100 times more effective than other substances [364]

In this study, grapefruit seed extract (Citricidal®) had to be compared with the antimicrobial effect of other common active ingredients.

Active ingredients such as silver oxide, chlorine bleach and iodine were added to grapefruit seed extract. The microorganisms to be attacked were Candida albicans, Staphylococcus aureus, Salmoneal typhi, Steptococcus faecium and Escherichia coli.

The study results showed that grapefruit seed extract (in this case, Citricidal®) was 10-100 times more efficient against the bacterial organisms than the other substances tested.

Study on the growth-inhibiting effect of grapefruit seed extract on various

[364] Shalila Sharamon and Bodo J. Baginski: Das Wunder im Kern der Grapefruit ('The Miracle in the Grapefruit Seed'), 1996, p. 137



microorganisms[365]

The following table shows the minimum dose (MIC) of grapefruit seed extract (in this case 'Citricidal®') necessary for the growth of the tested microorganisms in the form of viruses, 'gram-positive' and 'gram-negative' bacteria and fungi and to successfully inhibit yeasts. The investigations took place in different laboratories under scientifically neutral conditions.

For this purpose, the microorganisms were first grown on nutrient media and then treated with grapefruit seed extract in different concentrations.

The studies spanned a period from 1991 to 1993; the following laboratories participated:

Valley Microbiology Services, Palo Alto, California, USA

Bio/Chem Research Inc., Lakeport, California, USA

Bio-Research Laboratories, Redmond, WA, USA

Northview Pacific Laboratories, Inc., Berkley, California, USA

British Columbia Research Corp., Vancouver, Canada

Explanation of the following table:

- gram-positive, gram-negative: it is merely an indication of the method of dyeing the tested bacteria, which make them visible to the human eye.

[365] Bio Research Lab., Redmond USA - Institut Pasteur, Paris, France
Valley Microbiology Services, Palo Alto, USA



- MIC (ppm): abbreviation for 'Minimum Inhibitory Concentration (parts per million)', i.e. for the smallest effective inhibiting concentration of the 60 % basic extract, given in one-millionth parts.
- origin and strain: the origin of the bacterial culture and the laboratory is hereby recorded in order to be able to allocate them in the case of a mutation and thus any change in the characteristics of the microorganisms being tested.
- tr./ltr: dilution, i.e. drops of grapefruit seed extract per litre of solution.



Minimum inhibitory concentration in vitro (minimal inhibitory concentration GKE in vitro):

Gram-positive bacteria	Origin	Strain	ppm2	Tr./Ltr.3
Bacillus subtilis	NCTC	8236	2	<1
Bacillus megatherium	A	-	60	2
Bacillus cereus	A	-	60	2
Bacillus cereus var. mycoides	A	-	60	2
Clostridium botulinum	NCTC	3805	60	2
Clostridium tetani	NCTC	9571	60	2
Corynebacterium acnes	ATCC	6919	60	2
Corynebacterium diphteriae	ATCC	6917	60	2
Corynebacterium diphteriae	NCTC	3984	60	2
Corynebacterium diphteriae	A	-	60	2
Corynebact. minutissimum	ATCC	6501	100	3



Diplococcus pneumoniae	NCTC	7465	60	2
Giardia lamblia	ATCC	30957	1000	28
Lactobacillus arabinosus	CITM	707	66	2
Lactobacillus arabinosus	ATCC	8014	66	2
Lactobacillus casei	CITM	707	100	3
Listeria monocytogenes	ATCC	15313	20	<1
Mycobacterium tuberculosis	A	-	2000	55
Mycobacterium smegmatis	NCTC	8152	20	<1
Mycobacterium phlei	A	-	6	<1
Sarcina lutea	NCTC	196	60	2
Sarcina lutea	ATCC	6473	2	<1
Staphylococcus aureus	NCTC	7447	2	<1
Staphylococcus aureus	NCTC	4163	2	<1
Staphylococcus aureus	NCTC	6571	6	<1
Staphylococcus aureus	NCTC	6966	2	<1



Staphylococcus aureus	ATCC	13709	2	<1
Staphylococcus aureus	ATCC	6538	2	<1
Staphylococcus albus	NCTC	7292	2	<1
Staphylococcus albus	CG	-	6	<1
Streptococcus agalacticae	NCTC	8181	60	2
Streptococcus haemolyticus	A	-	20	<1
Streptococcus faecalis	NCTC	8619	200	6
Streptococcus faecalis	ATCC	10541	60	2
Streptococcus pyogenes	NCTC	8322	60	2
Streptococcus viridans	-	-	20	<1
Gram-negative bacteria	**Origin**	**Strain**	**ppm**	**Tr./Ltr.**
Aerobacter aerogenes	CTTM	413	20	<1
Alcaligenes faecalis	A	-	2000	55
Brucella intermedia	A	-	2	<1
Brucella abortus	NCTC	8226	2	<1



Brucella melitensis	A	-	2	<1
Brucella suis	A	-	2	<1
Campylobacter jejuni	-	-	500	15
Cloaca cloacae	NCTC	8155	6	<1
Escherichia coli	NCTC	86	2	<1
Escherichia coli	ATCC	9663	6	<1
Escherichia coli	ATCC	11229	16	<1
Escherichia coli	NCTC	9001	6	<1
Haemophilus influenzae	A	-	660	18
Helicobacter pylori	-	-	500	15
Klebsiella edwardsii	NCTC	7242	6	<1
Klebsiella aerogenes	NCTC	8172	6	<1
Klebsiella pneumoniae	ATCC	4352	6	<1
Legionella pneumoniae	isolated	Strain	200	6
Loefflerella mallei	NCTC	9674	6	<1



Loefflerella pseudomallei	NCIB	10230	20	<1
Moraxella duplex	A	-	2	<1
Moraxella glucidolytica	A	-	6	<1
Neisseria catarrhalis	NCTC	3622	660	18
Pasteurella septica	NCTC	948	2	<1
Pasteurella pseudotuberculosis	CG	-	200	6
Proteus vulgaris	NCTC	8313	2	<1
Proteus mirabilis	A	-	6	<1
Pseudomonas aeruginosa	ATCC	15422	250	7
Pseudomonas aenlginosa	NCTC	1999	2000	55
Pseudomonas aeruginosa	ATCC	12055	20000	550
Pseudomonas capacia	C-175	-	5000	135
Pseudomonas fluorescens	NCTC	4755	2000	55
Salmonella cholerae suis	-	-	50	1
Salmonella cholerae suis	ATCC	10708	660	18



Salmonella enteritidis	A	-	6	<1
Salmonella gallinarum	-	-	50	2
Salmonella typhimurium	NCTC	5710	6	<1
Salmonella typhi	NCTC	8384	6	<1
Salmonella paratyphi A	NCTC	5322	6	<1
Salmonella paratyphi B	NCTC	3176	6	<1
Salmonella pullorum	ATCC	9120	6	<1
Serratia marcescens	A	-	2000	55
Shigella flexneri	NCTC	8192	6	<1
Shigella suni	NCTC	7240	3	<1
Shigella dysenteriae	NCTC	2249	2	<1
Vibrio cholerae	A	-	200	6
Vibrio eltor	NCTC	8457	200	6
Mushrooms and yeasts	**Origin**	**Strain**	**ppm**	**Tr./Ltr.**
Aspergillus niger	ATCC	6275	600	16



Aspergillus flavis	ATCC	9643	78	2
Aspergillus fumigatus	ATCC	9197	200	6
Aureobasidium pullulans	ATCC	9348	10	<1
Candida albicans	A	-	60	2
Candida albicans	ATCC	10259	60	2
Chaetomium globosum	ATCC	6205	3	<1
Epiderrnophyton floccosum	ATCC	10227	200	6
Kerafinomyces ajelloi	A	-	200	6
Trichophyton mentagrophytes	ATCC	9533	20	1
Trichophyton rubrum	A	-	200	6
Trichophyton tonsurans	A	-	200	6

In vitro and in vivo study on the efficacy of grapefruit seed extract on 749 bacterial strains and 93 fungal strains

A study on the efficacy of grapefruit seed extract published in the *Journal of Orthomolecular Medicine* on 749 bacterial strains and 93 fungal strains has shown its effectiveness on 249 Staphylococcus aureus, 86 Coli sp., 77 Enterobacter sp.,



22 Klebsiella sp., 18 Proteus sp., 22 mould strains and 71 yeast fungus strains.[366]

Study on the preservative efficacy of grapefruit seed extract

The purpose of food preservation is to delay or prevent decomposition processes caused, inter alia, by microorganisms such as mould and yeast fungi or putrefactive bacteria.

The study provided impressive evidence that the 0.2 % Citricidal® (grapefruit seed extract) was as efficient as a preservative as 0.2 % methyl paraben. The development of the effectiveness, which was much faster for grapefruit seed extract, was also worthy of note.[367]

Side effects of grapefruit seed extract

Properly processed and applied, no significant side effects of grapefruit seed extract have been reported so far. An amount 100 times that of the usual dose (10-12 drops) of a 50 % active ingredient concentration showed no toxic effects.

The calculated poisoning value is 4000 times the intake dose, which means about 1.5 litres of grapefruit seed extract.[368] In the US, the toxicity of grapefruit seed extract has been set at an average dose of over 5,000 mg per kg of body weight, which would be about 400 g in a human weighing 80 kg.[369]

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[366] Ionescu, G. et al.: Oral Citrus Seed Extract in Atopc Scema: In vitro and in vivo studies on Intestinal Microflora, Journal of Orthomolecular Medicine, Vol 5, No,3 USA, 1990

[368] Jörg Linditsch: ABC des Grapefruitkern ('ABC of the Grapefruit Seed'), 1997, p. 21

[369] Shalila Sharamon and Bodo J. Baginski: Das Wunder im Kern der Grapefruit ('The Miracle in the Grapefruit Seed'), 1996, p. 126



On the contrary: the ability of grapefruit seed extract to destroy only the harmful bacteria in our body relieves our body and strengthens our immune system. Some discomfort, fatigue, flatulence, headache, tongue discoloration or rashes are usually a positive sign that shows pathogens are dying at a higher rate, as they release toxins (toxins) during this process.

These side effects are particularly evident in the case of the death of the yeast 'Candida albicans'. In such cases, you should reduce the dose and then very slowly build up towards the recommended dose again. Furthermore, fatty stools were occasionally observed and sometimes a certain 'liquid excretion'.

Grapefruit seed extract – frequently asked questions and answers

Can grapefruit seed extract replace antibiotics?

In most cases, grapefruit seed extract is side-effect-free and at the same time is a very efficient alternative to antibiotics. While antibiotics only fight bacteria and also do not differentiate harmful bacteria from 'good' bacteria (intestinal flora bacteria), grapefruit seed extract very successfully takes up the fight against all pathogens and spares the 'good' bacteria in our body.

Is grapefruit the only citrus fruit with such effects?

The authors of the book 'Healing with Grapefruit Seed Extract' have found a broad spectrum of action which is provided by grapefruit seed extract and by no other citrus fruit, with the exception of the seeds of bitter oranges, also called



the 'Seville orange'.

However, there is a lack of studies on bitter oranges that can attest to their safety, unlike in the case of grapefruit seed extract.

Does grapefruit seed extract also work against environmental toxins?

According to the magazine *Fernsehwoche,* grapefruit seed extract also works against harmful substances such as amalgam, ozone, benzene, formaldehyde, lead and cadmium and flushes toxic substances out of the body.

Do serious studies exist on the effects of grapefruit seed extract?

Of course. See 'Studies on grapefruit seed extract'.

Can the intake of grapefruit seed extract over-acidify the body?

Although it is undoubtedly acidic with a pH of 2-3, grapefruit seed extract is one of the basic foods. This is due to the content of bitter substances that stimulate the formation of bases.

What does an application with grapefruit seed extract look like?

Tips for the targeted use of grapefruit seed extract can be found in the section 'Use of grapefruit seed extract'.

What if grapefruit seed extract does not work?



Of course, grapefruit seed extract is not a panacea and specialises primarily in the destruction of bacteria, viruses and fungi. If grapefruit seed extract fails here as well, it may be for several reasons: the dosage may be too low or the body may be burdened with too many toxins (in this case, a cleansing cure would be recommended in the first instance).

Can grapefruit seed extract even be taken with a sensitive stomach?

Yes, for example, in the presence of gastric ulcers or a non-intact gastric mucosa. In this case, the authors of the book 'Healing with Grapefruit Seed Extract' recommend slowly building up the dose by starting with 2-3 drops in a full glass of water, maintaining this for weeks and then slowly increasing the dose.

Can grapefruit seed extract be used during pregnancy?

At the time of writing the Codex Humanus, there was neither a scientific study on this issue nor has been there any known case of problems during pregnancy. If in doubt, you should ask your doctor.

Can you also take grapefruit seed extract as a tea?

Many people drink grapefruit seed extract as a tea; the hot water does not seem to disturb the effect of grapefruit seed extract. It is recommended to use Stevia as a sweetener. However, since there is no evidence that this is also the case when boiling the seed, one should not do this and only prepare with hot water.



Can grapefruit seed extract also be used as a hip bath?

Grapefruit seed extract has also proven as a hip bath remedy for diseases and infections in the anus or in the genital and vaginal area. 30-50 drops of grapefruit extract should be vigorously stirred in a seat pan for a period of 10-20 minutes.

Can the kidneys hurt after taking grapefruit seed?

According to the authors of the book 'Healing with Grapefruit Seed Extract', kidney pain is rare and a sign of a strong detoxification of the body. In such a case, the kidneys are flooded with dissolved toxins, so they cannot detoxify the body. It should be supported as much as possible by drinking 2-3 litres of water a day.

How long should grapefruit seed extract be used for?

Basically, the duration depends on the symptoms; you should take grapefruit seed extract at least as long as the symptoms persist, and in the case of an acute infection two to three days beyond just to be sure.

How long does it take for grapefruit seed extract to take effect?

Depending on the condition, it may take several weeks to months until the desired success occurs, especially in cases of internal fungal diseases and long and chronic illnesses.



Can grapefruit seed extract also be used to disinfect objects?

Absolutely yes. According to Dr. J.A. Botine from the University of São Paulo, Brazil, grapefruit seed extract achieved a 100 % disinfecting effect compared to the 98 % effectiveness of commercial agents and 72 % compared to pure alcohol.

What is the source of the glycerine used to dilute grapefruit seed extract?

Glycerine is used to dilute and extract grapefruit seed extract; it consists of synthetic or purely vegetable substances (mostly from coconut fat).

Does taking grapefruit seed extract cause side effects?

Properly processed and applied, no significant side effects of grapefruit seed extract are known and a certain level of malaise, fatigue, flatulence, headache, tongue discolouration and rashes are usually signs of increased pathogen death.

This can be explained by the fact that pathogens often release toxins when they die; this process is referred to by scientists and professionals as the 'Herxheimer reaction'.

The ability of grapefruit seed extract to attack and destroy only the harmful bacteria in our bodies ultimately leads to increased well-being and a strengthened immune system. More about this in the section 'Side effects of grapefruit seed extract'.



What is green tea?

Green tea is a king among the teas we know by name, a veritable elixir of our health and well-being.

But what is so special about green tea, what sets it apart?

Not the taste or the aroma, but the fabulous health benefits and the healing powers which can even fight fatal diseases make green tea interesting for us Central Europeans.

The health benefits of green tea are not based on myths, legends and conjectures, but green tea is probably the most intensively studied tea ever, and many studies attest to its beneficial effects, including completely curing diseases such as atherosclerosis, heart failure, high blood pressure (high blood pressure), colds, gout, fungus, cancers, multiple sclerosis, gastritis, all inflammatory processes, heartburn and many more.

And as if this were not enough, green tea does not just provide health benefits, but also promises a healthy prolongation of life and even visual beautification.

Beautiful, healthy and long-lived – is humanity's dream fulfilled by green tea?

In 'Green tea and diseases', we study it intensively, and under 'Green tea studies', we provide verified facts on the topic.



In 2017, Americans consumed over 84 billion servings of tea, or more than 3.8 billion gallons. About 86% of all tea consumed was black tea, 13% was **green Tea**.[370] We are confident and determined to help you switch to green tea with the Codex Humanus. Join us on an insightful journey into the secrets of green tea with all its benefits that can make your life longer, more energetic and more worth living…

Green tea vs. black tea

You may be surprised to hear that a significant difference between the production of green tea and black tea is due to the fact that you can basically make both teas from one and the same tea leaf. It is known that tea was originally green and was used thousands of years ago for healing purposes in this form. According to legend, green tea was first drunk as a beverage in around 2700 BC when the Chinese Emperor Shen Nong boiled water in a pot and accidentally dropped some of the tea leaves into it. The emperor tasted this new brew, and from then on it was his favourite drink.

The difference is therefore based in the production: in the case of green tea, fermentation (i.e. oxidation) is prevented, while this is deliberately incorporated

[370] http://www.teausa.com/14655/tea-fact-sheet



in black tea.

In addition to the differences in taste (black tea tastes less bitter) and in colour, certain tannins and thus, unfortunately, important health benefits of the tea are destroyed during fermentation and the production of black tea.

In contrast to black tea, green tea is not fermented; it retains its natural, slightly bitter aftertaste, its green colour and its numerous characteristics:

- green tea has many more health benefits than black tea because the tannins are intact (see section 'Green tea and diseases').
- the vitamin content is much higher than for black tea; this is due to the lack of fermentation, as the fermentation is a true vitamin killer.

Green tea: names for 1000 varieties

To make it short and painless: There is NO ONE green tea, but many different, healthy teas that are not deprived of their health benefits due to a very specific, gentle manufacturing process (see 'Green tea production'). The natural green leaf colour, which is also preserved by the gentle process, gives the green tea its name.

More specifically, there are more than 1000 different varieties that are associated with green tea.

Japanese green tea vs. Chinese green tea



It is hardly surprising at this point that the main suppliers of green tea are Asian countries, specifically China and Japan. While only green tea is produced in Japan, it accounts for 80 % of nationwide tea production in China. To a much lesser extent, green tea is also cultivated in Sri Lanka and India.

The differences are more in terms of taste: traditionally, the Chinese tend to love a more tart-smoky and floral tea, while the Japanese appreciate a fresh, grassy aftertaste.

The taste and the aroma are largely determined by the processing, but also by the land on which it is cultivated (climate, soil conditions) and the storage and transportation.

The Chinese give their green tea its tangy-smoky flavour by roasting the tea leaves in pans; the flowery taste of green tea comes from jasmine flowers, which are added to it. Jasmine tea is the best-known Chinese variety and one that is popular worldwide.

The Japanese, however, treat the green tea with steam for their desired fresh-grassy flavour. Among the well-known Japanese green tea varieties are Sencha, Genmaicha, Bancha, Gyokuro and Kukicha:[371]

[371] http://en.wikipedia.org/wiki/Gr%C3%BCner_Tee



Japanese green tea varieties

- Gabalong
- Bancha
- Kabusecha
- Fukamushi-Cha
- Genmaicha (tea enriched with roasted rice grains)
- Matcha
- Gyokuro
- Kukicha
- Sencha
- Hojicha
- Yonkon
- Tamaryokucha

Chinese green tea varieties

- *Gunpowder*
- *Criss Cross*
- *Lung Ching or Longjing*



- *Chun Mee*
- *Li-Zi Xiang*
- *Pi Lo Chun*
- *Mao Feng, Mao Feng Criss Cross*
- *Mao Jian*
- *Yuncui*
- *Tian Mu Quing Ding*
- *Sencha*

In addition, India, as another producer country, contributes the following green tea varieties:

- Assam
- Nilgiri
- Darjeeling



Tabular presentation of the different green tea varieties:

Name	Country of origin	Taste	Appearance	Particularities
Matcha	Japan	tart taste	powdery	Used for Japanese ceremonies and beaten to a foam with bamboo brushes
Genmaicha	Japan	strong aroma	dark green	Flavoured with roasted corn kernels
Gyokuro	Japan	sweetish, strong taste	gold-green	Pseudonym: 'Noble dew-drop', also known as the 'coronation of Japanese tea'. It is prepared with infusion, with water



				cooled to 50-60°C, caffeine-rich
Bancha	Japan, China, Taiwan	fresh-herby	yellow-green-ish	Little caffeine, very digestible, therefore very suitable for children and older people
Sencha	Japan, China, Taiwan	fragrant, fresh and light	yellow-green	The darker the colour, the more valuable the tea
Fukamushi-Cha	Japan, China, Taiwan	fragrant, fresh and light	yellow-green	See Sencha, only more subdued!
Kabusecha	Japan, China, Taiwan	Fragrant, fresh aroma	yellow-green	Semi-shade tea, preparation 3mins at 70°C



Kukicha	Japan		yellow-green	Consists not only of leaves, but also of stems and ribs of the plant. Like Sencha in terms of quality, little caffeine, suitable for evening enjoyment
Hojicha	Japan, China, Taiwan		brownish	Roasted Sencha/Bancha, less quality, but less caffeine – suitable for children and older people
Gu Zhang Mao Jian	China	slightly sweetish aroma	strong green	Well suited for beginners due to



				the sweet aroma
Ju Hua Cha	Southern China	fine taste	slightly yellow	Very digestible and stomach-friendly
Jasmine tea	Southern China, mountain region	Varies according to the type of tea	strong green	First roasted, then flavoured six times with jasmine flowers
Lung Ching	Southern China	Earthy aroma, gentle taste	emerald-green	very refreshing
Young Hyson	Southeastern China	Very full and spicy taste	green yellow	Was the first tea ever used
Lu Shan Wu	Southern China	Fresh, delicate taste	emerald-green	Contains little caffeine and is therefore easily digestible



Pi Lo Chung	South-ern China	Fresh, delicate taste	emer-ald-green	
White tea	South-ern China	Spicy, slightly bitter taste	slightly silver in col-our	
Chun Mee	China, Tai-wan	Strong, slightly smoky	yellow-green-ish	Pseudonym: 'Precious eyebrow'
Gunpow-der	China, Tai-wan	Fresh tart, clear taste, slightly bitter	yellow-green	Drink a sec-ond or third infusion if taste is too bitter
Oolong	China, Tai-wan	Strong aroma	Light green to or-ange	
Mao Feng	China, high moun-tains		Slightly wavy, silvery leaves	Mao = hairy Feng = pointed



Tian Mu Quing Ding	China		Finely processed, jade green	
Yuncui	China	Full-bodied, floral aroma	deep green	Is considered highly aromatic
Green Assam	Northern India	Fresh, tart aroma	honey-coloured	

Production of green tea

The process of making tea is not limited to the knowledge of cultivation, harvesting and processing, but is rather a true art, which requires great experience and tact.

This becomes very clear as early as the harvesting process: only the buds and the first two leaves are picked – these ensure a particularly 'delicate' tea aroma. Even here, extreme caution is advised to prevent even the tiniest cracks from forming, which allow air to penetrate the leaves and cause oxidation as part of the unwanted fermentation process.



You may be surprised to hear that one of the essential characteristics of green tea is its production, as, unlike black tea, green tea is not fermented. However, it is essentially true that both black and green tea can be made from the same plants.

The tea leaves are processed further through fermentation, which gives them their typical aromatic flavour and the characteristic black colour. Due to the destruction of plant cells and the oxidation (a reaction with oxygen) during the fermentation process, unfortunately, the health-promoting ingredients (such as polyphenols) are also destroyed.

Furthermore, people in industrialised nations are highly attuned to 'sweetness'. The excessive consumption of sugar has reprogrammed our taste buds, so many people do not like the bitter aftertaste of green tea, i.e. a tea before fermentation.

Another argument in favour of black tea is the caffeine, which passes more rapidly into the bloodstream; in green tea, it remains untouched and passes much more slowly and gently into the bloodstream. Cigarette and alcohol consumption has blunted our nerves to the point that many only respond to a fast-acting caffeine.

So it is not surprising that we Europeans prefer black tea, even though green tea is clearly healthier. Without question, the aim should be to make our taste buds more receptive to what is natural and to reverse our reduced caffeine sensitivity by reducing our consumption of alcohol and nicotine.



It is true to say that green tea is more natural than black tea, despite the fact that the aftertaste, which is sometimes a bit bitter, takes some getting used to, because it offers amazing health benefits that people should not miss out on. Even our taste buds get used to the natural tea taste of green tea quite quickly – and, moreover, the taste can be influenced by specific preparation (more on this can be found in 'Preparation of green tea').

Back to the production:

The process from harvest to finished green tea is comparable to the precision of a clockwork mechanism and goes through many well-timed production phases. Even a slight time delay reduces the tea quality, which is why the tea factories are located directly on the plantation grounds.

Depending on the country of production and the desired flavour and quality, the tea leaves are air-dried, roasted or steamed during the processing to prevent the natural fermentation in advance and to preserve all the active ingredients of fresh green tea leaves. In addition to the production process, the desired flavour note is influenced by the cultivation land (climate), the season and targeted harvest in various stages of growth.

There is a fundamental distinction between Japanese and Chinese processing.

Japanese green tea production

The natural fermentation is stopped immediately by spraying the leaves with water vapour directly after picking. This gives the Japanese green tea a lemon



yellow or greenish colour.

Chinese green tea production

The Chinese allow the tea leaf to lightly ferment before roasting it in large pans over fire. This stops any further, natural fermentation of the oxidising enzymes and gives the tea its typical smoky aroma.

The four production phases of green tea

Phase 1: Withering

The foundations for the desired tea quality are laid in the first phase. For higher quality green tea leaves are allowed to wither naturally in the fresh air; this ensures the full tea aroma later. For this purpose, the tea leaves are spread out in the sun for a period of four hours immediately after harvest. During this time, they lose about 30 % of their original moisture and are then ready for further processing steps. For mass production of a lower quality, this process is artificially accelerated by working the leaves with a hot air blower, at the expense of flavour.

Phase 2: Heating

The subsequent heating deactivates certain enzymes that prevent oxidation and thus the unwanted fermentation. This ensures the health benefits that far exceed those of fermented black tea, as well as the typical aroma. Depending on the country of manufacture, the desired quality and the desired aroma, different



heating options are also possible in this phase, such as roasting, steaming and pan heating. While steaming tends to be more prevalent in Japan, combined methods are used in China – 90 % of the tea leaves are heated in the pan and the remaining 10 % are split equally between steaming and roasting. In China, processing takes place manually, which ensures the high standard of quality of Chinese green tea.

Phase 3: Rolling

Rolling the green tea then gives the tea leaves a smooth consistency and is intended to make the ingredients pass into the cup more easily during preparation.

Phase 4: Drying

To strengthen the ingredients and the aroma, the tea leaves are dried in the last step. If – as it is often the case with Chinese green tea – a smoky aroma is desired, the drying takes place in drying chambers with wood fire.

Raw materials for green tea

As already mentioned, over 1,000 different plant varieties are used in green tea production. However, some plants are particularly noteworthy, since these are virtually predestined for the production of green tea – such as Camellia Sinensins, which is a true green tea classic – due to their resistance and low tannin content, in contrast to Camellia Assamica, which is used in the production of black tea.



Studies on green tea

Before we talk specifically about individual diseases and the associated studies, let's have a general overview of the health benefits of green tea: green tea has traditionally been used for centuries in Asia to relieve and cure discomfort and numerous acute illnesses. For many years, green tea has been investigated in serious studies around the world and has shown amazing health benefits:

- green tea revives you in a gentle way, keeps mind and body awake, strengthens concentration,
- promotes blood circulation,
- increases well-being,
- normalises blood pressure,
- improves oxygen uptake and stimulates breathing,
- strengthens the immune system,
- stimulates metabolism and promotes fat burning,
- promotes self-healing powers,
- promotes digestion,
- calms the stomach,
- relaxes body and mind,
- helps detoxify the body,



- is skin cleansing,
- improves vision,
- prevents joint pain and inflammation
- prevents bone loss (osteoporosis),
- helps against gout,
- helps with chronic fatigue,
- helps with pharyngitis,
- protects against diabetes,
- helps with loss of appetite,
- helps with heartburn,
- has an effect against diarrhoea,
- counteracts colds,
- helps with athlete's foot and other types of fungus,
- helps against bad breath,
- supports fat burning and helps weight loss,
- has a positive effect on multiple sclerosis,
- protects against viruses,
- has a positive effect on HIV/AIDS,



- helps with Alzheimer's,
- helps with Parkinson's,
- supports urine flow,
- helps with sunburn,
- helps with urinary stones,
- helps against caries,
- works against hyperacidity,
- helps with gastritis,
- protects against heart disease,
- protects against cancer (especially breast cancer, stomach cancer, colon cancer) and
- prolongs life.



Now to the individual studies:

Half of all deaths in the industrialised nations are due to cardiovascular diseases, and the trend is increasing.[372] The effects proven in studies on the cardiovascular system, which are not just therapeutic, but also preventative, can be hoped for.

The effect on mortality due to cardiovascular failure has been very impressively demonstrated in several studies.[373] A meta-analysis of 17 studies showed that consuming three cups of tea a day allows for a reduction in cardiovascular risk of about 11 %.[374]

In a study on 1,900 patients who had an acute myocardial infarction, those who drank up to 14 cups of tea a week the year before the infarction had a 20 % lower mortality rate; with more than 14 cups a week, the death rate even fell by half.[375]

Yang and Koo showed that green tea-containing catechins prevent harmful LDL oxidation in endothelial cells.[376] In another study, Japanese researchers demonstrated that EGCG contained in green tea completely suppresses collagen-induced platelet aggregation (blood clumping).[377]

The Ohsaki study

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[372] http://www.aerzteblatt.de/v4/news/news.asp?id=29897&src=&swid=

[373] Hertog et al., 1997, Nakachi et al., 2000, Arts et al., 2001 or Kuriyama et al., 2006.

[374] Peters et al., 2001

[375] Mukamal et al., 2002.

[376] Yang and Koo, 2000

[377] Sagesaka-Mitane et al., 1990



An eleven-year study in Japan involving 40,530 people between the ages of 40 and 79 has shown amazing positive features in the cardiovascular system. The subjects drank at least five cups of green tea daily. Male subjects were able to reduce their death rate by 12 %, female subjects by 23 %. Cardiovascular disease mortality fell significantly, 31 % for women and 22 % for men. [378]

The protective effect on the cardiovascular system is attributed to the polyphenols contained in green tea (epigallocatechin gallate, EGCG).

Green tea for high blood pressure/high blood pressure

High blood pressure is considered a dangerous factor, which often gradually leads to heart failure. In 1,500 volunteers at Cheng Kung University in Taiwan, the risk of high blood pressure was reduced by 46 % with daily tea consumption of two to four cups, with a higher daily consumption reducing the risk by as much as 65 %.[379]

Green tea inhibits atherosclerosis

The progression of atherosclerosis, which is mainly responsible for heart attack and stroke, has been arrested in various studies.[380]

Effect of green tea on cancer

While half of all deaths in developed countries are due to cardiovascular disease,

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[378] Shinichi K. et al.: Green tea consumption and mortality due to cardiovascular disease, cancer and all causes in Japan, in JAMA, 296/2006, pp. 1255-65.

[379] https://en.wikipedia.org/wiki/Tea

[380] Geleinjse et al., 1999; Sazuki et al., 2000



the second most common cause is cancer. And so, one in two people[381] suffers from cancer.

Japanese researchers may have been the first to observe the biochemical mechanism that explains the anti-cancer effect: according to their research, an ingredient of green tea attaches specifically to tumour cells and slows the growth of cancer.

This docking site is important for the formation of cell contacts and is present on different tumour cells. According to the statement, enjoying just two to four cups of green tea a day triggers this protective effect.[382]

Tea flavonoids, which are particularly common in green tea, are potent antioxidants that protect cell proteins and DNA from cancer.[383] Tea flavonoids affect the intracellular signalling cascades and intercellular communication, enabling them to prevent tumorigenesis and inhibit the growth of acute cancer.[384] Cancer growth and metastasis are inhibited by the abundance of EGCG present in green tea.[385] There is a large body of work on the diverse effects of tea extracts on different tumour cell lines.[386]

Prostate cancer

A study on patients with prostate cancer conducted at the Center for Human Nutrition at the David Geffen School of Medicine at UCLA revealed that the

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[381] https://www.medicalnewstoday.com/articles/288916.php

[382] Nature Structural & Molecular Biology (online pre-publication DOI: 10.1038/nsmb743

[383] Hecht and Hoffmann, 1998; Gordon, 1996; Yoshioka et al., 1996.

[384] Lin et al., 1999, Chen et al., 1999, Chung et al., 1999.

[385] Jankun et al., 1997.

[386] Dufresne and Farnworth, 2001.



EGCG derived from green tea was detectable in tumours and could significantly inhibit tumour cell growth. The researchers concluded that green tea could help prevent prostate cancer and inhibit its growth.

Effect of green tea on diabetes

In in vitro tests, the activation of insulin production was demonstrated to be more than 15-times higher for the EGCG contained in green tea.[387] Another Japanese study showed a prophylactic effect against diabetic nephropathy, a diabetes-related kidney disease. The researchers based their findings on the assumption that the polyphenols contained in green tea intercept free radicals, possibly reducing the accumulation of glucose in the body's own proteins, providing effective protection for the kidneys.[388]

Effect of green tea on Huntington's chorea

Huntington's chorea is an inherited neuro-degenerative disease. It has been demonstrated on model organisms that green tea can delay the plaque formation that leads to the disease. The researchers attributed the effect to the substance EGCG, which is present in green tea.[389]

Green tea inhibits arthritis

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[387] Anderson and Polanski, 2002

[388] openpr.de, Green Tea and Rooibos Tea in Kidney Disease caused by Diabetes, retrieved on November 26, 2007

[389]Press release from the Max Delbrück Centre for Molecular Medicine (MDC) Berlin-Buch, September 8, 2006, Green tea Reduces Plaque Formation in Huntington's Chorea - First results in model organisms; Ehrnhoefer D. et al., Green tea (-) – epigallocatechin-gallate modulates early events in Huntington misfolding and reduced toxicity in Huntington's disease models, in Journal Human Molecular Genetics, 15/2006, pp. 2743-51.



In animal experiments, the polyphenol present in green tea reduced the symptoms of arthritis and had an anti-inflammatory effect.[390]

Effect of green tea on kidney function

In animal experiments, tannin found in green tea showed positive effects on kidney function.[391]

Effect of green tea on Alzheimer's and Parkinson's

Alzheimer's and Parkinson's are among the neurodegenerative diseases caused by the formation of amyloid fibrils. It has been found that EGCG contained in green tea prevents the formation of amyloid fibrils by binding to native, unfolded polypeptide chains. As a result, harmless oligomers are formed instead of the toxic amyloid fibrils.[392]

Antimicrobial effect of green tea

Several studies have shown the antimicrobial effects of green tea catechins.[393]

Effect of green tea on gum disease

Green tea catechin reduces gum diseases, such as periodontal disease.[394]

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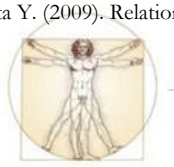
[390] Haqqi et al., 1999

[391] Yokozawa et al., 1996

[392] Ehrnhoefer et al. Nat. Struct. Mol. Biol. 2008, doi:10.1038/nsmb.1437

[393] Diker et al., 1991; Inoue et al.; 1996, Toda et al., 1991

[394] Kushiyama M., Shimazaki Y., Murakami M., Yamashita Y. (2009). Relationship between intake of green tea and periodontal disease. Journal of Periodontology. 80, pp. 372-377



Green tea prevents tooth decay

Green tea's EGCG and ECG inhibit the growth of caries bacteria, the streptococci.[395]

Green tea for multiple sclerosis

Chronic inflammatory processes in the central nervous system are responsible for multiple sclerosis. As recent research at the Institute of Neuroimmunology of the Charité in Berlin under the direction of Professor Frauke Zipp suggests, green tea may prevent this, or at least curb it. This positive effect is again attributed to the green tea flavonoid EGCG (epigallocatechin-3-gallate). This can obviously both throttle a misguided immune system and protect the nerve cells from harmful influences. The scientists tested the effectiveness of the substance in animal experiments as well as in cultures of human immune and nerve cells and stated:

'*EGCG is the first drug we have found that is administered orally and has immunomodulatory and nerve cell protecting properties'.*

This important finding could be a milestone in the treatment of multiple sclerosis. The effect is justified by the scientists as follows:

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[395] Sakanaka et al., 1990



'*EGCG seems to attack the destructive disease processes of multiple sclerosis from two angles. In addition, the substance has the advantage that it is unlikely to cause side effects'.*

Furthermore, the scientists Aktas, Prozorovski and their colleagues were able to prove that the EGCG contained in the green tea intervenes in the growth of activated immune cells, known as T-lymphocytes, and inhibits the expansion of these harmful cells. Alongside this, the EGCG protects the nerve cells from various harmful substances that are released by the immune system.

Aktas: '*The results are very promising, especially since the therapeutic successes with previously known treatment options are comparatively modest. Our experiments have shown that EGCG also works on animals which are already ill. This corresponds to the treatment situation in patients presenting to their doctor after the first episode of multiple sclerosis'.*

In the next step, further studies are planned to be performed on patients with relapsing-remitting MS. *'If these studies are positive, EGCG may soon provide a new treatment for patients with multiple sclerosis',* said Aktas.[396]

Green tea enhances the effects of antibiotics

Dr. Mervat Kassem, an Egyptian scientist, has been able to demonstrate that antibiotics work better on a large scale when patients also take green tea. Together with his research team, he tested the effect on pathogens of 28 infectious diseases, with the result that green tea increased the effect in all cases and even pathogens that were no longer responsive to the antibiotics became vulnerable

[396] http://www.gesundheitsforschung-bmbf.de/de/1053.php



again.[397]

Green tea helps combat osteoporosis

Green tea contains large amounts of manganese, which is responsible inter alia for the formation of connective tissue and bone. Manganese transports calcium from food into the bones and can therefore counteract osteoporosis very successfully.

Green tea for heartburn and irritated stomach

The aluminium compounds contained in green tea are not toxic, they act as a buffer against stomach acid and thus counteract heartburn and gastric irritation.

Green tea promotes fat burning and helps weight loss

Several studies support the positive influence of green tea on body weight. It supports the metabolism by accelerating thermogenesis and thus helps with weight loss.[398] This is attributed to the catechins and caffeine contained in the green tea.

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[397] http://www.eurekalert.org/pub_releases/2008-03/sfgm-gth032808.php

[398] Dulloo AG., Duret C., et al. 'Efficacy of a green tea extract rich in catechins polyphenols and caffeine in increasing 24h energy expenditure and fat oxidation in humans' Am J. Clinc Nutr. 1999; 70 p. 1040–1045.



Thermogenesis increases fat burning and lasts up to 24 hours after tea consumption. Green tea proves to be a potent aid to dieting.

Active ingredients and effects

Before we turn to the prophylactic and therapeutic effects of green tea in individual diseases in detail, we should first look at the active ingredients in green tea.

EGCG (epigallocatechin gallate)

EGCG seems to be the most effective ingredient in green tea, with almost miraculous properties in the prevention and treatment of many diseases. This ingredient therefore deserves special attention.

EGCG has two gallate groups, making it the most effective catechin.[399] In a study on the oxidation of lipoproteins, catechins had a 20-fold higher antioxidant effect than vitamin C, making catechins a very important antioxidant.[400]

Polyphenols also neutralise free radicals, superoxide radicals and peroxynitrites, they influence the activity of enzymes that promote oxidation and modify the phosphorylation of proteins.[401]

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[399] Guo et al., 1999

[400] Vinson et al., 1995

[401] de Groot and Rauen, 1998; Chen and Ho, 1995 Middleton, 1998



The flavonoid, which is abundant in green tea, unlike in black tea, has been proven in several studies to have an inhibitory effect on cancer growth and a protective effect in diabetes, multiple sclerosis and others.

EGCG also has anti-inflammatory properties, as we know from aspirin.[402] This prevents vascular occlusions and thus counteracts cardiovascular diseases, including heart attacks, cerebral apoplexy and angina pectoris.

Tabular presentation of the EGCG effect

Illness	Effect
Cardiovascular disease	Inhibition of blood clotting
Reduction of blood sugar level	
Cancer	Inhibition of cancer growth
Caries/periodontal disease	Polyphenol inhibits the enzymes of the bacterium Streptococcus mutans, which

[402] Dr. Jörg Zittlau: Grüner Tee für Gesundheit und Vitalität ('Green Tea for Health and Vitality'), 1997, p. 36



	promote the development of dental plaque
Viral diseases	Antiviral effect, such as influenza viruses that cause flu and fever,
HIV	Possibly the same effect as above – already used in the treatment of AIDS patients

Flavonoids

Flavonoids are phytochemicals which have great benefits for our health and are particularly abundant in green tea. Flavonoids reduce the risk of blood clotting, lower cholesterol and normalise high blood pressure. They therefore offer highly potent protection for our cardiovascular system. They also reduce the risk of breast, colon and stomach cancer.



Tannins

Tannins belong to the group of polyphenols and are used in the treatment of gastrointestinal disorders. They convert proteins into molecules and thus deprive parasites of food. Tannins have a calming effect on the gastrointestinal tract; applied externally, they can strengthen the skin and make it more resistant to environmental influences.

Vitamins

First and foremost, they contain high levels of natural vitamin C, which is the structural vitamin in our body and undoubtedly one of the most important vitamins. It also strengthens our immune system, prevents atherosclerosis, lowers bad cholesterol and has anti-inflammatory effects. The vitamin B or thiamine contained in green tea also keeps our spirits fresh and increases our ability to concentrate.

Essential oils

Green tea not only has a positive effect on our physique, but also on our psyche. This is due to the essential oils contained in it, which we absorb as an aroma through the nose. These aromas can create deep relaxation by decoupling our movement centre from the mental side, our thoughts and our moods. This allows our muscles to relax, despite stimulating trains of thought that otherwise act directly on them, leading to muscle tension – this enables deeper physical relaxation, even when you are also experiencing mental tension.



Bitter substances in tea

The bitter substances in green tea sensitise our taste buds and train our taste to react accordingly to natural foods. It is well-known that people in industrialised countries are less sensitised due to the industrialisation of food and simply react differently to taste. The bitter substances in green tea can restore the natural sense of taste.

Caffeine

The caffeine in green tea is gradually released, which prevents sudden caffeine peaks and compared to coffee or cola, ensures a mild yet long-lasting stimulation. The tannins in green tea are responsible for the gradual dosage, which release the alkaloid, which is responsible for the impulsive effect, slowly and generously in the bloodstream.

Saponins

Saponins are herbal glucosides that have a positive effect, and not only on the gastrointestinal area. Thus, the saponins contained in green tea can bind to fats, prevent them being transported into the blood and thus counteract high cholesterol levels. In addition, they can relieve rheumatic complaints, solve cough mucus and, when used externally, treat skin and athlete's foot disorders.

In addition, saponins can promote the absorption of other plant compounds and increase their effect.



Manganese

Manganese is involved as part of many enzymes in energy conversion and is essential for the formation of connective tissue and bone. Manganese transports the calcium into the bones. Thus, green tea can very successfully counteract osteoporosis.

Aluminium

The aluminium compounds contained in green tea act as a buffer to stomach acid and thus counteract heartburn and gastric irritation.

per 100 mg	Vitamin C	Carotene	Vitamin B_1	Vitamin B_2
Green tea: Matcha	60 mg	29 mg	0.6 mg	1.35 mg
Green tea: Sencha	250 mg	13 mg	0.35 mg	1.4 mg
Black tea	0 mg	0.9 mg	0.1 mg	0.8 mg
Coffee	0 mg	0 mg	0 mg	0.12 mg

Source: Japan Tea Exporters Association



The effect of green tea on our health

The above-mentioned active ingredients trigger very effective healing mechanisms, which combat countless illnesses preventively and therapeutically.

Green tea in immunodeficiency, immune deficiency

Pronounced immunodeficiency leads to numerous illnesses, infections and fungal infestations. In particular, the flavonoids, which are numerous in green tea, play the role of an immunomodulator and support important vitamins, such as vitamin C.

In the morning and in the evening, drink a cup or jug (about 300 ml) of green tea in three infusions.

Infusion 1: *Boil 100 ml of water and let it cool for about 3 minutes before pouring over the tea. Let it rest for three minutes. Squeeze half a lemon into the jug and drink slowly.*

Infusion 2: *Boil 100 ml of water, allow to cool for about 3 minutes before pouring over the tea. This time, let it rest for five minutes.*

Infusion 3: the same procedure as Infusion 2.

Effect on atherosclerosis (calcification in the blood vessels)



Atherosclerosis is considered the most common cause of heart attack and stroke/cerebral apoplexy and is unnoticed and insidious. Statistically, about half of all people in industrialised countries die of cardiovascular disease, primarily due to atherosclerosis.

Green tea helps prevent atherosclerosis by reducation of the 'bad' cholesterol LDL and increasing the 'good' cholesterol HDL. Furthermore, it lowers high blood pressure, improves the fluidity of the blood and counteracts its clumping/coagulation.

Drink a cup (300 ml) of green tea 3 times a day with each meal. Let the last green tea soak for five minutes to reduce caffeine and so not disturb sleep.

Effect on appetite disorders

Appetite disorders are characterised by a decrease or increase in the feeling of hunger and can have both physical and psychological reasons. The bitter substances contained in green tea stimulate the appetite centre in the brain.

Drink twice daily, preferably 1 hour before lunch and dinner, 1 cup (150 ml). Let the tea soak for a little longer than five minutes, as this will best activate the bitterness on the appetite centre in the brain.

Green tea – effect on high blood pressure (high blood pressure)



High blood pressure is treacherous and remains largely unnoticed until the manifestation of secondary diseases, which is why one also speaks of 'creeping death'.

High blood pressure exists, if the values are at least 140 to 90mmHg.

The substances contained in green tea have antihypertensive properties and support blood flow.

Drink 1 cup (150 ml) of green tea twice daily, with breakfast and lunch. Allow to soak for about three to five minutes.

Green tea and its effect on cold, flu

A common cold causes symptoms such as sneezing, coughing, sore throat, headache, fever, hoarseness and runny nose. The flavonoids and saponins present in green tea alleviate these symptoms by inhibiting the inflammations and have an antibacterial/antiviral effect. Furthermore, these mechanisms are supported by the high proportion of vitamins and trace elements, which are known to have a positive effect on common colds, such as vitamin C and zinc, which are abundant in green tea.

Drink 1 jug (300 ml) green tea 3-5 times a day, infuse for 5 minutes and add ½ lemon and 1 teaspoon honey each.

Green tea in diarrhoea

Diarrhoea is characterised by a high frequency of fluid stools and can be the



symptom of many illnesses, such as food poisoning, infection or even tumours. By medical definition, diarrhoea in an adult is regular bowel movements of <200-250 g per day with high water content.

Green tea is known to soothe the gastrointestinal tract; the tannins present in it also have the ability to deprive the intestinal parasites that cause diarrhoea of the nutrients they need by converting the proteins into unusable compounds.

Drink a cup of green tea (300ml) with meals, infuse for 5 mins.

Green tea in gout (uricopathy)

Gout (uricopathy) is a purine metabolic disease, which exhibits itself in bumps and can lead to damage to the joints and bones and the kidneys as an excretory organ via deposits of uric acid crystals in the joints and in the tissue. The relapses, which are characterised by inflammatory, painful processes, usually occur at night and lead to redness and swelling.

The ingredients contained in green tea support urinary excretion via the kidneys. Furthermore, green tea has a basic effect against acidity in the body and should also curb the appetite for gout-promoting foods, such as alcohol or fatty food.

For each meal, drink a 1-2 cups of green tea (300 ml), infuse for about five minutes.

Green Tea and its fatigue on chronic fatigue /Chronic Fatigue Syndrome (CFS)



Chronic fatigue – other terms are 'chronic fatigue syndrome' (CFS) or sometimes 'myalgic encephalopathy' – is a condition characterised by debilitating mental and physical fatigue in combination with other symptoms, such as headache, joint discomfort, throat and limb pain, concentration and memory disorders as well as disturbed sleep.

The tannins contained in the green tea allow a mild, but steady caffeine effect, which counteracts the symptoms of fatigue.

For breakfast and lunch, drink 1 cup (300 ml) of green tea, infuse for 5 min. In the evening, you should do without green tea in order not to disturb sleep, which is already disturbed by CFS.

Green tea with athlete's foot

Athlete's foot (tinea pedis) is a fungal infection that makes life difficult, especially between the toes and on the soles of the feet, due to so-called dermatophytes (filamentous fungi).

The saponins present in green tea are herbal glucosides, which have been shown to combat the athlete's foot and skin fungi in studies.

Soak in a hot foot bath and add 5 tablespoons of green tea. After infusing for five minutes, place your feet in the tub for a period of 12-15 minutes.

Green tea and its effect on heart failure



Heart failure describes a pathological inability of the heart muscle to pump the amount of blood needed by the body without increasing the pressure in the atria.

The tannins contained in green tea lower high blood pressure, strengthen the heart and counteract cardiac insufficiency via these mechanisms.

For each meal, drink 1 cup (300 ml) of green tea, allow to infuse for about 5 min.

Green tea and its effect on cancer

Cancer takes the life of one in four people, and so we should absolutely take preventive measures that defy cancer development without side effects.

If you already suffer from cancer, it is even more important to take measures which demonstrably counteract cancer without side effects (see 'Studies').

Green tea seems to have a preventive and curative effect against cancer in many ways. The biofuel EGCG can provide protection against lung cancer, the flavonoids can reduce the risk of stomach cancer, colon cancer and breast cancer, the saponins have an effect on intestinal tumours.

Drink at least 1 litre of green tea a day, spread over the day (e.g. a 300 ml jug for each meal). Let it rest for about 5 minutes, do not sweeten with sugar (cancer loves sugar).

Green tea in diabetes mellitus



Diabetes mellitus, popularly known as ‘diabetes’, is a chronic metabolic disease characterised by high blood sugar levels.

Essentially, two forms of diabetes mellitus are distinguished, namely type 1 diabetes and type 2 diabetes. Special forms of diabetes also include gestational diabetes, a disease that, as the name suggests, can occur during pregnancy. Diabetes, if detected late or improperly tackled, causes some unpleasant secondary effects which may lead to diseases as wide-ranging as kidney damage and heart failure.

Green tea has been shown to counteract diabetes and sequelae (see Studies). Among other things, green tea has the extraordinary ability to inhibit the conversion of polyhydric sugar into simple sugars and thus to prevent blood sugar spikes with subsequent abrupt blood sugar drops.

In this way, hypoglycaemia is prevented and the blood vessels are protected. In studies, the activation of insulin production by the EGCG contained in green tea has been demonstrated to be more than 15-fold, and another study from Japan has demonstrated a preventive effect of green tea on diabetic nephropathy, diabetes-related kidney disease.

Drink 1 cup (300 ml) of green tea with each, allow to infuse for at least five minutes.

Green tea and its effect on caries (tooth decay)



Tooth decay is increasingly on the rise, not least because of our excessive sugar intake (and the refusal of state licensing agencies to accept healthy alternatives, such as Stevia, as a sugar substitute). It is a disease of the hard tooth tissue, the enamel.

Green tea counteracts caries on several fronts: on the one hand because of its high fluorine content (one of the main constituents of enamel), on the other hand, the EGCG present in green tea inhibits the proliferation of the bacteria that promote caries. In addition, green tea stimulates salivation, which neutralises the harmful acids in the mouth and supports the intestines in better utilising minerals and storing them in the enamel.

For preventive and therapeutic results, drink 1 cup of green tea with each meal, allow to infuse for about 5mins beforehand.

Green tea for sore throat and pharyngitis

Each of us has to fight it at least once in the course of a year: sore throat, difficulty swallowing, inflamed pharyngeal mucous membranes.

Green tea contains remarkable anti-inflammatory agents in the form of flavonoids and tannins and natural vitamin C, which is effective against inflammation.



In case of sore throat and pharyngitis, you should drink the green tea and gargle with it. If you want to save time and nobody in your presence objects, you can combine both (take a sip, gargle for 10 seconds, swallow), otherwise separate the two processes:

Drink

Drink a small cup (300 ml) of green tea twice daily with meals (allow to infuse for about 5 minutes)

Gargle

Prepare 1 cup of green tea in the morning and in the evening, let it soak for five minutes, take one sip, gargle for ten seconds, add another sip and so on for about ten minutes per application.

Green tea for bad breath

Bad breath is largely due to bacteria that accumulate on the tongue.

Since green tea has an antibacterial effect, it prevents the proliferation of microorganisms in the mouth area, can reduce acidity in the stomach and counteract putrefaction gases that also lead to bad breath when exhaling.

For mouth odour, both taking mouthwash (2-3 min) with green tea and drinking tea with meals are recommended.



Green tea and its effect on irritable stomachs (functional dyspepsia)

An irritable stomach, called functional 'functional dyspepsia' or 'non-ulcer dyspepsia' (NUD), manifests itself in recurrent or chronic pain as well as discomfort in the upper part of the abdomen without organic causes being present. Symptoms of irritable stomach include nausea, stomach cramps, loss of appetite, heartburn, bloating, flatulence and sickness. Reasons for this are often psychosomatic, but also an altered gastric motility.

The basic substances contained in green tea neutralise the acidic milieu and also facilitate the digestion of fats and proteins.

Prepare green tea (½ litre, allow to infuse for 5 mins) on the evening before and put it in a flask. Drink it before getting up the next morning. Then slowly roll on your back, stay in this position for five minutes, then roll over for five minutes on your right side and then for five minutes on your left side. Repeat this roll cure the next day and as often as your irritable stomach requires.

Green tea and its effect on gastritis

Gastritis is an inflammatory disease of the gastric mucosa caused by a microorganism called 'Helicobacter pylori' and its symptoms are loss of appetite, heartburn, bloating, diarrhoea, constipation, stomach cramps or flatulence. The tannins contained in green tea convert the proteins in the gastric mucosa into substances that do not provide any nutritional value to the bacteria and literally starve them out. Furthermore, green tea is alkaline, neutralises stomach acids



and has a calming effect on the stomach walls. Only the second infusion is used, the first one is infused for about three minutes and is then poured out. Allow the following infusion to steep for about six minutes, then drink.

Green tea and its effect on weight loss, diet and fat burning

In addition to its excellent benefits as a disease prophylactic, feel-good tonic and energy extract, green tea is becoming more and more popular among those who want to lose weight. The effect of weight reduction is due to several factors, such as the property of the saponins contained in it to bind dietary fats, before they can be deposited. The catechins and the caffeine contained in green tea synergistically increase thermogenesis and thus increase the fat burning.[403] This effect should last 24 hours, which promises a great support to any diet. The positive effect of green tea on our taste buds should not be understated. Green tea helps to reprogram our sensation of sweet tastes.

Green tea during fasting and detoxification

In addition to fruit juices and still water, green tea has secured a solid position in fasting. This is due to the properties in green tea that aid fasting:

- It has a diuretic and detoxifying effect
- It maintains energy levels and the ability to concentrate, which decreases during fasting, by dosing its caffeine well and releasing it steadily into the

[403] Dulloo AG et al.: Efficacy of a green tea extract rich in catechins polyphenols and caffeine in increasing 24h energy expenditure and fat oxidation in humans, Am J. Clinc Nutr. 1999 (70) p. 1040-1045



bloodstream.

- It compensates for the lack of nutrient supply during fasting.
- It calms the stomach and helps to counteract the side effects of the gastro-intestinal tract that occur during starvation.

Buy green tea and keep it properly

It is not easy to find the right green tea from the many teas on offer, especially for a beginner. We would like to support your purchase decision with the following points:

- Never buy a tea that is not hermetically sealed. Ultimately, you have resorted to green tea, because in contrast to the black tea, it is not oxidised. However, air intake causes green tea to oxidize, causing it to lose its vital substances, in a similar manner to fermented black tea.
- Pay attention to the colour. Intense green colour indicates quality, while brown leaves indicate inferior mass-produced goods.
- Dispense with green tea in teabags; these are usually less aromatic and often have fewer vital substances.
- Green tea should not be dry like tobacco. Hold the packaging by the corner and knead it carefully: if it rustles too much, it is too dry and of lower quality.



Storing green tea properly

- Always keep your tea airtight, cool, dark and dry.
- You can store your tea in a special tea caddy, ideally not made of metal, as it may react chemically with the tea, alter the aroma and reduce the nutrients.
- It is better to buy smaller amounts instead of storing large amounts for years, because the storage time has a detrimental effect on the vital substances and the aroma.

Green tea: extract, capsules, powder or drops? The agony of choice.

As if the different types of green tea on offer were not enough, green tea is now available in different versions: from green tea extract in capsules to powder and even to drops. What should one make of it? What is the right one for me?

The different alternatives to the classic green tea make sense, considering that not everyone likes the typical aroma of green tea, which can taste a bit bitter.

Furthermore, good green tea extracts in the form of capsules, powders and drops can be quite helpful, since the active ingredients they contain are present in concentrated form and can defy a disease or illness in certain cases more effectively than one study or another suggests.



For example, just a few years ago, the *American Journal of Clinical Nutrition* documented a study claiming that green tea in pill form has better bioavailability than it does as a beverage.[404]

Furthermore, an unnaturally high consumption of several litres of green tea can lead to digestive problems. Green tea concentrates are quite a good alternative for obtaining a large amount of a particular active ingredient.

Anyone who has no objection to the taste of green tea and would like to take the time to enjoy it should definitely drink the natural green tea in its original form for prevention purposes.

Green tea: its preparation

The drinking water

Again and again, people like to argue that you do not need drinking water filters, as drinking water in industrialized nations is subject to the strictest controls and is harmless to health. The 'small' catch in this statement, however, is that the drinking water quality or purity is tested in the waterworks themselves, but not behind the taps. However, it is the pipes from the waterworks to your tap which can be quite questionable, because here, the age of the pipes plays just as much a role as the material of which they are made.

Everyone will have noticed that a very unpleasant 'sludge' can flow out when

[404] Henning, SM et al.: Bioavailability and antioxidant activity of tea flavanols after consumption of green tea, black tea, or a green tea extract supplement, Am J. Clin Nutr. 2004; 80, p. 1558–1564.



the tap is turned. This is due to contamination and copper components from the copper pipeline (in 60 % of all households). Here, a copper carbonate layer forms over time.

Galvanised iron pipes are even more harmful, because over time, the zinc dissolves and releases toxic substances, such as the heavy metal cadmium, which can cause damage in the liver and kidneys. The same applies to lead tubes (10 % of all households), which gradually release the smallest constituents of lead.

So it makes a lot of sense to use drinking water filters, even if the opposite is often claimed.

Furthermore, drinking water filters, if they have so-called ion exchangers, contribute to softening the drinking water; depending on the residential area, this may well be appropriate, and does not just help to improve the taste of the tea.

The kettle

Traditionally, green tea is prepared in a copper kettle; however, ordinary steel boilers are far more practical and less prone to oxidation.

Drinking the tea

Not everyone likes to enjoy the tea unsweetened in a cup, even if it corresponds to the traditional custom. Tea infusions and tea nets are fine; tea balls should be avoided, as this prevents the necessary tea leaf release during infusion.

It is crucial to enjoy the tea from small cups, as, with larger cups, the higher air



contact can negatively affect the aroma and reduce the nutritional value. A maximum cup size of 150 ml is considered optimal.

The pot

While true green tea professionals insist on stoneware pots, porcelain pots are quite practical and easy to clean. The pot itself should not be too big, because green tea tastes best from a smaller pot (max. 500 ml).

Traditionally, green tea is prepared in a copper kettle, ordinary steel kettles are far more practical and less prone to oxidation.

The cup

It is crucial to enjoy the tea from small cups, as, with larger cups, the higher air contact can negatively affect the aroma and reduce the nutritional value. A maximum cup size of 150 ml is considered optimal.

The preparation of the green tea

Green tea can be prepared in the traditional way or in the more usual way for us. Traditionally, both the pot and the cup are first tempered by pouring warm water into them.

Next, boil the water in the kettle and then let it cool for 5 minutes before tipping the water out of the pot and pouring in the hot water from the kettle.

Use 1 level teaspoon (2 g) of green tea per cup, add an extra teaspoon for 5 cups



or more.

Infusion times

<3 mins = mild aroma, strong stimulating caffeine effect

3-5 mins = the usual practice, moderate caffeine effect, stronger flavour

> 5 mins = gently stimulating caffeine effect, dominant aroma

Now also pour the preheating water out of the cup. Then pour the tea into the cup; as the tea leaves remain in the pot, you can also prepare several more infusions.

Green tea with milk, sugar or sweetener or without?

Green tea connoisseurs insist on the pure enjoyment of green tea, i.e. without milk and sugar, so as not to diminish the aroma and healing properties of the tea.

If you like sweetening things, you should use the healthy sugar substitute Stevia, since neither the normal table sugar nor artificial sweeteners offer a healthy alternative.

Green tea as a cosmetic: green tea makes you beautiful

To this day, word has not got around that beauty comes from within and therefore primarily our food and drinks decide on how our skin, our eyes and our hair look.



In the case of green tea, both can be wonderfully combined: apply the green tea both internally as a tea beverage and externally in the form of self-prepared cleansing milk, skin creams, lotions and green tea masks.

Cleansing milk with green tea

Ingredients

- 60 ml of vaseline oil
- 25 g lanolin
- 5 ml of wool wax alcohol
- 2 teaspoons Tween 80 (available at the pharmacy)
- 200 ml green tea

Preparation

Melt the vaseline oil, wool wax alcohol and Tween 80 over boiling water and heat at a temperature of 65-75°C.

Heat water to 70°C in a separate pot, add the hot water to the molten mixture and stir.

Boil 4 teaspoons of green tea and allow to soak for 5 minutes, then strain.

Add 200 ml of the green tea to the mixture, stir until it becomes creamy – done.

The cooled mass is now best used as cleansing milk.



Green tea face mask

Ingredients

- 6 tablespoons of wheat germ
- 2 tablespoons of honey
- 300 ml of water
- 2 tablespoons of green tea

Preparation

Boil the water, pour over the green tea and leave for 5 mins.

Mix the honey with the wheat germ, add the tea – the green tea mask is ready. The mask should be applied after using the cleansing milk and takes about 15-20 minutes.

Green tea lotion

Ingredients

- 400 ml of water
- 2 teaspoons of green tea
- 2 teaspoons of chamomile flowers



- 50 ml of alcohol
- 50 ml rose water

Preparation

Put the chamomile flowers in alcohol for about an hour.

Prepare green tea and pour over the chamomile flowers in alcohol while it is piping hot.

Leave for five minutes.

Pour the resulting liquid through a sieve into a dark bottle.

The green tea lotion is applied with a cotton ball, before cleaning the face with the green tea cleansing milk.

Green tea skin cream

Ingredients

- 200 ml of water
- 4 teaspoons green tea
- 150 ml of olive oil
- 40 g lanolin



- 10 ml of alcohol (70 %)
- 10 g jojoba oil
- 20 g beeswax
- 3 g borax

Preparation

Allow the green tea to infuse in the hot water for five minutes, then strain and leave the infusion cold. In a separate pot, melt the beeswax, jojoba oil and lanolin in a water bath, add the olive oil and the alcohol and continue to heat.

Add borax to the tea infusion, then mix with the molten beeswax, stirring constantly.

Continue stirring until the resulting green tea cream cools slightly, then this can then be transferred to appropriate storage containers. The green tea cream is ready.

Does green tea have any side effects?

In contrast to black tea, which is equally healthy, green tea maximises health benefits and minimises side effects, which can be caused by black tea. This includes, among other things, black tea, suppression of iron absorption, something that does not occur in green tea, quite the opposite: green tea even promotes iron utilisation due to its high vitamin content.



Excessive intake of green tea

When consumed excessively, green tea may cause digestive problems as a side effect. But this is consumption in terms of litres, which is just unnatural, and hardly anyone will do this voluntarily.

If there is an increased need, for example as a result of illness, you should use green tea concentrates in pills, powder or drops in addition to the tea beverage (see 'Purchase decision, storage').

Pesticides in green tea?

Pesticides are chemical insecticides that unfortunately affect tea as well. However, as the state investigation office in Freiburg has shown in tests, about 90-95 % of the pesticides remain on the tea leaves and thus do not get into the tea infusion.

Conclusion

Apart from the digestive problems associated with an unnaturally high consumption of several litres per day mentioned above – no side effects of green tea have yet been found to date.



Colloidal gold – the most important elixir on earth?

'*Of all elixirs, gold is the greatest and most important to us. Gold can make the body unbreakable... drinkable gold heals all diseases, it renews and restores.'* **Paracelsus**

What prompted Paracelsus, the forefather of medicine, to put the precious metal gold, which he considered an all-round remedy, on the highest pedestal of all natural remedies?

What invaluable gift from 'Mother Nature' is being hidden from us by profit-oriented institutions and conventional medicine, which has already been praised by the ancient Egyptians, Romans and Greeks, Chinese and Indian doctors – long before Paracelsus and Avicenna, St. Hildegard of Bingen and finally, in the 19th century, even the bacteriologist Robert Koch...?

Findings which are underpinned by modern research but receive little attention from the established medical establishment...

Modern people are most likely to associate gold with jewellery, coins, luxury and, in recent years, a stable investment for the future. The fact that gold is so much more, that it is, first and foremost, an incredibly potent, almost fundamental elixir of life and a fountain of youth par excellence, naturally occurring in our body as a trace element (particularly in the brain – for good reason) and



exercises a phenomenal, holistic effect on our health, our life energy, youthfulness and even our mind, may be known to just a small group of people.

Far from any esoteric thought, colloidal gold (also referred to as *nanogold*, *mesogold*, *gold colloid,* and '*drinkable gold*') is truly an all-around elixir on a whole new level, capable of phenomenal accomplishments in terms physical, mental and emotional wellbeing.

In times of stress, permanent overload and lack of energy, the overall effect of colloidal gold on all our energetic systems is invaluable to modern humanity.

Due to its electric and magnetic fields, colloidal gold is able to release energetic blockages – bringing our body, mind and soul back into their intended vibrational patterns, noticeably restore life energy, mental freshness and physical strength, while lessening ailments and often causing even major diseases to depart from the body...

As a noble elixir, reserved for the rich and powerful at the time, gold was successfully used against a variety of diseases and conditions thousands of years ago. As a tradition, and as a preventative measure, the nobility drank water and wine from a gold cup.

Gold may even be the oldest remedy in human history. According to oldest medical records, gold was used 5000 years ago by Egyptians to strengthen the flow of energy and vitality, as well as for mental and physical cleansing.



As an indispensable remedy, gold has been used for thousands of years in TCM (Traditional Chinese Medicine) and Indian Ayurveda. Both medical cultures use gold not only to strengthen or restore health, but also to bring fresh-mindedness, rejuvenation and longevity.

Slogans like 'inheritance' and 'tradition' raise alarm bells among sceptics – fortunately, however, in the case of gold, we no longer have to rely solely on ancient medical writings, traditions, and shamanic intuition. As you will read below, modern research, with its innovative measurement and analysis methods, has recently revealed the unbelievable truth, affirming the millennium of gold use within traditional medicine.

'In all patients, regardless of individual diagnosis, the condition of red cells, cellular respiration, energy metabolism, and enzyme status improved; environmental toxins are increasingly eliminated, free radicals are better neutralised, the immune system is strengthened and the metabolism is regulated'[405],

This was the summary of the head of 'Cytomed GmbH', a specialist laboratory for blood cell analysis, environmental investigation and clinico-chemical examinations in Baden-Baden, for just a three-day intake of the gold essence 'aurum potabile' [406]
As you will come to read, modern day therapy and current research certifies

[405] http://www.horusmedia.de/2012-aurum/aurum.php

[406] http://www.horusmedia.de/2012-aurum/aurum.php



colloidal gold's efficacy in many conditions which are difficult to treat, and, at the same time, the safety to health of taking gold.

Gold – the drinkable solar energy

What would our life be without energy, and what would life energy be without sunlight? Traditionally, gold has always been associated with the sun. Thus, within TCM (Traditional Chinese Medicine), a central life energy is attributed to gold due to its proximity to the sun, which therefore corresponds to the male Yang principle. This may also be an important reason for the value of gold, which has stood since time immemorial, the properties of which are associated with vitality, growth and healing. And indeed, users of colloidal gold already report increased vitality, *joie de vivre*, inner balance, and creativity after a short period of regular use, while, at the same time, stress and depression disappear. The exact feelings and experiences that we get in spring with the first rays of sunshine...

Gold as natural as our body itself

As a trace element, gold naturally occurs in our body, especially in the brain, where it performs important tasks.

Gold is also found in our food, in carrots, chicory, and it is especially abundant in shellfish (crayfish, clams, crabs). Incidentally, seawater contains 5-250 parts



by weight of gold per 100 million parts of water, and the idea that all life comes from the sea is basically nothing new...[407]

While colloidal silver (which is associated with proximity to the moon and thus the female Yin principle) is currently experiencing a veritable renaissance and fortunately millions of people around the world are once again making use of the spectacular effects of this almost forgotten elixir every day, its 'big brother', colloidal gold, is also on the rise, but until now it has been quite timid and has been a term only known to 'health insiders' with a thirst for knowledge...

Now is the time! In this section, we want to put the health effects of gold under the microscope and close this unfortunate information gap within the population, which, in view of its inestimable value for the 'human' species (but also animals), should never actually exist!

[407] http://www.oceanwell.de/inhalt-wirkstoff/meerwasser/



Effect of gold

Effect of colloidal gold

Before we explicitly go into the specific effects of colloidal gold for individual diseases, it makes sense to first discuss the general effect of colloidal gold.

Let's first of all clarify the term 'colloidal'.

The term '*colloidal*' means the second smallest unit of matter, directly after the atom. It is also the smallest possible form into which matter (body, material) can be decomposed, without losing its original properties.

Incidentally, colloidal forms are as familiar to our bodies as gold itself. Blood and lymph, our most important vital juices, are nothing but colloids.

In this microscopically small, yet fully functional, form, gold is actually allowed to penetrate our bodies at the most remote and subtle angles to achieve the desired effect. In this way, colloidal gold achieves an unsurpassable effect, even on the brain, which can only be reached by a tiny number of vital substances, in which it overcomes the blood-brain barrier and noticeably and measurably improves our thinking processes, our concentration, and our motor skills.

With a diameter of only 0.126nm, gold colloids are in the nano range (Greek 'nannos' = dwarf) and are about 2,000 times smaller than the smallest known bacterium. This directly allows gold to act even in body areas which are protected by bacteria, such as the blood-brain barrier.



On the other hand, due to its microscopic size, colloidal gold is capable of multiplying the total surface area of gold particles in the body, enabling the even distribution of effects throughout the body.

Due to the electric charge, gold colloids are always in a state of suspense. Due to its electric and magnetic fields, colloidal gold is able to disperse energetic blockages in the body, freeing up pathways for vital information transmission for health maintenance, activation and strengthening. More than that, our bodies, minds, and souls get back their original, natural, healthy vibrational patterns, which can be felt in a few days or weeks by an increase in their life energy, mental freshness, and physical strength.

The electro-magnetic charge further causes the aged, dead cells to be pulled electromagnetically by the colloid particles and efficiently eliminated via the blood.

These are already very interesting facts. However, in order for us, as medical laypeople, to be able to adequately understand the spectacular, even phenomenal effect of colloidal gold on our health, our ability to function and our life expectancy, it is indispensable to make a link to the most fundamental aspect of our existence, thus:

Health and vitality = energy flow & communication!

is the importance, especially in the case of colloidal gold, of being among these relatively few ('privileged') insiders who are aware of the phenomenal effects of



gold becomes clear when you consider the following fundamental aspects of our lives...:

- from head to toe, we humans consist of approximately 37,2 trillion cells. Our *skin*, our *organs*, our *blood vessels*, our *nerves,* our *bones* and our *muscles* are nothing more than cell aggregates of countless specialised cells. The basic building block of the human body is therefore the single cell, and the 37,2 trillion cells that compose the body make up the whole human being (apart from its soul)!

- the generation of every thought in the brain, every single breath and every heartbeat, every movement, even the smallest blink of the eye, are based on a complex interplay of body cells, which

  a) communicate with each other and b) need energy for this!

  These facts justify the statement that our quality of life depends primarily on the quality (condition) of our cells!

- Despite what conventional medicine would have us believe in its efforts to maximise its drug turnover, there is no external cure. Rather, all illnesses, conditions and injuries are healed from within.



In fact, it is the frequently cited 'self-healing powers' that lead to a disease being cured, and the intake of appropriate (natural) healing substances only supports this process by, among other things, supplying the necessary energy and repair substances at the cell level.

But for a cure to occur, logically, the destroyed or disease-affected cells must first communicate their condition to the other cells, narrow the focus work together to successfully coordinate the desired self-healing by interacting with one another (e.g. via activation of immune cells, to control a bacterial infection, produce stem cells to close a wound, etc.)

- This principle of intercellular communication production and energy supply does not preclude the prevention of ageing, since biological ageing means nothing more than the progressive decline of cell functions. Even a reduction like this must first be recognised by the cells and communicated among them for them to be able to successfully repair the degenerative processes we commonly call 'biological ageing'.

  The interplay of *communication* and *energy flow*, in any case, as in the prevention of ageing, is the absolute prerequisite!

There are certainly many definitions of health, vitality and youth, but this one is very apt:



the basis of our healthy, fully functional and vital existence is undisturbed communication between our cells, which, however, depends on an undisturbed flow of energy – health is the surplus cell energy!

CONCLUSION:

only if the communication of our 37,2 trillion cells from which we are formed runs completely smoothly can we function, stay healthy and age much more slowly. For this, our cells need sufficient energy. This communication in the form of the transmission of information through stimulus transmission represents the absolute foundation for the healthy functioning of our body, our mind and our soul.

Traditional healing systems such as TCM (Traditional Chinese Medicine) always emphasise the disturbed flow of energy as the cause of all diseases. Accordingly, healing takes place by dispersing blockages, which logically lead to blocking at one end and a shortage at the other and thus unbalance the organism. Only by dispersing the blockages can the energy flow unhindered again and the body return to health.



Rare agreement between conventional medicine and traditional medicine

And indeed, conventional medicine is struggling with these basic, very logical, pearls of wisdom, but it must gradually acknowledge them. Did you know, for example, how long conventional medicine has recognised acupuncture from traditional Chinese medicine and which Western health insurance companies are increasingly subsidising?

Correct, only since conventional medicine has had the equipment to measure the blocked energy flows that acupuncture mobilises! Acupuncture is just one example of the intuitive use of Traditional Chinese Medicine that has been practiced successfully for thousands of years, while conventional medicine taunted and ridiculed it for more than a century... and finally had to learn a lesson...!

The spiritual-energetic influence is measurable and demonstrable!

And the spiritual energy has also been measurable and representable for a long time! Dismissed as esoteric nonsense by most orthodox physicians and by those who regard themselves as the most progressively minded, alchemical essences (including gold, among others) have recently impressively proved their effect in scientific experiments.



In addition to the *meridian energy measurement* and *biophoton measurements*, the so-called *HFS Kirlian photography* confirmed that the alchemical essences are indeed able to activate and harmonise the human energy system in an extraordinary way and develop an energetic-mental power that is otherwise only achieved by very experienced meditators and top therapists.

With so-called HFS Kirlian photography (advanced electrophotography), an attempt was made to verify, for example, that alchemical essences are actually capable of measurably activating and harmonising the human energy system.

For several years, for comparison purposes, over 500 subjects who practice various energetic or spiritual techniques and practices, ranging from meditation forms, Qi Gong and Mudra to Reiki, have been studied by means of HFS Kirlian photography. Whenever the respective method (Qi Gong, Mudra, Reiki, etc.) was intensively practised, a special pattern emerged on the monitor, known as the 'energetic finger ring'.

In the HFS Kirlian image, the otherwise separated radiation rims around the fingertips begin to connect into a single ring, which unites all fingers. The five finger rings form a common energy ring.

This phenomenon is interpreted as a higher level of energetic control, which is activated and remains above the level of chakras and meridian energy.



Christian Seidel, the inventor of HFS Kirlian photography, suggests that a complete fusion of the finger ring is a kind of new, much more powerful 'operating system', an energy synchronisation at a much higher level than before.

This exact image is formed when taking alchemical essences, such as gold. The energy system is generated in this way with each individual intake, thus generating an energetic effect in the body, which otherwise can only be produced very elaborately by very intensive meditations or energetic treatments.[408] With this knowledge, we have, for the first time, not only scientific proof that these meditation methods stimulate the energy system, but also that the daily intake of alchemical substances (colloidal gold, silver, platinum) may even have the same, or even better, effects as time-consuming meditation!

Considering that the principle of electrical stimulation for conventional medicine is no longer a pipe dream, the basic aversive attitude of a medicine that considers itself 'modern' means it has a lot to learn about the basic principles of energy flow in the body.

For example, the acknowledged facts about which, fortunately, one no longer has to fight, are the importance of electrical stimulation within cell communication, the best examples of which are our two most important organs: our brains and our hearts! It has been proven that electrical impulses form the basis

[408] http://www.edelstein-essenzen.de/test3.php



of sensory processing in the brain through which individual nerve cells communicate. It is these signals that transmit information in the brain from one neuron to the next. The same applies to stimulus transmission, and thus activation of the heart muscle and skeletal musculature.

Every single pump of our heart muscle is preceded by an **electrical stimulus**. This is initiated by the sinus node and passes through the autonomous **electrical conduction system** to the heart muscle cells. The skeletal musculature is no exception here; electrical impulses, which are responsible for every tiny movement of our limbs, run from the cerebrum via the spinal cord to the motor nerve and finally to the muscle fibre. The unimpeded flow of energy, the cell communication via the electric stimulus transmission, are an indispensable prerequisite for our mental and physical well-being, starting with intuition, passing through intelligence, the undisturbed work of our organs, to optimised muscle activity!

You will rightly ask at this point about the role colloidal gold plays within the above statement...

As described above, humans are largely '*electrical beings*'. From thinking processes, through language, to feelings, to muscle contraction, we rely on electrical conduction within our bodies. All nerve cells communicate with each other via so-called 'synapses'. The resulting flow of information determines, among other things, whether we are healthy, how much energy we feel, how well our body's own regeneration and repair processes work, how clearly and attentively our



brains and sensory organs work, how efficiently we coordinate muscle activities, and much more.

At this point, the technology of medicine is far ahead!

How is this to be understood?

Quite simply: 90 % of people probably do a lot more for the transmission of their TV picture and their mobile phone ringtone than for their own health! Wherever large volumes of information data and streams need to be forwarded intact at the highest speed, the technology uses the material 'gold'; take, for example, high-quality printed circuit boards, HDMI plugs and microprocessors, which are known to be made of gold! So, if our health, our functionality, youthfulness and vitality, as described in detail above, depends on the flow of information, which essentially takes place electronically, the (cell) protection we experience and the maximum performance we are capable of are self-explanatory when we provide our body with the most effective and safe medium of transmission available to us humans thanks to 'Mother Nature':

colloidal gold!

Colloidal gold improves the information flow of our genome by up to 10,000 times!



In view of this, in the context of the research results of the University of Basel, it is not an exaggeration to speak of colloidal gold as a real sensation. In 1999, researchers at the University of Basel succeeded in measuring the electrical conductivity of DNA molecules for the first time.

Within this research, it was shown that the information flow of the DNA could be improved by up to 10,000 times thanks to the application of colloidal gold!

We understand DNA as a complex molecule that stores all our genetic information. The DNA of a cell contains all the coded knowledge that the cell needs to function and survive.

If one considers that said information flow of the DNA is the transmission of genetic information, which must be passed on as intact as possible to the daughter cells with each cell division (conventional medicine says the cause of carcinogenesis is defective genes passing on information during this process), then one becomes aware of the medical sensation revealed here...!

Energy is life and the electrical conductivity of our DNA is a fundamental factor in the energy production of our cells!

After just a few days or weeks of regular liquid (colloidal) gold intake, the electrical conduction within our entire body increases significantly. On the one hand, our cells are revitalised in an unprecedented manner. On the other hand, they can regenerate much better, we feel energetic and mentally balanced during the day, but at night, we experience restful sleep.



Colloidal gold increases intelligence by 20 %

As already described in the introduction and as probably known by most readers already, the nerve cells in the brain communicate via electrical impulses – only through these signals is information sent from one neuron to the next in the brain.

The attentive reader might conclude that regular intake of colloidal gold not only increases the transmission of genetic information many times, but could also have a noticeable positive effect on all body processes that depend on electrical impulses – including the brain power.

That's really how it is! Within a pilot study, participants' IQ score increased by a whopping 20 %, as evidenced by an IQ test that subjects took at the beginning and after 3 months of gold intake.[409]

Gold enhances mood

By dispersing internal blockages, calming the nervous system and activating the inner energy, gold provides inner relaxation and a harmonious perspective. Gold is also proven to stimulate the production of endorphin-like hormones that create a good mood and a harmonious inner feeling.

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[409] http://www.mh-training.at/mediaCache/Kolloidales_Silber_Gold_u_Zink_695054.pdf



Colloidal gold increases performance and energy

The nano-sized, tiny gold particles spread at a rapid speed in the entire body (also in the mitochondria, the 'power plants' of our cells) and bring us an unexpected energy boost. Due to the optimised intercellular communication, our physiological and mental performance increases noticeably and measurably.

Gold increases movement coordination

Our movement coordination depends on the neural interaction between the cerebrum, spinal cord, motor nerve and ultimately muscle fibres. This communication is controlled by electrical impulses, and as we read above, gold has the best electrical conductivity of all metals. The intake of colloidal gold enhances the electrical impulses within the nerve cells and therefore intramuscular coordination – something that benefits everyone, especially the elderly and competitive athletes!

Gold – a potent scavenger of free radicals

So-called free radicals are crucially responsible for ageing processes and countless diseases, ranging from ADHD, to cardiovascular diseases, autoimmune diseases such as multiple sclerosis and cancer. Because colloidal gold contributes to the production of two extremely effective radical scavengers (so-called 'antioxidants'), namely glutathione and SOD, it protects against countless diseases and slows down the ageing process.

Colloidal gold stimulates the 'Methuselah enzyme'



The enzyme SOD is our most important enzymatic antioxidant and mainly fends off the most dangerous radicals for us humans, the 'superoxides'. Not for nothing is the SOD also dubbed the 'Methuselah enzyme'. The function of glutathione, a very potent antioxidant that also frees our bodies from inflammation and poisons, should also not be underestimated.

Gold stimulates the immune system

In several studies, it has been shown that gold stimulates the phagocytes of the immune system (the 'macrophages'). However, gold does not just act as a stimulator, but rather as an intelligent regulator. This has the advantage that it does not cause excessive immune reactions, which in themselves can lead to unpleasant symptoms and diseases (allergies, arthritis, etc.).

Antibacterial and antiviral effects of gold

While colloidal silver, the 'little sister' of colloidal gold, is known to eliminate bacteria, viruses and fungi in a very short time, colloidal gold is also capable of effectively fighting bacteria and viruses. As already described in the preamble, gold colloids are, at only 0.126nm, about 2,000 times smaller than the smallest known bacterium. Gold owes its ability to penetrate and destroy bacteria, viruses and other parasites to this fact. In addition to the immune-stimulating properties, gold can also attack directly and free us from unpleasant parasites!



As Robert Koch discovered in 1890, tuberculosis bacteria cannot survive in the immediate vicinity of gold. An interesting study from 2011 and another from 2013 demonstrated the efficacy of gold nanoparticles against salmonella.[410]

Protection against inflammation

Chronic inflammation are symptoms of many diseases and not infrequently, but unfortunately, are causes of other emerging diseases at the same time – a vicious circle, which must be broken as soon as possible. Also, inflammation has been shown to accelerate our biological ageing by, not least, contributing to the shortening of our telomeres (the so-called 'life lights')!

Not only in everyday therapy, but also in scientific studies, gold was able to demonstrate pronounced anti-inflammatory effects. Researchers at Karolinska University Hospital in Stockholm (Sweden) have recently shown that colloidal gold stimulates a protein called 'HMGB 1', a process that helps to reduce inflammation.

It is therefore little wonder that gold was successfully used for rheumatic diseases 100 years ago, for example in rheumatoid arthritis. However, the former

[410] Brigitte Hamann, 'Heilen mit Gold' ('Healing with Gold') 2nd Edition 2015, p. 87



method of administration, a gold salt injection, turned out to be disadvantageous, since the gold salt injections led to side effects that colloidal gold does not have on its own (due to its purity)!

Colloidal gold repairs our DNA

The entire genetic life programming of a cell is encoded within our DNA. In cooperation with the RNA, the DNA controls all body processes at the cell level, including the necessary repair of cell damage occurring daily within cell metabolism. As colloidal gold improves the flow of information from our DNA (genetic material) by 10,000 times, gold plays a crucial role in DNA repair. The body uses gold molecules to repair DNA damage. Facts confirmed by Dr. Gabriel Cousens, among others.

It has been proven that DNA repair is also supported by glutathione contained in colloidal gold.

Colloidal gold reactivates our glandular system

Glands are important organs that control vital processes in the body, produce hormones, secretions and sweat.

The ageing of our glandular system is generally associated with loss of functions and numerous diseases and complaints. From the release of hormones to the need-based regulation of our body temperature, glands take on vital tasks.



Millions of glands are distributed throughout the body of every human being. Depending on the place of release, a distinction is made between endocrine glands and exocrine glands. Endocrine glands give off secretions into the blood vessel system, while exocrine glands secrete onto internal or external surfaces.

Endocrine glands

- Parathyroid gland
- Thyroid gland
- Pituitary gland
- Leydig cells of the testicle
- Enterochromaffin cell
- Islet cells of the pancreas
- Pineal gland

Exocrine glands

- Sweat
- Sebaceous glands
- Salivary glands
- Lacrimal glands



- Bronchial glands
- Prostate
- Exocrine pancreas
- Brunner's glands
- Gastric glands
- Uterine glands

Colloidal gold is able to reactivate our complete endocrine system, prevent numerous signs of ageing and diseases associated with an aged glandular system, and repair existing functional deficits and counteract blockages.

The effect of colloidal gold on a very special gland located in the centre of the brain – our pineal gland – is very interesting!

Gold activates our 'third eye' – the pineal gland

The pineal gland (also called 'epiphysis') is not only responsible for controlling our circadian rhythm in conjunction with melatonin production – it can do much more!

Do you know the feeling that you are being watched, suddenly turn around and actually discover someone staring at you from behind?



A phenomenon of which Plato spoke in connection with the so-called 'seventh sense'.

Do we really need to see, hear, smell, taste and feel to perceive the things around us? Not at all!

'*There is a small gland in the brain in which the soul performs its function more specifically than in any other part of the body'.*

Even René Descartes (1596-1650), a famous French philosopher, scientist and mathematician, studied the pineal gland and came to the conclusion that the pineal gland is associated with vision.

Do we humans have another eye, the 'third eye' that goes beyond the function of physiological 'seeing'...?

....'had', i.e. the past tense, would be the right expression.

While our ancestors had a pineal gland of around 3 cm in size, our lack of natural solar energy, harmful environmental influences and use of poisons, such as fluorides in our toothpaste, have gradually shrunk the pineal gland over many decades to the present 3-5 mm. Furthermore, energy blockages in the brain lead to insufficient energy flowing through this area – depriving us of the fabulous function of the third eye...



Modern research has shown that internal energy is conducted directly through the centre of the pineal gland. The observations by René Descartes have been scientifically confirmed and even explained physiologically.

Accordingly, the pineal gland gives us the extraordinary ability to perceive electromagnetic fields in another frequency range. By channelling energy through the pineal gland, we can perceive the electromagnetic fields surrounding us much more consciously and thereby improve our intuition. In addition to stronger intuition, this creates a sharpened perception and even awareness of spiritual experiences.

These skills and experiences, which are already mystical to modern man, are denied to modern humans due to the lack of energy reaching the pineal gland. This means that the abilities described above for deeper intuition, spirituality, keen perception, but also sensitivity to reality, are very limited.

Gold strengthens the flowing energy in this area of the brain and the function of our pineal gland, both of which can result in the recovery of the abovementioned abilities - with this, colloidal gold opens our 'third eye' – 'seeing' becomes 'SEEING' a dimension already unknown to modern man!

'*We experience more than we understand'* (Hans-Peter Dürr, quantum physicist)

As if that were not enough, the improved perception of electromagnetic influences means that our body can not only better compensate for the negative sides of electrosmog, but is even able to turn electrosmog into useful energy.



Gold renews the connective tissue and makes you beautiful

One of the biggest problems of skin ageing, besides the influence of free radicals, is 'glycation'. As the name implies, this is the negative effect of sugar on our connective tissue.

With increasing sugar concentration in the blood (caused by excessive sugar consumption or diabetes), AGEs (advanced glycation end products) are created as a result of uncontrolled reaction between sugars, lipids, and proteins.

The collagen fibres of our connective tissue gradually harden and lose their elasticity. On the outside, wrinkles and sagging skin characterise this process as part of an ageing process that can be effectively defeated with the ingestion of colloidal gold. Worse than this primary visual deficiency is the effect of the same AGEs on our blood vessels, where glycation favours the development of atherosclerosis.

Colloidal gold reverses glycation

In studies, colloidal gold has demonstrated a phenomenal anti-glycation effect – it has been shown that colloidal gold not only protects against harmful sac-



charification, but is also able to revise significant glycation damage to a remarkable extent! Glycation within human skin was reduced by 56 %.[411] The glycation-related distances between the tissue fibres in human skin further decreased by 40 %![412]

Gold improves nutrient uptake and optimises metabolic processes

By improving the colloidal properties of the blood, colloidal gold optimises our entire metabolism. Nutrients are absorbed better, toxins are excreted more efficiently and digestion is promoted. This not only benefits the cell metabolism of all our tissue forms and organs but colloidal gold, as we will read later, proves to be an excellent remedy for chronic obesity due to these properties.

Gold detoxifies the organism and cleanses the body, mind and soul

By optimising metabolic processes, gold purifies our body, the positive influence on our inner balance resulting from the improved electro-magnetic energy flow, intuition, sharpened perception, harmonisation and de-stressing 'cleanses' our soul and our spirit.

In summary, gold has the following effects:

- regulative

[411] https://www.researchgate.net/publication/221794610_Anti-glycation_Effect_of_Gold_Nanoparticles_on_Collagen

[412] http://info.kopp-verlag.de/medizin-und-gesundheit/gesundes-leben/brigitte-hamann/kolloidales-gold-entdecken-sie-eines-der-grossartigsten-heil-und-verjuengungsmittel.html



- reparative
- regenerative
- energetic
- calming
- activating
- antioxidant (protects against free radicals)
- anti-inflammatory
- antibacterial
- antiviral
- antitumoural
- mood-enhancing
- rejuvenating
- cell renewing
- detoxifying
- sleep-inducing (at night)
- gold increases intercellular communication



- gold harmonises our nervous system
- it activates and regenerates our endocrine system
- gold improves blood circulation
- gold makes you more agile
- it improves all motor skills
- gold increases (self) awareness
- it increases the ability to coordinate
- gold boosts intelligence
- it improves our sense of time
- it increases intuition
- gold calms the mind
- gold increases perception
- it accelerates wound healing

and much more.



Gold denied official recognition

At this point, you may ask the perfectly legitimate question of how colloidal gold is not known to the average person or to their doctors, given these phenomenal benefits to human health?

The answer is, first of all, because gold is neither approved as a remedy nor as a nutritional supplement!

Several factors explain this:

- The costly and expensive production of colloidal gold and the required, expensive drug approval studies would require patent protection for the pharmaceutical industry to profit from it.
- But gold is a natural product, and natural products cannot be patented.
- Gold competes too much with countless medications to which it is far superior in terms of its lack of side effects!

Furthermore, research into bioactive metal ions is still in its infancy and is currently barely within the reach of nutrition science – the depressing principle is always:

'We reject even proven effects if we do not understand them!'



What this means is explained by the chemist Noack as follows[413]:

What is considered nutritional is not even reconciled with basic biochemical knowledge, so recommendations made by nutritionists very often contradict fundamental biochemical principles.

Ecotrophology assumes that 80 % of the elements contained in our body are unnecessary, i.e. nonessential or even accidental (coincidental).

Thus, irrationally, 80 % of the elements in our body would be present in our body anyway and do not matter. And because the ecotrophologists see the world in black and white, the politicians take this division as an opportunity and these recommendations become a basis for their prohibitions. That is, all elements which ecotrophologists classify as 'accidental' may neither be fertilised nor supplemented. As a result, 80 % of these elements found in our bodies are gradually lost or depleted. These elements also include gold, which, for the above reasons, may only be sold as experimental water in the EU, whereas in the USA, all these beneficial trace elements of metallic origin (gold, silver, platinum...) may be purchased freely.

[413] http://www.ursprunc.de/videos/



Specific effect of colloidal gold

After examining the general effect of colloidal gold, let's take a look at the specific effects of colloidal gold on diseases and conditions. Because colloidal gold acts holistically on our body like almost no other substance, it is of course impossible to list all the diseases and conditions that colloidal gold has a positive effect on.

Among other things, colloidal gold is used both traditionally and within modern medicine against the following ailments: Arthritis, asthma, anxiety, obesity, joint diseases, rheumatism, addictions (nicotine, drugs), depression, low energy, chronic fatigue, burns, skin diseases (irritations, neurodermatitis), hot flashes (menopause), cancer, mood swings, cardiovascular problems, night sweats, digestive problems, nervous disorders, multiple sclerosis (MS), Alzheimer's, dementia, all glandular diseases, coordination problems, sleep disorders, allergies, HIV and many more.

Effect of colloidal gold against allergies

Modern research has been able to confirm that colloidal gold is effective against allergies. We owe very convincing findings in this context to Guy Abraham, who observed a significant decrease in the allergenic immunoglobulin E (IgE) while taking colloidal gold.



About 90 % of all allergies are IgE allergies that belong to Type I. These include hay fever, allergic conjunctivitis, allergic asthma, food allergy, Quincke's oedema (hives), etc.[414]

Effect of gold colloids against cancer

Alongside stem cell research, nanomedicine has been ringing in a new medical age for a few years, with numerous promising treatment approaches, even for diseases that conventional medicine has given up the fight against.

Cancer remains the greatest scourge on modern humanity, and unfortunately it is on the rise.

If the cancer development thesis, as propagated by conventional medicine, is given preference, then colloidal gold is the best way to prevent the onset of cancer.

This assumes, in fact, that the malignant tumour arises during cell division, namely, if within our genome, the DNA, information from damaged genes is passed on to the daughter cell. Based on communication which improved by a factor of up to 10,000 in studies, the damage would probably be recognised and corrected at this point and cancer would be prevented.

Both conventional medicine and alternative medicine agree at least that cancer is promoted by environmental toxins and free radicals play a cancer-promoting

[414] Brigitte Hamann, 'Heilen mit Gold' ('Healing with Gold') 2nd Edition 2015, p. 92



role in all stages of cancer. The detoxifying and highly antioxidant effect of colloidal gold counteracts these unfavourable parameters.

The demonstrable positive effect of colloidal gold on the immune system is further correlated with the successful use of gold colloids in cancer therapy.

The US surgeon Edward H. Ochsner reported as early as 1935 in his article 'Colloidal gold in inoperable cancer' that the administration of colloidal gold causes cancer cells to stop growing. More than that, the cancer pain subsides and the appetite returns – so colloidal gold not only counteracts cancer growth, but also cancer pain and cancer cachexia.[415] Therefore, it is not surprising that there are over 1,300 studies on cancer and colloidal gold in the largest medical study archive (pubmed.com) in the English language alone!

[415] Brigitte Hamann, 'Heilen mit Gold' ('Healing with Gold') 2nd Edition 2015, p. 92



Gold helps with cardiovascular problems

Every single heartbeat is controlled by **electrical stimulation.** The contraction of the heart muscle is initiated via the conduction system of the sinus node. By optimising intracellular communication, gold, as one of the world's best conductors, counteracts cardiac arrhythmias.

Ageing prophylaxis and rejuvenation with colloidal gold

The effect of colloidal gold can be attributed to both the exciting category of ageing prophylaxis (retardation of biological ageing) and the far more fascinating category of reverse ageing (biological rejuvenation)!

All aspects of ageing prophylaxis, as well as biological rejuvenation, begin at the cellular level. Only if we succeed in protecting our 37,2 trillion cells from further destruction will we successfully achieve anti-ageing effects. On the other hand, biological rejuvenation requires that we actively carry out cell renewal.

The former (anti-ageing) is a lot easier to implement, this is already relatively easy to achieve with a healthy diet, some potent antioxidants and two weekly training sessions in the fresh air. The prime discipline is and remains reverse ageing, which is not just the delay of ageing processes, but even the active reversal of ageing!

As we have seen above, colloidal gold acts as a very effective radical scavenger and counteracts glycation and inflammatory processes in the body. This would



already be sufficient for colloidal gold to be classified as a highly potent anti-ageing agent. Colloidal gold goes much further...:

The DNA (our genome), together with the RNA, controls all body processes at the cellular level. The vital repair of cell damage occurring daily within the cell metabolism is one of these processes. By improving the information flow of our DNA (genetic material) by up to 10,000 times, colloidal gold supports the repair of our 37,2 trillion cells, resulting in highly active reverse ageing, i.e. the reversal of biological ageing. This rejuvenation process is directly supported by the rejuvenation of the entire endocrine system already described.

Effect of colloidal gold against arthritis

Already in 1997, in a study to prove the analgesic and anti-inflammatory effect of colloidal gold on arthritis, Dr. Guy Abraham and Dr. Peter Himmel discovered that it increases the mobility of patients and minimises swelling. Motor activities were performed better after just a week of colloidal gold intake.[416]

Effect of colloidal gold on arthrosis

Within veterinary medicine, gold implants in arthrosis have been a part of standard medical care since 1993, with the first gold implants successfully completed as early as the mid-1980s.

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[416] https://www.purestcolloids.com/colloidal-gold-studies.php



In 1996, three Danish human physicians began applying gold implants to humans as well – currently, the number of arthrosis patients implanted with gold is estimated at least 8000 people.

Gold implantation is successfully used, among others, in the following joints:

- knee
- hip
- pain in the neck
- small joints
- in the back area

How does such an intervention work?

Under local anaesthesia, either gold platelets, gold wire pieces or gold beads (size 1-2mm) consisting of 24-carat fine gold are injected into the tissue around the affected joint. The minimally invasive procedure is associated with no further complications or pain apart from the injection pain.

How does gold implantation affect arthrosis in joints?

Gold implants constantly release the smallest amounts of gold ions.

- These gold ions have an anti-inflammatory effect



- The reduction of inflammation prevents pain
- Due to the reduced pain, the problematic posture taken to reduce pain is no longer necessary
- This relieves the entire musculoskeletal system

Many years of use in German dogs and horses shows that they can, in most cases, run without pain after gold implantation as soon as they have awakened from anaesthesia – as long as they live. If several joints are affected, these too will be provided with gold implants.

Source: http://goldimplantation-fuer-menschen.de/

The ring finger phenomenon

To date, conventional medicine speaks of a phenomenon that presents itself on the ring finger of persons suffering from polyarthritis or arthrosis. While all fingers hurt and are motion-limited, only the ring finger, on which a gold ring is worn is pain-free and fully mobile. Furthermore, it is often observed that the gold ring leaves a black border on the skin of a person suffering from joint disease.

So, while orthodox medicine continues to be puzzled, alternative physicians have long been unanimous that absorbs the gold as a healing substance through the skin to rid itself of its suffering, which is why the ring finger remains flexible and painless. The dark border on the skin is due to other alloys, as 750 gold is



only 75 % pure gold and 25 % copper or nickel. These are not absorbed and remain visible on the skin.

Colloidal gold works against salmonella

A study from 2011 and another from 2013 demonstrated the efficacy of gold nanoparticles against salmonella.[417]

Effect of gold against HIV viruses (AIDS)

With Auranofin (trade name: 'Ridaura'), an organic gold compound that is otherwise used as a basic therapeutic for arthritis to treat joint swelling and inflammation, a research team was able to greatly reduce the stock of HIV-infected CD4 cells. This sounds very promising in that even antiretroviral therapy 'ART', which is considered to be a modern AIDS treatment, in contrast to auranofin, was not able to do this.[418]

Effect of colloidal gold against excess weight

Colloidal gold reactivates and regulates our entire endocrine system, which has a very positive effect on our digestion and metabolism. Due to the metabolism and digestion-stimulating effect, gold is an important aid for overweight people who want to, or have to, lose weight.

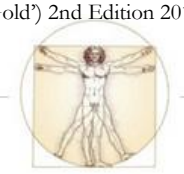
For example, Brazilian doctors Nilo Cairo and A. Brinkmann ranked colloidal gold first for treating obesity in their 'Materia Medica'.[419]

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[417] Brigitte Hamann, 'Heilen mit Gold' ('Healing with Gold') 2nd Edition 2015, p. 87

[418] Brigitte Hamann, 'Heilen mit Gold' ('Healing with Gold') 2nd Edition 2015, p. 89

[419] Brigitte Hamann, 'Heilen mit Gold' ('Healing with Gold') 2nd Edition 2015, p. 74



Effect of colloidal gold against depression and anxiety

The activation and harmonisation of the entire endocrine system on the one hand, and the activation of life energy and calming of the nervous system by colloidal gold on the other hand, led to the successful treatment of depression and anxiety in the early years, particularly in the USA. After only a few days, patients report regular relief of symptoms and an increased zest for life.

Effect of colloidal gold on sleep problems

Because the colloidal gold activates and regenerates our pineal gland, which in turn produces the sleep hormone 'melatonin' at night, the intake of colloidal gold has a very positive effect on sleeping disorders.

Colloidal gold and its effect on alcohol addiction and other addictions

Until 1885, colloidal gold was used successfully as a standard therapeutic for the treatment of alcohol.[420] Even nicotine, medication and drug addiction do not escape the effect of gold. The reason for this is the positive effect of colloidal gold on three factors, which play a fundamental role in addictions:

1) harmonisation of the whole endocrine system

2) activation of internal energy, and

[420] http://prolongevitygold.com/?lang=en



3) simultaneous calming effect on the central nervous system.

Libido-enhancing effect of colloidal gold

Impotence can have a variety of causes, including stress, overwork, gland ageing, and other blockages that can lead to the loss of our potency and libido.

Through the reactivation of the sexual glands, the production of hormones can be stimulated, and the harmonisation of our nervous system releases psychological and physical blockages that affect our sex life. If taken longer, colloidal gold may act as a natural aphrodisiac.

Effect of gold against multiple sclerosis (MS)

According to Edgar Cayce, the main cause of MS is the lack of gold in the body, which prevents the glands from producing the substances important for the nervous system to function undisturbed.

Effect of colloidal gold on PMS

PMS (premenstrual syndrome) refers to the appearance of various complaints in about one in three woman which appear four to fourteen days before the onset of the female menstrual period and usually stop at the beginning.

By harmonising all physical and mental functions, relaxing the body and activating all the glands, colloidal gold can efficiently counteract PMS.



How does colloidal gold work during the menopause?

Even during menopause, women benefit from the holistically harmonising and simultaneously gland-activating effect of colloidal gold. Colloidal gold counteracts hot flashes and sweats with its temperature-regulating effect.

Taking colloidal gold

Even at low doses, colloidal gold has proven to be very effective. Adult people can take two teaspoons (10-20ml) daily, while 1 teaspoon is enough for children. Here, a concentration of between 1 and 8 PPM is common. Morning intake on an empty stomach is optimal. In order to support absorption through the oral mucosa, you should keep the gold water in the mouth for about two minutes before swallowing it.

Due to the positive electrical charge, you should use a plastic or wooden spoon.

Production of colloidal gold

Colloidal gold is produced using an electrolyser, two gold electrodes and distilled water. Depending on the water condition and the electrolyser, it takes about 4-12 hours to produce a concentration of 1 PPM of colloidal gold in a 200ml glass. It should then be stored in a brown or blue bottle, protected from sunlight and heat. It is important to note that colloidal substances should not be stored in the refrigerator or in the immediate vicinity of electrical appliances. The effect of colloidal gold gradually decreases between the third and fourth month with the electrical discharge of the colloids.



Gold side effects

No side effects have been identified with the intake of colloidal gold, in studies or literature. Any problems described, such as in gold injections, are solely due to the accompanying substances which colloidal gold does not possess.

After intake is stopped, colloidal gold particles are excreted away by the body itself after a few days or weeks.



COLLOIDAL SILVER

'*Colloidal silver is one of the most effective killers of bacteria. Colloidal silver turns out to be a miracle of modern medicine. A conventional antibiotic may eliminate a dozen different pathogens, but colloidal silver kills about 650!'*

Science Digest, March 1978

Consumer Reports study of raw chicken breast samples from around the country found that most of them had some bacterial contamination and a good many had pathogenic varieties such as *Campylobacter* or *Salmonella*, the magazine reported yesterday.

Enterococcus species and *Escherichia coli*, which are part of the normal bacteria population in the human gut but may also indicate fecal contamination, were found on most of the 316 samples tested, the magazine said. *Campylobacter* and *Salmonella* were found on 43% and 10.8% of the samples, respectively.

In addition, almost half of the samples (49.7%) tested positive for at least one type of multidrug-resistant (MDR) bacteria (resistant to three or more antibiotics).[421]

[421] http://www.cidrap.umn.edu/news-perspective/2013/12/consumer-reports-finds-bacteria-common-chicken-breasts



In times when new viral epidemics, ranging from bird flu to swine flu to Ebola, are increasingly a cause for concern, and foods infested with antibiotics are causing appalling antibiotic resistance in humans, effective alternatives are becoming increasingly important – because they could be life-saving in the future!

The man who discovered penicillin (antibiotic), Alexander Fleming, already warned:

'*Microbes can be made resistant to penicillin in the lab when exposed to concentrations that are insufficient to kill them. There is a danger that ignorant people may administer too low a dose and make the microbes resistant because they have exposed them to non-lethal amounts'.*

The 'ignorant' here are not us, but our doctors, who prescribe antibiotics almost indiscriminately, and the food industry, which is still allowed to contaminate meat with antibiotics, and increasingly does so. Becoming a vegetarian is no longer a solution, because antibiotics are also found in our drinking water – meaning that pathogens are made passively resistant, we pay with our health and in the worst case, our lives...!

Viruses, bacteria, fungi and other pathogens are on the rise, and many researchers warn of serious epidemics in the near future.
All of this, while, at the same time, the strongest weapons of conventional medicine (antibiotics) fail – we can only protect ourselves through our knowledge; at this point, it is the responsibility of every single citizen to stand for proven



(and far more efficient) natural alternatives against which pathogens cannot be immunised, in order to protect themselves and their families!

Colloidal silver, as well as MMS, grapefruit seed extract and other substances that we discuss in detail in the 'Codex Humanus', are among these extremely effective alternatives to antibiotics – unfortunately, conventional medicine and Big Pharma have put a great deal of emphasis on erasing these traditionally used protective substances from the memory of modern humanity for their own material gain. Specifically, war was declared on these substances at the same time that penicillin was patented!
Colloidal silver is a highly efficient, inexpensive and usually side-effect-free treatment against all parasites, such as bacteria, viruses, fungi, *streptococci ,* staphylococci and other pathogenic organisms.

Colloidal silver can kill as many as 650 pathogens in a record time of six minutes, and if that's not enough, it also supports our immune system in its work.

These are phenomenal facts that are becoming more and more known. Thus, colloidal silver enjoys a steadily growing fan base, which regularly appreciates its antibacterial and antiviral effect...



Far more unknown, however, is another, no less fascinating, effect of colloidal silver, which makes colloidal silver, together with its antibacterial effect, a downright sensational all-rounder:

According to Dr. Robert O. Becker, a well-known biomedical scientist at Syracuse University (USA), silver not only destroys hostile life forms, but also supports the regeneration of vital tissue. And in this case, 'new formation' requires an almost new definition, even for modern medicine's level of stem cell research – read more about why...

What exactly is colloidal silver?

Before we come to the properties of silver as the second word within the compound term 'colloidal silver', we first turn to the first word, 'colloidal'. A colloid is the second-smallest unit of matter, directly after the atom. It is also the smallest possible form into which matter (body, material) can be decomposed without losing its original properties.

In this microscopically small yet fully functional form, silver is able to penetrate into the most remote cells of our bodies to achieve the desired effect; the elimination of all body damaging parasites, bacteria, viruses and fungi.

Another advantage of this extreme comminution is that it increases the overall surface area of the silver particles many times, which in turn means that much of the surface of the inside of the body can be covered with it.



This explains the term ‘colloidal’.

But what about silver?

Effect of colloidal silver

The exact mechanisms of action of colloidal silver have not yet been definitively clarified. A magnetic field of the silver atom group is believed to form around the silver particles and cause their amazing effect.

In colloidal silver water, the so-called ‘Brownian motion’, i.e. a collective magnetic field is generated, the electrical negative polarisation of which has a disruptive effect on pathogens.

This negative polarisation destroys enzymes that are responsible for oxygen production in unicellular pathogens, such as bacteria, fungi and viruses. Because the respiratory chain of these parasites is broken, they suffocate within a few minutes.

Furthermore, the use of colloidal silver clearly benefits our immune system, which in turn can effectively fight against pathogens.



The antibacterial, antiviral and antifungal effects of colloidal silver have been known for millennia. In the 19th century, it was used as a standard treatment and its effect has recently been officially confirmed at the University of Los Angeles Medical School.

These following sections are dedicated to providing in-depth information on 'Colloidal silver' and are intended to provide answers to all of your questions.

History of colloidal silver

According to ancient scriptures, silver was used for healing many thousands of years ago in ancient Egypt and later in Greece, Rome, Persia, India and China.

Paracelsus used silver to expel toxic mercury from the body, and St. Hildegard of Bingen described the healing advantages of silver in diseases such as coughing and congestion. The use of silver for healing purposes has a long tradition, and crushed silver has been used with all sorts of medicinal plants against rabies and other diseases. For a long time, before refrigerators were available, silver coins were put into milk for preservation purposes in order to prevent the development of fermentation bacteria.

Ayurvedic medicine has used colloidal silver in combination with ashes against inflammation, liver complaints and for the purpose of rejuvenation.



It has been known for 3,000 years that water in silver vessels lasts much longer. In the 19th century, colloidal silver was a standard treatment in medicine.

The first modern scientific research on colloidal silver as a remedy was conducted at the beginning of the 20th century. The scientific press, including the *British Medical Journal*, the *Lancet* or the *Journal of the American Medical Association*, responded with enthusiasm. No one reckoned with the resistance of Big Pharma.

It had just discovered antibiotics and patented penicillin. In addition, since the customary production of colloidal silver was very expensive at that time, people turned away from it and turned to penicillin, with the misconception that they were turning to a more advanced and thus better method of bacterial destruction.

Colloidal silver has been forgotten; synthetic drugs have taken over and pushed it out of the market.

To this day, colloidal silver has fared the same as many highly effective and side-effect-free natural products do year after year: despite their superiority in their effect, they are denounced by Big Pharma and sidelined by the market to pave the way for their own side-effect-heavy, synthetic and thus patentable medicines.

Because antibiotics have come to be viewed very negatively by the population and therapists due to ever-increasing resistance and numerous side effects, and



since the Internet has entered all households as an uncensored medium, bringing with it a rapidly expanding discussion between those seeking help around the world, and given that the techniques for the production of colloidal silver have become considerably cheaper, it is once again attracting interest and is currently experiencing a real renaissance.

What do the experts and the press say?

'Any type of fungus, virus, bacterium, streptococci, staphylococci and other pathogenic organisms will be killed in three to four minutes. In fact, no bacterium is known which is not eliminated by colloidal silver within a maximum of six minutes at a concentration of only five milligrams per litre (ppm). And even at high concentrations above 100 ppm, there are no side effects'. (Health Consciousness, Vol. 15, 4)

'*It particularly promotes bone growth and accelerates healing of injured tissue by more than fifty percent'.* (Dr. Robert O. Becker of Syracuse University, USA)

'*Colloidal silver is one of the most effective killers of bacteria. Colloidal silver turns out to be a miracle of modern medicine. A conventional antibiotic may eliminate a dozen different pathogens, but colloidal silver kills about 650!'* (Science Digest, March 1978)

'*It does not conflict with any other medication and does not cause stomach discomfort. In fact, it is a digestive aid. It does not burn in the eyes. Medical journal reports and documented studies over the past one hundred years give no indication of any side effects from oral or intravenous silver colloid, either in animals or in humans.*



It has been used for highly acute health problems, with excellent results. Without wanting to exaggerate: it is time to recognise colloidal silver not only as the safest but also the most effective medicine in the world'. (Perceptions Magazine)

'The ever-growing healthcare crisis and the ever-decreasing efficacy of antibiotics should be reason enough, especially for those working in health care professions, to turn their attention to colloid research'. (Grenzenlos, 7th Ed./No. 11/2000 - November, by Hans Vaterrodt)

'Silver has a good antimicrobial effect in soluble or colloidal form. Therefore, silver compounds are used as preservatives, disinfectants and drugs. Even the smallest amounts of silver ions are bactericidal.

Dr. Vanessa Stark from Ulm University Hospital recently commented on this topic in 'Medical Tribune'. Colloidal silver (CS) has been increasingly offered as a dietary supplement in recent years. It is known to fight adenoviral allergies, blood parasites, candida fungus, inflammation and eczema, as well as bacterial and viral infections'. (**BIO, 2005/2)**

'Silver was known as a bactericide 1200 years ago. It was said that illnesses could not occur when drinking from a silver cup. Silver coins were placed in milk containers to prevent the milk from turning sour.

Reports from influenza patients, people with recurring purulent processes, urinary tract infections, intestinal infections or scarlet fever, who overcame their symptoms in a short time thanks to the silver solution, make one sit up and take



notice.

To use the precious metal for healing purposes, a suspension of microscopic silver particles in demineralised water is used. The resulting remedy is a yellowish, slightly bitter liquid and is effective against bacteria, viruses, parasites and fungi.

It has been extensively researched at various institutes and universities and has proven to be completely non-toxic, so it has no side effects with other drugs. Antibiotic-resistant strains cannot develop any further under silver therapy.

Test tube experiments have shown that even the most resistant pathogen cannot survive for 6 minutes in a solution of 50 ppm (parts per million). The silver ions break the respiratory chain of the microorganisms and paralyse their metabolism; they can distinguish between physiological bacteria and pathogens due to pathogen size and metabolic environment. This indirect attack has the advantage that the germs cannot become resistant to the agent, as is unfortunately often the case with antibiotics'. (Mensch & Sein magazine, August 2001 edition)

'Colloidal silver antibiotic without side effects.
It used to be common knowledge that you could keep food fresh longer with silver. Even Alexander the Great transported water in silver vessels during his long campaigns. And our great-grandmothers, who did not yet have refrigerators, put a silver coin in milk so that it would keep longer.

The silver killed and destroyed the germs in water and milk that made them



undrinkable. What was passed down through the generations for a long time finally became scientifically proven in the 19th century: the antibiotic effect of silver.

Nobles were said to have 'blue blood', which was nothing but skin discoloration due to silver overdose. The nobility contracted this due to eating with silver cutlery.

Nobles were also deemed to have exceptionally good health. The reason: Silver is not only antibiotic in milk or water, but also in bodily fluids. To capitalise on this effect, doctors ground silver in water – or dissolved it with nitric acid – and administered it to combat bacterial and viral diseases. (Tennis live No. 33/2001)

'*According to the statements of the well-known biomedical scientist Dr. O. Becker, all pathogenic microorganisms that are already immune to antibiotics are killed by administering colloidal silver. Pharmacologist Barnes explains: 'Many types of microbes, viruses and fungi are killed by contact with colloidal silver and can no longer mutate'.*

Unlike antibiotics, colloidal silver does not weaken the immune system. Dr. Becker recognised a link between low silver levels and diseases. The average amount of silver in the body is 0.001 %. He claims that lowering this value is responsible for the malfunction of the immune system.

Dr. Becker also reports on experiences with patients that colloidal silver promotes bone growth and accelerated healing of injured soft tissue in a special way, by more than 50 %.

This finding opened up unlimited possibilities and led to rapid advances in medical treatments. But the pharmaceutical industry's far more profitable trade in synthesised antibiotics brought



the triumph of colloid research to a premature halt.

Today's healthcare crisis and the ever-decreasing effectiveness of antibiotics draw attention to colloids – especially the extremely versatile applications of colloidal silver.

Antibiotic-resistant pathogens cause epidemics in the United States. Infectious disease is the third leading cause of illness and death in the United States'. (Published in: *CoMed – Specialist Magazine for Complementary Medicine* No. 04, 2001, author: Oliver Neumann, alternative practitioner)

'Silver and silver compounds were used in the 19th century for the treatment of burn wounds and for disinfection and have only disappeared from the market due to the use of specific antibiotics', explains Dr. Michael Wagener from the IFAM. 'In particular, material-bound solutions for infection reduction are currently experiencing a renaissance. Silver is an interesting alternative.' (Fraunhofer-Gesellschaft Press Release 04/2002)

'Remedies: When electrically charged silver particles are released in water, a non-toxic silver solution is produced which is said to be able to combat more than 650 pathogens such as bacteria, viruses, parasites and fungi. Farmers have already successfully treated diseases such as calf diarrhoea, feverish udder inflammation, etc.' (*Bayerisches Landwirtschaftliches Wochenblatt [Bavarian Agricultural Weekly]*, 27.01.2006 Issue 4/196)



Effect of colloidal silver

The effect of colloidal silver is based on two factors: first, the previously mentioned Brownian movement, whose electrical negative polarisation interferes with the respiratory chain of the pathogens and causes their suffocation, its application also strengthens our immune system, which in turn can fight pathogens better.

Added to this is the extraordinary ability to stimulate cell growth and accelerate the healing of injured tissue by more than 50 %.

Due to the enormously broad spectrum of colloidal silver's activity against about 650 pathogens (bacteria, viruses, fungi, *streptococci,* staphylococci and other pathogenic organisms) and the promotion of cell growth, its effectiveness against countless diseases is just as understandable. Finally, many diseases are directly or indirectly related to these parasites or cell destruction, which colloidal silver can help repair. Colloidal silver has been successful in treating the following diseases:

Diseases of the eye

eye inflammation (ophthalmia)
eyelid inflammation (blepharitis)
conjunctivitis



corneal inflammation (keratitis)
corneal ulcers
lacrimal sac inflammation

Respiratory diseases

flu
whooping cough
Legionnaires' disease
lung inflammation
tonsillitis
nasal catarrh
pleurisy
tuberculosis
rhinitis (nasal mucosal inflammation)

Skin diseases

acne
bromidrosis (foul-smelling sweat secretion)
dermatitis
boils
skin cancer
fungal skin infections
skin tuberculosis (Lupus)
herpes simplex



herpes zoster (shingles)
impetigo (purulent skin infection)
rosacea ('copper fins')
cutting and puncture injuries of all kinds

Diseases of the urological genital area

cystitis (chronic)
gonorrhoea (tripper)
leucorrhoea (white vaginal discharge)
epididymitis
prostate complaints

Diseases of the digestive tract

diarrhoea
gastritis
dysentery
salmonella infection

Colloidal silver has also been reported to have been used successfully in the treatment of the following diseases:

- adenovirus type 5
- allergies
- arthritis



- tapeworm
- conjunctivitis
- blepharitis
- blood parasites
- Candida albicans
- diabetes
- inflammation of the colon
- diphtheria
- impetigo
- eczema
- inflammation
- inflammation of the ear canal
- boils
- ulcers
- gingivitis
- gonorrhoea



- shingles
- skin rash
- sore throat
- skin cracks
- lupus
- hepatitis
- hay fever
- poliomyelitis
- stomach inflammation
- gastritis
- tonsillitis
- meningitis
- otitis
- halitosis
- neurasthenia
- ear disorders



- fungal infections
- rheumatism
- acid-base balance
- scarlet fever
- cuts and puncture wounds
- psoriasis
- seborrhoea
- sepsis
- staphylococcal infection
- streptococcal infection
- burns
- warts
- wounds
- plaque
- gum disease
- gum bleeding



- tick bites

Colloidal silver as a healthy alternative to antibiotics

The following statement from the renowned scientific journal *Science Digest* on colloidal silver in comparison to antibiotics shows that colloidal silver is not just a healthy alternative to antibiotics, but is also superior in effect:

'*Colloidal silver is one of the most effective killers of bacteria. Colloidal silver turns out to be a miracle of modern medicine. A conventional antibiotic may eliminate a dozen different pathogens, but colloidal silver kills about 650!*' (*Science Digest,* March 1978)

The failure of antibiotics

Judging by statistics, we find that modern civilisation has taken a giant leap into the Dark Ages thanks to self-induced global resistance to traditional antibiotics, and one must realise with horror that, like middle-aged people, we have become quite defenceless against bacteria and viruses.

With horror, we hear that 80 % of all bacteria are resistant to penicillin – i.e. it has no effect on them!

In the US, infectious diseases are now the third most common cause of death within the population; our situation might not be so different!

Paradoxically, greedy Big Pharma is responding to this problem by churning out



new antibiotics without taking away the old ones that bacteria are long immune to. As a result, there are now 8,000 allegedly different antibiotics in circulation; the effects and side effects are very dubious.

Colloidal silver is a prime example of how misguided modern medicine can be, so it is not surprising that patients acquired in the year 2011 721 800 infections at hospitals. According to the US Centers of Disease Control and Prevention 75 000 of them died.[422] And 60-80 % of all patients have become partly or wholly resistant to antibiotic treatment!

Reasons for the failure of antibiotics:

Since colloidal silver is not patentable as a natural substance, it makes no sense for Big Pharma to prefer it to its own synthetic – and thus patentable – antibiotics.

The powerful, politically very influential Big Pharma fights tooth and nail against these unpatentable alternatives from nature – which not only compete with the synthetic drugs but are mostly far superior to them in terms of effect-side effect comparison! Therefore, it is in the financial interest of Big Pharma not only to prevent the global therapeutic use of substances such as colloidal silver, but to suppress as much information on the subject as possible.

[422] https://edition.cnn.com/2014/03/26/health/hospital-infections/index.html



Thankfully, thanks to the Internet, this is no longer possible; people are beginning to experience the useless and dangerous treatments being used on them – and what kind of beneficial substances Mother Nature is withholding from them!

Our self-imposed antibiotic resistance

The reasons for the increasing antibiotic resistance are of our own making: on the one hand, these reasons are related to the unconscious intake of antibiotics via animals fed on antibiotics; on the other hand, they consist in the excessive tendency of doctors to prescribe antibiotics, which results in acclimation of the bacterial strains.

The extent of the danger becomes clear when one hears at regular intervals of new bacteria, such as the EHEC pathogen currently under discussion, which endanger the lives of people due to a non-response to antibiotics.

Should we one day be exposed to a real epidemic, such as cholera or the plague, that claimed tens of thousands of human lives, we would be vulnerable to such a terrible scenario again!

Side effects of antibiotics

While people are gradually hearing more and more, albeit incidentally, about the increasing resistance of bacteria to antibiotics, very few people really know how serious the side effects of antibiotics are. These are not restricted to stomach and intestinal problems, which can typically occur after taking antibiotics, but



relevant studies point to much more dangerous side effects. As already described above, the antibiotic 'neomycin' causes liver dysfunction, 'tetracyclines' cause yellowing of the teeth in children, and 'chloramphenicol' causes bone marrow depressions, known as 'anaemic intake'. In addition, antibiotics are associated with hyperactivity in children, allergies, psoriasis, endocrine disorders, Crohn's disease, ulcerative colitis, irritable bowel syndrome, multiple sclerosis and cancer![423]

Furthermore, antibiotics can destroy vital intestinal bacteria and thus put our intestinal flora out of balance. An upset intestinal flora has a tragic effect on our health, because it is an invitation for harmful bacteria to multiply and at the same time it prevents efficient nutrient absorption!

Colloidal silver as a healthy alternative to antibiotics

Thus, while antibiotics only eliminate about a dozen bacteria, but perform this task inadequately due to increasing resistance and cause severe side effects, colloidal silver successfully fights about 650 of all imaginable parasites; bacteria, viruses, fungi, *streptococci,* staphylococci or other pathogenic organisms – with no side effects!

[423] http://www.naturheilt.com/Inhalt/Antibio.htm



And while many people are allergic to antibiotics, allergic reactions to colloidal silver are completely unheard of. The typical resistance that bacteria develop to antibiotics rarely occurs when colloidal silver is used to treat them, if at all. Colloidal silver effectively combats those bacteria that are already resistant to traditional antibiotics and no longer respond to them.

Based on all these facts, colloidal silver is actually not an alternative to antibiotics, but *the* therapy of choice, albeit a hitherto suppressed and therefore relatively unknown one.

Silver produces stem cells that allow entire limbs to regrow...!

As mentioned in the preface, combating viruses, bacteria and all other parasites is by no means the only discipline that colloidal silver masters with flying colours – quite the contrary!

Stem cell research is on everyone's lips, whether in connection with emergency and reconstructive surgery, or very advanced techniques of cosmetic surgery (especially in connection with anti-ageing).

What is so interesting about stem cells?

Stem cells have the extraordinary ability to accelerate wound healing and regenerate even entire organs and limbs when needed! Stem cell research could one day help to avoid thousands of amputations, and even rebuild limbs and organs damaged by bruises, cuts, or disease. Furthermore, the stem cell research for



gerontology (ageing research) is very interesting, in the future, all aged human organs could be brought back to the condition there were in decades before!

Unfortunately, stem cell research is a very complex field and stem cell production, according to the official current state of medicine, is more than difficult, or is morally questionable.

For example, mothers in laboratories even breed embryos for stem cell production, for example, to help a sick family member. However, our immune system repels foreign DNA, causing it to weaken, with all the associated risks to our health.

Stem cells can also be obtained from the blood via complicated procedures, but it is so expensive and time-consuming that it is out of the question for all but the smallest minority of patients...

You can imagine how helpful it would be if there were a method of producing body cells that was completely uncomplicated and cost-effective.

But what if we are not speaking of futuristic visions at this point – what if this method already exists in the form of a cost-effective method based on a natural substance?

Prof. Dr. Robert O. Becker, author of the book '*Cross Currents and The Body Electric'* and former Director of Orthopaedic Surgery at Veterans Hospital Syracuse, New York, can prove these successes with the precious metal silver in



conjunction with an uncomplicated DC procedure on hundreds of patients – regrowing limbs lost due to accidents or diseases...!

In his book, he writes on page 175:

'...*Electrically generated silver ions can produce enough cells to form human blastema (the stem-cell-derived material that becomes healthy, healed tissue) and have restored my belief in a complete regeneration of limbs and other body parts in humans...'*

More on this later, first of all, let's clarify what stem cells are...

Stem cells, as the name implies, are the most primitive of all cell types, found in embryos, foetuses and the umbilical cord, for example. Stem cells have the extraordinary ability to transform themselves into every imaginable body cell when needed, to heal injuries, to regenerate organs and even whole limbs if necessary.

Stem cells are therefore the perfect starting material for all cells, so they can form fresh skin cells, hair cells, bone cells, liver cells, heart cells, etc.

Possibilities that can counteract the worst injuries, diseases and even biological ageing.

While these are well-known facts about stem cell research, it is an absolute novelty in medicine that these stem cells can also be naturally produced, and our body can create the number of stem cells it needs to heal a wound, a limb or



organ itself and can direct the produced stem cells to the respective organ that is damaged!

Even more astonishing, however, is the fact that each of us can easily and inexpensively stimulate our own body to produce the necessary amount of stem cells in order to subsequently convert them into the tissue form required at a given time!

As Prof. Becker was able to establish this – the prerequisite for this is the external delivery of sufficiently positively charged silver ions (silver particles) – in the form of so-called colloidal silver.

In his seven years of research work, Prof. Dr. Robert O. Becker demonstrated that low DC electrical current flowing between a positive and negative silver electrode is able to strongly promote the healing properties of tissue. Healing is accelerated by about 50 %, but even more astonishing is the fact that fully functional, scar-free, healthy tissue will regrow even in wounds that would normally leave large craters or never completely heal. A complete cure and recovery in such extreme cases is always solely attributable to the promotion of stem cell production in the body!

The procedure is so successful that a patient's finger that had been crushed in an accident completely recovered in just two and a half months – with positive functional tests, nerve conduction and blood flow.



Left untreated, the finger would soon turn black and fall off, and in fact the orthopaedists recommended an amputation of the finger – but the patient refused and, fortunately, opted for silver ion therapy!

See corresponding pictures here: http://www.rexresearch.com/becker/becker1.htm

It is precisely these positively charged silver particles that stimulate stem cell production in our bodies, resulting in fresh stem cells that have our body's own DNA and are actually able not only to promote the healing of minor injuries, but also to reconstruct entire human (and animal) limbs!

Unlike colloidal silver produced by the Bredig process, silver nitrate produced by pulverisation of silver is toxic and can lead to argyria (blue discolouration of the skin – the preferred deterrent of the pharmaceutical industry for warning against colloidal silver). The colloidal silver produced by the Bredig method described above is non-toxic and cannot lead to argyria!

Colloidal silver can be easily produced by anyone today, since the corresponding equipment, including the necessary silver rods, are very inexpensive. But since the colloidal silver from the pharmacy production is also very cheap (from about 40 euros per litre), you should opt for ready-produced colloidal silver if you are in any way uncertain.

Dr. Robert O. Becker has investigated the mechanism by which silver ions enable the rebuilding of tissue for almost a decade. Becker presented his findings



for the first time at the first international conference on the use of silver and gold in medicine in 1987. Over the decade, this technique has been used by Mountain Medical Specialties of Lakemont, Georgia, where hundreds of patients with various wounds have been treated.

In addition, a laboratory study by the US Army Institute for Surgical Research at Fort Sam Houston has shown that experimental animals with burns treated with silver-nylon dressings recovered much faster under controlled conditions.

'*The advantages of this technology',* says Prof. Becker, '*are the ease of use, the use of the patient's own cells, the absence of immune response, there is no need to use human foetuses as a source of stem cells, no need to use immunosuppressants* (drugs that inhibit the immune system)*, and it's more economical'.*

After several hundred patient cases, Prof. Becker became convinced that the method works in three stages:

Stage 1:

chemical reaction of the highly active free silver ions with all bacteria or fungi in the wound, which are inactivated within 20 to 30 minutes.

Stage 2:

in the following days, Stage 2 follows. Silver acts on the fibroblast cells (the cells that usually cause scars to form in the course of wound healing), causing them



to return to their embryonic state and become stem cells. These cells have the task of reconstructing new tissue in its original structure without forming scars.

Stage 3:

In the final phase, the silver ions come into contact with the living cells in the wound area and immediately start to produce stem cells and transform into the healthy tissue that was present before the wound!

The result of this transformation is the complete restoration of all anatomical structures without scarring, including the nerves and blood supply. No cases of argyria (discolouration of the skin) or any other side effect were detected. No other known treatment provides a sufficient number of embryonic cells (stem cells), which is essential for a proper regeneration of damaged or destroyed human and animal tissue. This success shows that silver ions not only have the potential to heal near-surface wounds, but also to restore internal organs such as the heart, liver, brain and spinal cord.

Application of colloidal silver

After reading about the specific effect of colloidal silver on illnesses under 'Effect of colloidal silver', it's time to learn about its uses. The exceptionally good tolerability of colloidal silver in any situation allows for specific application for a particular complaint or disease (even for eye infections and open wounds). Commercially, colloidal silver is sold in liquid form or as a cream; you should



make the appropriate choice depending on the intended application.

Internal administration of colloidal silver

Internal administration is either oral, rectal, vaginal or intravenous.

Orally: for inflammation and diseases of the mouth or throat, colloidal silver is rinsed or gargled in liquid form. In other cases of oral administration, the colloidal silver is drunk. Here, you should first keep the liquid under the tongue for a few seconds to allow absorption through the oral mucosa before swallowing the liquid. However, to ensure its effectiveness in the gut, one should drink the colloidal silver as quickly as possible with plenty of fluid to prevent absorption in the stomach. Another possibility lies in the use of colloidal silver in enemas, i.e. rectally. In both cases, as a precaution, the natural intestinal flora should be replenished (for example, with the help of probiotic products such as yoghurt or kombucha tea).

Intravenous application: This is probably the rarest form of application of colloidal silver and must be performed by an experienced therapist.

Nonetheless, blood poisoning has been treated long ago using this method, with no side effects at all. This too is proof that colloidal silver can generally be used without side effects.



External administration of colloidal silver

External application is recommended for inflammatory and bacterial conditions, but also acne, open wounds, burns, warts, herpes, athlete's foot, etc. colloidal silver shows its tremendous versatility here: it can even be used in drop form for eye inflammations!

Preventive application

In order to ensure systematic prevention, it is best to drink colloidal silver over several days.

Dosage

Josef Pies, the author of the book 'Immun mit kolloidalem Silber' ('Immune with Colloidal Silver'), recommends a low dosage, as experience shows that colloidal silver helps in even the smallest amounts. The colloidal form, the microscopic silver particles, infiltrate every little corner of our body and our organs and can thus unfold their effect everywhere.

In some cases, usually in chronic diseases, a higher dosage may be appropriate, but such a decision should be left to experienced naturopaths and therapists.

According to a report from Heilbronn Naturheilpraxis (Heilbronn Naturopathy



Practice)[424], the staff first tried higher doses (100 ppm up to 4 x 200 ml per day) of colloidal silver on themselves, without experiencing any side effects and, according to their own statements, subsequently took 50-200 ml of colloidal silver in a concentration of 25 ppm several times a day for all infectious diseases, achieving success in a 'maximum number of cases without observing any negative side effects'.

Naturopathic practice argues that quantities of 150-200 ml are appropriate and can produce positive results in adults.[425]

However, since colloidal silver effects both the direct destruction of the parasites and indirectly effects the strengthening of the immune system and every human (and animal) organism is unique, one cannot give blanket dosing advice. Rather, each person needs to approach the problem wisely and to test how much colloidal silver they need to gain enough powers of resistance.

The most important premise here is definitely the use of pure silver (instead of salt or proteins), since pure silver produces the greatest possible effect with the least possible side effects.

The smaller the silver particles, the fewer needed in the liquid to have an effect. Another premise has already been mentioned: consulting the advice of trained naturopaths on higher dosages of colloidal silver.

For internal use, rather low concentrations (number of silver particles in the

[424] Josef Pies: Immun mit kolloidalem Silber ('Immune with Colloidal Silver'), 2009, p. 51 f.

[425] Josef Pies: Immun mit kolloidalem Silber ('Immune with Colloidal Silver'), 2009, p. 51 f.



liquid) are common, with external application, one can use higher-dose colloidal silver.

According to Jefferson (2003), to prevent disease, you can regularly take about a teaspoon 5 ppm (about 50 micrograms) to prevent a cold in winter, for example.

In times of urgent need, you can also take 30 millilitres with a concentration of 5-10 ppm and for severe and chronic diseases, this amount should be taken over a period of three to four months and longer.

If you want to know a reliable maximum that should not be exceeded, the American FDA's maximum daily allowance can be a guideline that specifies a maximum daily allowance of 5 micrograms per kilogram of body weight.

Colloidal silver for prophylaxis

Adults: One teaspoon (plastic spoon) of colloidal silver once a day before a meal.

Children: see instructions for 'Adults', but only half a teaspoon.

Colloidal silver in case of illness

In case of illness or in case of acute symptoms, you can take 3 teaspoons (plastic spoon) per day. Children should take half of this dose.

The dose can be increased up to 3 x 50 ml per day and left in the mouth for a



long time to ensure maximum absorption via the oral mucosa!

Dosage in animals

Here, the dosage can be derived from the dose recommended for humans, depending on body weight. 30-50 kg corresponds to a child and therefore half a teaspoon of colloidal silver is recommended; 50-100 kg corresponds to an adult and therefore a teaspoon is recommended.

PPM – the concentration of colloidal silver

The usual information on the concentration of colloidal silver includes the abbreviation 'ppm'. PPM is an English abbreviation and simply means 'parts per million'.

This refers to the number of active ingredients; in the present case, the silver colloids (silver particles) in relation to the solvent or carrier.

For colloidal silver in liquid form, the number of silver colloids in relation to the solvent (distilled water) in ml and for colloidal silver in solid form (cream) is the number of silver particles (colloids) in relation to the weight of the carrier substance.

Illustrative example: If one glass of water (200 ml) with 1 ppm of colloidal silver is recommended, this glass of water will contain 0.2 mg of colloidal silver. If you want to increase this concentration, you must increase the ppm number accordingly.



Does colloidal silver cause side effects?

Sometimes, not least in the so-called 'free encyclopedia', people read veritable horror stories about the side effects of colloidal silver. Unfortunately, these are insufficiently scientifically founded and usually confuse pure, colloidal silver with silver compounds such as silver proteins and silver nitrate.

First of all, it is important to state that colloidal silver is not a chemical and should in no way be confused with, for example, mercury or silver salts such as silver nitrate.

When used in normal doses, colloidal silver does not cause any side effects, and even argyria (a cosmetic problem with a greyish-blue colour on the skin), which is often brought up by colloidal silver sceptics, requires an average oral intake of 3.8 grams per day, which equates to millions of times the usual dosage of colloidal silver in adults![426]

If one realises that this amount corresponds to an intake of about 375 litres in the concentration 10 ppm, equivalent to 1875 bottles of 200 ml per day, it becomes clear that we are talking about a surreal scenario!

Incidentally, argyria has so far only occurred in patients who have consumed high doses of silver proteins for years, which should not to be confused with

[426] Josef Pies: Immun mit kolloidalem Silber ('Immune with Colloidal Silver'), 2009, p. 73



pure colloidal silver.

Pure colloidal silver can therefore be classified as safe, moreover: it even supports our immune system!

There is some controversy in the assessment of the situation regarding the good intestinal bacteria during long-term use of colloidal silver.

Some sources claim that colloidal silver selectively damages only the negative bacteria. However, this is not entirely clear from the theory of how colloidal silver works.

Therefore, in his book 'Immun mit kolloidalem Silber' ('Immune with Colloidal Silver'), Josef Pies points out that '*if you consume large quantities of colloidal silver for a longer period of time'*, you may kill bacteria in your digestive tract; you can compensate for this*, for example, by eating yoghurt'*.[427]

At this point too, the American FDA's maximum daily allowance of 5 micrograms of colloidal silver per kg of body weight may be a good guide for interested parties.

In any case, it is appropriate at this point to mention the so-called 'Herxheimer reaction', which may occasionally occur with oral ingestion of colloidal silver,

[427] Josef Pies: Immun mit kolloidalem Silber ('Immune with Colloidal Silver'), 2009, p. 75 f.



and is basically an indication of its effectiveness. It manifests itself, if it occurs at all, in temporary malaise and possibly fever and fatigue, and is due to the mass, sudden death of all parasites, which results in the release of toxins, which can lead to inflammatory processes. In such a case, it is necessary to reduce the dose slightly or temporarily stop and gradually start again.

Does colloidal silver interact with other drugs?

Interactions with other drugs are completely unknown, quite the contrary: colloidal silver is used with other medicines, including antibiotics (for example, '*Dresdner Scheme*').

Production of colloidal silver

The production of colloidal silver focuses on producing the smallest possible particles. While the silver used to be ground with great effort in a colloid mill and was therefore very expensive until the 1930s, modern production variants make it possible to obtain very effective colloidal silver which consists of smaller particles and is therefore much cheaper.

The colloid mill was detached from the Bredig apparatus, which, under electric current, stripped the silver from the silver wires with an electric arc.

It was only much later that the silver generator followed, which is still used today in the production of colloidal silver. It works at low voltage and produces



colloidal silver by electrolysis.

Description of the preparation of colloidal silver by means of a silver generator

- Apply the current to two silver electrodes and hang in distilled water,
- one of the two silver wires acts as a positive pole, the other as a negative pole.
- When the generator is connected, the current dissolves the silver particles and positively charged silver ions.
- Hydrogen gas is formed at the negative pole; the electrons are replaced by the positive pole when the silver particles are formed.
- When the current flows through the silver, some of the silver atoms at the interface with the water lose an electron and become an ion.
- The silver ions dissolve in water and thus produce an ionic silver solution = electrolysis process.
- Some of the silver ions absorb an electron from the flowing current during electrolysis and are converted back into an atom.
- These atoms are attracted to other atoms by the van der Waal's forces; small metal particles form. This creates both ions and particles.



- The positively charged cations move to the positively charged negative pole and pick up electrons there.
- The negatively charged anions move to the positively charged positive pole.
- Where there are cations and anions, they try to balance each other's charge.

What should be considered in the production of colloidal silver?

- When buying a silver generator, pay attention to quality rather than a low price; the equipment should be standardised and, if possible, should indicate that it can be used for the production of colloidal silver.
- Use only 99.99 % pure silver rods.
- Avoid other silver material; this tends to have impurities!
- Purchase distilled water in a pharmacy; this is free of impurities



- Proceed according to the manufacturer's instructions.

Questions and answers

Colloidal silver is an extraordinary, highly efficient and usually side-effect-free treatment against all parasites, such as bacteria, viruses and fungi.

In a record time of 6 min, colloidal silver can literally kill up to 650 pathogens; at the same time, it spares the good bacteria that our body needs to function. For details, see the section 'What is colloidal silver?'

How does colloidal silver work?

Its effect is based on two factors: On the one hand, the so-called 'Brownian motion', i.e. a collectively magnetic field, is produced in colloidal silver water, the electrical negative polarisation of which interferes with pathogens. On the other hand, the use of colloidal silver promotes our immune system, which can then also effectively fight against the pathogens.

Added to this is the ability of colloidal silver to stimulate cell growth and accelerate healing of injured tissue by more than 50 %.

Which diseases does colloidal silver counteract?

Due to the enormous range of effects of colloidal silver, the number of diseases it affects is also very large.



These include:

Abscesses, acne, aspergillus niger, appendicitis, arthritis, bedsores, bladder infection, bleeding, blepharitis, bloating, blood parasites, blood poisoning, burnout syndrome, burns, cancer, Candida albicans, chicken pox, cholecystitis, cholera, cold, cold sores, colitis, conjunctivitis, corneal injury, cradle cap, cuts and abrasions, cystitis, dental plaque, diabetes, diarrhoea, diphtheria, tapeworm, eczema, eczema, encephalitis, endocarditis, enteritis, exhaustion, facial pain, fever, flu, food allergies, food poisoning, frostbite, fungus, furunculosis, gastritis, gonorrhoea, gum inflammation, hay fever, haemorrhoids, haemostasis, herpes, hives, hoarseness, immunodeficiency, infections, inflammation, insect bites and stings, irritable bowel syndrome, itching, Legionnaires' disease, leprosy, leptospirosis, leucorrhoea (white vaginal discharge), leukaemia, lung inflammation, Lyme disease, lymphatic and lymph node inflammation, malaria, malleus, mastitis, measles, meningitis, mouth rash, mumps, muscle pain (chronic), leg ulcers, osteomyelitis, ovarian inflammation, paratyphoid, paronychia, pinworm disease, pneumonia, poliomyelitis, prostate enlargement, psittacosis, psoriasis, pyelonephritis, Ray fungus disease, regeneration, rheumatism, ringworm, rubella, salmonella poisoning, scaling, scarlet fever, shingles, sinusitis, skin cancer, runny nose, sore throat, staphylococcal infection, stomatitis, streptococcal infection, streptomycosis, syphilis, summer diarrhoea, sunburn, sunstroke, tetanus, throat laryngitis, thrush fungal diseases, tonsillitis, travel and seasickness, tubal inflammation, tuberculosis, typhus, ulcers, urethritis, vaccination effects, warts, whooping cough, worms, wounds.



Is the effect of colloidal silver scientifically proven?

The antibacterial, antiviral and antifungal effects of colloidal silver have recently been officially confirmed at the University of Los Angeles Medical School.

Furthermore, there are many scientific publications and studies on the proven effect of colloidal silver which have been published over many decades.

What is the dosage of colloidal silver?

There can be no uniform dosage of colloidal silver, since the human body and its reactions are too individual. In principle, however, rather a low dosage is recommended, since colloidal silver has been shown to help very successfully even in the smallest amounts; in some cases, mostly chronic diseases, a higher dosage may be appropriate. This is, however, a matter to be left in the hands of experienced health practitioners and therapists.

For prophylaxis purposes, the following intake schedule is useful:

- Adults: take one teaspoon (not a metal spoon!) of colloidal silver once a day before a meal.
- Children: see instructions for 'Adults', but only half a teaspoon.
- For acute diseases: in case of illness or in case of acute symptoms, you can take 3 teaspoons (plastic spoon) per day. Children should take half of this dose.



Is colloidal silver better than antibiotics?

While antibiotics can only fight bacteria and only kill a dozen of them, colloidal silver not only fights bacteria, but all bacteria, viruses, fungi, *streptococci,* staphylococci and other pathogenic organisms.

Colloidal silver is known to kill about 650 of these parasites within 6 minutes at most. A very important point here is the gentle effect of colloidal silver, in contrast to antibiotics, which can lead to serious diseases!

Does colloidal silver help if you are already resistant to antibiotics?

This can also be answered with a clear 'yes'! Colloidal silver can also eliminate those bacteria that already show resistance to antibiotics.

Can you take colloidal silver continuously?

As with other forms of therapy, you should take colloidal silver if you need it – taking it orally over a number of days for the purposes of preventing disease and strengthening the immune system is still recommended several times a year.

Is it possible to be allergic to colloidal silver?

Silver allergies do not occur with pure silver, but some people are allergic to silver alloys, for example, silver-nickel alloys. Rather, experience shows that using colloidal, pure silver can even positively affect allergies!

Does treatment with colloidal silver cause side effects?



Under normal circumstances, no side effects are known. The occasional argyria (permanent grey-blue colouration of the skin) requires an average oral intake of 3.8 grams per day, which is equivalent to the millionfold amount of the usual dosage of colloidal silver in adults!

Argyria has so far only been found in individuals who have taken silver proteins for a long time – i.e. NOT pure silver, as is the case with colloidal silver. In the opinion of Josef Pies (writer of 'Immun mit kolloidalem Silber' ('Immune with Colloidal Silver') it takes an average of 3.8 g of elemental silver to trigger argyria, which corresponds to 1875 200-ml bottles a day!

Can one become resistant to colloidal silver?

Resistance cannot be ruled out, but since colloidal silver acts in many ways, it is rare, unlike antibiotic resistance.

Is it possible to use colloidal silver in animals?

Colloidal silver is very effective in both humans and animals. The dosage must be adjusted according to the body weight and the concern (see point 'Dosage colloidal silver').

Where can you buy colloidal silver?

Colloidal silver is available on the Internet and occasionally in some pharmacies. It is important to ensure the product is of high quality!

Is it possible to make colloidal silver yourself?



You can also make colloidal silver yourself. It can be made using a silver generator using silver electrodes and distilled water. You can find out more about this in the section 'Production of colloidal silver'.

What do I need to make colloidal silver?

To make colloidal silver, you need a silver generator, distilled water and silver electrodes. For details, see 'Production of colloidal silver'

What should you look for when buying a silver generator?

You should value a high-quality device that is standardised and has an indicator to measure the colloidal silver being produced.

How much does a silver generator or silver pulser cost?

A good silver generator (also called 'silver pulser') costs between 150 and 200 euros; be wary of cheaper devices.

What do the required silver electrodes cost?

The silver electrodes cost about 30 euros per pair, or more; it is important that the purity of the silver is 99.99 %

How long do silver electrodes last?

Silver electrodes last a very long time; one can usually make 500-600 litres of colloidal silver with a pair of silver electrodes.



What should I look for when using distilled water?

You should pay attention to the absolute purity of the distilled water; this is not always guaranteed with distilled water from retail trade. The safest choice is therefore to buy the distilled water in the pharmacy.

How should one store colloidal silver?

Colloidal silver should be stored cool, but not in the refrigerator. It is essential not to store the colloidal silver near magnetic fields, such as near a television, mobile phones, telephones, VCRs and the like, since it will discharge faster and lose its effectiveness.

How long does colloidal silver last?

Colloidal silver, like colloidal gold, can be stored for around four months from the date of manufacture, after which the silver particles slowly discharge, as we know from batteries.



Is kombucha a miracle fungus?

Kombucha tea fungus drink. Introducing: a mythical elixir...

We all know that a myth is created when incredible stories are entwined with something that has both phenomenal and incomprehensible qualities or powers.

Nothing warrants this description more than the Kombucha tea fungus, often called the 'miracle fungus', which has inspired real success stories for around 2200 years, which are passed down from generation to generation. These stories encompass a wide spectrum and range from increasing vitality, health, beautification to miraculous healings.

Kombucha – a universal wonder drug? But what is kombucha, what advantages does it offer, what benefits can we take from it, what has been proven and what has 'merely' been passed on in these tales?

First of all, it should be made clear that kombucha is not a classic fungus in the true sense, but rather a gelatinous, elastic mass, formed from a variety of yeast cells and microbes living in a symbiosis, which, apparently, is capable of amazing effects for of our health, ability to function and appearance.

In terms of appearance, the kombucha tea fungus looks like a pancake. It is a



gelatinous disc, which, depending on the type of tea with which one 'feeds' the tea fungus, can assume a grey-white, brown or reddish colour.

Even the name 'kombucha' causes some confusion. According to tradition, kombucha owes its name and discovery to a Korean wandering monk named 'Kombu', who, in 414 AD, was summoned to the Japanese Emperor Inkyo, who suffered from severe gastritis and was freed from his suffering by Kombu thanks to a tea drink.

In no time at all, word of this miraculous healing got around, and the tea got its name: 'Kombu-Cha' = the tea of Kombu.

According to another traditional story, the name 'kombucha' or 'combucha' can be traced to a low-cost alternative to expensive tea, which the impoverished population in Japan prepared from algae – and still does today.

The word 'combu' refers to the Japanese brown alga of the same name, the ending 'cha' is the Japanese word for tea = algae tea.

In China, it was said to have been drunk to gain immortality – or, at least, this is what people believed. Political figures such as Stalin or Ronald Reagan (for his cancer) are said to have consumed the tea regularly.

And if you believe the press, stars like Madonna, Barbara Streisand, Naomi Campbell, Claudia Schiffer, Kate Moss and many others rely on this legendary



elixir called 'kombucha'. All of Hollywood seems to rave about kombucha as a fitness and beauty elixir, including such famous names as director Oliver Stone and actresses Daryl Hannah and Linda Evans.[428]

But is not it the case that stars like Madonna have high-priced advisers to uncover the really worthwhile insider tips and gain a head start on the relentless competition in terms of beauty, performance and health? These people also only have a stomach that has a limited intake of food – the fact that they are very picky with food is obvious.

Join us on an exciting journey to the heart of this myth-enshrouded magic potion and be enraptured with facts and narratives and, where appropriate, bring light into the darkness of a true myth.

Kombucha tea – appearance, smell, taste

Kombucha tea adopts the colour of the tea type used (even the kombucha fungus does this itself in time); meaning it turns green in green tea, dark in black tea and red in herbal tea. The smell can be classified as slightly sweet and sour.

There is no question that all lemonade drinks originated from the basic charac-

[428] FOCUS No. 34 of 21 August 1995, p. 128



teristics of kombucha tea. So, one might assume that kombucha was the godfather of their creation.

While the sparkling, refreshing gas bubbles in modern lemonade or cola are artificially produced by the addition of carbon dioxide, the same bubbles are naturally produced by kombucha during the fermentation process.

The slightly acidic taste in lemonade is created by unhealthy flavours and acids; kombucha tea acquires this taste naturally due to the formation of very healthy acids, such as glucuronic acid and dextrorotatory lactic acid.

In his book 'Kombucha – Mythos, Wahrheit, Faszination' ('Kombucha – Myth, Truth, Fascination'), Günther W. Frank aptly describes the taste of kombucha drink as '*delicious, sparkling and fruity*'.

In fact, kombucha tea simply serves as a refreshing, delicious drink for many people – an alternative to lemonade, if you prefer. However, the vast majority of kombucha consumers are interested in its legendary, mysterious health effects. We want to get to the bottom of this in the following chapters.

Mode of action and active ingredients of kombucha tea fungus

Despite numerous investigations and analyses by scientists all over the world, to this day neither the exact composition nor the exact mode of action of kombucha has been completely clarified.

Given the healing stories passed on and written through the centuries by users



and therapists of the kombucha tea fungus drink, traditionally used in East Asia and Eastern Europe as a folk and home remedy, it is not a question of *WHETHER* kombucha has an effect or not, but rather *HOW* the tea works and *WHAT* it has an effect on...

The actual origins are believed to have been in China 2200 years ago; the fact that stories of the positive effects of kombucha on body and soul have been passed down to this day should make every sceptic take notice!

The preference amongst Russians for fermented drinks is probably due to the fact that kombucha quickly spread throughout Russia and the Baltic countries and, around the time of the First World War, its use spread through Poland and the former German territories and eventually found its way to the West through the exchange of German and Russian prisoners of war.

How kombucha works

From a biochemical point of view, kombucha tea fungus is a marvel of nature. Supplied with sugar and green, black or herbal tea, at a temperature of 23 °C (+/- 5), a true machinery of complex, biochemical reactions (assimilation and dissimilation processes) is triggered in the kombucha fungus which gradually releases a flood of numerous valuable substances into the tea that were not in it before!

These processes are by no means unorganised. On the contrary – every ingredient fulfils a role: The yeasts present in the fungus ferment the added sugar to



make carbon dioxide (the cause of the tingling taste) and small amounts of alcohol, which in turn serves as a food source for the positive microorganisms present in the fungus.

These convert the sugar into cellulose, which makes the fungus grow. While this digests the alcohol, the positive bacteria convert it into glucuronic, gluconic, acetic, and lactic acids (the reason for its refreshing, sour taste), producing numerous vitamins along the way.

It is the resulting drink that is available to us after about eight to twelve days of cultivation which has numerous positive effects on the human (and animal) body. But what makes kombucha so effective?

Active ingredients of kombucha

It is the interaction of all the vital substances in kombucha tea, produced in the right proportion to each other, which explains its phenomenal effect on all sorts of diseases and complaints.

The following active ingredients have been found in kombucha tea; however, it is believed that it has numerous other ingredients that have so far remained undetected, but, in the interaction of all components, are no less potent in terms of their effect on the body:



- vitamins (vitamins B, C, D, K),
- folic acid,
- iron,
- yeast,
- glucuronic acid,
- gluconic acid,
- dextrorotatory lactic acid,
- probiotic lactic acid bacteria,
- various enzymes,
- antibiotic substances,
- organic acids.

Vitamin complex

- Vitamin B1, also called thiamine, regulates our fat and carbohydrate metabolism.
- Vitamin B2, also called riboflavin, plays an important role in the metabolism; it is especially important in the respiratory metabolism.
- Vitamins B3 and B6 influence the protein metabolism as well as all sorts



of enzyme functions.

- Vitamin B12, also called 'cobalamin', plays a key role in the formation of red blood cells and is involved in cell regeneration as well as cell division and is therefore also crucial for the nervous system (production of neuro-transmitters).
- Vitamins D and K are critical for the healthy development of bones, teeth and skin.

Folic acid

Among other things, folic acid affects metabolism and helps in the prevention of atherosclerosis.

Iron

Iron is involved in the formation of blood.

Yeast

Countless vital yeasts perform many different tasks in our body; they strengthen the immune system and ensure the purity of the skin. The immune-boosting effect of kombucha has also seen it dubbed as a 'virus killer'. In 1 ml of



kombucha, there is the unbelievable amount of 10 million living and highly potent yeasts.[429]

Glucuronic acid

Glucuronic acid is probably one of the most important acids contained in kombucha tea. The liver has been shown to produce glucuronic acid to bind the body's metabolic toxins and foreign substances such as medication.

Furthermore, glucuronic acid is involved in the formation of other acids in the body which are important for connective tissue, such as hyaluronic acid, which is an important component of connective tissue, inter alia, in the synovial fluid, in the skin (it makes up 55 % of the skin's substance) and in bones.

Glucuronic acid is also a building block of mucoitin sulfuric acid (responsible for the gastric mucosa and vitreous bodies of the eye) and heparin, a liver-derived substance that delays blood clotting. Last but not least, glucuronic acid is involved in the production of chondroitin, which forms another important component within our joints. Glucuronic acid is believed to be the major reason for kombucha having positive effects on all kinds of joint problems, such as arthritis, arthrosis, gout and rheumatism, and, beyond that, has a positive effect on connective tissue weakness, thrombosis, problems of the vitreous bodies and gastric mucosal problems.

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[429] Günther W. Frank: Kombucha – Mythos, Wahrheit, Faszination ('Kombucha – Myth, Truth, Fascination'), 1999, p. 44



Furthermore, Dr. Valentin Köhler achieved '*remarkably good healing results'* in cancer, even in the advanced stage of the disease.[430]

Gluconic acid

Gluconic acid is an intermediate product of glucose metabolism and is formed when carbohydrates are broken down in combination with oxygen. Thus, gluconic acid is a component of all living cells; it supports the action of antioxidants, such as vitamin C, OPC, vitamin E, Q10, etc, by acting as a complex-forming agent on iron ions and calcium.

Kombucha researcher Dr. Siegwart Hermann, from the University of Prague, has been able to show in his research that kombucha fungus excels acetic acid bacteria's ability to produce gluconic acid.[431]

Dextrorotatory lactic acid

In addition to glucuronic acid, kombucha also owes its strong antibiotic effect to dextrorotatory lactic acid. Dextrorotatory lactic acid suppresses the spread of putrefactive bacteria in the intestine and thus ensures a healthy intestinal flora.

While it is known that an overacidified body is anything but healthy, this may also involve levorotatory D(-) lactic acid, which contributes to this dangerous acidity. In contrast, kombucha (or microorganisms) produces dextrorotatory lactic acid.

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[430] Dr. Günter Harnisch: Kombucha – geballte Heilkraft aus der Natur 'Kombucha – Concentrated Healing Power from Nature' 1991, p. 52

[431] Dr. Günter Harnisch: Kombucha – geballte Heilkraft aus der Natur 'Kombucha – Concentrated Healing Power from Nature' 1991, p. 51



According to Warburg, levorotatory lactic acid is increasingly found in malignant tumours; according to his thesis, the cancer cannot develop if dextrorotatory lactic acid predominates.

While dextrorotatory L(+) lactic acid is a natural component of the human body, for example, during carbohydrate metabolism, levorotatory lactic acid is a foreign substance.

Dextrorotatory lactic acid is body-specific, can therefore be optimally utilised by the body and makes a significant contribution to the health of our intestinal flora – an excess of levorotatory lactic acid, however, leads to disorders in the body and diseases; even the WHO recommends a maximum intake of 100 mg levorotatory lactic acid/kg of body weight per day.

The statement by leading scientists that 80 % of all degenerative diseases are caused by the disturbance of intestinal flora is worthy of note!

Probiotic lactic acid bacteria

The good, dextrorotatory lactic acid, which intensively produces kombucha, ensures a healthy intestinal flora. The resulting good microorganisms (probiotic lactic acid bacteria) in turn produce innumerable nutrients which are indispensable for our health, such as folic acid, biotin, nicotinic acid, vitamin K, vitamin B12 and many others (principle of probiotic products).

Healthy intestinal flora is vital; it is not for nothing that the following guiding principle is held by naturopaths and non-medical practitioners: 'Death is in the



gut'. A functioning, healthy intestinal flora consists of countless, vital bacterial strains that live in balance with each other. It is essential for a functioning immune system, and metabolism can only work if the intestinal flora is healthy. Thus, the intake of important nutrients, such as vitamins, takes place primarily with the support of the colon bacteria. On the other hand, the malignant invaders, such as the pathogenic, bad bacteria (such as the dreaded *Candida albicans*), are successfully repulsed by the good gut bacteria that kombucha promotes. The bad bacteria can only multiply if the good microorganisms are inferior in number.

Regular consumption of kombucha tea is therefore a guarantee that this cannot occur!

Various enzymes: enzymes are biocatalysts that perform vital tasks in collaboration with numerous biochemical processes throughout our bodies. In short: no life is possible without enzymes! Listing the functions of enzymes could fill whole libraries; the most important tasks are:

- digestion,
- strengthening the immune system,
- regulation of the metabolism,
- detoxification of the body,
- reduction of inflammation,
- wound healing,



- antiviral and antibacterial effect,
- delay of biological ageing,
- prevention of diseases such as cardiovascular degeneration.

The enzymes which have been discovered in kombucha to date are amylase, invertase, catalase, lab enzyme, sucrase and the proteolytic enzyme.

Antibiotic substances

As already mentioned, 80 % of all bacteria are now resistant to the antibiotic 'penicillin', i.e. it does not affect them. This is without question due to the nonsensical use of antibiotics in animal husbandry and the tendency of many doctors to prescribe antibiotics far too readily for all kinds of conditions.

If, one day, we are indeed infected by a dangerous bacterium, it often turns out that the frequent use of antibiotics has gradually developed a resistance and that we are defenceless and helpless.

It is all the more interesting to look for alternatives from nature, which have comparable bactericidal effects and much fewer side effects. However, if one considers that penicillin, the best-known antibiotic in the world, is extracted from a fungus, it should not surprise us that the kombucha fungus has an antibiotic effect.



The application possibilities of kombucha have undergone thorough scientific study; numerous Russian scientists (Sakarjan, Danielova, Naumova, Sukiasyan, Barbanicik, Ermoleva, Konovalov, Litvinov, Zakman, and others[432]) have demonstrated the antibiotic effect of kombucha. The growth-promoting and antibiotic effects of kombucha tea were thoroughly studied and described by the researchers Sakarjan and Danielova. Konovalov, Litvinov and Zakmann (1959) in a report on the important antimicrobial properties of kombucha in a Moscow journal (Bot. Journal).

The antibiotic components in kombucha are not comparable with those of conventional antibiotics and are completely harmless even when used continuously.[433]

Organic acids

In addition to gluconic acid and dextrorotatory lactic acid, kombucha produces many other acids such as tannins, citric acid, oxalic acid, carbonic acid, 14 different amino acids, succinic acid, malonic acid, malic acid and others.

The interaction of these acids, which are produced in the right proportion to each other, has a positive effect on our health; citric acid provides the fresh taste, while the carbonation creates a tingling, invigorating sensation that we

[432] Günther W. Frank: Kombucha – Mythos, Wahrheit, Faszination 'Kombucha – Myth, Truth, Fascination', 1999, p. 62

[433] Günther W. Frank: Kombucha – Mythos, Wahrheit, Faszination 'Kombucha – Myth, Truth, Fascination', 1999, p. 63



know from lemonade.

Effect of kombucha on diseases

It is far from easy to spell out the effects of a substance or natural remedy that appears to be as broad-based as kombucha tea fungus and is also based on countless statements by many therapists and patients across many eras, cultures and continents.

The question of the effect of kombucha should therefore first be divided into effects of a general nature, organ-specific effects and, lastly, effects on certain diseases, and we should then attempt to answer each of these in turn.

Effects of a general nature

- blood purification,
- strengthening of cells,
- antibiotic effect,
- antiviral effect,
- increase in well-being,
- increase in energy,
- increase in vitality,
- improvement of digestion,



- regulation of appetite,
- increase in concentration,
- purification,
- detoxification,
- regulation of the acid-base balance,
- increase in energy,
- regulation of intestinal flora,
- increase in athletic performance,
- prevention of muscle soreness,
- stimulation of metabolism,
- relief of the liver,
- stimulation of intestinal activity,
- normalisation of blood pressure,
- reduction of cholesterol levels,
- reduction of triglyceride levels,
- is anti-inflammatory,
- strengthening the immune system,
- increase in sexual potency.

organ-specific effect



- hair,
- skin,
- eyes,
- cardiovascular system,
- liver,
- kidneys,
- intestine,
- lymphatic and glandular system,
- muscles,
- joints.

E*ffect on certain diseases (reported or confirmed by therapists and studies)*

- cataracts,
- allergies,
- atherosclerosis (hardening of the arteries),
- myocardial infarction prophylaxis,
- almost all signs of ageing,
- rejuvenation of the skin, reversal of wrinkles,
- acne,
- rheumatism,



- joint problems (especially joint inflammations),
- back problems,
- arthritis,
- arthrosis,
- excess weight,
- flu,
- cold,
- gastrointestinal disease,
- tonsillitis,
- large/small intestinal inflammation,
- gastritis,
- restless sleep and insomnia,
- sclerosis,
- fatigue,
- soreness diffraction,
- nervousness,
- constipation,
- eczema,
- neurodermitis,



- psoriasis
- indigestion,
- Constipation
- high blood pressure,
- oedemas
- persistent headaches,
- stimulates liver function,
- stimulates kidney function,
- furunculosis,
- obesity,
- diarrhoea
- liver disorder,
- gallstones,
- shingles,
- ulcers,
- cancer,
- chickenpox,
- haemorrhoids,
- menopausal symptoms.



How can the broad spectrum of kombucha tea's effect be explained?

First of all, we should be completely honest about the fact that kombucha has not yet been researched in every detail by scientists, despite all the fascinating reports on its effects on countless symptoms and pathological conditions for around 2000 years. However, for many decades now, there have been serious, positive studies from Eastern Europe as well as countless enthusiastic statements from doctors and therapists who have successfully trialled kombucha on their patients. More on this later in the chapter.

And so, the legitimate question arises for the professional world, how a single agent can achieve such a broad spectrum of effects against all sorts of diseases which are ascribed to it in traditional folk wisdom and the findings of many therapists and doctors.

Thoughts on the broad spectrum of kombucha's activities

Thesis on the effect of kombucha using four important ingredients as an example

Without question, it is kombucha tea as a whole entity that unfolds this concentrated cargo of fascinating effect. You have to consider the kombucha mushroom as a fungus and consider the effect of this complete, living organism.

This approach is justified by unsuccessful trials which investigated the effectiveness of individual isolated kombucha compounds. Here, one came to the following wise conclusion: The kombucha fungus only functions as a whole and it



makes no sense to break it down into its components.

Example 1): glucuronic acid in kombucha tea

When dealing with diseases that are counted among the 'civilisation diseases' and increasingly occur in recent years and decades (allergies, cancer, arthritis, asthma, etc.), and being aware of the links with our environmental impact as well as the toxins in food, clothing, cosmetics, etc., it is most likely true that the glucuronic acid contained in kombucha tea is able to bind those poisons and plays a very large role within the whole.

So, while we are usually exposed to an enormous burden of environmental toxins and toxins in our food without protection and are virtually predestined for the diseases described here, regularly taking kombucha, and thus also glucuronic acid, helps our body neutralise all these poisons and thus protect us preventively and therapeutically against these diseases and act against them.

For example, Dr. Köhler and Dr. Valentin[434] from the University of Munich proved that glucuronic acid protects the lives of trees in the wild by binding more than 200 pollutants that occur due to acid and radioactive rain, but also in sulphur dioxide, ozone and nitrites.

These detoxification discoveries can be applied directly to the human body,

[434] Köhler, V. and Köhler J.: Glucuronsäure als ökologische Hilfe ('Glucuronic Acid as an Ecological Aid'), pp. 56-62



both to the body's own toxins and foreign toxins, and reveal the enormous detoxification potential of kombucha tea, providing a huge relief to humanity, which is increasingly endangered by toxins.

This probably explains the increasing well-being which the regular Kombucha consumer reports, as well as the preventive and therapeutic effect against all kinds of illnesses, which may be directly or indirectly connected with poisons in the environment and in food as well as drug consumption.

Furthermore, such detoxification always leads to the strengthening of the body's defences; the immune system has found an ally that relieves it and can then effectively fight diseases! However, we should not dwell too long on the findings from the plant world; Dr. Köhler has reported on the success in treating cancer patients with glucuronic acid in the journal *Medical Practice*; but more on this later.

Glucuronic acid alone can have an enormous potential for healing power due to the detoxifying and immune system-building effect.

Example 2): dextrorotatory lactic acid in kombucha tea

An antibiotic effect can be ascribed to the dextrorotatory lactic acid in kombucha tea. It achieves this effect by regulating our intestinal flora, preventing the spread of putrefactive intestinal bacteria and maintaining a slightly acidic climate in the intestine.



Furthermore, dextrorotatory lactic acid has a huge influence on the deacidification of our body and thus makes kombucha tea an alkaline food, despite the slightly sour taste. Relieving the intestine and the liver results in a very effective improvement in the detoxification and deacidification performance of the liver.

Around 80 % of the population in industrialised countries, including us, are chronically acidified. Acids are caused by stress, environmental toxins, by energy production, but above all by a bad diet, which we Central Europeans have become accustomed to.

To stay healthy, we need a balanced acid-base balance; this regulates our cardiovascular system, our respiration, our digestion and our hormone production. In order for these important functions to function undisturbed, a balanced pH (acid-base value) must be ensured, and this is, as stated, not the case in 80 % of the population: We are simply over-acidified!

Considering that holistic practicing physicians and therapists believe that the vast majority of disease states are caused by a low pH, i.e. overacidity of our body, these connections quickly become clear. These include diseases and symptoms such as:

- allergies,
- excess weight,
- headaches,



- hair loss,
- grey hair,
- heartburn,
- migraine,
- inflammation,
- sleep disorders,
- digestive problems,
- gum inflammation,
- menstrual cramps,
- diabetes,
- blemishes (pimples),
- insufficient weight,
- cellulitis,
- concentration problems
- infections,
- muscle cramps,
- joint pain,
- high blood pressure.



However, on the other hand, the dextrorotatory lactic acid present in kombucha tea prevents this hyperacidity, another ingredient in kombucha tea has also been found, which, in addition to glucuronic acid, can prevent a very wide range of diseases and conditions, namely: dextrorotatory lactic acid.

Example 3): Probiotic cultures in kombucha

As the name 'probiotic bacteria', literally translated as bacteria 'for life', suggests, probiotic bacteria are vital, health-promoting bacterial strains. Kombucha tea contains many of these vital 'good' bacteria.

According to Keusemann and Krewer, it has been proven that the following health benefits can be attributed to probiotic bacteria:

- promotion of lactose digestion in lactose malabsorbents
- reduced frequency and duration of various diarrhoeal diseases (clostridia and rotavirus or after antibiotic treatment or chemotherapy)
- reducing the concentration of some harmful metabolites and cancer-causing enzymes in the colon (there is no evidence yet for the actual prevention of cancer)
- stimulation of the immune system

Example 4): polysaccharides as immunostimulants and antibiotic agents in kombucha tea



As with the active substances and effect of Kombucha, the antibiotic effect is well studied and unlike conventional antibiotics (such as penicillin), are completely free of side effects and suitable for continuous use. However, this antibacterial effect, which sets in every day, if you consume the Kombucha tea daily, keeps us free of uninvited bacteria! Considering how many diseases are caused by bacteria, this feature of kombucha tea is not recognised enough!

However, kombucha tea can do a lot more: In his book 'Kombucha – Myth, Truth, Fascination', Günther W. Frank mentions that, according to the presumption of Dr. Schuitemaker, the polysaccharides contained in kombucha have the remarkable ability to alert the immune system to bacteria, viruses, and yeasts so it can respond accordingly![435]

Conclusion

Thus, there is already an impressive spectrum of diseases and conditions that the four ingredients mentioned (glucuronic acid, dextrorotatory lactic acid, probiotic bacterial strains and immune stimulants) can benefit. The variety of the other listed vital substances, as incredible as it may seem, extends this potential many times over, and at the same time synergistically enhances the effect on the symptoms and diseases mentioned.

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[435] Schuitemaker (Baarn, Netherlands): Immunkrankheiten ('Immune Diseases'), No. 1, 1988, p. 1–3



In summary it can be said that the effect of kombucha tea is mainly due to its

- detoxifying,
- antibacterial,
- cell strengthening,
- immune system-boosting,
- antiviral,
- deacidifying and
- detoxifying properties.

Nevertheless, kombucha should never be considered an all-round remedy. Rather, its strengths lie in regeneration and compensation, which is why it primarily promotes the self-healing powers of the body. However, these abilities should not be abused to compensate for everyday sins (bad nutrition and behaviours). But there are also concrete studies and statements from physicians on the alleviation of diseases with kombucha. A summary of these can be found in the next section 'Effect according to physicians and therapists'.

Effect of kombucha according to doctor and therapists statements

The kombucha tea fungus is enjoying a veritable renaissance; a large proportion of the records of doctors and therapists come from the first half of the last century. Most of the quotes below come from the book of Kombucha expert Günther W. Frank 'Kombucha – Mythos, Wahrheit, Faszination' ('Kombucha



– Myth, Truth, Fascination'), which can be ordered via its website www.kombu.de.

Amazing effect of kombucha on rheumatism

'When it comes to rheumatism, I have had success with kombucha worldwide. I have had patients who could not get out of bed in the morning due to rheumatic pains. Their joints were stiff. I prescribed them kombucha. The result: After one month, they were able to move their joints again without pain'. (Prof. Dr. Winfried Laakmann, Director of the University of San Salvador)

Kombucha effect in general

A *'wonderful healing power for many diseases'* has been attributed to kombucha (Prof. S. Bazerewski)

Kombucha's effect against haemorrhoids

'*...this drink was recommended years ago in Thorn as a remedy for haemorrhoids , and a cure has been found in its regular consumption'. (*Prof. P. Lindner)

Effect of kombucha on tonsillitis, gout pain and atherosclerosis

'*In tonsillitis, especially when there is a coating on the tonsils, it is not only necessary to gargle with the drink, but also to drink it, in order to destroy the bacteria that have reached the stomach in food and drink.*

Gargling quickly causes recovery from tonsillitis, and in severe cases, astonishing results have



been produced with gout pain and atherosclerosis...' (Dr. L. Mollenda)

Effect of kombucha against rheumatism

'*...infallible remedy for rheumatoid arthritis'.* (Prof. Dr. Rudolf Kobert)

Kombucha's effect against constipation

'*... remedy against all sorts of diseases, especially against constipation*' (Prof. Dr. Wilhelm Henneberg)

Kombucha's effect on indigestion and against age-related disorders

'*A widespread use of tea fungus in the use and production of tea kvass as a remedy for indigestion and all sorts of age complaints is quite desirable across all sections of the population, as well as its production and distribution by pharmacies and apothecaries'.* (Prof. Dr. Lakowitz)

Effect of kombucha against arteriosclerosis , gout, constipation

'...very effective means of combating arteriosclerosis , gout and constipation' there are '*beneficial effects on arterial calcification, the lowering of blood pressure, reduction of anxiety, irritability and pain, headache, dizziness and so on'. Constipation and its concomitants can also be improved rapidly. There are particularly favourable results on calcification of the kidney and the capillaries of the brain'.* (Dr. Maxim Bing)

Stabilisation of the immune system



'*By triggering a special activation of the body's own defences, kombucha is well-suited for stabilising the immune system'.* (Dr. Helmut Golz)

Promoting and stimulating metabolism

'*The enjoyment of the drink, which is referred to as tea kvass, causes a striking revival of the body's entire endocrine system and a promotion of the metabolism. Tee kvass is recommended as an excellent preventive measure against gout and rheumatism, furunculosis, arteriosclerosis, high blood pressure, nervousness, constipation and signs of ageing'.* (Hans Irion)

Effect of kombucha against viruses

'*The comparison of measured values suggests that kombucha effectively promotes the body's defences and initiates the body's own healing processes.*

Kombucha can be regarded as a highly potent organic food with an antiviral effect, with the advantage that it does not produce any unwanted side effects or intolerances'. (Dr. Wiesner)

Kombucha's effect against cancer

'*Kombucha inhibits malignant cell growth' – 'I gave kombucha to my patients. The results are good and the patients are very satisfied. Kombucha has been used successfully against prostate problems, rheumatoid arthritis, bone marrow, uterine fibroarthritis, connective tissue inflammation in the lungs, etc'.* (Dr. Soraya Shantiay)

Effect of kombucha on angina pectoris

'Experience that suggests that kombucha is also able to influence the extremely distressing



seizures of angina pectoris'. (Prof. Dr. W. Wichowski)

'*The fact that the frequent use of kombucha has often eliminated distressing subjective complaints in many individuals should, on its own, be enough reason to make this remedy available to as many people as possible at the present stage, irrespective of whether or not scientific medicine is able to give an explanation for this efficacy or not'.* (Ders.)

Metabolism-regulating effect of kombucha

'*Kombucha is a complex compound drink. Just think of the enzymes at work in it. Such as biocatalysts, which are very important for certain metabolic reactions. Then it is quite clear that they can stimulate metabolic processes in the gut that you would not benefit from without this drink'.* (Prof. Dr. Karl Heinz Schmidt, University of Tübingen)

Degradation of harmful deposits

'*It detoxifies the entire body via the liver. Harmful deposits such as uric acid and cholesterol are thereby reduced'.* (Dr. Reinhold Wiesner, Schwanewede)

Effect of kombucha against fatigue, nervousness, haemorrhoids, high blood pressure

'In summary, it can be said that the tea fungus or the extract formed by it has shown itself to be an excellent preventive measure against diabetes, but especially signs of ageing, such as arteriosclerosis, high blood pressure with sequelae, such as dizziness, gout and *haemorrhoids*'. (Dr. E. Arauner)

Effect of kombucha against cancer



'In the 1980s, we prescribed Kombucha tea to our cancer patients and were impressed by it'. (Dr. Josef Issels)

'T*he lactic acid in kombucha tea is particularly important for the treatment of cancer patients. I advise all patients: drink the fungus tea daily, even if it is just one glass. It helps with many diseases'.* (Dr. Veronika Carstens)

Effect of kombucha on the detoxification of the organism

'*An excellent natural remedy is the ingestion of a fungus drink called kombucha, which detoxifies in every respect and dissolves microorganisms as well as uric acid and cholesterol'.* (Dr. Rudolf Sklenar, Lich)

General effect on metabolic diseases (gout, rheumatism), haemorrhoids, atherosclerosis

The pharmacist Bergold believes kombucha '*is highly recommended as a daily drink for tackling metabolic diseases (gout, rheumatism, haemorrhoids), early arteriosclerosis and its side effects, against physical and mental fatigue (due to overexertion, in agriculture, in sports), for stimulating bowel activity (constipation, obesity, feeling of fullness), for improving the general condition (sexual problems) and in convalescence'.*

Effect of kombucha against high cholesterol

'The glucuronic acid contained in kombucha tea lowers cholesterol in the blood because it reduces the number of so-called chylo-crowns – these are small droplets that carry the fat in the blood'. (Dr. Rebholz)



Effect as an advantageous milieu shift

'First of all, I would like to address the gastrointestinal area. The properties of kombucha tea ensure that a milieu shift takes place'. (Prof. Manfred Rimpler (Hannover Medical School)

The strengthening of the immune system by kombucha

'*Degenerative diseases are accompanied by a weakening of the immune system. Strengthening the immune system is the main aspect of treatment. Fungi, such as the kombucha fungus, seem to exhibit the required effect to a great extent'.* (Dr. GE Schuitenmaker)

Kombucha – a fountain of youth?

Eternal youth and vitality – who desire these things now and then, at least in secret? Our society is characterised in this respect by mission statements and expectations that cannot be fulfilled; nevertheless, the power to maintain our vitality and youth into old age lies in our hands, with a healthy diet and lifestyle. People are ageing more and more quickly; this is primarily attributable to changing environmental conditions (poisons in the air, food, clothing, etc.), the stress of modern life and bad, acidifying dietary habits.

While we have very little personal impact on the environment and toxins around us, we owe it to our health to neutralise and flush out these ever-increasing toxins in our bodies with the help of certain dietary supplements and natural



products.

As we have already seen, kombucha's glucuronic acid has the extraordinary ability to simultaneously neutralise over 200 toxins. Furthermore, the dextrorotatory lactic acid ensures that our body is deacidified and purified.

Furthermore, glucuronic acid is involved in building acids that are hugely important for connective tissue, such as hyaluronic acid. This is an important component of connective tissue and accounts for 55 % of the skin's substance, which contributes to a noticeable and visible elasticity of the skin and can even make deeper wrinkles disappear over time.

The many vitamins and enzymes support the detoxification and rejuvenation process in an optimal way; kombucha contains about 1000 mg of vitamin C per litre; vitamin C is responsible for collagen and elastin synthesis of our connective tissue, including the skin.

Preparation of kombucha tea

There are several recipes for the successful preparation of kombucha tea. This chapter will give you a practical guide on how to successfully prepare your kombucha drink explain the advantages and disadvantages of different types of use.

To prepare 1 litre of tea, you will need the following:



- 100 g kombucha tea fungus culture (including the starter fluid),
- 60-100 g of sugar,
- 2 tablespoons of tea,
- 1 litre of water,
- a glass jar (gherkin jar, 2-3 l) with a large opening,
- a paper towel or cotton cloth for covering the jar,
- a rubber ring to cover the jar tightly with the paper towel,
- a tea filter,
- a plastic sieve,
- an optional heating plate for winter.

Explanation of the required utensils

Tea fungus culture

For a litre of kombucha tea, you need a 100 g kombucha fungus (200 g for 2 litres, 300 g for 5-10 litres). As the kombucha multiplies constantly, it has become a traditional custom amongst kombucha-lovers to pass on their



'kombucha babies', the offshoots of a kombucha fungus, to their dear acquaintances, family, and friends.

Not everyone, however, will have this opportunity. This is no reason to despair, because there are reliable sources for obtaining a healthy, vital kombucha fungus on the Internet! Make sure that your kombucha tea fungus culture has been produced under optimal hygienic conditions in a laboratory and is certified accordingly.

The danger of getting an unusable, or even a sick fungus, via private purchase, is great. A musty odour, a spongy consistency and many dark threads are common signs of a useless fungus.

Your kombucha fungus, however, should smell neutral to slightly acidic and have a tough, gelatinous consistency. Whether it is infused in black tea, green tea or fruit tea, it assumes the corresponding colour, which may then vary from light brown to a milky colour to pink.

A starter/base liquid is absolutely recommended for the first brew. It contains all the acids kombucha needs to protect itself from possible negative intruders and to start work immediately. For further uses, always leave 10-20 % of the resulting kombucha tea for this fungus, this protects the fungus from germs and bacteria and accelerates its further tea production.

Sugar in kombucha



'*So much sugar? Can that be healthy?'* That's how many a health-conscious person may think...

Do not worry, the sugar is only a food for the kombucha and is recycled by it during fermentation and converted into valuable substances. When the kombucha tea is ready, it contains no more sugar than fruit juices, often less.

The recommendations range from 60-100 g of sugar per litre of kombucha tea. This is subject to individual sweetening habits; in general, however, 70 g is enough. Raw cane sugar is recommended for brewing, but normal, white table sugar can also be used. On the other hand, fructose is not suitable for use in brewing, and honey is also not suitable. Depending on the quantity and the desired flavour (sweet or sour), take between 60-100 g of sugar per litre of brew or 4-7 tablespoons of sugar (double for 2 litres, triple for 3 litres, etc.)

Which tea is suitable?

Basically, black tea, green tea and herbal tea are all suitable. The tea serves as a nutrient for the kombucha, like sugar. Many swear that black tea makes kombucha fungi thrive best, due to the high purine content and the many tannins in black tea. The kombucha expert, Günther W. Frank, recommends both black and green tea, both in equal proportions, combined even with herbal tea if desired (the latter must not contain essential oils, as is the case with peppermint tea!).

Green tea works very well and because of its much higher nutritional content



compared to black tea (see comparison chart) it also has a higher value for our health. The following table shows the difference between the levels of 4 vitamins in green tea and black tea. These are likely to be representative of many other active ingredients:

per 100 mg	**Vitamin C**	**Carotene**	**Vitamin B_1**	**Vitamin B_2**
Green tea 'Matcha'	60 mg	29 mg	0.6 mg	1.35 mg
Green tea: 'Sencha'	250 mg	13 mg	0.35 mg	1.4 mg
Black tea	0 mg	0.9 mg	0.1 mg	0.8 mg

Source: Japan Tea Exporters Association

For each litre of kombucha brew, you should take 1-2 teaspoons of tea (for 2 litres, 2-4 teaspoons, etc.). However, the tea should not be flavoured; you can get natural tea in a health food store.

The water

You can use normal tap water. Of course, 1 litre of water is boiled per litre of



kombucha tea.

The fermentation glass

Basically, each vessel is made of glass, porcelain, food grade plastic or clay. The opening should be quite large, since the kombucha fungus needs a sufficient oxygen supply. For 1-2 litre of tea, a 2-3 litre fermentation vessel is needed.

On the Internet, you will also find special Kombucha fermenting barrels with 12 litres capacity. If you do not want to use several glasses in parallel, but you want to consume a little more kombucha tea, or if it is intended for several people, a large-volume kombucha fermentation keg made of food-safe plastic is recommended.





Paper or cotton cloth for covering

In order to protect the drink against vinegar flies and dirt particles on the one hand and to provide enough oxygen for the kombucha fungus on the other, you should cover the glass with a tight-meshed cotton cloth or a paper towel (single-ply kitchen roll) and seal tightly with the rubber band.

Tea filter and plastic sieve

You will need a standard tea filter and a plastic sieve to remove the tea leaves

from the tea before placing the fungus in the tea, cooled to body temperature. It is best to avoid touching the kombucha fungus with metal. You should therefore use a plastic sieve (and, if necessary, if you want to divide the fungus, plastic scissors or a plastic knife).

Warming plate for winter

Since the kombucha requires a constant temperature of 22-25 °C to work and develop, and can cope very well without light and should actually be protected from sunlight, a heat plate for the fermenting keg can be acquired; this is a very patent possibility for winter production (electricity costs: approx. €0.07/day).



How to prepare kombucha tea successfully

Preparation for 1 litre of kombucha tea:

1) Bring 1 litre of water to a boil.

2) Remove the pot from the heat.

3) Add 2 teaspoons (5 g) of green or black tea or 1 teaspoon of it, leave to infuse for about 10-15 minutes (the nitrogen necessary for the fungus only dissolves in the tea from this time!).

4) Strain the tea leaves through a sieve.

5) Add about 60-100 g of sugar to the hot tea and stir well, so that it completely dissolves.

6) Put the tea away and allow to cool to room temperature (20-25 ° C).

7) Then pour into the appropriate fermentation vessel.

8) Now pour in the starter liquid (from the second batch, 10 % of the prepared kombucha tea).

9) Carefully place the kombucha tea fungus in the cooled tea with the bright side up.

10) Cover the opening of the fermentation vessel with a single-layer kitchen or linen cloth and fasten with the rubber band.

11) Place the fermentation keg in a quiet, smoke-free, well-ventilated, warm place away from sunlight (20-25 ° C), allow to ferment for 8-12 days.

12) Then remove the fungus with clean hands and place it on a clean plate or in a clean container, cover the fungus.

13) Bottle the kombucha tea and place in a cold place, leaving 10 % for the next fermentation.



14) Put the fungus back into the container with the bright side up (clean it about every four weeks).

15) Start again from Step 1.

Why you should not buy prepared kombucha tea

Because of their longer shelf life, kombucha drinks, which you can buy ready-made in the store, are pasteurised, with the consequence being that kombucha's health-promoting components are killed off.

The consumer advice centres of Baden-Württemberg, Brandenburg and North Rhine-Westphalia make the following statement:

'*Kombucha is a slightly alcoholic fermentation drink based on green, black or herbal tea. For production, the sweetened tea is fermented with the gelatinous kombucha fungus, which consists of bacteria and yeasts. Gluconic acid, acetic acid, and small amounts of alcohol (0.1 to 1.5 percent) are the predominant substances produced. Industrially manufactured kombucha is pasteurised to make it last longer. This kills the microorganisms in the fermentation drink – they become ineffective.*'



Other use

Kombucha as a healthy vinegar

The production of a kombucha vinegar is very simple: Let the kombucha ferment longer! For this purpose, a duration of 14 days or longer is recommended at normal temperatures.

Kombucha for preservation purposes

To use kombucha to make your vegetables last longer, use kombucha vinegar (see above). Cut your vegetables and pour over the vinegar.

Kombucha as a facial cleanser

Apply kombucha normally and clean the facial skin with a cotton ball at bedtime.

Kombucha as a skin compress

Soak a cloth in kombucha tea and leave it on the face for 10-15 minutes.

Kombucha as a face mask

Alternatively, you can puree a young kombucha fungus and mix it with some kombucha tea to make a paste. Spread this paste on the face and chest and leave on for 15-20 minutes. Then rinse off normally.



Kombucha as hair conditioner

Massage the kombucha vinegar into the hair and scalp after conventional hair washing and allow to act for about 10-15 minutes, then rinse.

QUESTIONS AND ANSWERS

Is Kombucha a fungus?

Kombucha is not a fungus in the traditional sense. Kombucha is a symbiosis of beneficial yeasts and microbes (positive bacterial strains).

Superficially, kombucha tea fungus resembles a pancake; it is a jelly-like slice that can turn from white to brown to red, depending on the type of tea with which it is 'fed'. Combined with sugar and tea, Kombucha develops biochemical reactions that produce highly active and extremely healthy acids, yeasts, vitamins and enzymes.

Kombucha tea has traditionally been successfully used for over 2200 years against all sorts of diseases and ailments (see 'Effect according to doctor and therapist statements').

Which diseases and health problems does kombucha tea help with?

Kombucha's spectrum of activity is very diverse, ranging from flu to cancer.



You can find the diseases and conditions which kombucha tea can positively influence in 'Effect on diseases' and 'Effect according to doctor and therapist statements').

Are the health statements on the effects of kombucha scientifically proven?

Kombucha tea has been prepared for 2200 years, so since a time when writing was still in its infancy in many places and there was no medical 'science' in the true sense of the term. The effect of kombucha is superficially based on folk traditions; there are countless positive statements and also some studies on kombucha tea by doctors and therapists (see: 'Effect according to doctor and therapist statements')

Does kombucha tea cause any side effects?

So far (we are talking about a period of time of around 2200 years in which kombucha has been consumed), no noteworthy side effects have become known. Since kombucha has a strong detoxifying effect, the detoxifying processes in the body can lead to instant discomfort after the consumption of high amounts of kombucha. This is due to the Herxheimer reaction, in which toxins are suddenly released in the body and are removed at once.

In this case, you should reduce kombucha consumption and gradually build up to the desired amount. Furthermore, you should drink plenty of still water to help with the removal of toxins from the body. Kombucha also improves the



intestinal flora and stimulates digestion, which for a short time can lead to increased intestinal activity and thus more frequent toilet visits.

'*This drink has no known side effects, and one can hardly imagine it would have, even as a result of the natural preservatives in the short production time'.* (Professor Staib Robert Koch Institute) [436]

'Kombucha is a harmless soft drink when properly prepared...' (Consumer Advice Centre of Lower Saxony)[437]

Is homemade kombucha tea comparable to the commercially available type?

Absolutely not – for many reasons! First, the kombucha tea on commercial sale is very expensive at around 5 euros per litre, while home-made kombucha tea costs hardly anything. Furthermore, the kombucha beverage on commercial sale has no positive effects; this is because it is pasteurised to make it keep longer. This has the consequence that the health-promoting components (yeast and bacterial cultures) of kombucha are killed.

How do you buy kombucha fungus?

Traditionally, kombucha, which grows constantly, is passed on to loved ones and acquaintances. As kombucha tea is currently experiencing a renaissance, it is a lucky coincidence if you happen to know someone personally who has a

[436] Hessische Allgemeine Sonntagszeitung (Hessen Sunday News), June 14, 1992, p. 24

[437] http://en.wikipedia.org/wiki/Kombucha



kombucha fungus to share. No reason to despair, however. You can find reliable sources on the Internet to get a healthy, vital kombucha fungus!

How do I recognise a healthy kombucha fungus?

A healthy kombucha fungus should smell neutral or slightly acidic and have a tough, gelatinous consistency. Whether it is infused in black tea, green tea or fruit tea, it assumes the corresponding colour, which may then vary from light brown to a milky colour to pink.

How do I recognise a useless, possibly sick kombucha fungus?

An unusable kombucha fungus is often characterised by a musty odour, spongy texture and many dark threads. In the worst case scenario, you can even discover mould on it!

How expensive is a kombucha fungus?

The prices vary depending on the provider and usually range between 15 and 40 euros for 100 g kombucha culture including starter fluid.

What is a starter fluid?

A starter/base liquid is absolutely recommended for the very first batch. It contains all the acids needed by the kombucha to quickly get to work and protect



itself from bacteria and intruders. For further batches, simply leave 10-20 % of the resulting kombucha tea for the fungus and mix this with the new batch (tea + sugar).

How long does it take for the kombucha tea to be ready?

It depends on many factors, such as the temperature to which the fermenting kombucha fungus is exposed, but also the desired taste (the longer the process, the more acidic – and healthier – the drink!). The temperature should ideally be 22-25 °C. The warmer the temperature, the faster the fungus works and develops.

Basically, it takes about 5-12 days for the batch to be finished. (Using the heat plate, my second batch was finished in just 2.5 days. My fungus must have been very active!). Also, the batch becomes increasingly sour and can later be used as an extremely healthy vinegar for cooking.

How do I properly brew kombucha tea?

Detailed instructions for kombucha brewing can be found in the section 'Preparing the kombucha tea'

How do I store the kombucha fungus?

In general, it is advisable to brew the kombucha fungus promptly, because this allows you to provide the fungus with the best living conditions. If this is not possible, you can store it in a sealed container together with the starter liquid in



the refrigerator (at about 6-8 °C).

Can I share the kombucha fungus?

Kombucha grows and multiplies constantly; this provokes the idea of sharing the fungus regularly, in order to put it in several fermentation vessels or to give it to friends and acquaintances. Splitting the kombucha fungus is not a problem, but you should avoid touching the fungus with metal! For cutting the kombucha you should therefore use a plastic knife or plastic scissors.

Where should I keep kombucha if I am going away?

The easiest method is to put the fungus in a batch in the fridge (not in the freezer – it would die!); here, the fungus is not too active and can survive for a few weeks without being damaged. Over longer periods of time, the fungus will survive and will have produced a healthy vinegar in the meantime!

How many batches can I make with one and the same kombucha fungus?

There are sometimes contradictory opinions on the internet; but the vast majority of considered opinions agree: with good care, you may be lucky enough to use the same fungus for years!

Does the kombucha drink contain alcohol?

Kombucha drink can contain up to 3 % alcohol (for comparison: the alcohol content of normal beer in the USA is usually 4.1-5,9 %). This depends, among



other things, on the duration of fermentation and the activity of the fungus as well as its size and temperature.

This is also the reason why the kombucha tea is not suitable for alcoholics or recovered alcoholics!

Is kombucha tea suitable for diabetics?

Prepared kombucha tea still contains about as much sugar as fruit juice. Diabetics can drink kombucha tea, but must include this in their balance sheet.

It is best to brew the tea for about 12 days and longer, because then the sugar is almost completely degraded. There are reviews and therapeutic reports in which kombucha tea aided diabetes.

Can children drink kombucha tea as well?

Due to the small, yet present alcohol content in the kombucha, children should consume a maximum of one cup (125 ml) per day, preferably split throughout the day.

Can pregnant women drink kombucha tea?

Due to the alcohol content, women should not take kombucha tea during pregnancy.

Where should the kombucha fungus go in the fermentation glass?



Normally, there are two legitimate options: the fungus may swim or submerge on top of the surface. If it floats on top, another fungus forms on its surface ('kombucha baby'); this submerges, then forms another mushroom on the tea's surface.

In the next few days, you should avoid touching the glass, so that the kombucha baby can develop. This will allow you to breed another kombucha fungus – use it yourself or give it to someone you know!

What you should ensure is that the mushroom does not grow so much that it grows upwards out of the tea due to. It would dry out and die. If the fungus is too big, put it in a larger fermentation vessel or cut it with a plastic knife!

What should you do if the kombucha forms mould?

Young fungi are particularly dependent on hygiene, an optimal temperature (about 25 °C) and protection against mould sprouts. Rarely, but every now and then, there is a moment of carelessness and the fungus forms mould on the surface. First of all, you should keep calm and check whether it is actually mould; the typical mouldy hair must be visible!

If you have discovered the mould as such, you can try to save the kombucha fungus: Pour the drink away, wipe the mould from the kombucha and put the kombucha in a little vinegar. With a bit of luck, the mould will be history – but if it comes back, you have to discard your kombucha. You should always be prepared for such scenarios and breed a replacement fungus in parallel.



Book recommendations

The following books on kombucha are highly recommended:

'Kombucha – Mythos, Wahrheit, Faszination' ('Kombucha – Myth, Truth, Fascination') by Günther W. Frank (the classic, which you may have read!)

Kombucha – geballte Heilkraft aus der Natur 'Kombucha – Concentrated Healing Power from Nature' by Dr. Günter Harnisch

'*Teepilz Kombucha'* ('Kombucha Tea Fungus') by R. Fasching

LAETRILE – VITAMIN B17

Laetrile (vitamin B17) – a natural remedy for cancer?

To this day, the disease 'cancer' represents a form of horror beyond compare, with increasing significance – and yet, it does not have to be this way at all. One in three people is diagnosed with cancer, while one in four dies of it. Future prospects look anything but rosy, with the World Health Organization (WHO) expecting new cases to go up by 70 % in the coming years...!

A scourge of modern humanity, which would no longer exist in this form if only conventional medicine would finally cooperate with alternative medicine and take a complementary approach, making it an equal partner.



However, the interests of the powerful Big Pharma and the established medical profession clash with this notion, since natural substances are not patentable and their global use simply does not pay off financially!

Undoubtedly, one of these extremely effective natural substances, largely kept from the public, against which the worst campaign of opposition was waged, is laetrile, an active ingredient derived from bitter apricot kernels, also known by the synonym 'vitamin B17'.

Laetrile, amygdalin, vitamin B17 – three terms that describe the same thing, the most controversial, most thoroughly researched and most bitterly opposed natural active ingredient in the history of medicine – derived from bitter apricot kernels! No alternative cancer treatment has ever been discussed more intensely. Vitamin B17 is more than just another active ingredient: It epitomises the scientific and philosophical controversy between supporters of alternative cancer therapies and members of the medical establishment.

In the following chapters, you will learn the entire history of vitamin B17, the background to an incredible conspiracy; you will read objective facts from both sides, facts that could be of interest to anyone, including healthy people, given



the fact that, statistically speaking, one in two people[438] in industrial nations already suffers from cancer – a trend which is growing, by the way! Make your own judgement about vitamin B17!

History of vitamin B17 or laetrile, amygdalin

After several studies commissioned by the NCI (National Cancer Institute in the USA) on vitamin B17 (laetrile) went well, a longer series of tests was conducted at the world's most prestigious cancer research centre, Memorial Sloan-Kettering, by Dr. Sugiura. The late Dr. Sugiura was considered a luminary in the field of research, with 60 years of professional experience at the time. If the pure truth were the most important thing, Dr. Sugiura would have been the most suitable man for this job worldwide; but that's not what mattered and Sloan-Kettering did not reckon with Dr. Sugiura.

Looking back

Let's look back to the 1970's, to the scene of events, the legendary Cancer Centre at *Memorial Sloan-Kettering* in New York, where the history of vitamin B17 (laetrile, amygdalin) began.

The series of tests by Dr. Sugiura provided studies on different, partially transplanted and partially naturally occurring tumours in different animal species and

[438] https://www.medicalnewstoday.com/articles/288916.php



extended across a five whole years!

As a result of the studies, Dr. Sugiura reported on the following five findings:

1) Vitamin B 17 (laetrile, amygdalin) prevents metastasis in mice.
2) Laetrile has a growth-inhibiting effect on small tumours.
3) Laetrile (vitamin B17) has a preventative effect against cancer.
4) The general condition improved.
5) Vitamin B17 (laetrile) relieves cancer pain.

The summary of the effects of amygdalin in mice with primary breast tumours in Sloan-Kettering's report of 13 June 1973 can be read as follows:

'*The results clearly show that amygdalin significantly inhibits the occurrence of lung metastases in mice with primary breast tumours and significantly increases the inhibition of primary tumour growth ... laetrile also appeared to slightly reduce the incidence of new tumours ... Generally, there is always an improvement in the health and appearance of the treated animals compared to the control group...'*

In his extensive experience with chemotherapeutic agents, Dr. Sugiura had never observed a complete regression of these tumours.[439]

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[439] A Summary of the Effect of Amygdalin on Spontaneous Mammary Tumors in Mice – Report by Sloan-Kettering, 13 June 1973



The scene was set for the hitherto unanimous reputation of the world's largest cancer research centre, *Sloan-Kettering* to be crowned once and for all; Sugiura met his colleague Ralph Moss, who was responsible for the public relations at *Sloan-Kettering* and whose job it was, among other things, to report to the media about the research results at *Sloan-Kettering*.

When Dr. Sugiura repeatedly asked Dr. Moss what kind of nonsense he was reporting, and Dr. Ralph Moss was taken aback when his colleague from the lab told him that he had never seen anything that worked as well against cancer as vitamin B17 (laetrile, amygdalin).

The plot in the executive floors was obvious! But how was Ralph Moss supposed to react?

He did what decent citizens do, and went straight to his boss's office to confront him about the discrepancy!

The clear answer and unmistakable message to Moss was: 'Report what we tell you to, that's your job!'

Dr. Moss was in a real dilemma, as he was well on the way to a decent career at *Sloan-Kettering*, receiving regular pay raises, and had a family to feed. But he could never have looked himself in the mirror again if he kept telling the public this bizarre, misanthropic lie.

So, he decided on to hold a separate press conference at the Hilton Hotel on 17 November 1977 in front of numerous invited journalists and expose the lies



of *Sloan-Kettering*! As expected, he was fired the next day and has since been very successful in exploring alternative cancer therapies.

This press conference triggered a veritable avalanche of interest in vitamin B17, which was confronted by a billion-dollar campaign on behalf of Big Pharma. This campaign went to the highest reaches of government and the famous doctor and researcher Dr. Hans Nieper likened it to the scandal surrounding the Vietnam War.

A story that could fill entire libraries. Anyone keen to learn more should the book 'A World Without Cancer. The History of Vitamin B17 and its Repression' by G. Edward Griffin.

To put it briefly: in the USA, lots of people were arrested and many doctors lost their practice license. Vitamin B17 was quickly declared toxic and useless, its use in treatment was banned, and even the trade in bitter apricot kernels was banned in the US and Canada!

In the meantime, Dr. Ralph Moss has dedicated his life to exploring alternative cancer therapies, is one of the most respected medical writers, and has written and published twelve books on 'cancer' as a recognised expert and consultant.

The patent dilemma

If one asks for the reasons why studies concerning natural substances are manipulated, which unfortunately is still an issue, but which will surely never reach the scope of the vitamin B17 scandal which we have touched on, one should



first deal with the basics of this problem, which degenerates into a veritable dilemma for the pharmaceutical industry:

- vitamin B17 (laetrile, amygdalin) is a natural substance and cannot be patented because it is natural! (It goes without saying that you cannot patent a kernel of an apricot fruit that grows on the apricot tree.)

- On the other hand, as mentioned above, a non-patentable substance does not justify expensive licensing studies for a pharmaceutical company, as required by the authorities of a particular country for new medicines, nor any subsequent multi-million marketing campaign to successfully market the new drug.

Nevertheless, if a pharmaceutical company were to embark on this hugely expensive endeavour, it would automatically accept that competitors could also lay claim to the now universally valid, published studies and, due to the millions they would save in not having to conduct the study, could bring a much cheaper drug onto the market with the same active ingredient only a short while later.

But if these inexpensive (non-patentable) natural products, such as, in this case, laetrile from bitter apricot kernels, have a favourable 'benefit-risk profile', they ultimately act without damaging our health, meaning that, from the time of their market launch, they are in direct competition with the expensive drugs of the pharmaceutical industry, which are also often associated with significant side effects. This will automatically make you the target of the mighty Big Pharma,



which is ruthless and spares no effort or money in killing the competitor that is better, safer and cheaper!

Incidentally, it has been revealed that pharmaceutical companies have made very elaborate attempts to synthetically produce vitamin B17, because only this would make it possible to patent it. However, all these attempts have failed miserably, which at the same time has meant a declaration of war on vitamin B17!

SUMMARY

Non-patentable substances (natural substances) do not earn any money, on the contrary: they are a threat to a billion-dollar business!

However, cancer accounts for about 10 % of the pharmaceutical industry's total sales, which is about $40 billion a year! It goes without saying that the powerful pharmaceutical industry would not want to do without this source of income.

Vitamin B17 (laetrile, amygdalin) – the studies

Earlier, we mentioned the five-year study at Memorial Sloan-Kettering, which caused a worldwide sensation and put the cancer-healing benefits of vitamin B17 in the limelight of media attention and thus the public eye.

This five-year study by Dr. Kanematsu Sugiura attributed consistently positive results to laetrile; however, it was just the proverbial tip of the iceberg, having been preceded by some significant studies by the National Cancer Institute and



other institutes, all of which showed positive results for vitamin B17.

1953: Report by the California Medical Association Cancer Commission

Probably the largest public relations setback for laetrile (vitamin B17) came in 1953 with the pseudo-scientific report by the California Medical Association Cancer Commission, which had an impressive amount of individual evaluations on laetrile and gave the impression that laetrile (obtained from bitter apricot kernels) was being subjected to thorough scientific research.

The final report on laetrile/amygdalin was: '*There is no satisfactory evidence of a significant cytotoxic effect of laetrile on cancer cells'*.[440]

Interestingly enough, two of the seven authors of the report are well known. Dr. Ian Mac Donald, who led the commission, and Dr. Henry Garland, the Secretary of the Commission, were among the most important representatives of the AMA (American Medical Association). On 9 July 1964, they caused a nationwide stir when Garland told the Public Health Committee of the Commonwealth Club of San Francisco:

'According to a current widely held hypothesis, there is a causal link between smoking and a

[440] G. Edward Griffin: A World Without Cancer , 4th Edition, December 2007, p. 33,



wide range of diseases, from cancer to atherosclerosis. After years of addressing this issue, and in particular the reported association with primary bronchogenic carcinoma (lung cancer), I came to the well-considered conclusion that there is no evidence for this hypothesis'.

MacDonald in turn crowned the whole affair when, in the US magazine *News & World Report*, photographed with a cigarette in his hand, he said that smoking '*up to 24 cigarettes a day is a harmless pastime*'!

And as if this was not enough, he added: '*In a modification of an old proverb you could say: One pack a day, and you do not need a doctor for lung cancer'.*[441]

It should be noted that these innovative, 'philanthropic' test results were published at the exact time when the tobacco industry had lost considerable revenue due to initial research on 'smoking and lung cancer' and the industry paid 10 out of a total of 18 million dollars to the AMA for 'research purposes'!

In the AMA report, this industry donation is justified as being for scientific causes as follows: '*At present, about $14 million has been made available by the tobacco industry for 203 individual research projects at 90 universities. As a direct result of these donations, 450 reports have been published in scientific journals'.* [442]

By the way, there are wicked rumours (are they really that wicked?) that MacDonald and Garland received $50,000 for their claims on tobacco health! [443]

But to return to the *California Report* and thus to vitamin B17: apart from the

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[441] 'Here's Another View: Tobacco May Be Harmless' US News & World Report, 2 August 1957, p. 85 f.

[442] Third Research Conference, Committee for Research on Tobacco and Health, AMA Education and Research Foundation, 7 to 9 May 1972, p. 4

[443] 'Cancer News Journal' January/April 1971, p. 3 and 'The Immoral Banning of Vitamin B17' by Stewart M. Jones, MS, MD, Palo Alto, Calif., January 1974, p. 1



dubious statements of the pair, the studies were already deprived of a meaningful foundation due to the use of a dosage that contained only 1/50 (one fiftieth!) of the dosage of the drug laetrile, which is commonly used for cancer patients to achieve optimal results!

On page 3 of the *California Report*, MacDonald and Garland had to admit: '*All physicians whose patients were reviewed reported improvement in mood, appetite, weight gain and pain relief*' and discredited themselves and their entire report further with the continuation '... *as if these observations were evidence of a definitive therapeutic effect'*.

You have savour that one! Advanced cancer patients, all of whom experiencing better health, improved appetite, weight gain and pain relief – NO evidence of therapeutic effect? What then?

What do you think of that – and what else should one think of a study on vitamin B17, the *California Report*, written by the same 'scientists' who have been so committed to the tobacco industry that they officially gave nicotine a health clearance certificate and thus endangered millions of lives?

Please answer this question yourself!

By the way, in 1963, ten years later, the California Department of Health,



adopted the *California Report* as its own and declared it to be 'true'.[444]

So-called 'experts' – people who have never come into contact with laetrile – still repeatedly refer to the *California Report* as a showcase against the efficacy of laetrile (vitamin B17), and it is considered THE main argument for the legal restrictions on laetrile in the USA!

More dubious studies to prove the failure of vitamin B17 were yet to come; they all had the same characteristics in common: '*scientific incompetence, bias and plain deception'*.[445]

[444] G. Edward Griffin: A World Without Cancer , 4th Ed., December 2007, p. 37

[445] G. Edward Griffin: A World Without Cancer , 4th Ed., December 2007, p. 33



1973: Report by the Southern Institute in Birmingham for the NCI (National Cancer Institute)

After months of testing on mice, the Southern Institute in Birmingham, Alabama, presented a report in 1973 that, according to the NCI, claimed once again that laetrile had no effect during cancer treatment.

After Dr. Dean Burk of the National Cancer Institute reviewed the report thoroughly, he found that the tests had basic 'errors'!

The test mice were thus divided into three groups: Group 1 received too little laetrile, Group 2 received too much laetrile and Group 3 received the optimal amount of laetrile.

In Group 1, the mice died just as fast as those that did not receive any laetrile.

In Group 2, mice died faster than those in the control group.

But those in Group 3, i.e. those who received the optimal dose, survived much longer than those in the control group without laetrile.

So far so good. Another gratifying result in favour of vitamin B17, one would think... So, what do you do with positive results if you do not want the results to be positive?

It's very simple: you fiddle with the numbers by compiling the results of all three groups and calculating the average! On average, due to the fact that two out of three test groups included an incorrect dose of laetrile – of course the results



came out negative!

On March 22, 1974, in a 14-page letter to Dr. Seymour Perry of NCI, Dr. Dean Burk proposed a damning analysis of this statistical manipulation.[446]

NCI study as concession for vitamin B17 due to popular resistance

'He who heals is right!' And so it is not surprising that Americans, increasing numbers of whom recovered from cancer after laetrile therapy, organised themselves into groups and founded a national grassroots organisation called the *Committee for Freedom of Choice in Cancer Therapy*.

Hundreds of local groups and thousands of people held press conferences and meetings calling for the approval of vitamin B17 (laetrile/amygdalin). The National Cancer Institute had no choice but to respond. Subsequently, 93 patients suffering from cancer who had been treated with laetrile, as well as clear documentation suggesting treatment with laetrile, were sought and submitted to twelve experts for evaluation.

Patients who had been treated conventionally (conventional medicine) had also been mixed in with this group, with the experts unaware of who had undergone laetrile treatment and who had undergone conventional cancer therapy (chemo,

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[446] [446] G. Edward Griffin 'A World Without Cancer' p.45, 4 Edition December 2007



radiation). The review commission came to the conclusion:

- *Two of the tested laetrile cases showed a complete remission (tumour completely disappeared),*
- *four of the people treated with laetrile showed a partial remission (tumour reduced by more than 50 %),*
- *nine of the laetrile patients were 'stabilised' (tumour growth stopped!),*
- *three of the laetrile patients had 'more time free from disease'.*

SUMMARY

18 out of 22 patients treated with vitamin B17 (laetrile) reacted positively, that is a huge 82 percent!

And how did the NCI's official final report turn out? This stated: '*These results do not allow for definitive conclusions in support of a cancer-inhibiting effect from laetrile*'.[447]

1977: The Manner study

In September 1977, Dr. Harold W. Manner, chairman of the Faculty of Biology at the *Loyola University* of Chicago, published notable study results.

Manner combined a vitamin B17 extract (laetrile) with pancreatic enzymes and vitamin A in a series of tests on 84 mice affected by breast cancer.

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[447] NM Ellisons: Special Report on Laetrile: The NCI Laetrile Review. Results of the National Cancer Institute's Retrospective Laetrile Analysis. New England Journal of Medicine 299, 7. September 1978, p. 549–552.



The result of his study was a remarkable cure rate (total disappearance of cancer!) in 75 of the 84 cancer-affected mice, while the remaining nine mice showed a partial decline in cancer.

1977: Study by the McNaughton Foundation

In a study sponsored by the *McNaughton Foundation*, mice were injected with laetrile at a dose equivalent to 500 mg/kg. The mean survival time of the mice treated with vitamin B17 was 70 % longer than that of the control group!

The results of this study were submitted in July 1977 to the Senate Committee on the hearing on 'laetrile'.

Other studies at the Institut Pasteur in Paris showed that the survival rate in mice with adenocarcinoma doubled compared to the control group!

1982: Another attempt at deception

In 1982, the NCI decided to investigate laetrile with prospective clinical trials scheduled to take place at the Mayo Clinic. The study was conducted on 178 patients, and the report in the *New England Journal of Medicine* in 1982 claimed that laetrile was ineffective in the treatment of cancer!

On the one hand, 66 % of all subjects were already pre-loaded with chemotherapy, which is known to lower the chances of recovery many times over; on the



other hand, the quality of the laetrile used in these studies was extremely questionable!

One of the clinics that has already performed successful treatments using laetrile offered it to this study to ensure the test was conducted as properly as possible – this offer was rejected. I wonder why?

Dr. James Cason from the University of California in Berkeley tested the laetrile used in the study and found that it was not laetrile!!

Worldwide research on laetrile/vitamin B17

In other countries with less industrial and governmental impact on research, studies on laetrile/vitamin B17 continued. For example, Dr. David Rubin in Israel, who claims to have achieved good results with a high dose of 70 g laetrile per day in breast cancer patients as well as patients with bone metastases. (Leukaemia patients did not respond to laetrile treatment!)

Dr. Manuel D. Navarro, Professor of Medicine and Surgery at the University of Santo Tomas in the Philippines, was one of laetrile's leading supporters worldwide.

In 1962, at the 8th International Cancer Congress, he held a lecture on laetrile and described some case studies that have been treated very successfully with much higher doses of laetrile. Regardless, many well-known doctors around the world continue to use laetrile (amygdalin, vitamin B17) in the treatment of cancer, such as Dr. Contreras, Dr. Navarro, Dr. Puttich from Germany and many



others.

According to Dr. Ernesto Contreras, who has over 30 years of experience in treatment with vitamin B17, about 60 % of patients in the advanced stages recover, while about 15 % experience a partial decline in cancer and about 5 % even experience a complete disappearance in cancer!

How does Vitamin B 17 (laetrile, amygdalin) work?

Due to the massive resistance of the medical establishment and studies that have obviously been manipulated, the principle of action of vitamin B17 (laetrile, amygdalin) has never been objectively scientifically clarified with the utmost assurance, or, such research results have never been disclosed to the public.

In most cases, the following theory is mentioned in connection with the mode of action of vitamin B17:

Laetrile, also called vitamin B17, was used by Dr. Ernst Krebs Jr., who isolated it from bitter apricot kernels.

Laetrile belongs to the group of cyanide-containing substances, also called 'nitrilosides'. These are naturally found in certain plants, including:

- bitter apricot kernels
- peaches



- berries

- cherries

- millet and in some grasses.

It is estimated that vitamin B17 (laetrile, amygdalin) is found in around 1200 different plant species, but mostly in the seeds of non-citrus fruits.

Bitter apricot kernels (and only bitter ones!) contain the world's largest concentration of vitamin B17!

Laetrile is broken down into a benzaldehyde molecule and a hydrogen cyanide molecule after ingestion in the liver using the enzyme beta-glycosidase. The latter is highly toxic!

Since the enzyme *beta-glycosidase has* been found to be 100 to 3600 times more common in cancer cells than in healthy ones, it means certain death for the cancer cell, as it produces 100 to 3600 times more toxic hydrogen cyanide.

However, in a healthy body cell, another enzyme called 'rhodanese' is abundant, which neutralises the toxic substance immediately, the cancer cell has insufficient amounts of this protective enzyme! Vitamin B17 or laetrile should always be used in conjunction with pineapple and papaya (bromelain, papain) enzymes as they break the 'protective armour' of the tumour, making it easier for the laetrile to enter the cancer cell.

In summary, the following can be said:



Laetrile has a very selective effect on the cancer cells by releasing the toxic hydrogen cyanide molecule in the cancer cell in a concentration of 100 to 3600 times (compared to the release in a healthy cell). At the same time, the cancer cell has only insufficient amounts of the enzyme *rhodanese*, which is abundant in the healthy cell and neutralises the incoming toxins are instantly converted into the harmless enzyme 'rhodanide'!

Incidentally, the benzaldehyde molecule is responsible for the analgesic effect of laetrile against cancer pain.

Natural chemotherapy – no side effects!

Similar to the active ingredient curcumin from the Indian spice turmeric (see corresponding chapter) and numerous other substances mentioned in this book, laetrile has a veritable *cytotoxic* and *cytostatic* effect...
By way of explanation, '*cytotoxic',* from Greek, means 'cell-destroying' and '*cytostatic*' means 'cell growth-inhibiting'. We know these very mechanisms from chemotherapy, but with the one essential difference:

Mother Nature cares for us and does not want to harm us! Thus, these extremely efficient, cell-destroying and cell-growth-inhibiting properties relate exclusively to the malignant cells, the cancer cell – the healthy cells are completely spared!

From a biochemical and functional point of view, therefore, in vitamin B17 (laetrile) we have a proven, fully natural chemotherapy, the effectiveness and



safety of which has since been confirmed by over 50 years of therapy and numerous representative studies.
What remains is the bitter aftertaste, not of the bitter apricot kernels... but rather that all these studies are not known to conventional cancer physicians, while they continue to practice on the principle of *'steel, radiation, poison'*(surgery, radiotherapy and chemotherapy) and they do not tire of citing the so-called '*representative'* drug studies of the pharmaceutical industry, which, unfortunately, according to physician and pharmacist Wolfgang Becker-Brüser, the publisher of the *'Remedy Telegram'* are manipulated in up to 90 % of cases anyway![448] But there is also the hope that one day the truth will prevail and that man will remember that he is just a part of nature, and has not sprung from a test tube in the chemistry lab...

What dosages are recommended for laetrile/vitamin B17?

For legal reasons, we distance ourselves from the following dosages and only give the opinion or the suggestions of renowned laetrile researchers for purposes of illustration!

Dosage of vitamin B17 for preventive purposes (cancer preventative!)

According to the author of the bestselling book, 'World Without Cancer', G.

[448] http://www.swr.de/odysso/es-geht-um-viel-geld-gefaelschte-pharmastudien/-/id=1046894/nid=1046894/did=2258782/um7mvw/index.html



Edward. Krebs , who discovered laetrile, for prevention purposes, a minimum of 50 mg laetrile is recommended for normal, healthy adults.

The average amount of laetrile in a bitter apricot kernel is about 4-5 mg laetrile; this amount can vary by up to a factor of 6!

The most commonly cited number of bitter apricot kernels per day for prevention purposes is seven, in the vast majority of cases, ten kernels, which roughly matches the recommendation. According to numerous sources, there have so far been no documented cases of anyone who has fallen victim to cancer whilst consuming bitter apricot kernels, a noteworthy fact given that bitter apricot kernels have been used for decades by billions of people worldwide for preventative purposes and, viewed statistically from the other side, one in two people in the developed world suffers from cancer. Don't you agree?

Dosage of laetrile for cancer treatment

In the case of cancer, the usual dose would be about 6 g of laetrile injected intravenously, usually over a period of three weeks. Of course, you should never attempt such intensive therapy alone, but always in the context of holistic metabolic therapy, guided and supervised by a physician experienced in this field!

This is because, according to laetrile experts, the mass death of cancer cells causes toxins and their excretion from the body could lead to poisoning; laetrile is therefore administered in conjunction with several other drugs, including high intravenous doses of vitamin C.



Dosage of laetrile for the control of metastases

For the purpose of metastasis control, laetrile can also be taken orally. Recommended doses are usually up to 3 g per day.

What are the side effects of laetrile?

For legal reasons, we hereby expressly distance ourselves personally from the following statements and only provide the opinion and suggestions of others for illustrative purposes only! In a shocking experiment on himself, the discoverer of laetrile, Dr. Ernst Krebs , shown that laetrile is generally safe. He injected a mega dose of concentrated laetrile into his own arm, completely free from side effects!

However, there have been some reports of people who have had difficulty breathing or muscle weakness as a side effect; these reports cover people who have undergone self-treatment with excessively high doses. Also, from time to time, side effects such as dizziness, nausea, vomiting, diarrhoea, and fever have been reported. It is believed that these symptoms are due to the toxins of dying cancer cells already described. Despite the greatest effort, however, we were unable to investigate reports of deaths as a clear side effect of laetrile medical treatment, and this after approximately 60 years of therapeutic use on millions of patients!



Is laetrile, amygdalin, vitamin B17 toxic?

The so-called *LD50 dose* is a recognised benchmark for determining a toxicity value in foods. It is the dose that causes death in 50 % of animals. In the case of orally administered laetrile (vitamin B17), a value between 600 mg/kg and 800 mg/kg body weight was determined in rats.

Laetrile/amygdalin three times as toxic as glucose?

This corresponds to 7500-11000 mg of bitter apricot kernels per kg of body weight, assuming an amygdalin content of 8 %,[449] which is ranked between glucose and saline. The LD50 value of saline is 3000 mg per kg, which is 3 times as 'dangerous' as laetrile, while glucose is 25800 mg/kg[450], which makes glucose one-third less 'dangerous' than laetrile!

In principle, far higher doses can be tolerated if administered intravenously, as confirmed by a study on mice commissioned by Dr. Ernesto Contrearas. This resulted in a value of 6670 mg/kg[451], while, for example, the chemotherapeutic agent 'cisplatin' in mice has a value of 13 mg/kg[452] body weight!

CONCLUSION:

Laetrile, amygdalin, vitamin B17 is therefore administered intravenously (in mice) more than 500 times safer than the chemotherapy drug *cisplatin* and, taken orally, about 3 times as 'dangerous' as glucose!

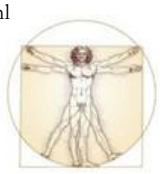
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[449] http://www.giftpflanzen.com/prunoidae.html

[450] http://avogadro.chem.iastate.edu/MSDS/dextrose.htm

[451] http://www.worldwithoutcancer.org.uk/analysis7.html

[452] http://www.chemcases.com/cisplat/cisplat08.htm



Incompatibilities between laetrile and other drugs

Taking laetrile in combination with potent probiotics will increase the amount of hydrogen cyanide released, leading to unwanted side effects.

QUESTIONS AND ANSWERS

What is vitamin B17 (laetrile, amygdalin)?

Vitamin B17, also called laetrile or amygdalin, is referred to by alternative cancer physicians and laetrile researchers as a 'natural chemotherapeutic' found in more than 1,200 plants. Bitter apricot kernels, however, have the largest deposits; furthermore, laetrile can be found in apples, plums and peaches.

How does vitamin B17 (laetrile, amygdalin) work?

According to its discoverer Dr. Krebs, it acts very selectively and exclusively on the cancer cells, releasing high concentrations of the toxic hydrogen cyanide molecule in these cells; at the same time, the healthy cell is protected by the enzyme *rhodanese*, whereby the incoming poisons are instantly neutralised by being converted to the harmless enzyme *rhodanide*.

Can all apricot kernels be used, or just the bitter ones?



Only the bitter apricot kernels contain the active ingredient vitamin B17 (laetrile, amygdalin) – all other apricot kernels contain little of it or none at all and are therefore ineffective!

Does vitamin B17 have an analgesic effect?

The benzaldehyde molecule in laetrile is an effective, natural, analgesic that works against cancer pain.



Is vitamin B17 sufficient for cancer therapy?

No way! Many success stories of former cancer patients, who have fought their cancer with the bitter apricot kernels alone (vitamin B17), could lead one to this conclusion, but one thing should nevertheless be clear: while vitamin B17 is likely to have a positive effect on every type of cancer, every human and every type of cancer may react differently!

In most cases, it would be negligent to gamble on a life-threatening condition such as cancer, arm yourself with a few pounds of bitter apricot kernels and go it alone! Rather, vitamin B17 should be used in conjunction with a holistic cancer therapy, which is guided and accompanied by laetrile doctors!

Furthermore, vitamin B-17 (laetrile) should always be taken in conjunction with enzymes from pineapple and papaya fruit (bromelain, papain). These help to crack the 'protective armour' of the tumour, allowing the laetrile to better penetrate the cancer cell.

Is laetrile, amygdalin (vitamin B17) legal or is it banned?

At the moment, apricot kernels and thus vitamin B17 are approved as a dietary supplement in the EU and therefore legal! In the US, laetrile is restricted and in California, for example, the use of laetrile/amygdalin (vitamin B17) for cancer in humans is prohibited under certain circumstances.

What dose of laetrile is recommended for the prevention of cancer?

At this point, laetrile therapists distinguish between the following three states:



1) One is healthy and would like to take apricot kernels preventively:

Dr. Krebs, the discoverer, recommends a minimum of 50 mg laetrile in healthy adults for prevention purposes. The average amount of laetrile in a bitter apricot kernel is about 4-5 mg laetrile, but this can vary by a factor of 6!

The number of bitter apricot kernels recommended for preventive purposes is about seven to ten bitter apricot kernels a day, which roughly matches the recommendation!

2) You currently have cancer that you want to fight with laetrile:

For people already suffering from cancer, laetrile researchers usually recommend a dose of approximately 6 g laetrile, given intravenously over a period of usually three weeks.

This should never be attempted in isolation, but always as part of holistic metabolic therapy, guided by an experienced doctor, since, according to laetrile experts, the death of the cancerous cells produces toxins and their excretion from the organism could lead to poisoning; laetrile is therefore administered in conjunction with several other agents, including high intravenous doses of vitamin C.

3) You want to prevent metastases:

According to laetrile experts, laetrile can also be taken orally for the prevention of metastases. The suggested doses in this case is up to 3 g per day.



Is there a maximum dose of apricot kernels that should not be exceeded?

Everything has its limit, which should not be exceeded. With clear water, for example, a person can only tolerate a maximum of 10 litres before it becomes poisonous! This also applied to bitter apricot kernels; thus, according to laetrile experts, a quantity of max. 30-35 kernels distributed over the day is recommended to prevent any side effects (maximum 6 per hour!).

The toxicity of laetrile itself, however, is only 3 times that of glucose; see 'Side effects vitamin B17'.

What is the difference between apricot kernels and B17 tablets or infusions? And what is better for the prevention of cancer and in cases of acute cancer?

The raw form of vitamin B17 is bitter apricot kernels. According to Dr. Krebs, these are more suitable for prevention purposes than tablets, if only because they contain a huge amount of phytochemicals that are also healthy.

If you do not mind the aftertaste (similar to marzipan) of the apricot kernels and you have no problems with chewing, you should use bitter apricot kernels for prevention purposes.

For all other purposes, the tablets are a good alternative for preventive purposes. Infusions are recommended for acute cancer, but should, as already mentioned several times, only take place under the supervision of an experienced physician in the context of a holistic metabolic cancer therapy.



In all cases, supplementing treatment with apricot kernels makes a lot of sense as they have many other nutrients and enzymes that support laetrile and promote good health!

Does vitamin B17 work for every type of cancer?

According to Dr. Krebs, yes! According to him, cancer cells have exactly the same characteristics and would be destroyed in the same way, isolated by laetrile.

But as we said before, it would be irresponsible to rely on laetrile alone! On the other hand, one should holistically tackle a life-threatening disease such as cancer through the described principle of the 'golden triangle of curing cancer'. (See my cancer book!)

Should you take apricot kernels in any case?

Both Dr. Krebs and Dr. Contreras say 'yes'. Bitter apricot kernels not only have the isolated active ingredient *laetrile* (vitamin B17), but also provide many important nutrients and minerals which support recovery or maintain good health. If you are sensitive to the kernels, you should not chew them on an empty stomach!

Can you also take vitamin B17 during chemotherapy or radiation?

Experienced physicians who use metabolic cancer therapy insist that this is not only recommended, but even necessary under the circumstances mentioned.



Can vitamin B17 still help after chemo and radiation have both failed?

According to Dr. Krebs and many other therapists, it can help even if chemotherapy and radiation fail. However, one should not forget that it is not uncommon for chemotherapy and radiation to cause the actual damage which often leads to death. Everybody can benefit for metabolic cancer treatment with laetrile!

How long does it take for the first results to become apparent?

This is a question that depends on the particular viewpoint and includes subjective and objective outcomes. The subjective results, which can occur immediately after the start of therapeutic treatment, include increased well-being, increased appetite, increased energy and a decrease in pain.

Objective results should provide confirmation in the form of blood tests over a few days or weeks (generally better blood counts, decreased tumour markers, etc.).

While skin tumours should respond most quickly and success should be visible within a week, with cervical cancer, it usually takes less than three weeks for the patient to begin to recover, in many cases they will recover completely.

According to Dr. Krebs, 1000 mg of vitamin B17 should be taken orally in tablet form as a maintenance dose to prevent recurrence. Other laetrile experts recommend 1.5-2 g daily!



How should the apricot kernels be kept so they last as long as possible?

Apricot kernels should be stored in a cool and dark place; you can also store them in the fridge to prolong their shelf life (do not use after the expiry date!)

Can the toxic cyanide in vitamin B17 damage healthy cells in addition to the cancer cells?

According to Dr. Krebs and other laetrile researchers, absolutely not!

Laetrile therapy under medical supervision

Several reasons speak in favour of not carrying out laetrile therapy without supervision. In addition, by far the most successful form of laetrile treatment is the intravenous administration of the drug, which is equivalent to natural chemotherapy. According to Dr. Krebs, it takes longer with some types of tumours for vitamin B17 can take effect deep inside the body. This includes bone and brain tumours.

How much vitamin B17 should you take as a maintenance dose after overcoming cancer?

Symptoms of intoxication can be expected during laetrile therapy, when the cancer cells release toxins as they die. In order to achieve the greatest possible therapeutic benefit and not endanger yourself, you should, if possible, consult an experienced laetrile therapist. Unfortunately, since the death of Dr. Nieper,



a leader in the field of alternative cancer treatment, who successfully treated people from around the world (including celebrities such as Caroline of Monaco, Ronald Reagan, members of the Kennedy clan, etc.) in Hanover, these have become very rare in Germany.

LAPACHO TEA

Foreword to this great remedy

Still relatively unknown in this country, lapacho tea enjoys great popularity throughout South America, where it is considered a natural remedy for countless ailments as well as purely for pleasure as a tea that people consume daily in the company of their loved ones.

Given the ever-growing, well-founded scepticism regarding traditional medicine and the growing interest in healthy alternatives from nature, it is only a matter of time before lapacho tea makes a breakthrough into our culture.

An increased interest would be more than comprehensible given its wide spectrum of effects, especially since lapacho tea has a wide-ranging impact against numerous diseases and conditions and, in contrast to traditional drugs, is completely free of side effects.

Lapacho – the plant and the tradition



Without question, lapacho tea, obtained from the lapacho tree (scientific name 'Tabebuia avellanedeae'), which the Indians respectfully refer to as the 'tree of life' or 'protector of the life force', is one of the elite medicinal herbs. Revered for centuries as a healer and source of pleasure, it has a very long tradition among the indigenous Indian peoples to look back on.

Lapacho strengthens the immune system, detoxifies, counteracts inflammation and assists peaceful sleep. In addition, it has proven itself against diseases ranging from arthritis, neurodermatitis to gum inflammation. And, in studies, lapacho tea has even been shown to be beneficial against more serious illnesses, such as cancer.

The name *lapacho* refers to several tree species measuring up to 35m in height in the rainforests of Brazil, Argentina and Paraguay (including Handroanthus impetiginosus, Handroanthus serratifolius, Handroanthus heptaphyllus), which belong to the family of the Bignoniaceae and, in the flowering period between May and August, bear beautiful red or purple bell-shaped flowers.

But it is not the flowers but the bark of the lapacho tree that is the sole focus of interest. Even the Incas used the aqueous extracts of the lapacho bark for the healing and alleviation of small ailments and serious illnesses. For this purpose, the inner bark (the so-called bast layer) of the otherwise very hard wood is processed into the corresponding extract. Since the bark quickly grows back after harvest, there is no reason to worry about the health of the tree.

Later, it was the Peruvian Indians and Indian tribes from Bolivia and Paraguay



who continued the tradition of drinking lapacho tea.

The taste

The taste of lapacho tea depends on the brewing time and the vessel in which the tea is brewed and stored. It usually tastes similar to rooibos tea and has a light vanilla aftertaste. If you let the lapacho tea infuse longer, it assumes a tart, spicy aroma.

What ingredients does lapacho tea contain?

Lapacho tea has a variety of optimally coordinated active ingredients in the form of minerals, trace elements, saponins and other phytochemicals which synergistically release their health benefits.

It is precisely the wondrous composition of all these ingredients in a perfect whole, which the human being is unable to imitate, which gives lapacho tea its full healing power.

These include:

- calcium
- iron
- potassium
- copper
- magnesium
- manganese



- sodium
- iodine
- selenium
- chrome
- gold
- barium
- boron
- cobalt
- phosphorus
- strontium
- saponins
- silicon
- lapachol
- xylodion
- veratraldehyde
- veratric acid
- zinc

The nature and qualities of the lapacho bark increase the oxygen supply

It is the red inner bark of the lapacho tree, which is able to bind the oxygen in a special and valuable form that is readily available for humans. Lapacho not only supplies the healthy body cells with a lot of oxygen, but also successfully eliminates bacteria, viruses and fungi and can even reverse atherosclerosis.



The oxygenating effect is enhanced by the ingredients calcium and iron, which are known to be involved in oxygen transportation.

Lapachol as a versatile active ingredient

'Lapachol' is one of twelve quinones in lapacho tea that has been shown to have an antibiotic effect. Lapachol also has antiviral, anti-inflammatory, analgesic and anti-ulcer effects. It also has tumour-inhibiting properties and can even successfully treat malaria.

The quinones (including lapachol) also have

- cytotoxic (cancer-cell killing),
- cytostatic (cancer growth-inhibiting)
- anti-metastatic and
- immune-building (immune system-strengthening)

properties and are therefore currently the subject of intensive cancer research.

Stimulating, revitalising effect of lapachol

The stimulating effect of the naphthoquinone compounds 'lapachol' or 'lapachone' is also worth mentioning.

Immune-enhancing effects of lapachol



In addition, lapacho's active ingredient 'lapachol' activates immune cells, lymphocytes and granulocytes, strengthening our immune system.

Veratraldehyde

Plays a role in strengthening the immune system.

Veratric acid

Strengthens the immune system.

saponins

Lapacho contains many saponins. These protect against any kind of fungi and can even inhibit cancer growth. The latter has led Japanese researchers to patent special lapacho saponins as anti-cancer drugs.[453]

In doses of 1500 mg, lapachol isolated from lapacho tea showed a marked antitumour effect.

Selenium as a cell-protecting antioxidant and detoxifying agent

Another important component of lapacho tea is the antioxidant *selenium*, which protects our cells from being destroyed by neutralising free radicals. The im-

[453] Walter Lübeck: Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 36



portance of this becomes clear when one considers that most diseases and ageing processes are caused by the harmful effects of free radicals.

Furthermore, selenium is able to detoxify the human body and cleanse it of heavy metals such as cadmium.

Xylodion has antibacterial, antiviral and antifungal properties

The abundant organic compound 'xylodion' in lapacho has been shown to be antibacterial, antiviral and fungicidal. In this capacity, xylodion can even kill the dangerous Candida fungus.

Effect of lapacho tea

The Indians used and still use the Lapacho tea as an all-round health drink, but also purely as a source of pleasure. In addition to its analgesic effect, it is above all its property to significantly increase the number of red blood cells which makes it so interesting for us humans.

Oxygen is known to mean life. Now, when one realises that the role of the red blood cells is to transport oxygen and lapacho tea has been shown to significantly increase red blood cell counts, it becomes clear just how valuable this property of lapacho can be to our health and well-being and how comprehensively it could influence the healing of many diseases.

It is the red inner bark of the lapacho tree that binds large amounts of oxygen in a form that is particularly valuable and readily available to the human body.



On the one hand, this form of bound oxygen is able to optimally supply the body's cells, on the other hand, it can kill whole bacterial strains, viruses, fungi and protozoa and remove harmful deposits (atherosclerosis) from our blood vessels, and even restore the flexibility of our arteries.

In this context, a newspaper interview with Prof. Walter Accorsi from the Municipal Hospital of Santo André aroused great curiosity when he stated that right at the beginning of his experiments on lapacho, he noticed these two properties: the analgesic and oxygenating effect. Even in advanced cancer patients who suffered unbearable pain, lapacho made the pain '*disappear*'. At the same time, treatment with Lapacho caused the number of red blood cells to multiply rapidly, resulting in a more efficient oxygenation of the body.[454]

This statement by Professor Accorsi on the wide-ranging healing potential of lapacho is very significant:

'*From the very first experiments that I performed with the remedy, I discovered two factors that I considered to be particularly relevant to the treatment of cancer: on the one hand, lapacho relieves the pain caused by the disease, and on the other hand it increases the number of red blood cells.*

Our astonishment got greater and greater! The lapacho cortex literally seemed to heal everything – ulcers , diabetes, rheumatism – just about anything. Above all, it was the speed with which the healing took place that was impressive. Most patients were free of symptoms within a

[454] Walter Lübeck: Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 29-30



month. [455]

Before we devote ourselves to the specific effect of lapacho tea, it seems very sensible to first look at its general effect.

Lapacho tea generally has the following effects:

- oxygenating
- increase in the number of red blood cells,
- blood purifying,
- anti-inflammatory,
- antibacterial,
- antitumoural,
- antiviral,
- antifungal (fungicidal),
- antioxidant,
- immune system-invigorating,
- blood pressure-regulating,
- base-forming,
- analgesic,
- detoxifying,

[455] Ronald P. Schweppe and Alyosha A. Schwarz: Natürlich gesund mit Lapacho ('Naturally Healthy with Lapacho'), 2nd Edition 1998, p. 12



- purifying,
- antipyretic,
- wound healing,
- skin cleansing,
- decongestant
- toning,
- revitalising,
- diaphoretic,
- diuretic,
- calming
- digestive.

Oxygenating effect

The astonishing, oxygenating action of lapacho tea invigorates the body's cells and effectively destroys bacteria, protozoa, fungi and viruses in this particular, bound form. Atherosclerosis (vascular calcification) is reduced and the blood vessels become flexible again.

Anti-inflammatory effect

Due to its anti-inflammatory effect, lapacho tea has been successfully used for inflammatory diseases by Indian tribes for hundreds of years. Not only are such



conditions alleviated, but even complete healings of severe inflammatory diseases such as arthritis have been reported.

Antibacterial and antiviral effects

Lapacho tea is extremely antibiotic and antiviral, which is why it has been used as a natural antibiotic for centuries and has proven itself against herpes, HIV and malaria. In particular, the ingredient lapachol and another twelve quinones which have been researched have extraordinary antibiotic properties.

Antifungal (fungicidal) effect

Lapacho tea has an antifungal (fungicidal) effect, which is why it has traditionally been used against even stubborn fungus species such as Candida albicans.

Antioxidant effect

The quinones in lapacho tea bind free radicals and give lapacho tea its antioxidative effect. One cannot overstate this, considering that every single one of our body cells is attacked on a daily basis by up to 10 000 free radicals and these are responsible for most diseases and cell ageing.

Immune-system-strengthening effect

Lapacho tea stimulates the activity of the macrophages and phagocytes, which tackle hostile invaders in our bodies which cause diseases. In his doctoral thesis, the researcher Bernhard Kreher analysed the effect of lapacho and came to the conclusion that the activity of the body's immune system is increased by over



48 %.[456]

Analgesic effect

Lapacho tea has an analgesic effect against many diseases, especially cancers such as breast, liver and prostate cancer.

Detoxifying effect

Lapacho tea has a harmonising effect on the digestive organs, stimulates liver and kidney function and thus helps detoxify the body.

Wound-healing effect of lapacho

Traditionally, lapacho tea has been used by Indian tribes to accelerate wound healing for centuries, due to the high content of tannin and calcium oxalate. Here, the astringent effect of the lapacho is utilised. This refers to the ability to tighten the mucous membranes and skin during bleeding, allowing accelerated wound healing.

Specific effects of lapacho tea

The general, highly varied effects of lapacho tea already suggest that it is able to

[456] Walter Lübeck: Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 35



treat many illnesses and physical ills.

Lapacho tea has been used successfully against the following diseases and conditions:

- immune deficiency
- AIDS
- allergies
- atherosclerosis (vascular calcification)
- arthritis
- respiratory diseases (asthma, bronchitis)
- anaemia
- Candida albicans
- chemotherapy
- intestinal pain
- diabetes
- eczema
- detoxification (e.g. alcoholism and other substance abuse)
- cold
- erysipelas
- athlete's foot
- gastritis
- joint pain
- cataracts



- flu
- shingles
- sore throat
- skin diseases
- blemishes
- haemorrhoids
- yeast infections
- cough
- periostitis
- varicose veins
- cancer
- leukaemia
- liver disease
- hernia
- lupus
- malaria
- migraines
- spleen infections
- multiple sclerosis (MS)
- sinusitis
- eczema
- oedema



- fungal diseases of all kinds/vaginal fungus
- polyps
- prostatitis
- rheumatism
- pain of all kinds
- psoriasis
- mental balance
- vaginal discharge
- burns
- indigestion
- warts
- wounds
- gum inflammation

Effect on immune deficiency

Lapacho tea has been shown to be immunostimulating (see 'Immune system-strengthening effect')

Effect on AIDS

Due to the immune-building effect, lapacho tea can also help treat AIDS. It strengthens the immune system, strengthens the organs and prevents secondary infections typical of AIDS.



Effect on allergies

Lapacho tea has been proven to counteract allergies of all kinds due to its immunoregulatory effect (see also 'Using Lapacho').

Effect against atherosclerosis

Atherosclerosis is commonly referred to as 'vascular calcification' and describes a degenerative state of change within our blood vessels, which often leads to an advanced stage heart attack or stroke. Lapacho tea is able to loosen the deposits in the arteries in the longer term, make the blood vessels elastic again and at least partially reverse atherosclerosis.

Effect on arthritis

Lapacho tea, with its proven anti-inflammatory and detoxifying properties, is particularly effective for arthritis and can both relieve the pain and strongly support recovery from the disease.

Respiratory effects (asthma, bronchitis)

The cleansing and anti-inflammatory properties strongly promote recovery from respiratory diseases such as asthma and bronchitis. The antiviral and antiseptic effects of lapacho and its immunostimulating effect have a significant impact.

Effect on blood iron deficiency



Anaemia, also known as iron deficiency, is often characterised by insufficient absorption of iron from food and tumours in the gastrointestinal tract that lead to blood loss.

On the one hand, lapacho tea has sufficient iron, on the other hand, its antibiotic effect combats possible tumours which can cause bleeding.

Effect on Candida albicans

As we have seen above, lapacho tea also has an antifungal (fungicidal) effect and, according to many reports, can even tackle persistent fungi, such as Candida albicans.

Lapacho tea has a gut-cleansing effect, with the gut considered to be the breeding ground of Candida albicans. By also strengthening the immune system, lapacho tea provides optimal conditions for killing Candida albicans – here, however, great patience is required, because it may take up to a year and sometimes longer until the Candida is completely destroyed!

Effect during chemotherapy

Through several mechanisms that occur simultaneously on different fronts, lapacho tea provides relief during chemotherapy.



Lapacho tea strengthens the immune system attacked by the chemo and has a soothing effect on the psyche. It also helps flush out the dying cancer cells, which can cause severe pollution and even act as a poison, more effectively from the body.

The kidneys are relieved, the intestines are cleaned and the mucous membranes are protected; overall, the side effects of chemotherapy are significantly reduced.

Effect on intestinal pain

Our highly industrialised diet, antibiotics in animal husbandry, environmental factors and stress together ensure that we usually have a disturbed intestinal flora.

Even Paracelsus knew: 'Death is in the gut'! Thus, the intestine is indeed the linchpin for a strong immune system and essentially decides whether we are healthy or ill!

Kenneth Jones writes in his book 'Pau d'Arco – Immune Power from the Rain Forest':

'One of my informants told me about a child with chronic diarrhoea who seemed resistant to any treatment. The child was cured with just half a cup of (lapacho) tea. But I also interviewed a woman in virtually the opposite situation:



She told me that she had suffered from chronic constipation for 10 years, which eventually paralysed the bowel. She was using suppositories and a whole range of laxatives at this time.

In one operation, she had over 40 cm of intestine removed, yet the constipation did not improve. It was not until she took lapacho that there was a dramatic change: Within a week she was free of all complaints – no suppositories and laxatives.'[457]

Effect on diabetes

Lapacho tea is also able to have an impressive impact on diabetes.

In her highly recommended book 'ABC of Lapacho Tea – Therapeutic Use', author Marcela Ocampo Méndez quotes some doctors at the Sao Paulo Clinic who wrote about diabetes patients they treated in the 1960s:

They wrote: '*We have observed, and so far have no explanation, that the use (of lapacho) alleviates juvenile diabetes (Type 1 diabetes) in an impressive way. The glucose values have declined to the normal level of a healthy person in some cases'.*

How does lapacho work against diabetes?

Lapacho tea inhibits glucose uptake in the gut; the blood sugar level rises more

[457] Marcela Ocampo Méndez, ABC des Lapacho-Tees – Heilanwendungen ('ABC of Lapacho Tea – Therapeutic Use'), 1997, p. 61 f.



evenly and the pancreas, which does not suddenly have to produce insulin to compensate, is relieved. Thereupon, long-chain carbohydrates are increasingly used to supply requirements, which counteracts a craving for sweets and, as a result, the pancreas continues to regenerate.

In addition, lapacho tea increases the oxygen supply to the organs and can thus exert a healing effect on damage caused by diabetes.

Effect against eczema

The causes of eczema are often multifactorial and may be due to both mental stress and infections and allergies – very often, however, it is due to a weakened immune system. And this is exactly where lapacho tea brings its immune-building abilities into play!

Effect on detoxification (alcoholism or other drugs)

Lapacho tea can normalise metabolism and detoxify the body.

Effect on colds

The antiseptic, antiviral and immune-building properties of lapacho tea make it a perfect choice of remedy for colds.

Effect against athlete's foot

Fungus can only spread in the body if our immune system is weakened. As a



true immuno-booster, lapacho tea can help you internally and positively influence the healing process externally via its antifungal effect (see 'Use of lapacho tea').

Effect on gastritis

Gastritis refers to a painful inflammation of the mucous membranes of the stomach, usually caused by a virus called 'Helicobacter pylori'. The antiviral and immune-enhancing effects of lapacho tea have helped treat gastritis since time immemorial.

Effect on joint complaints

Lapacho tea, with its proven anti-inflammatory and detoxifying properties, is particularly effective against arthritis and can both alleviate pain and strongly support recovery from the disease.

Cataract effect

Cases have been described in which lapacho tea has completely cured cataracts, including Pau D'Arco's book 'Immune Power from the Rain Forest'.

Traditionally, cooled lapacho tea is used for eye washes (see 'Use of lapacho').

Effect against influenza



With its antiseptic, antiviral and immune-building properties, lapacho tea is an excellent, natural therapeutic against influenza!

Effect against shingles

Here, lapacho tea exerts its antiviral and wound-healing effect in a targeted manner and can be very helpful in combatting painful shingles, which is caused by the virus 'herpes zoster'.

Effect against sore throat

The antiseptic, antibacterial and immune-enhancing effects of lapacho tea can quickly relieve sore throats, both through internal (drinking) and external (gargle) application.

Effect on skin diseases

The blood-purifying, detoxifying, antibacterial, wound healing and anti-inflammatory properties are extremely effective against skin diseases and make lapacho tea an excellent therapeutic.

Effect against blemishes

In the case of skin blemishes, such as pimples, acne or blackheads, lapacho exerts its blood-purifying, detoxifying and antibacterial effect and thus has a causative, sustainable impact on the skin blemishes described.



Effect on haemorrhoids

Lapacho tea has anti-inflammatory and digestive properties; it is therefore used successfully in the treatment of haemorrhoids.

Effect on yeast infections

The antifungal and immune-enhancing effects of lapacho tea help to heal and prevent yeast infections.

Effect against coughing

The antiviral, antiseptic and immunostimulatory effects are proven to be beneficial for diseases such as bronchitis or coughing.

Effect on periostitis

Lapacho tea has a multifactorial effect against bone inflammation and periostitis, it is

- anti-inflammatory,
- analgesic,
- antiseptic and
- strengthens the immune system.

This multifunctional approach makes both the external (compress) and internal (tea drinking) use of lapacho tea a very successful treatment against bone inflammation and periostitis.



Effect on varicose veins

In cases of varicose veins, which are mostly due to connective tissue weakness and inactivity, lapacho ointment can be very effective in a matter of weeks. See 'Using lapacho tea for varicose veins' under 'Lapacho tea applications'.

Effect against cancer

The active ingredient 'lapachol', as well as the saponins, have cancer cell-destroying, cancer-growth-inhibiting and immune-building effects. These can also help prevent metastasis. Lapacho bark extract has been shown to be anti-tumoural in studies by the National Cancer Institute (NCI) in the United States.[458]

At doses of 1500 mg, lapacho's 'lapachol' drug has been shown to have marked anti-tumour effects, and many clinicians are already convinced of its efficacy in cancer treatment, such as James Duke from the State Health Institute and Dr. Morm Farnsworth of the University of Illinois.[459]

Lapacho also has an analgesic effect, especially against cancers such as breast, liver and prostate cancer. Even in advanced cancer patients who suffered unbearable pain, lapacho 'made the pain *disappear*'[460]. In addition, the course and

[458] Ronald P. Schweppe and Alyosha A. Schwarz: Natürlich gesund mit Lapacho ('Naturally Healthy with Lapacho'), 2nd Edition 1998, p. 21

[459] Ronald P. Schweppe and Alyosha A. Schwarz: Natürlich gesund mit Lapacho ('Naturally Healthy with Lapacho'), 2nd Edition 1998, p. 11

[460] Walter Lübeck: Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 29-30



condition during chemotherapy are favourably influenced (see also 'Effect during chemotherapy').

Effect on liver disease

Alongside the heart, the liver is one of the most active organs in our body and is heavily involved with the detoxification of our organism in our hectic lives. Therefore, the liver is always grateful for support, and lapacho tea can provide this relief within its detoxifying and antifungal effects.

Effect on hernias

When applied externally, lapacho tea can also accelerate healing after a hernia.

Effect on leukaemia (blood cancer)

In South America, lapacho tea has traditionally been used very successfully against leukaemia for centuries. There are countless reports of leukaemia being cured with lapacho tea. Dr. Gaiarsa, a Brazilian pharmacologist, reports on a leukaemia patient who had exhausted all treatment options, whose white blood cell count dropped from 240,000 to 20,000 after only one month of taking lapacho tea.[461]

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[461] Marcela Ocampo Méndez, ABC des Lapacho-Tees – Heilanwendungen ('ABC of Lapacho Tea – Therapeutic Use'), 1997, p. 93



Effect on lupus

Lapacho tea can have a positive effect lupus, both externally and internally.

Effect against malaria

Lapacho tea has been traditionally used for centuries against malaria by the tribes of Callawaya and Indians with great success.

Effect on migraines

Tension is one of the causes of migraine attacks. Lapacho tea has several mechanisms that relieve tension, quell pain, and detoxify the body. All this has a positive effect on migraine.

Effect on spleen infection

The anti-inflammatory and analgesic effect has also been used successfully against spleen infections, both externally and internally.

Effect on multiple sclerosis

Multiple sclerosis (MS) is positively affected by the metabolism-stabilising, anti-inflammatory effects of lapacho.

Effect on sinusitis

Lapacho has been a proven remedy for sinusitis since time immemorial, both



as an inhalant and as a tea, and has been traditionally used by the South American Indian tribes. Here, lapacho's anti-inflammatory, antiviral and immune system-building effect has an impressive impact.

Effect on eczema

When it comes to allergic skin irritations, such as eczema, it is fundamentally important to strengthen the immune system and to detoxify the body. Lapacho tea is able to fulfil these tasks very well; in addition, it has anti-inflammatory effects and can be a real help against eczema.

Effect on oedemas

There are also numerous reports of oedemas in patients who, even in the most severe cases, have fared better after a few weeks, as documented by the Sao Paulo Clinic in Brazil.

Effect on fungal diseases (including vaginal fungus)

Lapacho tea proves to be an excellent remedy against fungal diseases when applied both internally and externally. This is due to its pronounced antifungal (fungicidal) effect and the strengthening of the immune system.

Effect on prostatitis

Lapacho's anti-inflammatory, detoxifying and diuretic properties are extremely helpful against prostatitis.



Effect on polyps

Lapacho tea has even proven to be very effective against polyps.

Effect on rheumatism

The anti-inflammatory, immunoregulatory and intestinal action of lapacho tea supports any rheumatism therapy and has been used for rheumatism by Indians since ancient times.

Effect on pain of all kinds

The active ingredients contained in lapacho have been proven to relieve pain (even the severe pain of cancer!). Here, the inner and the outer application complement each other perfectly (see 'Lapacho applications').

Effect on psoriasis

The antimycotic, skin-astringent, metabolic and immune system-regulating effect of lapacho tea means that it can be used very successfully against psoriasis, both externally and internally.

Effect on the psyche

According to the authors of the book 'Naturally Healthy with Lapacho', Ronald P. Schweppe and Alyosha A. Schwarz, South American physicians repeatedly point out the positive psychic effects of lapacho tea. In South America, lapacho tea is therefore used successfully against depression, sleep disorders and anxiety.



Effect against vaginal discharge

Parasites, fungi and inflammation are the most common causes of vaginal discharge. Lapacho has been proven to be very effective against all three.

Effect on burns

The tannins contained in lapacho tea, which have an analgesic and anti-inflammatory effect, help heal burns quickly when applied externally on the skin, even severe burns (of course, you should first see the doctor in this instance!). So-called initial aggravations have been reported before the patient has gradually recovered.

Effect on indigestion

The ingredients in lapacho tea regulate digestion and help to alleviate indigestion.

Effect against warts

The antiseptic, cleansing and detoxifying effect of lapacho tea makes it perfect for the successful treatment of warts, both internally and externally.

Effect on wound healing

For smaller wounds, lapacho tea can disinfect and promote wound healing due to its antiseptic effect.

Effect on gum inflammation



Because of its regulating, anti-inflammatory, astringent and disinfecting effect, lapacho tea is ideal for the treatment of gum inflammation and for supporting the oral flora.

Studies on lapacho

Lapacho proves its antitumour effect in studies

Lapacho bark extract has demonstrated antitumour activity in studies conducted by the National Cancer Institute in the USA (National Cancer Institute, NCI).

Antitumoural activity detected in cell cultures.[462]

Antitumoural and toxicological properties demonstrated in studies.

The research team led by C.F. de Santana found in his in vivo (living object) studies a strong growth inhibition of various tumour types due to lapacho.[463]

Lapacho has been shown to have anti-inflammatory effects

In animal experiments, the anti-inflammatory effects were identified by the researchers S. Oga and T. Sekino.

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[462] Ueda S. et al. Production of anti-tumour-promoting furanonaphthoquinones in Tabebuia avellanedae cell culterus

[463] Santana CF de et al.: Antitumoral and toxicological properties of extracts of bark and wood components of Pau d'Arco, December 1968



Lapacho increases our immune system activity by 48 %

In his doctoral thesis, the researcher Bernhard Kreher analysed the effect of lapacho and came to the conclusion that the activity of the body's immune system is increased by over 48 %.[464]

Antibacterial effect of lapacho[465]

Lapacho extremely successful against fungal diseases in studies

The researcher KA Duke has revealed a strong healing effect of lapacho tea on fungal diseases due to Candida albicans in studies.

Basic tips for using lapacho tea

In the subsection 'Effect of lapacho tea', you can read details of its mechanism of action against diseases. This chapter will now turn to the specific use of lapacho tea to combat diseases and conditions. Since lapacho tea is a natural remedy, whose typical characteristic is the causal elimination of disease-causing factors in the body (as opposed to traditional medical treatment, which in most cases only attempts to treat symptoms), as with any other natural remedy, an appropriate amount of time must be taken into account, until the fading of the symptoms becomes noticeable or visible. Here, positive processes in the body are stimulated from the very first day of treatment, but we usually only perceive this after several weeks. So, we have to be patient in the time that lapacho tea

[464] Walter Lübeck: Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 35

[465] Binutu OA et al.: Antimicrobial potentials of some plant species of the Bignoniaceae family. Afr J Med Med Sci, September 1994



needs – because that's the way nature works!

It is also crucial to continue using lapacho for a while, even after the symptoms have receded, and then at least occasionally at regular intervals.

For particularly persistent diseases, such as cancer, Dr. Theodoro Meyer, an expert in the field of lapacho, recommends drinking lapacho for life.[466]

Lapacho use in different form

While experts agree that lapacho tea (as a beverage) is the most important form of administration, as it uses all of Mother Nature's cleverly combined components like an orchestra to purify the body from within, strengthening the immune system and fighting inflammation, there are other ways lapacho can be administered:

- lapacho as a capsule
- lapacho as a compress
- lapacho bath

Lapacho tea: as already mentioned, lapacho tea is the basic dosage form par

[466] Walter Lübeck: Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 81



excellence; it should be used in this form, at least as an adjunct, in all cases.

As a drink, lapacho tea flows through our entire body, reaching the very last cell, purifying, detoxifying our body and incidentally ensuring that the dissolved and bound toxins and waste are transported out of the body.

Lapacho capsules: lapacho capsules are characterised by the fact that they contain certain active ingredients of the lapacho bark in high concentrations, as they are difficult to absorb in liquid form. As a rule, 1 capsule corresponds to about 1 litre of lapacho tea.

This is definitely recommended for certain serious illnesses (e.g. cancer or AIDS). Furthermore, lapacho capsules have the advantage that they can be taken quickly and easily, even while travelling or during the day. However, always remember to drink lapacho tea as an adjunct, as this is the only way to benefit from all the ingredients of lapacho and effective detoxification is only achieved in combination with high intakes of fluid.

Lapacho tincture: the tincture is made using an alcohol base and is particularly suitable for minor injuries. It can be applied internally (drunk) and externally, for example in conjunction with compresses.

Lapacho compresses: compresses are ideal for all sorts of skin problems, such as minor injuries, allergies, joint inflammation and the like.

For this purpose, a sterile cotton cloth is soaked in hot lapacho tea which is twice as strong as the common strength for drinking and this cloth is placed on



the affected area. It is best to tie another piece of cloth over it to fix the compress accordingly.

The compress should be removed as soon as the wrap has cooled; it can be applied several times a day to achieve the desired effect.

Lapacho bath: depending on the indication, lapacho can be used as a full or partial bath.

Lapacho full bath: alongside the bath water at a temperature of about 38-39 °C, boil about 1.5 litres of lapacho tea in double the usual strength. No further additives should be added to the bath. The recommended duration is about 30 minutes, afterwards, do not lather or dry off, but just slip into a dressing gown.

Lapacho partial bath: partial baths are recommended when partial areas of the body are affected, such as hands or feet. Proceed as for a full bath.

Make your own lapacho elixir

Lapacho elixir can be used both internally and externally.

For 100 ml of lapacho elixir you need:

- lapacho bark
- 100 ml of alcohol (70 %)
- glass container with dropper insert.

Chop the lapacho bark, mix it with the alcohol in a jar, put it in a vial and leave



it covered (in the dark!) for about two weeks. Shake the bottle vigorously from time to time! Then pour the mixture into a glass vial with a dropper and keep cool!

Examples of lapacho use, from A to Z

Use against immune deficiency

Since the immune system plays a crucial role in all diseases, it should be kept strong for life. Use should therefore be continuous in case of immune deficiency – drink 3 cups of lapacho tea a day.

Use against AIDS/HIV

For serious diseases such as AIDS, it is advisable to take a dual approach. This means using highly concentrated lapacho capsules (1 capsule corresponds to about 1 litre of tea) in conjunction with normal lapacho tea. A general dosage recommendation is not possible for AIDS or HIV and should be discussed with a naturopath or complementary physician.

Use against allergies

Depending on the severity level, take 1.5 litres of lapacho tea over several weeks and supplement with lapacho capsules for severe allergies.

Use against arthritis



Distributed throughout the day, drink 1 litre of unsweetened lapacho tea daily between meals. Furthermore, apply compresses soaked in lapacho several times a day.

Use against anaemia

Drink 3-4 cups of lapacho tea daily for four to six weeks. If there is an improvement, 2-3 cups a day will usually suffice.

Use against respiratory diseases

In respiratory diseases, such as bronchitis and asthma, a dual use of lapacho tea has proven to be successful, both in the form of oral ingestion and concomitantly in the form of inhalations. In severe cases, supplementation with lapacho capsules is recommended.

Drink 3-4 cups of lapacho tea sweetened with honey every day – the honey also has an effect on the bronchi. Lapacho tea is also suitable as an inhalant: Boil in the pot, in a strength double that used for drinking. After the tea has cooled down slightly, place a towel over the head and the pot to minimise the amount of air that can escape and inhale for 12-15 minutes.

Use against Candida albicans

Candida albicans requires lengthy treatment, which should consist of a corresponding diet and stimulation of the immune system. 3-4 cups of lapacho tea a day are recommended, with 1-2 lapacho capsules.



Use with chemotherapy

Lapacho tea provides multifactorial, beneficial effects during chemotherapy: on the one hand, it strengthens the immune system which is attacked by chemotherapy and has a pain-relieving effect on the psyche, while on the other hand it helps to flush out the dying cancer cells, which can heavily burden and even poison the organism, more effectively from the body. The kidneys are relieved, the intestine is cleansed and the mucous membranes are protected. Conclusion: the side effects of chemotherapy are reduced.

It is recommended to drink 1 litre of lapacho tea daily between meals, possibly supplemented by 1-2 lapacho capsules. Here it is important to avoid sugar, as sugar nourishes the cancer! If you like sweetness, you can easily use stevia, which is a healthy alternative to sugar and unhealthy artificial sweeteners.

Use against intestinal pain

Lapacho proves to be highly effective against bowel disorders, including diarrhoea and constipation. Here, lapacho acts on several fronts:

- It regulates the intestinal flora,
- digestion and
- has an anti-inflammatory effect.

Drinking 1 litre of lapacho tea between meals for several months is recommended.



Use against diabetes

According to numerous observations, lapacho tea can not only alleviate diabetes, especially Type 1 (juvenile diabetes), but even cure it by normalising sugar levels.

For this purpose, it is recommended to take 1 litre unsweetened lapacho tea daily between meals, possibly also 1 lapacho capsule. Whoever wants to sweeten their tea can use diabetic-friendly stevia!

Use against eczema

For eczema, it is recommended to use lapacho tea both internally and externally.

External application: through its disinfecting effect, lapacho tea kills bacteria and fungi on the skin. Immerse a cloth in lapacho tea, allow to cool and dab the affected areas; repeat several times a day. Even full baths with lapacho tea support this effect considerably.

Inner application: drink about 1 litre of lapacho tea between meals during the day.

Use for detoxification (e.g. alcoholism or drug abuse)

Detoxification and normalisation of metabolism will be recommended for at least four to six months. In the first two to four weeks, you should drink about 1.5 l of lapacho tea, followed by about ¾ litres. In addition, full lapacho baths are recommended 1-3 times a week.



Use for colds

Drink 4-5 cups of lapacho tea daily. It is advisable to sweeten the tea with honey, since honey has a positive effect on colds.

Use against athlete's foot

As with all fungal diseases, internal and the external treatment with lapacho are absolutely essential!

External treatment: immerse a cloth in lapacho tea, allow to cool and dab the areas affected by Athlete's foot; repeat several times a day. Even whole foot baths with lapacho tea prove to be very helpful.

Internal use: distribute about 500 ml to 1 litre of lapacho tea between meals during the day.

Use against gastritis

Drink about 1 litre of unsweetened lapacho tea throughout the day until symptoms recede. Once the symptoms have receded, 2-3 cups of lapacho tea a day are enough to maintain the effect.

Use for joint complaints

Distributed throughout the day, drink 1 litre of unsweetened lapacho tea between meals. Furthermore, apply compresses soaked in lapacho several times a day.



Use against cataracts

In the case of cataracts, it is important to try out the traditional South American treatment, which involves both drinking lapacho tea and applying an eye wash made with cooled lapacho tea.

Internal use: distributed throughout the day, drink 2-5 cups of unsweetened lapacho tea between meals.

External application: rinse eyes several times a day with cloths soaked in cold lapacho tea.

Use with flu

Drink 4-5 cups of lapacho tea with honey throughout the day.

Shingles treatment

Of course, using the healing properties of lapacho tea both externally and internally is also recommended for shingles.

Internal use: drink about 1 litre of unsweetened lapacho tea between meals throughout the day.

External application: dab the affected areas several times a day with cloths soaked in cooled lapacho tea.

Use against sore throat



For all oral conditions, it is recommended to gargle lapacho tea for a few minutes before swallowing it – this way, you can enjoy the external and internal effects of the lapacho tea.

Use against skin diseases

For skin diseases, it is important to make extensive use of lapacho tea, consisting of regularly drinking the tea, the dabbing of the affected areas with tea-soaked cloths and the regular taking of full or partial baths (depending on the location on the body).

During the day, you should drink 1 litre of unsweetened lapacho tea between meals (if you prefer your tea sweet, you should use stevia!).

Use for blemishes

For skin blemishes such as blackheads, pimples or acne, extensive use of lapacho tea is recommended, which includes both drinking, dabbing with soaked towels, and appropriate baths (in the case of skin blemishes all over the body).

During the day, you should drink 1 litre of unsweetened lapacho tea between meals (if you prefer your tea sweet, you should use the healthy sugar substitute stevia!).

Use against haemorrhoids



The external and internal use of lapacho tea have also been proven to be effective against haemorrhoids.

Inner application: you should drink 1 l of unsweetened lapacho tea throughout the day.

External application: the external use of lapacho tea for haemorrhoids is to dab the haemorrhoids as often as possible with cloths moistened with lapacho tea, at least after every bowel movement. Furthermore, full baths of lapacho are ideal!

Use against yeast infections

For yeast infections, 3-4 cups of lapacho tea per day are recommended.

Use against coughing

Coughs should be treated like bronchitis , i.e. there should be a combination of external and internal application. In addition to drinking lapacho tea, regular inhalations are recommended.

Drink for cough: drink 3-4 cups of lapacho tea sweetened with honey every day – the honey also has an effect on the bronchi.

For inhalation: make the lapacho tea in the pot as usual. After the tea has cooled down slightly, place a towel over the head and the pot to minimise the amount of air that can escape and inhale for 12-15 minutes. The tea is of course still suitable for drinking.



Use against periostitis

For periostitis, drink 1 litre of lapacho tea throughout the day, and place compresses with cooled tea on the affected area.

Use against varicose veins

There are sensationally successful reports of patients with varicose veins who have been able to cure their varicose veins with an ointment from lapacho bark in four months. To do this, mix a standard cream with a lapacho extract – one drop of lapacho extract per ml of cream.

Use against cancer

For serious ailments, as cancer unquestionably is, one should consult an accomplished therapist. For the most part, a therapist will recommend lapacho capsules in combination with lapacho tea, several times a day.

Use against liver disease

For severe liver problems, lapacho capsules may be recommended; in addition, drink lapacho tea several times a day. Liver wraps with lapacho tea are also ideal for supporting the liver metabolism.

Use against leukaemia

In South America, lapacho tea is a traditional cure for leukaemia, and there are many documented cases where lapacho has achieved significant improvement



in a few weeks, as measured, among other things, by the number of white blood cells.

Drink 1 litre of lapacho tea (unsweetened!) throughout the day; take 1-2 lapacho capsules.

Use against lupus

Here, too, a combination of lapacho capsules, lapacho tea and lapacho compresses in the spleen area is recommended.

Use against malaria

The Native Americans and the Callawaya tribe traditionally use lapacho tea for malaria. In the pharmacy, you can get the following herbal mixture: white nettles, plantago and of course lapacho. Mix this mixture in the following ratio: 10 g of white nettles, 10 g of plantago, 10 g of lapacho and boil for 15 minutes in 0.5 l of water. Drink half a cup of the cooled broth 3 times a day.[467] In addition, lapacho capsules can be helpful.

Use against migraine

[467] Marcela Ocampo Méndez: ABC des Lapacho-Tees – Heilanwendungen ('ABC of Lapacho Tea - Therapeutic Use'), 1997, p. 96



Drink 3-4 cups of unsweetened lapacho tea daily; as soon as the symptoms subside, you can halve the dose.

Use against spleen infection

Combination of lapacho tea, in more severe cases lapacho capsules. Apply several compresses with lapacho in the spleen area several times a day.

Use against multiple sclerosis (MS)

For multiple sclerosis, the full programme of lapacho tea, lapacho capsules and regular lapacho full baths (1-2 times a week) is recommended.

Use against sinusitis

For sinusitis, you should drink 3-4 cups of lapacho tea sweetened with honey.

Use against eczema

One litre of lapacho tea per day is recommended. One should also perform external applications in the form of towels or compresses soaked in strong lapacho tea. In severe cases, supplement with lapacho capsules.

Use for oedemas

During the day, drink 1 litre of unsweetened lapacho tea, preferably between meals.

Use against fungal diseases of all kinds/vaginal fungus



Drink 2-5 cups of unsweetened lapacho tea throughout the day. In addition, you should place cold compresses soaked in lapacho tea on external areas affected by fungus.

For vaginal fungus, you can prepare a strong lapacho tea, soak a tampon in it and wear it several hours before changing it. In severe cases, take an additional 1-2 lapacho capsules daily.

Use against polyps

Drink lapacho tea regularly until the mucous membrane has regenerated. To increase the effect, inhale lapacho tea 2-3 times a week. To do this, make lapacho which is twice as strong as that used for drinking, allow to cool slightly, hold your head over the pot, put a towel over your head and inhale deeply.

Use against prostate infections

For prostate infections, long-term therapy with lapacho tea is recommended. To do this, drink 1 litre of unsweetened lapacho tea daily between meals.

Use against rheumatism

The anti-inflammatory and pain-relieving effect makes lapacho tea as an excellent rheumatic therapeutic.

To do this, drink 1 litre of unsweetened lapacho tea throughout the day, between meals. For severe rheumatism, take 1-2 lapacho capsules as well. In addition, compresses soaked in cooled lapacho tea, wrapped around the affected



joints, are recommended.

Use against pain of all kinds

For pain of all kinds, it is recommended to combine lapacho tea as a drink in conjunction with lapacho compresses on the painful area.

Use against psoriasis

Even with psoriasis, the use of lapacho tea has proven very successful. Here again, dual application, both internally and externally, is recommended.

Internal application: between meals, drink 1 litre of unsweetened lapacho tea daily.

External application: soak cloths in cooled lapacho tea and place on the affected areas as a compress.

Use for mental health problems

Drink a cup of lapacho tea several times a day between meals.

Use against vaginal discharge

It is recommended to use a combination of drinking lapacho tea 3 times a day, vaginal douching multiple times daily and wearing tampons soaked in lapacho tea, which should be changed 2-3 times a day.

Use against burns and sunburn

An internal and external application of lapacho tea is also recommended here.



Dab the burn site with a cloth soaked in cooled lapacho tea. Drink about 1 litre of unsweetened lapacho tea daily.

Use for digestive problems

Drink 4-5 cups of unsweetened lapacho tea daily between meals.

Use for warts

As with all external problems, the inner (lapacho tea as a drink) and external application (lapacho tincture applied several times to the wart) is also recommended here.

Use for accelerating wound healing

Dab the wound area with cloth/gauze soaked in cooled lapacho tea several times a day.

Use against gum inflammation

Make a strong lapacho tea, let it cool and rinse your mouth 3 times a day.

Lapacho tea: preparation

A basic recipe: the type of tea may vary from supplier to supplier – the following basic recipe is a good guide on how to prepare the lapacho tea and makes 1 litre of lapacho tea beverage:



- add 1-2 tablespoons of lapacho tea to 1 litre of boiling water (2 tea bags per litre for bagged tea),
- boil for 5 min,
- switch off the heat and cover for about 15-20 minutes,
- pour the tea through a sieve into a pot or cup.

Side effects of lapacho

No side effects or interactions or other contraindications have been discovered for lapacho tea. This applies to lapacho tea as a whole; a small limitation applies to lapacho capsules, which contain isolated ingredients from lapacho tea.

However, according to the National Cancer Institute (NCI), very high doses of lapachol isolated from lapacho tea may cause nausea, vomiting and reduced clotting, but only at a daily dose of 1500 mg or more.[468] Furthermore, lapachol (unlike lapacho tea as a whole) should not be taken during pregnancy.

In its natural wholeness, lapacho tea has only caused a slight rash and moderate itching, even with extreme overdose, over years of research; it must be reiterated that this is an extreme overdose which was far above what is recommended

[468] Walter Lübeck, Heilen mit Lapacho-Tee ('Healing with Lapacho Tea'), 8th Edition 1999, p. 43



here.

Nevertheless, lapacho-enhanced excretion of poisons and toxins from the body can lead to certain phenomena that are completely misinterpreted by laymen and can lead to unnecessary insecurity, but are mostly temporary in nature and normalise after a few days or weeks of taking lapacho:

- increased perspiration, including unfamiliar odour,
- greasy skin,
- possible skin rashes or acne,
- possible flaking of the skin,
- increased urine; the urine may look and smell different,
- increased bowel movements; may also look and smell different,
- possible diarrhoea
- bad breath and
- tongue coating after initial use.

What you should consider when buying

Lapacho tea is available in various forms:

- as loose tea
- as a tea bag
- in powder form
- lapacho as a capsule



Attention should be paid to quality when buying lapacho, as lapacho tea is often offered in the form of wood industry waste at a reasonable bulk price, which is almost always associated with poor quality.

The quality and the correspondingly gentle processing is crucial to the lapacho purchase! To make sure you buy a valuable lapacho tea, experts recommend paying attention to a precise declaration which specifically names the lapacho type: for example, 'Handroanthus impetiginosus'. If this information is not on the label, ask the retailer. If in doubt, you should always resort to an established brand instead of the cheaper, but unsafe, special offer! Ideally, the powdered bark or tea will have a reddish-brown colour and should ideally be packed in paper or cardboard – but not in plastic.



What is L-carnitine?

L-carnitine or acetyl-L-carnitine (also abbreviated as 'ALC') always sparks discussion among athletes and those who want to lose weight. This is hardly surprising, because the claim from supplement manufacturers that L-carnitine introduces fatty acids into the fuel cells of the muscles, would logically make L-carnitine a much sought-after performance enhancer for the former and undoubtedly a potent slimming aid for the latter...

Opposed to this are contrary statements which do more than question the effect of L-carnitine.

We want to shed some light on this extremely remarkable natural substance and take a closer look at the two aspects of losing weight and increasing sports performance, on which L-carnitine has an equally positive impact.

L-carnitine from a biochemical point of view

From a biochemical point of view, L-carnitine is a natural, endogenous substance that consists of the two amino acids 'lysine' and 'methionine'. In the liver, L-carnitine is synthesised from these two amino acids and is then transported into the blood and finally to the target organs.

The chemical formula for L-carnitine is $C_7H_{15}NO_3$. L-carnitine still bears the



lesser known names trimethyl-hydroxybutyrobetaine, 3-carboxy-2-hydroxypropyl and N,N,N-trimethylammonium hydroxide, which can be found in chemists'.

L-carnitine from a functional point of view

L-carnitine – where does it come from and what does it do in the body?

The origin and function of L-carnitine in our body may be much more interesting and far less abstract than the chemical context. L-carnitine is a vitamin-like, completely natural substance that plays a key role in lipid metabolism.

Within this function, L-carnitine transports the fatty acids from the blood into the muscle cells. In the mitochondria, the fatty acids are subsequently burned, releasing energy for our entire body. Incidentally, L-carnitine aids the regulation of body fat and helps overweight people to slim down.

Formerly referred to as a 'vitamin', L-carnitine is today referred to as a 'vitamin-like' substance (a so-called vitaminoid); this is because people did not believe that the body itself could produce L-carnitine.

L-carnitine is a vitamin-like substance that appears on the dual pathway in the body: on the one hand, it is produced in some measure by the body itself, on the other hand it is fed to the body through food intake.

The body's own production of L-carnitine depends on a sufficient intake of vitamins C and B6, but also niacin and iron, something that is becoming more



and more difficult today due to the industrialisation of food and other negative developments. The most biologically active form of L-carnitine is acetyl-L-carnitine.

It is very important to know that 50 % of total fat intake is in the form of so-called long-chain fatty acids – without L-carnitine, we cannot burn long-chain fatty acids.

What is the difference between acetyl-L-carnitine (ALC) and L-carnitine?

Acetyl-L-carnitine is more easily absorbed due to the acetyl content and the efficiency is also significantly higher than that of the other L-carnitine forms.

Absorption of acetyl-L-carnitine in the intestine

When someone takes acetyl-L-carnitine, it dissolves in the stomach and is then channelled into the small intestine. There, it permeates the lipophilic membranes of the intestine wall, releasing some of its acetate molecules.
The acetyl content ensures that the ALC is absorbed more easily, which, in addition to the higher efficiency, is the essential difference in comparison to the 'ordinary' L-carnitine.

L-carnitine passes into the liver

After ingestion in the small intestine, L-carnitine is passed into the liver via the blood. At this point, acetyl-L-carnitine has proven that it is able to increase the



transport activity of L-carnitine, while typically, this transportability steadily decreases with age.

This is particularly important because, as already described, L-carnitine is a prerequisite for long-chain fatty acids to be introduced into the mitochondria and burned. The heart muscle in particular depends on this important mechanism to generate the energy necessary for it to work.

From here, the L-carnitine is transmitted via the blood to the organs and tissues, where it takes on its various functions.

In the section 'L-carnitine deposits', you will learn details about how L-carnitine is produced in our bodies and which foods contain L-carnitine, and in what concentrations.

L-carnitine: history[469]

- In 1905, the Russian researchers Krimberg and Gulewitsch, at the same time as a German researcher called Kutscher, discover a new substance in the muscles of mammals and believe it to be necessary for the metabolic function of muscle cells. L-carnitine takes its name from the Latin word 'carnis', meaning 'meat'.

[469] Walter Lübeck: L-Carnitin – ein Fitmacher ganz besonderer Art, (The History of L-Carnitine, A Special Kind of Fitness Supplement) 2nd Edition 1999, p. 14 f.



- In 1927, the chemical structure of L-carnitine, as suggested by the discoverer Krimberg, is confirmed in experiments.
- In 1935, the researcher Strack investigates the functions of L-carnitine in the chemically related substance called 'choline'.
- In 1952, the scientist Fraenkel isolates L-carnitine from the liver and calls this 'vitamin B'. Until this time, many scientists had attributed L-carnitine to the vitamin B complex.
- The scientist Fritz is the first to link L-carnitine with the fat metabolism and finds out that it can increase fat-burning in the mitochondria.
- In 1980, L-carnitine comes onto the market as a dietary supplement, affordable for everyone, initially in a chemical form.
- At the 1980 Olympics, L-carnitine attracts attention by helping Italian endurance athletes achieve unexpected successes.
- In 1982, L-carnitine helps the Italian national football team win the World Cup.
- In 1986, the Swiss company LONZA develop a more natural L-carnitine form as a counterpart to the L-carnitine that had previously been chemically produced.



Occurrence of L-carnitine

Production in the body and occurrence in food

The body only reaches the physical maturity needed in order to fully produce L-carnitine itself from around 15 years of age.

Even in adulthood, however, our bodies can only produce about 10 % of the L-carnitine that it actually needs, which is why an additional intake of L-carnitine on top of dietary intake is of the utmost importance and is recommended in the form of dietary supplements when our L-carnitine requirement due to external circumstances, such as illnesses or increased physical or mental burden, cannot be covered by our natural diet.

Starting materials and support materials for the successful production of L-carnitine

In order to be able to produce L-carnitine itself, the body needs some starting materials and support materials.

These include:

- vitamin C
- vitamin B3
- vitamin B6
- vitamin B12



- the amino acids lysine and methionine
- iron
- folic acid

The basic requirements are therefore a minimum age of about 15 years and the presence of these elementary raw materials.

If these basic requirements are met, the liver, accompanied by the kidneys and the brain, begins to produce L-carnitine.

Occurrence of L-carnitine in the human body

L-carnitine is found in the following concentrations in our bodies:[470]

Organ	**mg/kg**	**Umol/g**
Skeletal muscle	640	3.96
Heart	770	4.80
Liver	470	2.80
Kidney	160	1
Brain	50	0.30
Blood plasma	8	0.05

[470] Prof. Dr. Peter Billigmann and Dr. Stefan Siebrecht: Physiologie des L-Carnitins und seine Bedeutung für Sportler ('Physiology of L-Carnitine and Its Importance for Athletes'), 2004, p. 15



Ejaculate	9.6	
Immune cells	160	
Erythro-cytes	38	
Breast milk	12	

Furthermore, the regular intake of 2-3 g L-carnitine a day can increase the L-carnitine content in all tissue forms in the body in the medium term.

L-carnitine – which foods contain it?

As we have seen above, despite optimal conditions, only 10 % of the actual L-carnitine requirement can be produced by the body through self-synthesis. This is definitely not enough for a person to reap the benefits of L-carnitine. A food selection based on this can be used in an attempt to master the problem. However, the reality is that we digest an average of only 100-300 mg L-carnitine per day; to get to 1000 mg, we would have to eat about 750 g of meat every day. Meat plays an important role in L-carnitine supply because L-carnitine is made from the two essential amino acids 'lysine' and 'methionine', amino acids that occur almost exclusively in meat.



The following table details the L-carnitine content of various foods.[471] As we can see, L-carnitine is found mainly in meat, fish and dairy products, whereas vegetable products contain virtually no L-carnitine. Vegetarians and vegans in particularly benefit from a dietary supplement in the form of L-carnitine preparations:

Presence of L-carnitine in the diet			
Animal products mg/kg	**Vegetable products mg/kg**	**Dairy products mg/kg**	**Sea-food mg/kg**
Meat extract 36,860	Porcini (dried) 388	Goat's cheese 127	Lobster (body) 270
Goat's leg 2.210	Jumbo morels	Condensed	Rock oysters

[471] Source: Gustavsen HSM, Inaugural Doctoral Thesis – Physiological Institute of the Hannover University of Veterinary Medicine, 2000



	(dried) 208	milk 97	243
Deer calf steak 1,930	Chante-relles (dried) 126	Sheep's cheese 65	Lobster tail 154
Lamb leg 1,900	Oyster mushroom fresh 70	Cottage cheese 53	Lobster (claws) 142
Kangaroo steak 1,660	Porcini (fresh) 28	Yogurt 41	Salmon fillet 132
Venison leg 1,640	Mush-rooms (fresh) 26	Milk 40	Herring (fried)
Lamb fil-let 1,610	Chante-relles fresh 13	Cream 38	King prawns 74
Roast moose 1,600	Pasta 7.0	Sheep cheese/b eef 36	Eel (smoke d) 65



Venison 1,500	Almonds 6.7	Rice pudding 35	Plaice 63
Roast beef 1,430	Peanuts 5.8	Buttermilk 34	Dogfish 56
Beef steak 1,350	Fennel 5.3	Quark 30	Egli fillets 55
Ostrich 1,280	Broccoli 4.8	Brie 27	Sea bream 50
Beef goulash 1,270	Wheat bread 4.1	Tzatziki 27	Pike 40
Reindeer Steak 1,210	Avocado 4.0	Crème fraiche 26	Sole 38
Leg of hare 1,200	Carrots 4.0	Whey 22	Herring (fillet) 37
Beef leg 1,180	Cauliflower 3.6	Gouda, old 20	Caviar 37



Horse meat 1.170	Wheat rolls 3.5	Camem-bert 18	Wild salmon 37
Saddle of venison 1,160	Papaya 3.5	Mozza-rella 18	Tuna 34
Goat's back 1,120	Zucchini 3.4	Harz cheese 17	Had-dock 33
Veal schnitzel 1,050	Aubergine 3.0	Cream cheese 16	Macke-rel 32
Calf's back 1,020	Brazil nuts 3.0	Edam 15	Salmon 31
Rabbit 860	Rice 3.0	Gouda, young 14	Shark 30
Ground beef 470	Cherries 2.6	Butter 11	Crab (cock-tail) 30



Wild boar back 420	Hazelnuts 2.5	Yeast 11	Mussels 28
Fried sausage 386	Walnuts 2.5	Cooked cheese 11	Trout 28
Corned beef 320	Potatoes 2.3	Gorgonzola 10	Monkfish 24
Cervelat sausage 300	Cucumbers 1.9	Butter cheese 8	Squid 21
Duck breast 288	Rye bread 1.8	Babybel 6	
Pork schnitzel 274	Corn 1.6		
Pork goulash 264	Plums 1.6		
Pork 244	Peas 1.4		
Rabbit's leg 232	Pepper 1.4		



Smoked sausage 220	Peach 1.4		
Pigeon's breast 211	Beans 1.2		
Rolled, smoked ham 205	Tomatoes 1.1		
Pork tenderloin 190	Bananas 1.0		
Duck's leg 189	Kiwi 0.8		
Viennese sausage 176	Lettuce 0.6		
White sausage 170	Beer 0.6		
Quail's	Apples 0.5		



breast 166			
Turkey leg/fillet 133	Margarine 0.5		
Ham 121	Pears 0.3		
Beer ham 120	Oranges/lemons 0.1		
Calf's liver sausage 92			
Mortadella 92			
Chicken leg 80			
Chicken breast 78			
Chicken fillet 62			



Pheasant breast 60			
Duck liver 43			
Pig liver 36			
Meat sausage 30			
Black pudding 12			
Chicken eggs 8			

Effect of L-carnitine

In order to adequately describe the effect of L-carnitine on our body, it is necessary to differentiate between *general* and *special* effects. It is also advisable to examine the effect on the respective organs and organ systems, even before analysing the individual effect on different symptoms.



General effect

Above all, L-carnitine has a positive

impact on our skeletal muscle, cardiovascular system and immune system and affects our body as follows:

- increases strength,
- supports fat-burning,
- supports metabolism,
- develops muscle,
- prophylactic effects against muscle injuries,
- prevents muscle pain,
- regenerates muscle,
- shortens recovery phases,
- protects the nervous system,
- increases cardiac output,
- promotes blood circulation,
- lowers the heart rate (pulse) during exercise,
- detoxifies (toxic organic substances are transported out of the body),
- is an antidepressant,
- strengthens the psyche,
- regulates blood sugar levels (glucose levels),
- regulates blood lipid levels (cholesterol levels),



- strengthens cognitive performance and
- the immune system.

Effect on the following organs and organ systems:

- Cardiovascular system
- Musculature
- Brain
- Immune system
- Endocrine system
- DNA
- Liver
- Sperm

Effect on the cardiovascular system

The heart muscle relies on the energy from fatty acids to help it function correctly and healthily. But only with carnitine can these fatty acids be used by the body as an energy source. L-carnitine acts as an energy carrier and allows the muscles, the heart and other organs to utilise the fatty acids as energy. L-carnitine strengthens the heart muscles and can thus prevent heart disease and a heart attack. In animal studies, acetyl-L-carnitine (ALC) in the heart muscle has reversed the degradation of phosphate transport molecules, which are essential for healthy membrane function and the resulting energy supply to the heart. In further studies, acetyl-L-carnitine (ALC) prevented hypoxia in the heart muscle



(see 'L-carnitine studies'). In addition, the endothelial and smooth muscle cells of our blood vessels are subject to L-carnitine-dependent metabolism, which causes L-carnitine to vasodilate, leading to many other cardiovascular and other benefits.

Effect on the blood vessels

Due to the vasodilating effect of the effect on the endothelial and smooth muscle cells of our blood vessels, there are numerous advantages due to the increased blood flow:

- improved circulation to the heart,
- lowering blood pressure in people suffering from hypertension,
- reduction of the heart rate (pulse),
- increase in the circulation of the skeletal musculature,
- increase in the oxygen absorption capacity of skeletal muscle,
- lowering of the lactate level (lactic acid levels during and after anaerobic exercise),
- reduction of muscle damage (including sore muscles symptoms),
- increase in muscle power,
- improvement of cerebral blood flow,
- reduction of headaches,
- heightened alertness,
- improved concentration,
- reduction of mental fatigue,



- improved cognitive abilities (learning retention),
- improved wound healing,
- increase in leg blood flow,
- increase in potency.

Effect on the muscles

It is no coincidence that L-carnitine is found in heart muscle, skeletal muscle and the brain. These are organs that rely heavily on from fatty acids for energy – but these can only function optimally by using L-carnitine. The muscles do not tire so fast, soreness and even significant muscle damage can be prevented, more frequent training sessions are possible and higher performance gains are achieved. In animal studies, intravenous administration of L-carnitine increased muscle strength by up to 34 %.[472]

Effect on the brain and the central nervous system

L-carnitine improves cognitive ability, counteracts brain ageing, dementia and Alzheimer's, increases concentration and receptivity (learning ability) and accelerates cell renewal in the brain. In contrast to most antioxidants, acetyl-L-carnitine is able to cross the blood-brain barrier and can promote the formation of nerve growth factor receptors, so-called NGFR, and, on the other hand, protect them.

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[472] Prof. Dr. Peter Billigmann and Dr. Stefan Siebrecht: Physiologie des L-Carnitins und seine Bedeutung für Sportler ('Physiology of L-Carnitine and Its Importance for Athletes'), 2004, p. 53



In this way,

- acetyl-L-carnitine protects ageing nerve cells from death,
- increases the ability to concentrate,
- improves long-term memory,
- optimises the ability to learn and
- increases alertness.

Furthermore, it can act as a natural antidepressant, lightening the mood.

Effect of L-carnitine on the immune system

It is not surprising that the immune cells contain a great deal of L-carnitine, because L-carnitine is considered a natural immune stimulator; it transports the long-chain fatty acids directly into the mitochondria for ATP production. L-carnitine provides optimal protection for the cell membranes, the immune system defence cells are activated and strengthened. Acetyl-L-carnitine (ALC) has been shown to increase lymphocyte activity, maintain macrophage production, and increase TSH levels.

In summary, L-carnitine has the following effects on our immune system:

- increase in the production of antibodies
- increase in TNF-alpha release
- release of TNF-alpha and interleukins
- inhibition of aggregation of platelets and macrophages



- activation of white blood cells
- Inhibition of erythrocyte aggregation
- acts as an immunostimulant in infectious diseases such as tuberculosis
- activation of macrophages and monocytes
- stimulation of human T and B lymphocytes
- increase in the proliferation of lymphocytes

Effect on the hormone system

In animal experiments, acetyl-L-carnitine succeeded in stimulating the pineal gland to release more of the 'regeneration hormone' melatonin. Melatonin is considered one of the most important hormones in anti-ageing research, and many scientists believe that it can stop physical ageing.

In addition, acetyl-L-carnitine can normalise an elevated level of cortisol.

Protective effect on the DNA

Studies have impressively shown that taking L-carnitine promotes the repair of DNA damage caused by oxygen radicals.

Effect of L-carnitine on the liver

L-carnitine regenerates the liver and cell renewal, enables a better breakdown of



alcohol and other toxic substances, generally improves liver function and increases fat metabolism in the liver.

Effect on sperm/fertility

L-carnitine not only increases the quantity, i.e. the amount of ejaculate, but also ensures that the sperm are activated, increasing their number and thereby improving fertility. The probability of successful procreation increases dramatically.

Indications for the use of L-carnitine

L-carnitine is used against the following diseases and maladies:

- adrenal insufficiency
- AIDS/HIV
- alcoholism
- Alzheimer's
- angina pectoris
- atherosclerosis
- connective tissue
- anaemia
- chemotherapy
- chronic muscle myopathies
- chronic kidney disease



- chronic fatigue syndrome
- dementia
- diabetes
- diphtheria
- distal ulcerative colitis
- circulatory disorders
- epilepsy
- fertility problems
- mind, mental state
- heart attack
- heart disease in general
- heart failure
- hyperammonia
- hyperthyroidism
- hypertriglyceridaemias
- hypopituitarism
- immunodeficiency
- liver disease
- Bekhterev's disease
- myocarditis
- post-polio syndrome/poliomyelitis
- Reye's syndrome



- smoker's leg
- stroke
- shock
- sepsis
- scleroderma
- sperm deficit
- sperm inactivity
- stress
- tuberculosis
- leg ulcers
- excess weight
- cirrhosis

Furthermore, L-carnitine is recommended for all people who suffer from stress as well as for smokers, competitive athletes, weight loss, pregnant women and young children >15 years (at this age, the body does not produce its own L-carnitine).

Specific effect of L-carnitine on diseases

As a substance that supplies all organs more efficiently with energy and strengthens the immune system, it is not surprising that L-carnitine has a wide-ranging effect on individual diseases.

Prof. Strack, who is considered a pioneer in L-carnitine research, divided all



diseases into two groups in front of his students: those curable by L-carnitine and those which are not.

As much of a joke as it may have been, it is nevertheless a small indication of the strengthening and healing potential of L-carnitine on countless diseases. Let's take a closer look at the effect:

Effect of L-carnitine on cardiovascular diseases

Cardiovascular failure is regarded as the 'Number One' cause of death in the industrialised nations in concrete terms, one in two people in industrialised nations die due to cardiovascular failure. It becomes clear what is required of the heart when one realises that the heart muscle beats about 100,000 times a day, pumping up to 10,000 litres of blood.

By the age of 80, a human heart beats up to 2.5 billion times without stopping. Of course, the heart muscle needs energy sources for this incredible output – the most important of which are the fatty acids. In this case, L-carnitine is needed to transport the fatty acids directly into the mitochondria of the heart muscle cells. And the more of it the heart gets, the more

- efficiently and economically it can work,
- the more unlikely the risk is of the heart falling ill and
- the faster it can recover if it is already sick or weakened and if it has access to additional L-carnitine in the form of dietary supplements.



Effect of L-carnitine on angina pectoris

Strength increases and pain relief is achieved.

Effect of L-carnitine on heart failure

Increase the performance of the heart muscle, general strengthening of the heart.

Effect of L-carnitine on fatty acidification

It transports the excess fats and thus effectively counteracts fatty tissue.

Effect of L-carnitine on cardiac arrhythmias

L-carnitine counteracts cardiac arrhythmias antirhythmically and thus helps to prevent disorders, from cardiac arrhythmias to ventricular fibrillation.

Effect of L-carnitine on myocardiopathy

Competitive and professional athletes are especially prone to myocardiopathy; it accounts for 80 % of all cases in which athletes suffer from heart disease. L-carnitine has proven to be effective in preventing this and increasing the chances of survival in the case of acute problems.

L-carnitine successful as a heart attack prophylactic

Atherosclerosis can lead to a lack of blood and oxygen levels in the heart. The latter means that fatty acids can no longer be burned sufficiently, which further increases the problem of oxygenation and can lead to heart attack. L-carnitine



can normalise the burning of fat in the heart and thus prevent heart attacks. In addition, studies have shown that the therapeutic use of L-carnitine can reduce the intensity of a heart attack and increase the survival rate.

Effect of L-carnitine on liver disease

L-carnitine has been proven to protect and build up liver cells and is used for this reason, among other things, against alcoholism. A weakened, sick liver loses the potential to adequately synthesise L-carnitine. Here, the use of L-carnitine supplements is recommended for several reasons.

Effect of L-carnitine on diabetes

L-carnitine is both prophylactic and therapeutically effective against diabetes.

Preventive: because L-carnitine contributes to the burning of free fatty acids, the effect of the body's own insulin increases, which contributes to the prevention of diabetes.

Accompanying therapy: On average, the level of L-carnitine in diabetics is below the norm, especially if the diabetic has to use insulin. On the other hand, L-carnitine enhances the effect of insulin.

L-carnitine has a positive influence on blood sugar levels during the day and lowers high cholesterol levels. It lowers the stress hormone cortisol as well as TNF and NO, which aggravate diabetes.



The increased sugar level in diabetics damages the blood vessels and the heart muscle itself. L-carnitine has been shown to have an invigorating effect and increases the circulation of the heart muscle, so it should also be used in this aspect of therapy.

Acetyl-L-carnitine is able to prevent and partially reverse the negative consequences that arise due to an undersupply of the retina. One of the very unpleasant comorbidities in diabetes is the so-called 'diabetic neuropathy', a type of nerve damage that causes very insidious problems in diabetics and may even lead to the amputation of limbs. L-carnitine improves nerve signal transduction and protects its cells, which can help prevent these comorbidities of diabetes. So-called 'peripheral neuropathy' can lead to potency problems in male diabetics. In studies, just 1500 mg acetyl-L-carnitine per day has successfully counteracted this problem.

Effect of L-carnitine on cancer

L-carnitine exerts its effect on cancer through several mechanisms: First, it has been proven to strengthen our immune system, which always plays a primary role in the fight against cancer. In addition, it has a detoxifying effect and can therefore remove certain toxic substances from the body, which are often the causes of tumours. L-carnitine can do even more for cancer: it can reduce the side effects of chemotherapy and strengthen healthy cells.

Effect of L-carnitine on renal insufficiency



Patients who are dependent on dialysis because of kidney disease run the risk of suffering from L-carnitine deficiency. This is related to the fact that dialysis uncontrollably flushes large amounts of L-carnitine out of the kidneys. The body cannot keep up the production – this threatens to cause an acute L-carnitine deficiency, with all its consequences. Here, an additional intake of high-quality L-carnitine supplements is strongly recommended.

Effect of L-carnitine on post-polio syndrome

Post-polio syndrome is characterised by muscle weakness and is accompanied by chronic pain. In studies, 1-2 g of L-carnitine per day lead to an increase in strength by 67 % and endurance by 70 % in study subjects. Fatigue also decreased by 28 % and pain decreased by 57 %.

Effect of L-carnitine on muscle atrophy

As we will read in 'L-carnitine in sport', L-carnitine has an anticatabolic (against muscle breakdown protective) and anabolic (muscle-building) effect. For the body to be able to produce 1 g of L-carnitine from its own reserves, it has to break down around 30 g of muscle mass. An additional intake of L-carnitine thus has a protective effect on the muscles, which explains the anticatabolic effect. L-carnitine improves the energy supply of the myofibrils, allows higher loads and counteracts premature fatigue. All in all, L-carnitine proves to be optimal for working against muscle atrophy.

Effect of L-carnitine on osteoporosis



Along with calcium and vitamin D, L-carnitine seems to strengthen the bone structure, as animal trials have clearly demonstrated. Obviously, it enhances the synthesis of bone-building cells, also called 'osteoblasts'.

Effect of L-carnitine on smoker's leg and ulcers

Here, too, L-carnitine has a multifactorial effect, because it promotes blood circulation and cell metabolism on the one hand, on the other hand, infections are combated more efficiently. Wounds can heal better, and blood flow is optimized.

Effect of L-carnitine on mental well-being

Acetyl-L-carnitine increases the nerve sensitivity of the neurotransmitters serotonin and acetylcholine, therefore normalising the metabolism of the 'happiness hormone' serotonin and may serve as a healthy alternative to harmful antidepressants.

Effect of L-carnitine on fertility

L-carnitine is also recommended to boost fertility. L-carnitine can be of real help and increase the fertility of men who have too little sperm in their ejaculate or whose sperm are not sufficiently active. Studies have shown a positive effect in this regard after 3-6 months of regularly taking 1 g L-carnitine/day. It is worth noting in this context that sperm store large amounts of acetyl-L-carnitine and acetyl-L-carnitine is the only form of energy that helps the sperm fertilise the female egg.



The same is suspected of occurring in the woman's ovum, which probably facilitates the implantation of the fertilised sperm cell into the uterus through a more efficient energy supply provided by L-carnitine. In animal experiments, an increase of fertility of 10-15 % was confirmed.[473]

L-carnitine and pregnancy

Can or should you take L-carnitine during pregnancy?

In the section 'Effects of L-carnitine', we have explained in detail why L-carnitine is the drug of choice when it comes to increasing the fertility of men and women and enabling a pregnancy in the first place.

As with all dietary supplements, the expectant mother wonders whether taking it during pregnancy is permitted or if it could cause harm. The answer to the latter is no; but it is much more interesting to examine the need for taking more L-carnitine during pregnancy, both for the expectant mother and for the maturing child.

Effect of L-carnitine during pregnancy

During pregnancy, the expectant mother increasingly excretes L-carnitine in her urine; furthermore, the foetus in the womb taps the L-carnitine reserves for itself. Once the breast milk is produced, L-carnitine is also withdrawn from the woman's body to enrich it.

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[473] Maria-Elisabeth Lange-Ernst: Einfach gesund bleiben – warum L-Carnitin für Frauen so wichtig ist ('Just Stay Healthy - Why L-Carnitine is So Important for Women'), 2nd Edition, 2005, p. 47



All this leads to an observable L-carnitine deficiency in pregnant women to one third of the L-carnitine level before pregnancy, starting from the 12th week of pregnancy – a lack of L-carnitine, but the expectant mother should consider the following two reasons for the conscious additional intake of L-carnitine:

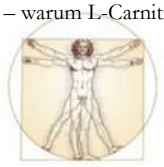
- to not experience L-carnitine deficiency (tiredness, weakness and premature fatigue are often symptoms of this).
- in order to provide the developing child with L-carnitine, which is so important for its development, which is needed for growth, among other things.
- L-carnitine is needed for normal development of the muscles, heart and lungs of the embryo.

By administering extra L-carnitine to pregnant women, Prof. Lohninger and Prof. Salzer in Vienna stimulated the lung development of the children, which resulted in a reduction of respiratory symptoms.[474] In summary, taking additional L-carnitine during pregnancy is recommended for the following reasons:[475]

1) to meet the increased need for L-carnitine during pregnancy and to prevent L-carnitine deficiency in the blood and tissues.
2) to support and increase the limited fat-burning capacity of the mother.
3) to reduce the increased free fatty acids in the blood of pregnant women,

[474] Maria-Elisabeth Lange-Ernst: Einfach gesund bleiben – warum L-Carnitin für Frauen so wichtig ist ('Just Stay Healthy - Why L-Carnitine is So Important for Women'), 2nd Edition, 2005, p. 50

[475] Maria-Elisabeth Lange-Ernst: Einfach gesund bleiben – warum L-Carnitin für Frauen so wichtig ist ('Just Stay Healthy - Why L-Carnitine is So Important for Women'), 2nd Edition, 2005, p. 54 f.



thereby counteracting the risk of metabolic imbalance and the development of gestational diabetes.
4) to bolster the maturation of the child, especially the development of the lungs and respiratory function.
5) to increase the level of L-carnitine in the tissues of the child and thus facilitate the energy production from fat after birth.
6) to support the development of the muscle mass of the child and thus promote the viability of the child.
7) to facilitate the conversion of energy production after childbirth and thereby reduce weight loss in premature babies.

To compensate for L-carnitine deficiency during pregnancy, there are some studies in which expectant mothers took 2-3 g of L-carnitine/day from the 12th or 20th week of pregnancy.[476] If you are still unsure, the statement of the drug monograph for L-carnitine during pregnancy may provide certainty: '*Because L-carnitine is a substance present in the body, there are no expected complications during pregnancy'*.[477]

Other nutrients that play a primary role during pregnancy:

In addition to L-carnitine, the expecting mother should ensure that they have a sufficient intake of the following nutrients:

- vitamin C

[476] Prof. Dr. Peter Billigmann and Dr. Stefan Siebrecht: Physiologie des L-Carnitins und seine Bedeutung für Sportler ('Physiology of L-Carnitine and Its Importance for Athletes'), 2004, p. 143

[477] Prof. Dr. Peter Billigmann and Dr. Stefan Siebrecht: Physiologie des L-Carnitins und seine Bedeutung für Sportler ('Physiology of L-Carnitine and Its Importance for Athletes'), 2004, p. 143



- vitamin E
- omega-3 fatty acids
- zinc
- iron
- magnesium
- calcium
- iodine
- folic acid

L-carnitine in sports

Since the early 1980s, L-carnitine has been an integral part of nutritional supplements for elite, professional athletes. It caused a sensation in sports circles for the first time when it helped Italian endurance athletes to achieve unexpected success at the 1980 Olympics in Moscow and again in 1982, when the Italian national football team, by its own admission, used it to become world champions.

A substance such as L-carnitine, which optimally transports dietary fats into the mitochondria of the muscles for energy utilisation and, as a side effect, protects the glucose storage, is virtually predestined to significantly increase athletic performance.

Interestingly, L-carnitine not only enhances aerobic performance, but also protects against muscle injury during heavy (anaerobic) muscle exertion, prevents



muscle soreness, increases anaerobic performance, and helps to significantly increase lean muscle mass gain.

The advantages of L-carnitine for athletes can be characterised as follows:

- more efficient heart work, resulting in lower heart rate during exercise;
- increased circulation, increased supply of muscle and organs with oxygen; blood circulation to the legs can be increased by <8 %;
- increased respiratory rate;
- the number of red blood cells is increased and their life is extended;
- the maximum oxygen uptake capacity (VO2max) is increased by 6-11 %;
- reduction of left heart hypertrophy, which can lead to heart problems, especially in anaerobic sports ('compressed breathing');
- reduction of lactate level (lactic acid level);
- reduction of cortisol level;
- reduction of creatine phosphokinase;
- increased fatty acid oxidation;
- increased glycogen storage;
- improvement of glucose metabolism, protection of glucose storage;
- delay of gluconeogenesis (tapping the muscles for energy);
- protection of the amino acid stores, especially BCAAs (there are more amino acids available for protein synthesis or muscle building);
- increased adenosine triphosphate/(ATP) production;
- protein intake of L-carnitine is compensated;



- reduction of the release of stress enzymes during exercise;
- reduction of the pyruvate level in the plasma;
- increased mental and physical motivation;
- strengthening of the psyche during intensive training and competition;
- shortening of recuperation times between training sessions and competitions;
- increasing the enzymes of the respiratory chain;
- optimisation of the diaphragmatic function, combined with an improvement of the abdominal breathing and reduction of stitches;
- increased stamina, both in long-term and short-term endurance as well as in spurts;
- reduction of physical and mental fatigue during sports;
- support of the body's own endorphins;
- suppression of harmful ammonia;
- protection of the immune system under extremely high strain;
- increased protein synthesis;
- increased muscular strength, even in anaerobic exercise;
- increased anabolism;
- suppression of catabolism;
- increased lean muscle mass, especially type 1 muscle fibres;
- lowering the risk of injury;
- preventing sore muscles.



Lose weight with L-carnitine

Probably the most common reason for the use of L-carnitine is excess weight and the promotion of lipid metabolism caused by the additional intake of L-carnitine.

Can you lose more weight with L-carnitine?

From the contemporary scientific perspective, the question of whether L-carnitine can increase fat burning and help lose weight can be answered with an emphatic 'YES'. However, in order to avoid all illusions, L-carnitine is able to transport fatty acids, but it cannot dispose of (burn) them by itself.

Release of fatty acids

What does this mean in concrete terms? The release of fatty acids can only take place if one either takes questionable remedies such as yohimbine, clenbuterol and ephedrine, or, conversely, if one takes a healthy decision; releasing fatty acids in an aerobic training session (cycling, jogging, Nordic walking, swimming with moderate stress).

Here, a training period of <60 min aerobic exercise has proven its worth.

In vitro studies confirm the effect of L-carnitine on fat-burning. Thus, in the laboratory on animal or human cells, L-carnitine demonstrated a clear fat-burning effect: in liver cells by 250-400 %, in skeletal muscle by 13 %.

During in vivo studies (studies on living creatures) on increasing fat-burning in



animal experiments using L-carnitine, the combustion of the medium-chain fatty acid caproic acid is increased by 7 %, the combustion of palmitic acid is increased by 43 %.

In humans, researchers[478] demonstrated increased fat-burning; oral administration of 3000 mg L-carnitine daily over 21 days significantly increased fat-burning in athletes.[479]

Using so-called 'isophene-labelled substances', it was finally possible to clearly prove that L-carnitine taken orally increases fat-burning.

L-carnitine intake for the purpose of weight loss

The daily intake should be 2000-3000 mg, distributed across 3-4 doses per day, in order to ensure the most constant L-carnitine levels.

L-carnitine anti-ageing

L-carnitine stops ageing and may even reverse the signs of ageing.

[478] Heller 1996

[479] Lebrun 1984



Reasons for ageing

Free radicals cause our cells to age: Free radicals play a central role in ageing. These are harmful oxygen compounds that attack our body cells, cell membranes – and even our DNA in high concentrations.

Therefore, 'oxidative balance' is the supreme premise for preventing disease and slowing biological ageing balancing the inevitable formation of free radicals with protective antioxidants.

Free radicals are partly inevitable; for example, 3 % of our breath becomes harmful free radicals, but solar radiation (UV rays) and food also create harmful free radicals.

Fortunately, we are not completely powerless against these destructive oxygen compounds that cause harmful cell oxidation, because, on the one hand, we can positively influence the formation of free radicals, for example by not smoking and consuming alcohol, restricting animal fats in the diet, avoiding artificial solar radiation (solarium) and limiting excessive competitive sport. On the other hand, we have access to numerous highly potent protectors of our cells in the form of so-called antioxidants, such as vitamin C, OPC, co-enzyme Q10, beta-carotene, selenium, alpha-lipoic acid, L-carnosine and others.

Saccharification (glycolisation) causes our tissue to age: A second crucial mechanism of ageing is the so-called 'glycolisation'. This occurs when excess sugar binds with our body proteins and disturbs their function long-term this is



not only reflected externally in the form of wrinkles, but also leads to internal functions to slacken, which then contribute to the ageing process. L-carnitine, especially in the most bioactive form of acetyl-L-carnitine, is able to defy both mechanisms of ageing by protecting the cells from free radicals and from glycosylation.

The mechanisms against ageing processes in detail

In summary, one can name the following mechanisms by which L-carnitine counteracts the ageing process:

- protection against attacks of free radicals;
- renewal of other, depleted free radicals (e.g. alpha lipoic acid);
- increase in other antioxidants (e.g. glutathione);
- reduction of oxidative stress;
- destruction of free radicals;
- protection of omega-3 fatty acids from destruction by free radicals;
- counteracting glycolisation (saccharification of the body's own proteins);
- increased cognitive abilities;
- effect against Alzheimer's and dementia (improvement of memory, language, orientation).

The sensational Nicuta Regeneration Therapy

In a sensational experiment, researchers from the renowned University of California discovered something astonishing when combining acetyl-L-carnitine



and alpha-lipoic acid: the body cells of the animals in the trial assumed the structure of juvenile cells under the electron microscope, something which even left renowned cell biologists like Prof. Dr. Bruce N. Ames speechless. To put it in the words of Dr. Tory M. Hagen, a biomedic who was also involved in the experiments:

'*Applied to humans, the substances would make a 75 to 80-year-old human being into a middle-aged person'.*

The aged rats showed youthful behaviour after just one month of treatment with acetyl-L-carnitine and alpha-lipoic acid; they completed performance and memory tests with flying colours and reacted like their young conspecifics. Very soon, they showed the pronounced mating tendency of young animals and survived the comparison group of non-treated conspecifics by a significant period of time.

The researchers concluded that the combination of acetyl-L-carnitine and alpha-lipoic acid synergistically leads to a reduction of oxidative stress and not only slows down the damage of RNA/DNA, but even prevents it and – even more spectacularly partly reverses it.

Prof. Dr. Ames says, '*The old rats danced the Macarena'.*

The US researchers confirmed the findings of the German-Romanian regeneration researcher and Dr. Dann Nicuta, with the difference that Nicuta believed



that a third substance (Procaine) in the combination provided the crucial rejuvenation mechanisms. Incidentally, the study, published under the name 'Dietary supplements make old rats youthful, may help rejuvenate aging humans, according to UC Berkeley study', can be obtained from the University of California, Berkeley, USA, under Publication Number 510-643-6998 (US Pat. Contact: Robert Sanders). Furthermore, the work of Dr. Ames et al. was published in the February issue of the *Proceedings of the National Academy of Sciences USA* (PNAS).

Studies on L-carnitine and acetyl-L-carnitine

L-carnitine is one of the substances which science is researching with great interest. In total, there are more than 9,000 studies and scientific papers on L-carnitine worldwide. Here is a small excerpt.

Fat-burning studies using L-carnitine

L-carnitine accelerates fat metabolism and thus helps with weight-loss:



Director of studies	Number of subjects	L-carnitine Dose /day	Diet duration	Effect with placebo	Effect with L-carnitine	Weight loss with L-carnitine in %
Siani (1984)	28	3000 mg	4 weeks	7.1 kg	9.1 kg	-22 %
Lurz and Fischer (1998)	100	3000 mg	4 weeks	3.5 kg	4.5 kg	-25 %
Ellrot and Pudel (2003)	40	3000 mg	12 weeks	16.1 kg	18.6 kg	-22 %



In vivo studies on increasing fat-burning using L-carnitine

In in vivo studies (studies on living creatures) on increasing fat-burning in animal experiments using L-carnitine, the combustion of the medium-chain fatty acid *caproic* acid is increased by 7 %, the combustion of *palmitic acid* is increased by 43 %. In humans, researchers[480] demonstrated increased fat-burning; oral administration of 3000 mg L-carnitine daily over 21 days significantly increased fat-burning in athletes.[481]

Using so-called 'isophene-labelled substances', it was finally possible to clearly prove that L-carnitine taken orally increases fat-burning.

Fat-burning and muscle-toning studies with L-carnitine

L-carnitine has been shown in many studies to promote fat-burning while building lean muscle mass.[482]

Studies on increasing muscle growth using L-carnitine

Several studies have shown significantly increased muscle growth using L-carnitine.[483]

Studies on increasing sporting performance using L-carnitine

There are over 40 studies showing that L-carnitine clearly boosts performance. A small excerpt:

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[480] Heller 1996

[481] Lebrun 1984

[482] Ahmad S. et al. 1990, Bradley 1996, Gross 1998

[483] Spagnoli et al.



- ***L-carnitine increases running speed and endurance in animal experiments:*** after just ten days of use, acetyl-L-carnitine increased maximum running speed and endurance in animal experiments.[484]

- ***L-carnitine increases the performance of cyclists by 11-19 % and reduces recuperation time:*** at the University of Basel, under the direction of Prof. Walter, an increase in performance among cyclists of between 11 % and 19 % was measured in all trials in comparison with a placebo.

Furthermore, an increase in strength and an acceleration of recuperation were observed.

***Studies on ageing retardation and* rejuvenation with L-carnitine**

- ***Acetyl-L-carnitine repairs DNA damage:*** L-carnitine in peripheral blood lymphocyte studies has been shown to repair damage to our genetic material, the DNA, caused by alkylating agents and oxygen radicals.[485]

- ***Acetyl-L-carnitine counteracts lipid peroxidation associated with brain ageing:*** Cholesterol leads to brain ageing via lipid peroxidation. In studies, acetyl-L-carnitine counteracted the mechanism of peroxidation and thus age-related dementia.[486]

[484] Seifulla 1993

[485] Boehriger METI Carcinogenesis 1993

[486] Arienti 1992



- ***Acetyl-L-carnitine rescues ageing nerve cells:*** By optimising nootropic factors, ALC is able to shield ageing nerve cells from cell death.[487]

- ***Effect of acetyl-L-carnitine on dementia:*** ALC demonstrated a significant reduction in brain cell breakdown typical of Alzheimer's in a double-blind study against a placebo.[488]

- ***Acetyl-L-carnitine provides protection against dementia:*** In studies, acetyl-L-carnitine has been shown to be more active than piracetam, which is prescribed for dementia.[489]

- ***Acetyl-L-carnitine provides protection against Alzheimer's:*** ALC increases the activity of ALC transferase in the brain of Alzheimer's patients and can thus counteract brain cell death.[490]

Studies on the effect of L-carnitine against depression

In studies, the most biologically active form of L-carnitine, acetyl-L-carnitine, has helped treat depression.[491]

Studies of L-carnitine on 'stroke'

Acetyl-L-carnitine provides protection against reperfusion damage and therefore stroke

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[487] Taglialatela 1991

[488] Pettegrew 1995

[489] Sinforiani 1990

[490] Kalaria 1992

[491] Nasca 1989, Gecele 1991



Acetyl-L-carnitine may provide protection against tissue damage due to circulatory deficiency, such as occurs after infarction. Furthermore, these reperfusion injuries can lead to strokes.[492]

Acetyl-L-carnitine improves rehabilitation after a stroke

Acetyl-L-carnitine improves cognitive functions, as well as memory, after a stroke. This significantly shortens the rehabilitation phase after a stroke.[493]

Studies on the effects of L-carnitine on cardiovascular diseases

Acetyl-L-carnitine prevents hypoxia in the myocardium

In studies, ALC has shown that it can prevent hypoxia in the heart muscle.[494]

Acetyl-L-carnitine improves the membrane functions of the heart muscle

In studies, acetyl-L-carnitine has been able to reverse the decline in the phosphate carrier and thus improve energy transfers within the heart muscle.[495]

Acetyl-L-carnitine successful against intermittent claudication

In studies, acetyl-L-carnitine increased blood flow in the legs and counteracted peripheral arterial disease, so-called intermittent claudication.[496]

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[492] Rosenthal 1992

[493] Arrigo 1990

[494] Paulson 1984

[495] Paradies 1992

[496] Bagliani 1985



Acetyl-L-carnitine more successful than other L-carnitine forms in studies

Due to the presence of acetyl, acetyl-L-carnitine is very easily absorbed and enters the blood faster. In addition, it is more effective than ordinary L-carnitine, and intake is not limited by the advanced age of the recipient, as is the case with normal L-carnitine.[497]

Studies on L-carnitine with regard to strengthening the immune system

ACL has been shown to increase the activity of lymphocytes that are active within our immune system, thereby strengthening the immune system.[498]

L-carnitine deficiency

How does an acute L-carnitine deficiency manifest itself?

The need for L-carnitine in a healthy person, depending on their physical and mental stress, is between 200 and 1200 milligrams / day. Usually, symptomatically manifested deficiency only occurs under certain conditions. There is a difference between a primary and a secondary L-carnitine deficiency: The primary form is an inherited or congenital disorder. Secondary L-carnitine deficiency refers to causes that have occurred during the course of life, that are not innate. These are increased demand on the one hand and inadequate intake on the

[497] Maccari 1990

[498] Jirillo 1991



other.

Basically, a clinically manifest, diet-related L-carnitine deficiency is rare under normal circumstances, especially if you eat enough meat. Under certain circumstances, people such as vegetarians and vegans, diabetics, dialysis patients, competitive athletes and pregnant women may suffer L-carnitine deficiency.

Acute deficiency of L-carnitine can take many forms and is only partly shown by blood parameters (Hk value, Hb value). A clinical L-carnitine deficiency is certainly anything but beneficial, because it restricts fat utilisation, amongst other things, and can lead to obesity. From livestock feeding, it is known that an L-carnitine deficiency in young animals leads to growth and developmental disorders.

Symptoms of L-carnitine deficiency include:

- weight gain and obesity due to increased incorporation of triglycerides (dietary fats);
- lipidosis, a fattening of internal organs such as the heart, liver and muscles;
- cardiovascular diseases (angina pectoris);
- cardiac arrhythmias;
- elevated cholesterol level;
- liver disorders, including liver cirrhosis;
- weakening of the immune system;



- susceptibility to infections;
- acidosis;
- reduction of performance;
- rapid fatigue;
- premature exhaustion;
- infertility due to deactivation of male sperm cells;
- disturbance of protein synthesis;
- tendency to be more sensitive to environmental and metabolic toxins.

What causes can lead to L-carnitine deficiency?

L-carnitine deficiency may arise due to the following reasons:

- vegetarian / vegan diet,
- disturbed endogenous synthesis (production),
- increased demand due to competitive sports, pregnancy, stress etc.,
- increased renal excretion,
- disturbed intestinal absorption,
- childhood or adolescence,
- advanced age,
- pregnancy.



L-carnitine application

The product variety

L-carnitine has rightly attained a leading position among the most popular nutritional supplements. It is therefore little wonder that L-carnitine is now available in very diverse dosage forms.

L-carnitine is commercially available as:

- capsules
- effervescent tablets
- lozenges
- chewable tablets
- tablets
- bars
- probiotic drinks
- powder
- drink ampules
- syrup

Application and intake recommendations

Adults can take up to 5000 mg of L-carnitine a day; 25-100 mg per kg of body



weight is recommended for children. Since the human body only has fully functional L-carnitine synthesis from the age of 15, infants and children must be given enough L-carnitine in their diet. Furthermore, vegetarians, vegans, competitive athletes, pregnant women, nursing mothers, people suffering from iron deficiency, women taking the pill and people under constant stress often have low L-carnitine plasma levels and therefore need to take additional L-carnitine. Here, a daily intake of up to 1000 mg L-carnitine and possibly more is recommended.

L-carnitine intake recommendations for the prevention of diseases

As a precautionary measure, 500 mg to 1000 mg L-carnitine per day is enough for a healthy, adult, regular meat eater without any special requirements.

L-carnitine intake recommendations for the purpose of weight loss

Most recommendations from successful L-carnitine weight-loss trials (see 'Studies') range from around 3000 mg L-carnitine per day distributed across 3-4 doses. Here you can either take the L-carnitine with meals or after meals.

L-carnitine intake recommendations to increase performance in sports

- Take 1000 mg (or more, e.g. 5000 mg) over 3-4 doses throughout the day.
- Do not take L-carnitine with protein shakes, as they interfere with absorption. Let at least one hour pass between the two.
- You should take L-carnitine six hours before training or competition, two



hours at the latest; only then will L-carnitine exhibit its maximum performance-enhancing effect.
- Regular intake over a long-term period ensures the greatest possible success.

L-carnitine intake recommendations for diseases

For all illnesses, it is always advisable to consult an experienced, holistic (naturopathic) physician who is able to create an individual medication for the respective illness.

As a rule, this should be a dose of 2-3 g divided into 3-4 doses for illnesses.

Summary of the intake recommendations for L-carnitine according to Prof. Dr. Billigmann and Dr. Siebrecht:[499]

[499] Prof. Dr. Peter Billigmann, Dr. Stefan Siebrecht: Physiologie des L-Carnitins und seine Bedeutung für Sportler ('Physiology of L-Carnitine and Its Importance for Athletes'), 2004, p. 148



INDICATION	L-carnitine dose
Optimal nutrition (including meat), normal weight, normal stress, good health, no risk factors (stress, smoking, alcohol etc.), no diseases (diabetes, cardiovascular diseases, high cholesterol etc.)	200-500 mg/day
Vegetarianism, old age, for the prevention of L-carnitine deficiency, for good health, improvement of the immune system	500-1000 mg/day
For special circum-	1000-3000 mg/day



stances such as pregnancy, exercise, stress, obesity, primary diseases such as heart disease, diabetes, old age, heart, liver, brain and musculature problems, elevated blood lipid levels etc.	
Extreme endurance exercise (such as triathlon), severe illnesses such as sepsis, heart attack, AIDS, Alzheimer's, cancer, chemotherapy, epilepsy, tuberculosis etc. To support the therapy of diseases, e.g. of the heart	3000-6000 mg/day



Side effects of L-carnitine

Does L-carnitine cause any side effects or interactions?

Officially, L-carnitine is legally considered a dietary supplement when taken in doses up to 1000 mg. In quantities over 1000 mg, L-carnitine is legally classified as a drug.

What does this mean in concrete terms? Is L-carnitine harmful beyond a certain intake? Does it lead to unexpected side effects?

Basically, this only means that over 1000 mg/day of L-carnitine can be therapeutically effective, i.e. it can help with diseases. Here, L-carnitine behaves like a drug, but without the unwanted side effects of medications. L-carnitine, especially in people under severe stress, can trigger the previously mentioned Herxheimer reaction in higher doses. This is when too many toxic substances are released at once in the body and transported out of the body via the excretory organs, or when parasites are suddenly killed in the body and secrete poisons in this mass extinction. This can temporarily lead to discomfort and inflammatory processes. It therefore makes sense to start with small doses of L-carnitine if one intends to use larger doses of L-carnitine but has doubts. Furthermore, diarrhoea, sleepiness and body tremors after high doses have been observed in very rare cases. The latter is mostly due to surplus energy suppliers which carry the fatty acids into the mitochondria with the help of L-carnitine but which are not degraded by physical activities. Rarely, there is a temporary nausea. Here, it is advisable to drink plenty of still water to flush out the excess of L-carnitine



in the urine and start taking smaller amounts again later.

What are considered to be high doses of L-carnitine?

This is relative. There are professional athletes who consume 10,000 mg L-carnitine/day in training and before competitions, without even coming close to experiencing side effects. As a guide, it may be interesting to know that the US Food and Drug Administration (FDA) considers 15,000 mg L-carnitine a day safe.[500] In the presence of therapeutic amounts of L-carnitine (<1000 mg / day), you should consult a knowledgeable physician (naturopath, complementary physician) or alternative practitioner.

Are there any known interactions with L-carnitine?

So far, no interactions of L-carnitine with any drugs have been reported – despite L-carnitine being taken daily by millions of people around the world since the 1980s.

Is L-carnitine safe during pregnancy?

As we read in the section 'L-carnitine and pregnancy' in detail, L-carnitine is even recommended during pregnancy in order to protect the mother from L-carnitine deficiency and to give the child an important nutrient for its growth.

'*Because L-carnitine is an endogenous substance, there are no expected complications during*

[500] Walter Lübeck: L-Carnitin – ein Fitmacher ganz besonderer Art, (The History of L-Carnitine, A Special Kind of Fitness Supplement) 2nd Edition 1999, p. 72



pregnancy'.[501]

L-CARNOSINE

What is L-carnosine – some facts

L-carnosine is a dipeptide composed of the chemically linked amino acids beta-alanine and L-histidine. Because of the pronounced protective effects on our brain, it is also called 'neuropeptide'.

A true secret within anti-ageing circles, L-carnosine, which has only recently become available to the masses, is enjoying growing interest.

This is certainly not by chance, because many users have attested to a rejuvenating effect after a relatively short time, and more and more recent studies on L-carnosine are making people sit up and take notice and are more than auspicious...

[501] Prof. Dr. Peter Billigmann and Dr. Stefan Siebrecht: Physiologie des L-Carnitins und seine Bedeutung für Sportler ('Physiology of L-Carnitine and Its Importance for Athletes'), 2004, p. 143; Drug Monography



A person lives as long as their body cells can divide. Scientists believe cells can divide about 60-80 x before they die, this limit is also called the 'Hayflick border'. If the cells die, the person also dies

While the ageing of cells was still considered irreversible until recently, Australian researchers have since been able to prove the opposite in sensational experiments:

In a nutrient medium impregnated with carnosine, they were able to extend the lifetime of human cells in the laboratory to 413 days, whereas the control group (without carnosine) only had a lifespan of 130 days!

And as if that were not enough, doctors and therapists advocating L-carnosine are becoming increasingly vocal regarding its use for neurological disorders such as Alzheimer's, autism, Parkinson's and others.

L-carnosine is an endogenous, 100 % natural substance which is particularly found in long-lived cells such as the muscle and nerve cells, but also in the heart muscle, kidneys, liver, brain and other organs.

As already mentioned above, every single one of our approximately 37,2 trillion body cells is exposed to the attacks of free radicals 10,000 to 80,000 times each day, resulting in destructive effects and leading to numerous diseases and premature ageing.

L-carnosine is one of the most effective antioxidants for defying these destructive attacks nature has to offer.



It is a first-rate immune system booster, but above all a cell renewer which has been shown in many studies that it does not just protect our cells like the other 'ordinary' antioxidants, but even rejuvenates cells that have already aged and can extend their life cycle!

One in two People in industrialized countries dies of cardiovascular disease. L-carnosine has the ability to increase the cardiac muscle's contractile strength and pumping efficiency, making acute heart failure less likely.

Unfortunately, our L-carnosine levels decline with age in the course of our lives; there is about a 63 % decrease between the 10th and 70th years of age. Many age researchers blame this exact phenomenon for physiological ageing and related diseases.

Although L-carnosine occurs naturally in meat, these amounts are relatively low. Vegetarians and vegans in particular have low levels of L-carnosine.

Fortunately, for a few years now, the natural substance 'L-carnosine' has been available to us as a nutritional supplement.

With this natural remedy, we have been given no small impact on our biological ageing; it provides the possibility of biological rejuvenation and the prevention of numerous diseases.

Read more about this exciting natural resource in more detail and marvel at its unique range of effects...



L-carnosine – how does it really work?

General effect of L-carnosine

The general effect of L-carnosine can be described as follows:

- antioxidant,
- modulates the immune system,
- cytoprotective,
- cell-rejuvenating,
- lengthens telomeres and
- reduces damage to telomeric DNA,
- discharges heavy metals,
- accelerates wound healing,
- lowers blood pressure,
- counteracts the development of cancer,
- protects the cardiovascular system,
- protects the brain,
- counteracts gastric ulcers,
- reduces body fat
- and increases anaerobic sports
- performance.

In summary, L-carnosine is a completely harmless, endogenous, natural



substance with the following benefits to our lives:

- It is an all-round antioxidant that protects our cells from destructive oxidation.
- It suppresses the activity of the most aggressive free radicals, such as hydroxyl, peroxyl, superoxide and singlet oxygen.
- It prevents lipid peroxidation and protects our blood vessels.
- It protects our cells as well as chromosomes from oxidation damage.
- It is the most effective, natural means of preventing glycation (saccharification).
- It prevents the cross-linking of proteins, which is one of the ageing mechanisms that L-carnosine can affect.
- It prevents the shortening of the telomeres on the chromosomes and repairs damage to telomeres. Both of these factors have a life-prolonging effect.
- It prevents carbonylation as a further ageing mechanism.
- It protects protein cells from the toxic effects of AEGs.
- It protects both proteins and phospholipids.
- It accelerates the recovery of damaged proteins.
- It accelerates collagen synthesis and thus the renewal of connective tissue and skin cells.
- In animal experiments, it has a positive effect on the behaviour and appearance of old mice and extends their lives by 20 %.



- It protects brain cells against increased toxicity.
- It enhances memory.
- It acts as a so-called neurotransmitter.
- It protects biochemical functions and processes in the brain.
- It shows amazing results in the treatment of autism.
- It prevents the cross-linking of beta-amyloid that cause the deposits typical of Alzheimer's disease.
- It rejuvenates the body cells in the phase of senescence.
- It gives cells approaching senescence a youthful appearance.
- It extends the life of cells.
- It breaks through the Hayflick border and allows cells at the limit to divide further.
- It accelerates wound healing via cell renewal.
- It protects the body against toxic metals.
- It binds pro-oxidative metals, such as zinc and copper, and helps them escape from the body.
- It improves potency and libido.
- It provides protection against cardiovascular diseases.
- It normalises blood pressure.
- It optimises blood clotting.
- It provides protection against stroke.
- It helps with age-related senility and cataracts.



- It protects against macular degeneration.
- It protects against cataracts.
- It reduces its consequences of acute strokes.
- It provides protection against the complications of diabetes.
- It rejuvenates the skin and eliminates wrinkles.
- It protects our joints.
- It supports weight loss.
- It prevents or eliminates cellulite.
- It strengthens the muscles and prevents fatigue.
- It has antitumoural activity.
- It strengthens the body's defences.

The antioxidant effect of L-carnosine

Around 80 % of all diseases, including premature ageing, are attributed to cell destruction by free radicals. Every day, our approximately 37,2 trillion cells are exposed to about 10-80,000 free radical attacks.

What are free radicals?

Free radicals are produced by ozone, UV radiation, nicotine, drugs and stress, but are also produced naturally by various metabolic processes in our body.

What does free radical oxidation mean?



To put it vividly for laypeople, in the words of Prof. Kulkinsky:

'*They swim like white sharks in the biochemical sea of our small organic farms, they enter lightning-fast irreversible compounds, attack sensitive amino acids, fats, cell membranes and do not stop at the genetic material.*

They provoke chain reactions and form intermediate and degradation products as well as 'molecular mixtures' that have no biological benefit. At the end of such reactions, substances remain which the body does not know what to do with, or even completely destroyed cells. Gradually they fill the landfills in our body and hinder its functions until, one day, nothing works'.

L-carnosine has the extraordinary ability to neutralise even the most destructive free radicals. This includes even those which elude other antioxidants, such as vitamins C, E, selenium, beta-carotene, Q10, and others, such as superoxide, hydroxal radicals, peroxal radicals, and singlet oxygen!

Heavy metal binding effect of L-carnosine

By combining with toxic metals such as lead, mercury, arsenic, nickel and cadmium, as well as pro-oxidant metals such as copper and zinc, it helps the body to get rid of these harmful substances.

Special effect of L-carnosine

The general advantages of L-carnosine promise a broad, special effect on various diseases. These include the following diseases or undesirable conditions on



which L-carnosine can exert beneficial effects:

Rejuvenating effect of L-carnosine

See the detailed documentation under 'L-carnosine anti-ageing'. For the most part, L-carnosine is associated with anti-ageing, or biological rejuvenation, which in various studies, which will be discussed later in the book, where L-carnosine is seen to have a fantastic effect.

Effect of L-carnosine on Alzheimer's

Multifactorial causes of Alzheimer's are under discussion. It is likely that a protein called proteasome, which is responsible for the breakdown and removal of damaged brain cells from the brain, is not produced properly.

Here, L-carnosine unleashes its positive effects by protecting the proteasome and thus helping to prevent Alzheimer's or causing improvement in existing Alzheimer's conditions.

L-carnosine fights the alpha and beta-unsaturated aldehyde acroleins, which can destroy brain cells. It also prevents damage to brain cells caused by ß-amyloid by acting as a classical beta-amyloid blocker and providing protection against



dementia.

As one of the strongest, if not the most powerful antioxidant, it provides against aldehyde attacks. It binds the destructive heavy metals in the brain cells and in the blood and helps to eliminate them.

Effect of L-carnosine on schizophrenia and epilepsy

Carbonylation (hypoglycaemia) and brain cell oxidation are among the primary causes of schizophrenia and epilepsy.

As we have already read, L-carnosine is the most efficient anti-carbonylation agent available to humans and is also by far the most successful antioxidant. These two properties qualify L-carnosine to prevent or alleviate the above diseases in an optimal manner.

Effect of L-carnosine on autism, Asperger's syndrome and dyslexia

There are numerous cases in which people have experienced an improvement in the above diseases in a few days to weeks. L-carnosine acts as a neuro-transmitter, connecting to other carriers in the brain and improving the condition of autism, Asperger's syndrome, dyslexia and other neurological disorders.

According to Dr. Michael Chez, who has treated more than 1,000 autistic children with L-carnosine since 2001, the condition of 80-90 % of children improved within eight weeks. Specifically, this included reaction time, social awareness, reading ability and playing skills.



Effect of L-carnosine on Parkinson's disease

Recent studies suggest that Parkinson's disease is primarily due to the destructive effects of certain free radicals that produce a substance called alpha-synuclein during oxidation. Various studies have proved that L-carnosine is able to successfully defy the oxidation and thus the formation of alpha-synuclein (see point 'Studies').

Other neurological disorders and cognitive disorders that can positively affect L-carnosine

In addition to Alzheimer's and dementia , L-carnosine can positively influence or prevent the following diseases:

- Parkinson's
- epilepsy
- schizophrenia
- depression
- stroke
- dyslexia
- Tourette syndrome
- Asperger's syndrome
- autism



- dyspraxia

Effect of L-carnosine on neuromuscular disorders

The intake of L-carnosine may lead to relief of the following neuromuscular disorders:

- polymyositis
- muscular dystrophies
- myasthenia gravis
- mitochondrial myopathy
- amyotrophic lateral sclerosis

Effect of L-carnosine against cancer

Laboratory tests on cell cultures of different cancers have shown that L-carnosine has apparently a cytotoxic (toxic) effect on human cancer cells. The cell cultures were soon free of cancer cells once L-carnosine was added.

Effect on age-related sight problems and cataracts

In the form of special eye drops called 'NAC drops', L-carnosine is extremely effective against age-related visual impairment and cataracts (see 'Studies').



Effect of L-carnosine on cardiovascular diseases

Over time, the body loses L-carnosine, which means that the carnosine stores in skeletal muscle and the heart muscle become depleted in old age.

An additional dose of L-carnosine can prevent cardiovascular diseases via the following mechanisms of action:

- L-carnosine increases the contraction of the heart muscle during its work; the heart can work more efficiently and more economically.
- L-carnosine reduces high blood pressure, which gradually damages the heart.
- L-carnosine lowers elevated cholesterol, which causes to deposits and atherosclerosis.
- L-carnosine not only prevents the development of atherosclerosis, but can even partially reverse it.
- L-carnosine prevents hypoxia in coronary heart disease.

Effect of L-carnosine on stroke

The consequences of a stroke manifest themselves in the form of inadequate oxygenation of individual brain areas. Depending on the duration and intensity of this oxygen deficiency, severe damage of various degrees can occur. In most cases, there is paralysis in half of the body, which manifests itself in the form of a more or less severe paralysis of the facial muscles, a paralysis of the extremities also frequently results, i.e. the arm or leg muscles of the body half affected by



the stroke.

In the case of damage to the left hemisphere, speech disorders, which can even lead to complete loss of speech ability, are common. Depending on which areas in the brain are damaged due to an oxygen deficiency, the stroke can also lead to difficulties reading and writing.

L-carnosine protects against stroke

L-carnosine can prevent a stroke through its antihypertensive and cholesterol-lowering effects as well as its protective action against atherosclerosis.

L-carnosine protects against the serious damage of an acute stroke

In studies, L-carnosine has shown a protective effect on the brain cells during a stroke. L-carnosine acts as a neuro-carrier and also protects the cellular enzyme 'proteasome' from destruction. On the other hand, it prevents overstimulation of the brain by certain receptors.

Effect of L-carnosine on potency problems and libido weakness

An absolute prerequisite for achieving and maintaining an erection is the production of nitric oxide, abbreviated 'NO'. However, carnosine is the natural substrate for nitric oxide, which means that L-carnosine naturally strengthens the potency.

Effect on diabetes



Diabetes causes many unpleasant side effects and complications. A diabetic excretes increased amounts of L-carnosine, in addition, diabetes increases glycation, the saccharification of proteins and blood vessels, and thus their hardening and the promotion of early atherosclerosis (vessel hardening and calcification). This makes diabetes patients 3 times more susceptible to heart attacks and strokes than non-diabetics.

Since L-carnosine controls the blood sugar content via the H3 receptors of the autonomic nervous system, it is recommended for diabetics, in both a therapeutic as well as a preventive capacity.

Furthermore, L-carnosine prevents glycation and can thus prevent diabetic nephropathy, diabetic neuropathy and damage to the eye.

In addition, the intake of L-carnosine in pregnancy increases the glucose tolerance of the child and thus reduces the risk of diabetes.

L-carnosine and anti-ageing

L-carnosine works against ageing and rejuvenates actively

In most cases, L-carnosine is associated with anti-ageing, or biological rejuvenation, on which it has been shown to have a fantastic effect in various studies, which we will discuss later.

How does L-carnosine work against ageing and how does it rejuvenate cells?



The role of the enzyme ‘telomerase’ is crucial in ageing. The Nobel Prize for Medicine and Physiology 2009 went to researchers Elizabeth H. Blackburn, Carol W. Greider, and Jack W. Szostak for deciphering the ageing process and the role of the telomerase enzyme, which protects telomeres from shortening.

Telomeres form the ends of the chromosomes to which the DNA strands are packed tightly inside the cell.

The two researchers Szostak, from the Howard Hughes Medical Institute, and Blackburn from the University of California, were the first to show that the special DNA sequence of the telomeres protects the genome from destruction.

In collaboration with Blackburn, the third researcher of the Greider team at John Hopkins University, they succeeded in discovering the enzyme ‘telomerase’, which produces the telomeres and prevents them from being shortened.

The shortening of the telomeres plays the primary role in the natural ageing process of our cells. If these fall below a certain length, the cell is no longer able to divide further, which leads to its rapid cell death. A crucial factor for life extension is therefore the activation of the enzyme ‘telomerase’ as well as the protection of the telomeres from shortening. Chinese researchers were able to verify the of L-carnosine in studies (see ‘Studies’).

Protection against degenerative ageing processes

The biological ageing of our bodies is also based on various degenerative mechanisms. Today's knowledge of gerontology (the research of ageing) suggest that



biological ageing occurs mainly through the four mechanisms: Cell oxidation, carbonylation, glycation and crosslinking of collagens.

Amazingly, L-carnosine succeeds in successfully fighting all four crucial ageing mechanisms:

- antioxidation: as a highly effective antioxidant, L-carnosine repels even the most stubborn, destructive radicals that fail other antioxidants, such as hydroxyl, peroxyl, superoxide and singlet oxygen.

- anti-carbonylation: this is an age-dependent process in which the skin matrix is changed due to constant protein damage. L-carnosine is today considered the most efficient anti-carbonylation agent known to date!

- protection against cross-linking: weakness in the connective tissue, a reduction in elasticity and wrinkles are attributable to the cross-linking properties of ageing skin. The L-carnosine has the ability to protect the skin from cross-linking and thus ageing.

- anti-glycation: another essential aspect of physical ageing is glycation. This refers to the saccharification and thus hardening of the body's own proteins, which leads to loss of protein function, atherosclerosis, loss of flexibility of proteins, inflammation, diabetes and other age-related problems. Each of us is familiar with the visible results of glycation, which arise in the form of brown



spots on the skin of older people.
L-carnosine provides reliable protection against the formation of advanced glycation end products (AGE) and acts against glycation more strongly than any other known substance does. What's more, it protects against the 50x higher oxidative stress that a glycosylated protein produces compared to a non-glycosylated protein.

Since glycation first manifests itself in the wrinkling of our skin, the anti-glycation properties of L-carnosine contribute to quick skin smoothing.

Other rejuvenating and life-prolonging aspects of L-carnosine:

Cell rejuvenation: today's research assumes that each of our cells can divide only 60-80 times; after that, they reach a natural limit called 'Hayflick Border'.

L-carnosine has the extraordinary ability to rejuvenate cells approaching senescence (the end of a cell's life cycle).
This is demonstrated under the microscope by restoring an appearance that is unique to young cells. The lifespan of the cells is prolonged.

While the ageing of a cell was considered to be irreversible (not reversible), Australian researchers were able to prove otherwise in sensational experiments by extending the lifetime of human cells to 413 days in a nutrient medium containing carnosine; the control group (without carnosine) only



achieved a lifespan of 130 days!

Protects hereditary characteristics: L-carnosine provides reliable protection for the DNA (the hereditary molecules) of our cells from damage caused by oxidation.

Protects the brain: deposits of heavy metals and other toxic substances accumulate and lead to memory loss and Alzheimer's, especially in old age. Again, L-carnosine can provide reliable protection.

L-carnosine in sports

As a legal, natural form of doping, L-carnosine increases the muscular efficiency.

Effect of L-carnosine on the muscles

L-carnosine is a natural substance, which occurs particularly frequently in the musculature. The fast-acting, active muscle fibres are particularly rich in L-carnosine.

From about 25 years of age, the muscle mass continuously shrinks; parallel to this, the L-carnosine content in the musculature also decreases, which is likely to be an important factor in gradual muscle atrophy.

The additional intake of L-carnosine has been able to restore the power of tired muscles in studies.



Effect of L-carnosine on anaerobic performance

We all associate hard, muscular work with a burning pain, which, ultimately, also represents a limiting factor and leads to the interruption of muscular activity. This unpopular phenomenon is extremely well known in anaerobic sports, where the lactic acid (lactate) leads to premature cessation of the activity.
Through the conditioning of their own body, performance athletes strive to extend the lactate threshold, which leads to cessations of activity, as much as possible. In L-carnosine, we now have a potent, highly effective, natural agent that meets these requirements.

The reason for this that L-carnosine is responsible for up to 30 % of the body's buffering ability and thus can successfully buffer the excess lactic acid even at strenuous power outputs. Regular L-carnosine intake increases athletic performance, increases exercise norms and shortens recuperation periods. In short: The athlete can train harder and more often!

L-carnosine studies

L-carnosine protects telomeres from shortening and damage in a Chinese study.



L-carnosine reduces damage to telomeres and prevents their shortening in cultured fibroblasts. Telomeres form the ends of the chromosomes to which the DNA strands are packed tightly inside the cell. During cell division, the telomeres get shorter and shorter, leading to ageing. The ability to divide is unfortunately not infinite; from a certain telomere length, the cell can no longer divide and dies. The Chinese study describes the effect of L-carnosine on the telomeres of cultured human foetal lung fibroblasts. In this study, L-carnosine delayed replicative senescence and prolonged the lifetime of cultured human fibroblasts. For this purpose, scientists Shao L., Li QH and Tan Z. constantly imbibed the fibroblasts in 20 ml carnosine, which resulted in distinctly slowed telomere shortening and a prolonged life span within cell division. Furthermore, there was less DNA damage.

The scientists proposed the use of L-carnosine for the reduction of telomere shortening and to prevent telomere DNA damage as an important contributor to life extension.[502]

L-carnosine protects against heavy metals in studies and helps to reduce them

L-carnosine has the ability to bind pro-oxidative heavy metals such as zinc and copper, as well as toxic heavy metals such as lead, arsenic, cadmium, mercury and nickel, in the body so they can be broken down better.[503]

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[502] Shao L, Li QH, Tan Z., Source: Institute of Zoology, Chinese Academy of Sciences, Beijing 100080, PR China.

[503] Miller and O'Dowd 2000



L-carnosine strengthens the ability of the heart muscle to contract in studies

In studies, L-carnosine has been able to show the same degree of cardiac contractility as verapamil, a commonly prescribed heart medication.[504]

Improved cardiac contraction with L-carnosine proven in studies

Carnosine increases the calcium response in the heart muscle cells, thereby increasing the efficiency of cardiac muscle contraction.[505]

L-carnosine successful against oxidation stress

In numerous studies, L-carnosine has demonstrated its ability to successfully combat oxidative stress.[506]

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[504] Bharadwaj et al. 2002

[505] Zaloga GP et al. 1997

[506] Boldyrev et al. 1999



L-carnosine helps in studies against age-related visual impairment and cataracts

L-carnosine helps eye problems, both internally and externally. On the basis of L-carnosine, eye drops (so-called NAC drops) in professional circles are regarded as being highly effective against age-related visual impairment and cataracts. L-carnosine drops have proved effective for 80 % of cases of primary cataracts and for 100 % of age-related cataracts.[507]

L-carnosine prevents the development of gastric and duodenal ulcers in studies

According to a recent study, oral ingestion of L-carnosine can effectively prevent the formation of gastric and duodenal ulcers.[508]

Protective effect of L-carnosine against stroke in studies

Numerous studies indicate that L-carnosine can protect people against stroke.[509]

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[507] Wang et al. 2000

[508] Truitsina et al. 1997

[509] Dobrota 2000, Suslina et al. 2000, Khaspekow et al. 2002



Death rate after a stroke lowered many times over with L-carnosine

In animal studies, several studies have indicated that L-carnosine reduces the mortality rate from 67 % (excluding L-carnosine) to 30 % and from 55 % to 17 % (in another study).[510]

L-carnosine acts as a neuro-carrier in studies and improves brain signals

As a neuro-transmitter, L-carnosine can enhance signals in the brain and ameliorate neurological conditions such as Parkinson's, Alzheimer's, autism, schizophrenia and dyslexia.[511]

Effect of L-carnosine on autism and Asperger's syndrome

After treating nearly 1,000 autistic children with L-carnosine, the neurologist Dr. Chez from Chicago saw that L-carnosine was able to help 80-90 % children remarkably well after a short period of eight weeks. Dr. Chez says this is due to the ability of L-carnosine to connect with deeper brain areas as a neurotransmitter and to promote signal transmissions. The social behaviour of the children improved compared to others (for example, while playing), eye contact increased, reaction times decreased and reading ability significantly improved.

L-carnosine can provide protection against neurological and cognitive disorders such as Parkinson's

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[510] Stvolinsky et al. 2000 and Gallant et al. 2000

[511] Chez et al. 2002



Studies have shown that L-carnosine can neutralise toxic free radicals in the brain and provide protection against conditions such as Parkinson's.[512] L-carnosine hinders alpha-synuclein, a harmful substance that makes Parkinson's disease worse.[513]

L-carnosine counteracts epilepsy and schizophrenia in studies

Carbonylation and the effects of free radicals are the main causes of epilepsy and schizophrenia. In studies, L-carnosine has been shown to counteract oxidative stress and carbonylation in the brain.[514]

L-carnosine buffers lactic acid and increases muscle performance

In studies L-carnosine has been able to show that it can buffer lactate (lactic acid) and help prevent the premature abandonment of muscular anaerobic activity. This results in increased performance and creates the possibility for more intense and more frequent training sessions.[515]

L-carnosine rejuvenates body cells in studies and allows further divisions

1)In the laboratory, L-carnosine has led to astonishing rejuvenation of older cells in studies.[516]
2)In another series of experiments, Australian researchers have shown that L-carnosine even gives cells on the verge of senescence (the end of cell division

[512] Kang et al. 2002
[513] Kim et al. 2002
[514] Petroff et al. 2000; 2001
[515] S. E. Severin 1953
[516] Hipkiss 2002



ability) the ability to continue dividing. The cells regained their youthful appearance.[517]

L-carnosine rejuvenates human cells in studies

The research team around Prof. Hipkiss was able to confirm impressive studies that showed L-carnosine is able to rejuvenate human fibroblast cells (connective tissue cells).

The protection of L-carnosine against glycation

Glycation is synonymous with a crucial ageing process that manifests itself in the saccharification of organs and blood vessels. Several studies have shown that L-carnosine counteracts glycation very successfully.[518]

L-carnosine rejuvenates body cells, protects DNA and prolongs life

In several studies, L-carnosine has been shown to extend life by prolonging cell life and protecting our DNA and proteins and lipids.[519]

The L-carnosine density in muscle tissue is proportional to the maximum lifespan

In animal experiments, researchers demonstrated a clear relation of carnosine levels to lifetimes.[520]

Acceleration of collagen synthesis with L-carnosine has been shown in

[517] McFarland

[518] Aldini et al. 2002

[519] Burcham, 2002

[520] Hipkiss AR et al. 1995



studies

According to a study from Brazil, collagen synthesis was accelerated by the addition of carnosine.[521]

Carnosine extends life in animal experiments by 20 %

In one study, mice fed with additional L-carnosine from 10 months of age were able to increase their lifespan by 20 % compared to the control group (mice not fed with additional carnosine)' ageing processes were visibly and measurably slowed down.

The following study results caused a stir:[522]

- a 20 % longer life compared to the control group;
- twice as many of the carnosine-fed mice reached the age of 12 months compared to the control group;
- L-carnosine also rejuvenated the visual appearance of the treated mice: the coat shone more brightly for 44 % of the treated mice and for 5 % of the untreated mice;
- only 14 % had the usual skin ulcers, compared to 36 % in the control group;
- 58 % of the treated mice showed a youthful behavioural pattern compared to 9 % of the untreated ones;

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[521] Vizoli MR et al. 1983

[522] Boldyrev AA et al. 1999



- all brain parameters associated with ageing were less pronounced in carnosine-fed mice than in the control group, which is probably the reason for the adolescent behaviour.
- The age-related curvature of the spine was much less pronounced in the carnosine-treated mice.

L-carnosine successful against cancer cells in studies

Laboratory tests on cell cultures of different types of cancers have shown that L-carnosine clearly has a cytotoxic (toxic) effect on human cancer cells while ensuring the regeneration and activation of healthy, normal cells. The cell cultures were soon free of cancer cells once L-carnosine was added.[523]

L-carnosine content of the muscles is related to the level of age-appropriate muscle mass

Carnosine content in muscle mass decreases in parallel with age-related muscle breakdown.[524]

L-carnosine naturally boosts potency in studies

The production of nitric oxide is the absolute prerequisite for achieving an erection and then keeping it as long as possible. However, carnosine is the natural

[523] www.gladiss.de/newsletter

[524] Stuerenberg H.J. et al.



substrate of nitric oxide.[525] It is therefore not surprising that L-carnosine is able to solve erectile problems.

L-carnosine safe in animal experiments, even in high doses

In animal studies, carnosine has safely tolerated at extreme doses of 500 mg/kg body weight.[526]

Recommended intake of L-carnosine

The usual intake recommendations range between 1,000 mg L-carnosine a day, with the dose split across two doses of 500 mg between meals each day. You will mostly find the second of these recommendations. According to the studies of Quinn PJ et al. in 1992, there is an enzyme called carnosinase that neutralises carnosine, which is why quantities must always be higher than the neutralising potential of the former. In addition, you see some recommendations online that you should take the entire dose of 1 g at once. If 1000 were mg taken at once, the enzymes would be saturated, so that sufficient L-carnosine could be absorbed by the body.

Only further research can show what is really true. In any case, you should take L-carnosine at least 30 minutes before a meal.

Side effects of L-carnosine

[525] Alaghband-Zadeh 2001

[526] Quinn P. J. et al. 1992



L-carnosine is an endogenous, natural substance found in raw meat, among other things.

L-carnosine is used by thousands of people every day and no side effects or interactions with other agents have been reported to date.

In animal studies, carnosine has been shown to be safely tolerated, even at extremely high doses of 500 mg/kg body weight.[527]

[527] Quinn PJ et al., 1992



THE key to eternal youth and health?

Many books have been written about it, and yet it is familiar to only a few people. Even doctors know surprisingly little about it. We are talking about melatonin.

Imagine that there is an endogenous hormone that not only retards ageing, but even biologically rejuvenates people. And if that's not enough, this hormone prevents harmful diseases like cancer, heart attack, stroke, diabetes, cataracts and Alzheimer's. And if this does not quite bring ultimate satisfaction, it controls our biological rhythm and gives us energy to accomplish our daily tasks during the day and it gives us a restful, deep sleep at night...

It can only be melatonin, an endogenous hormone that is produced in the pineal gland in the brain (brain stem).

It is certain that such a thing would be assigned to the realm of myths and fairy tales, if - yes, if not for the many sensational works, studies and pieces of research by well-known doctors and scientists all over the world, which attribute amazing properties to melatonin in terms of life extension, prevention and cure, even of 'incurable' diseases.

The scientists Dr. William Regelson and Walter Pierpaoli were the first to prove the importance of the pineal gland for our lifespan in animal experiments. For this purpose, the pineal glands of younger mice were transplanted



to older mice – and vice versa – and the lifespans of both groups were compared.

The younger mice with the older pineal gland lived to an average age of just 510 days, while the older mice which had the younger pineal gland implanted were able to reach double that age - an average of 1020 days!

However, in order to be able to attribute this amazing effect exclusively to melatonin, Dr. Regelson decided to start a control experiment by administering a normal diet to one group of mice and the same diet with melatonin to another group.

While the mice fed exclusively on a normal diet died at the usual age of 24-25 months, the 'melatonin mice' lived six months longer, which equates to a 30 % life extension and the equivalent of an additional human lifetime of 25-30 years! What's more: In contrast to the control group, the mice fed with melatonin were energetic and healthy until their death! They began to rejuvenate until they adopted the behaviour and appearance of young mice.

It was a milestone in the study of biological ageing, which has since given the pineal gland a very important, if not crucial, role in controlling ageing processes.

Furthermore, it is a testament to the fact that the receptivity and processing of a melatonin dietary supplement, which have frequently been doubted by critics, work beyond doubt!



'Hmm' – you might say – '... it's possible to accept this as an indication that melatonin is the key to youth, but what about the fabled health that melatonin is also supposed to promote?'.

In this context, it is interesting to note that the mice fed with melatonin in the aforementioned animal study all remained healthy and died cancer-free until their death, while the majority of the mice without melatonin succumbed to cancer!

Of course, one cannot transfer results of studies in animal experiments to humans entirely, but in the vast majority of cases they show tendencies that also apply to humans.

The two scientists Prof. Regelson and Walter Pierpaoli have said:

'*The wonderful thing about melatonin is that it can prolong your life and maintain your health and vitality. The truly wonderful thing about melatonin is the great impact that it will have on our generation and future generations.*

We are embarking on a shared adventure and are the first generation to have the power to avoid the diseases and weaknesses that are typical of 'normal' ageing. For the first time, we have the power to preserve our youthfulness and to remain strong and alert throughout our lives.

For the first time, not only can we avoid the physical decline associated with ageing, but we are able to delay and even reverse the ageing process. This is the real wonder of melatonin'.

On the following pages, you will learn why the findings of the research team



gained in animal experiments are transferable to humans and are meaningful for us. We will offer evidence for this through further research and knowledge of the human being.

Melatonin – an endogenous hormone under the microscope

Where and under what conditions is it produced?

Melatonin is an endogenous hormone that is produced in the pineal gland in the brain. Its production is cyclical, namely when the brain receives a signal via the retina of the eye in the dark for the production of melatonin.

This signal is first directed to the hypothalamus (diencephalon) and then to the pineal gland. With diminishing light intensity, the pineal gland, which is responsible for our biorhythm, begins to produce melatonin.

The melatonin is not stored anywhere in the meantime, but passes into the blood immediately. There, it influences the sympathetic nervous system, slows down the heartbeat and digestive processes, and lowers blood pressure and body temperature. The melatonin level is 10 times as high in the dark as during the day, as the body is prepared for sleep.

This process is stopped when light falls on the retina of our eye and this is relayed as a signal to the pineal gland via the route described. The production of melatonin stops and the production of serotonin starts – we wake up alert, and there are almost no traces of melatonin left in the body – until the next cycle, which starts at dusk.



What makes melatonin particularly interesting for us humans?

We mainly owe our knowledge about the pineal gland and its function to the two scientists Prof. Dr. William Regelson and Dr. Walter Pierpaoli, who, after more than three decades of research, succeeded in deciphering the pineal gland for what it is:

the control centre of all regulators in our organism!

Obviously, it is the pineal gland that manages our complete endocrine gland system, which is responsible for the production of all hormones in the body which in turn fulfil important functions in our body. All essential bodily functions, such as heartbeat, blood pressure, body temperature or kidney function, are controlled and regulated by hormones.

As a 'buffer hormone', melatonin does not just regulate a single organ, but indirectly regulates the work of many important organs by regulating and adjusting the other hormone levels.

The influence of the pineal gland is governed by the following functions:

- the sleep-wake rhythm,
- the immune system,
- reproduction,
- stressor control,



- body temperature control,
- kidney function,
- the destruction of attacking free radicals.
- energy production in the cells by the thyroid hormone T3 and T4
- and the protection of the DNA within the body cells.

The pineal gland is thus the regulator of all other glands, the control centre; the melatonin produced by it is, in turn, the control unit for our hormones.

The tasks of the control unit are to increase the activity of certain hormones as needed, while raising the others, and vice versa.

In terms of homeostasis, melatonin tries to maintain a balance, actively intervene where necessary, and to allow neither too high nor too low levels of hormones. As we age, the hormone levels of major organs change decisively, because the 'pineal gland control centre' itself ages and can no longer cope with producing melatonin.

If you now add melatonin to the body from the outside, the function of the pineal gland is strengthened. What's more, it will be rebuilt and, in the medium term, will be able to assume control tasks to the same extent as when it was young and released sufficient melatonin.

Melatonin does a lot more; among other things, it is an important assistant to the immune system in that it discovers and destroys attackers and pathogens.



Dr. Walter Pierpaoli and Prof. William Regelson argue that the immune system collapses in old age because the pineal gland, due to its own ageing, can no longer sufficiently fulfil its function, namely the release of, among other things, melatonin.

They believe that an additional intake of melatonin can take our immune system back to its youth; it would make us more resilient and healthier.[528] Furthermore, melatonin is considered one of the strongest known antioxidants that fights free radicals with 50 times the effectiveness of vitamin C.

In their research, Pierpaoli and Regelson also found that a normal level of melatonin also ensures that the immune system can instantly and accurately detect and destroy 'hostile vectors' and pathogens.

As one of the most effective antioxidants, melatonin also causes the destruction of free radicals that are known to cause cancer cells.

Specific oncological studies have also shown that melatonin can enhance the anti-cancer effects of certain drugs in chemotherapeutic cancer treatment and reduce their sometimes dangerous side effects to an acceptable level.

However, the most important contribution of Pierpaoli and Regelson seems to be the realisation that the pineal gland controls the ageing process with the help of melatonin and represents the actual 'age clock' long sought by science – or at least one of them.

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[528] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 115



As already mentioned, melatonin has demonstrated a life-prolonging effect in animal experiments. In addition, it has demonstrated efficacy against cardiovascular diseases, impotence, cancer, sleep disorders, and many other conditions in human and animal clinical trials.

Now all this would not be so interesting if this body's own hormone was not also available in capsule form – after all, it is not every day that you get the chance to have a pineal gland transplant...

The pineal gland – an important life clock

Among other things, the pineal gland determines our rhythm of life. In the animal kingdom, these rhythms are particularly easy to observe; in the spring, the pineal gland awakens lustful feelings that lead to mating. Towards the autumn, it gives the signal to migratory birds that it is time to start their journey to the warm south. Other animals have signals to look for a winter home, and then in spring to wake them from their hibernation.

In humans, the pineal gland helps to maintain seasonal hormone levels; among other things, it regulates our growth and development from childhood to adulthood.

Melatonin, produced in the pineal gland of the mother, is supplied to the unborn child via the placenta and helps to control the sleep-wake cycle. Immediately after birth, the toddler benefits from melatonin, which is passed on through breast milk.



Later, the pineal gland in the brain takes over the body's own production of melatonin supply. Here, melatonin, as in adults, is made from the amino acid 'tryptophan'.

The pineal gland produces the most melatonin in childhood; this level drops during puberty.

According to the magazine 'Focus', melatonin reaches its highest concentration at the age of eight with about 125 picograms per ml of blood. The first major decrease in melatonin is experienced at 16 years of age during puberty (approximately 87 picograms/ml of blood). At 45, we only produce half as much melatonin as we did in childhood (about 50 picograms/ml of blood), and at 80, the pineal gland barely produces any melatonin at all (25 picograms/ml).

In parallel to this, ageing starts to become clearly noticeable at the age of 45 ; at the same time, it has a negative effect on us, leads to physiological degeneration and makes us susceptible to numerous diseases. This is not surprising, because ultimately the level of performance expected from the pineal gland is extremely high.

All signs of age of all our organs are in fact due to ageing and thus the function of the pineal gland, according to the thesis of Prof. William Regelson and Walter Pierpaoli. After 30 years of research, the two share the conviction that you can stop the ageing clock, yes, even turn it back – and we could live to 120



years or older.[529]

In x-ray examinations of older people, the degeneration of the pineal gland appears visually in the form of calcium deposits. These calcium deposits, as a sign of ageing of the pineal gland, lead to a steady decline of melatonin with the associated cell ageing and loss of organ function.

Furthermore, ageing causes pineal shrinkage and loss of pinealocytes, the cells responsible for melatonin production.

At the same time, the retina of our eye, which transmits the light signals to the pineal gland, ages as well, meaning that the signal transmission is always unreliable – a vicious cycle of ageing.

In the next section 'Melatonin effect', you will learn more facts about this highly interesting topic.

Melatonin, its effect – how does it work and what does it work against?

Declared useless just a few decades ago by researchers and physicians as the 'appendix of the brain', the last few years have revealed completely new, plausible connections between ageing and diseases that make the pineal gland an important control unit for our entire organism.

[529] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 28



With the ageing of the pineal gland and thus the reduced production of melatonin, people age as a whole.

During ageing, a person becomes more susceptible to all sorts of diseases, such as cardiovascular diseases, diabetes, cancer or impotence.

This brought some scientists in the field of ageing onto the scene, who suspected that all these unpleasant phenomena were interrelated and must have a common cause; the ageing of the pineal gland, meaning that a functional deficiency and the inability to deliver enough melatonin could be the reason!

Melatonin – production and release

Melatonin is supplied by the mother to the unborn child via the placenta and helps to control the sleep-wake cycle. Immediately after birth, the toddler benefits from melatonin, which is passed on through breast milk. Later, the pineal gland in the brain takes over the body's own production of melatonin supply.

Melatonin reaches its highest level during childhood and drops off during puberty.

During ageing, the melatonin level decreases continuously, and the decline is stark between the ages of 45 and 50. At the age of 60, the pineal gland produces only half of the melatonin that it produces at the age of 20. At the age of 70, the production of melatonin is barely measurable.



In parallel to this, ageing starts to become clearly noticeable at the age of 45 at the same time, it has a negative effect on us, leads to physiological degeneration and makes us susceptible to numerous diseases.

In order to better understand the effect of melatonin, it is advisable to look at its overall effect and to selectively focus on the targeted effect on diseases thereafter.

Melatonin, the general effect

Melatonin is an extremely important, indeed vital, substance as a messenger and regulator of many interlocking, important processes that take place in our organism:

- it affects the thymus gland and boosts
- the function of the immune system.
- It controls the ageing processes.
- It is one of the most important antioxidants.
- It controls sleep and regeneration.
- It is a veritable de-stressing hormone.
- It lifts our emotions.
- It controls our autoimmune reactions.
- It controls potency and libido.

Certain diseases do not appear until old age, a phenomenon which is attributed to ageing and thus to the diminution of the function of the pineal gland, which



is responsible for the production and release of melatonin.

A young, functioning pineal gland reliably protects us from cell damage and dysfunction via the general mode of action mentioned above, controls our emotional state and protects us from possible illnesses.

From the age of about 45, the function of the pineal gland decreases dramatically, which leads to the production of melatonin declining by up to 50 %; above the age of 70, melatonin production reaches barely measurable lows. Diseases such as cancer, heart attacks and others increase with age; this is also attributed to the ageing of the pineal gland and thus to the loss of melatonin.

An impaired melatonin level is particularly noticeable in tumour patients, which leads to unusual melatonin levels and is the result of a malfunctioning pineal gland.

Effect of melatonin against diseases

After examining the general effect of melatonin on our organism, it is extremely interesting to learn about the targeted effect on diseases as well.

Which diseases and conditions does melatonin work against?

Since melatonin has a broad principle of action, which, among other things, strengthens the immune system, protects against free radicals and counteracts ageing processes, the effect on countless diseases and conditions is factually



verified. To cover all of these would probably fill entire libraries.

In the scientific literature, melatonin is explicitly certified as having an effect on the following diseases and conditions:

- Cancer
- Diabetes
- Rheumatism
- Allergies
- Cardiovascular disease
- Sleep disorders
- Stress
- Migraine
- Jet lag
- Asthma
- Menopausal symptoms
- Down's syndrome
- Alzheimer's
- Epilepsy
- Poor eyesight
- Cataracts



Effect of melatonin on heart disease

Melatonin provides the cardiovascular system with many different mechanisms of action in a multifactorial manner that have a positive effect on heart health.

Effect of melatonin as a highly efficient antioxidant on the heart

Every day, our body cells, including the heart cells, become the target of countless attacks by free radicals, which attack around 70,000 times a day. We know the destructive properties of oxidation from metal, which turns into rust by oxidation, or from colours that fade and oil that turns rancid. Free radicals cause this very oxidation and thus the destruction of our cells. As the body's own antioxidant, melatonin is 50 times more efficient than vitamin C and is therefore one of the strongest antioxidants discovered to date. The protective effect on the blood vessels and the heart tissue prevents heart attack, stroke, angina pectoris, heart failure and other cardiovascular diseases.

Effect of melatonin on blood pressure

Melatonin is blood pressure regulating in its function as a 'sleep timer'. It also strengthens our immune system, so the body does not have to produce as many corticosteroids, which have been proven to increase blood pressure. Therefore, high blood pressure can be reduced by using melatonin. In animal experiments, the removal of pineal glands has led to an immediate increase in blood pressure.



Effect of melatonin on cholesterol levels

Melatonin also lowers LDL cholesterol, which, as 'bad' cholesterol, leads to heart problems. The pineal gland, which is responsible for the production and release of melatonin, also appears to play an important role in the regulation of cholesterol levels, as the removal of the pineal gland has increased cholesterol and other triglyceride levels in animal studies.

Researchers Pierpaoli and Regelson believe that melatonin has a regulating effect on cholesterol levels by influencing the secretion of thyroid hormones.

Effect of melatonin on the electrical activity of the heart muscle

Our heart works through an autonomous system based on electrical impulses.

Melatonin positively influences the electrical activity of the heart muscle via the so-called 'calcium channel' and thus optimises its work. The heart works more economically and efficiently at the same time.

Melatonin action in asthma

According to a study conducted at the Hadassah Medical School of the Hebrew University in Israel, intravenous melatonin was found to be an '*excellent bronchodilator*' in animal studies.

Effect of melatonin against cancer

Studies from as far back as 1940 show that a substance made in the pineal gland could prevent the growth of tumours and conversely that the removal or



destruction of the pineal gland leads to a faster growth and proliferation of tumours, even if the substance (melatonin) could not be identified at that time.

In fact, at the beginning of a cancer, the body produces more melatonin to fight the tumour.

Recent studies have revealed that melatonin slows down the growth of breast cancer cells both in the laboratory and in mice and slows the growth of melanoma (skin cancer) in hamsters five-fold and delays metastasis.[530]

Dr. William Regelson obtained the first findings on the anti-cancer effect of melatonin in animal experiments on mice.

While he and his colleague in the lab managed to extend the lifespan of mice by grafting a younger gland and using the doses of melatonin in a control experiment, it was astonishing to see melatonin reliably protect all test mice against the cancer typical for this species of mice.

In a trial in Monza, Italy, 82 patients with metastatic cancer were given a combination of melatonin and low-dose interleukin-II. In 25 % (21 patients) the tumour shrank and in 5 % (4 patients) a complete tumour reversal occurred.

Effect of melatonin on metastatic lung cancer

At the same clinic, patients with metastatic lung cancer were given 2 centigrams of melatonin at night. Twenty-one patients remained stable, 30 patients showed significant improvement, only one patient responded partially to the

[530] Steven J. Bock and Michael Boyette: Wunderhormon Melatonin – die Quelle von Jugend und Gesundheit, ('Miracle Hormone Melatonin – The Source of Youth and Health'), 1995, p. 69



treatment, and two patients were worse off. It has been possible to extend the average lifespan of patients.

Effect of melatonin on advanced melanoma

An advanced melanoma is a very aggressive cancer with a mostly fatal outcome. Melanoma patients with metastases in the brain and lungs were given 5-7 centigrams of melatonin every day for five weeks. After these five weeks, half of the patients were better, while the other half were stable. The condition improved with the level of the dose.

Effect of melatonin on breast and prostate cancer

In particular, so-called 'hormone-dependent carcinomas', cancers that are triggered in women by the female hormone 'oestrogen' and in men by the hormone 'testosterone', seem to respond very well to treatment with melatonin. In the lab, breast cancer cells were treated with melatonin and then with anti-oestrogens (tamoxifen). The melatonin made the cancer cell about 100 times more sensitive to the inhibiting effect of tamoxifen.

Interestingly, blind mice were found to have a lower predisposition to breast cancer. In blind animals, the deactivation of melatonin production via the retina is impaired, meaning that there is more melatonin in the organism.[531]

Equally interesting is the fact that breast cancer is usually discovered in late spring and winter, when relatively little melatonin is naturally produced in the

[531] Dr. Arnold Hilgers and Dr. Inge Hofmann: Melatonin – die Pille für Gesundheit und ewige Jugend? ('Melatonin – The Pill for Health and Eternal Youth?'), 1996, p. 77



organism due to the lighting conditions.[532]

Many researchers therefore argue that hormone-dependent cancers (e.g. breast cancer or prostate cancer) are caused by a malfunction of the pineal gland.

Both women and men with hormone-dependent tumours have a disrupted melatonin cycle. On the other hand, blind women, who have a higher melatonin level due to blindness, are much less likely to develop breast cancer.

Remarkable results, considering that melatonin, despite its negligible, or non-existent, side effects, does not play any role in classical cancer therapy, while chemotherapy remains as the standard treatment despite its destructive potential for healthy cells and its meagre healing rate of 2-3 %!

How does melatonin work against cancer?

Melatonin has proven its worth both in cancer prevention and in cancer treatment and aftercare; it also improves the quality of life of cancer patients. It works against cancer via several mechanisms:

- Melatonin stimulates our immune system, which can then attack cancer cells more efficiently.
- Melatonin increases the aggressiveness and efficiency of ageing T cells, which fight cancer.[533]
- Melatonin helps the body to detect and destroy cancer cells.

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[532] Steven J. Bock and Michael Boyette: Wunderhormon Melatonin – die Quelle von Jugend und Gesundheit, ('Miracle Hormone Melatonin – The Source of Youth and Health'), 1995, p. 72

[533] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 133



- As a highly efficient antioxidant, melatonin counteracts cell damage and damage to the genome (DNA), which often results in tumours.
- Melatonin supports the body in the defence of cancer-promoting substances.
- Melatonin regulates the release hormones which have a tumour-inhibiting effect.

Action against cancer via the immune system

In their numerous studies, the research team Dr. Walter Pierpaoli and Prof. Dr. William Regelson prove that melatonin builds up the immune system and renews T helper cells, which are essential for eradicating cancer. These helper cells are not only rejuvenated, but at the same time melatonin increases their efficiency and aggressiveness in the fight against cancer cells. The cancer cells are detected by the T cells and destroyed before they can multiply and form into a tumour.[534]

The increased production of interleukin-2 stimulates the cytotoxic, i.e. cancer cell-destroying effect; parallel to this, cortisol levels are lowered as an immune-suppressive substance.

Effect against cancer in the role of 'hormone regulator' (especially effective against breast cancer, uterine cancer, prostate cancer)

[534] Walter Pierpaoli und William Regelson, Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 133



Furthermore, there are a number of cancers which are triggered by hormonal effects, which is why they are also called 'hormone-dependent carcinomas'. These include prostate cancer in men, caused by the male hormone 'testosterone', and breast cancer in women, caused by the female hormone 'oestrogen'.

If these hormones dock onto the receptors of the respective tissue, this can lead to uncontrolled growth and thus to carcinogenesis. In conventional medicine, breast cancer is therefore counteracted with anti-oestrogens.

The researchers Dr. Walter Pierpaoli, Prof. William Regelson and many others believe that hormone-dependent cancers, such as breast or prostate cancer, are the result of a pineal malfunction and melatonin can effectively counteract them as a regulator and can thereby effectively prevent breast cancer, prostate cancer and other hormone-dependent cancers, by, for example, blocking the oestrogen receptors in women, which promote cell division and thus potentially the development of breast cancer.

Effect on cancer as an antioxidant

Free radicals attack our cells countless times each day, leading to cell change and resulting cancer. 50 times stronger than vitamin C, melatonin is one of the most efficient antioxidants (radical scavengers). It protects our cells and counteracts carcinogenesis and other diseases.

Melatonin enhances the effects of chemotherapy and relieves its side effects



In chemotherapeutic cancer treatment, melatonin has been shown to enhance the desired anti-cancer effects of certain drugs while reducing the spectrum of side effects.

Effect of melatonin on depression

Many people suffer from depression, especially in the dark winter months. According to critics, melatonin, an antagonist of serotonin, can make depression worse. Advocates, in turn, point out the ability of melatonin to suppress stress and mention its regulatory mechanisms to optimise somatic and mental regeneration processes.[535] So, given the right dose and at the right time of day, melatonin could be very helpful for depression. However, patients suffering from depression and receiving medical attention should first discuss this with their physician.

Effect of melatonin on postpartum depression

During pregnancy, the melatonin level rises (a reason why pregnant women need a lot of sleep), and then quickly falls after birth. This interruption in the melatonin rhythm can lead to sleep disorders and postpartum depression.

Effect of melatonin against chronic overwork and stress

Melatonin has proven to be a true anti-stress hormone. It achieves it by inhibiting the stress hormone 'cortisol' as well as corticosteroids on the one hand

[535] Beat René Roggen: Melatonin – ein Schlüsselhormon für gute Gesundheit, erholsamen Schlaf und langes Leben ('Melatonin – A Key Hormone for Good Health, Restful Sleep and Long Life'), 2007, p. 71



and mobilising psycho-regenerative forces in rest periods on the other. In addition, melatonin lowers the heart rate and blood pressure, thus ensuring the efficient operation of our cardiovascular system, which promotes longevity of the heart.

Possible effect of melatonin on multiple sclerosis

Interestingly, the MS symptoms of many women improve as soon as they become pregnant and become worse again after giving birth. This happens analogously to melatonin production in the pregnant woman's body or shortly after delivery. Studies have shown that many MS patients have a low melatonin level; melatonin treatment may provide relief for those suffering from MS. Similar to migraine sufferers, however, there are also conflicting studies that suggest that MS patients were better after magnetic field treatment.

Effect against impotence and weak libido

Even in the case of impotence or low libido, melatonin appears to act on multiple fronts, breaking down stressors. Impotence, a buzzword for the lack of potency in old men just a few years ago, is now increasingly spreading among young men. This is connected with environmental factors and improper diet, with stress at work being a primary cause.

Because melatonin regulates the stressors and directly dissipates stress, stress-related impotence and weak libido can be counteracted.

Melatonin regulates the hormone balance



Melatonin ensures that the hormone balance is regulated and that the right supply of the appropriate sex hormones takes place at the right time.

At night, hormone levels are balanced by melatonin and brought to a youthful level, resulting in balanced sexual activity.

Melatonin protects sexual organs from ageing

Initial findings on this mechanism, which has a strong positive effect on potency and libido as well as on sexual activity, were obtained by the researchers Prof. Dr. William Regelson and Dr. Walter Pierpaoli in animal experiments on older mice of the equivalent age of a 70-year-old man.

Supplied with melatonin, their testes and ovaries did not show the shrinkage typical of old age. Both males and females remained untypically sexually active for their age.[536]

Effect of melatonin on Alzheimer's

Alzheimer's patients can be diagnosed by a low level of melatonin, possibly due to a lower number of nerves on the nerve pathways from the pineal gland to the eye. The symptoms of Alzheimer's disease therefore include a disturbed biorhythm, including a disturbed sleep-wake rhythm. Melatonin is already prescribed by many doctors for it. Experience has shown that antioxidants can delay the disease and can often even prevent the symptoms. Since melatonin acts as the most important antioxidant, it should, among other antioxidants

[536] Beat René Roggen: Melatonin – ein Schlüsselhormon für gute Gesundheit, erholsamen Schlaf und langes Leben ('Melatonin – A Key Hormone for Good Health, Restful Sleep and Long Life'), 2007, p. 20



such as OPC, vitamin C, vitamin E, selenium or Q10, be given a high profile in the treatment of Alzheimer's.

Effect of melatonin on diabetes

A first serious indication that melatonin can help or even prevent diabetes is the fact that melatonin levels were lower in patients suffering from insulin-dependent diabetes (also called adult-onset diabetes).

By helping control the production of growth hormones, melatonin can also help prevent diabetes and regulate blood sugar levels.

Effect on eyesight and cataracts

In addition to the pineal gland and the digestive organs, melatonin is also present in the retina. According to the studies of the two melatonin researchers Prof. Regelson and Dr. Pierpaoli, all of the organs of old melatonin-fed mice showed improvement. None of the melatonin-treated mice succumbed to cataracts. It is therefore very likely that melatonin can improve our vision and possibly protect against cataracts.

Effect on menopausal symptoms

Menopausal symptoms include hot flushes, sweating, palpitations, respiratory distress or sleep disorders. The intake of melatonin can improve these symptoms.

A combination pill of oestrogens and melatonin has been administered in the



USA for some time.

Effect of melatonin on migraine

It's worth trying melatonin for migraine attacks. An indication of the effectiveness of melatonin against migraines is the proven melatonin level disruption in migraine sufferers.

In addition, migraine attacks are often due to impaired hormone balance, lack of sleep and increased stress levels. This is where melatonin, as an important regulatory hormone, can help.

But the opposite can also occur if too much melatonin circulates in the body. Anyway, it's worth a try because if the symptoms get worse instead of disappearing, you know the cause and can fight the disproportionate release of melatonin.

Treatment with electromagnetic fields, which slow down the production of melatonin in the pineal gland, is proven for this purpose.

Effect of melatonin on epilepsy

In animal experiments, the electrical impulses in the brain have been stabilised and epileptic fits successfully avoided. In fact, children suffering from epilepsy have abnormal patterns of melatonin production.[537]

[537] Steven J. Bock and Michael Boyette: Wunderhormon Melatonin – die Quelle von Jugend und Gesundheit, ('Miracle Hormone Melatonin – The Source of Youth and Health'), 1995, p. 224



Effect of melatonin on jet lag

Jet lag occurs when you fly through several time zones within a very short time and your body clock gets confused. Jet lag symptoms are fatigue, irritability and a lack of concentration, but also a susceptibility to infections. Occupational groups which are particularly affected by this, such as pilots, stewardesses or business travellers, are at greater risk of contracting heart disease or immunodeficiency. The messenger melatonin is able to stop the biological clock, help you get a good night's sleep and thus defy the above-mentioned conditions.

Effect of melatonin on insomnia

While the other spectacular effects of melatonin are generally unknown, many people associate melatonin with a sleep hormone, which promotes deep sleep. In fact, this appears to be true, bearing in mind that the main effect of melatonin is to control our day-night rhythm. At night, the retina of our eyes sends a signal to the brain that initiates melatonin production and -release. For this purpose, serotonin is converted into melatonin via several intermediate stages. We get tired and fall into a good night's sleep.

Daylight stops the release of melatonin, serotonin is increasingly produced, we wake up and are ready for everyday needs. This is also the reason why toddlers sleep a lot until the age of 3 because they have an increased release of melatonin.

The pineal glands of seniors, on the other hand, hardly release any more melatonin, which is why they get along with very little sleep. Interestingly, pregnant



women sleep well due to a 300-fold increase in melatonin levels.[538]

In short: melatonin is ideal for promoting a good night's sleep and is recommended for sleep problems as well as jet lag. This is a remarkable fact, considering that more than a third of older adults in the United States are taking pills to help them sleep[539], while these often lead to addiction and only induce the deep sleep phase with delay, melatonin is considered to be free of side effects and induces the deep sleep phase after just 60 minutes.

Big Pharma is not particularly willing to give a non-patentable remedy such as melatonin preference over their 'sleeping tablets', especially since melatonin, as we have learned in these sections, additionally prevents many diseases and even heals them. Melatonin is therefore a harmless substance that would make countless medicines superfluous and would cost the pharmaceutical industry billions in revenue.

Recommended intake of melatonin for sleep disorders

In their book 'Melatonin – The Pill for Health and Eternal Youth?', Dr. Arnold Hilgers and Dr. Inge Hofmann recommend taking a dose of 1 mg about 20 minutes before the desired sleep time. Furthermore, it is best to proceed in an interval-like manner: Taking melatonin every evening for three consecutive weeks followed by a week's pause. Continue in this cycle until the natural sleep pattern has settled, then gradually reduce the intake of melatonin.

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[538] Dr. Arnold Hilgers and Dr. Inge Hofmann: Melatonin – die Pille für Gesundheit und ewige Jugend? ('Melatonin – The Pill for Health and Eternal Youth?'), 1996, p. 21

[539] https://www.independent.co.uk/news/health/elderly-americans-sleeping-pills-catastrophic-us-drugs-insomnia-epidemic-a7969656.html



Effect of melatonin on Down's syndrome

Down's syndrome, also called 'Mongolism' in the past, is also characterised by the fact that the sleeping rhythm, similar to that of older people, is disturbed. Furthermore, Down's syndrome patients have abnormally high or abnormally low thyroid levels, which correlate with those of a distant pineal gland. Older patients are automatically susceptible to infections, which may also be attributed to a lack of melatonin. An additional dose of melatonin may improve the symptoms mentioned above, the sleep-wake cycle, as well as any resulting symptoms or clinical pictures.

Effect against osteoporosis

Melatonin could counteract osteoporosis by regulating oestrogens; the pineal gland apparently plays a central role in calcium metabolism, as animal experiments have shown. As is known, however, calcium counteracts osteoporosis.

Effect of melatonin on Parkinson's

Dr. Pierpaoli prescribed his ex-mother-in-law melatonin in 1984. At that time, she was already 74 years old and suffered from Parkinson's. Ten years later, the woman was symptom-free, brimming with health and agility, and even her skin was as wrinkle free as it was ten years beforehand.

Effect of melatonin on AIDS/HIV

We have learned that the pineal gland is also responsible for maintaining the immune system, including the production of T cells. AIDS breaks out of HIV



when the immune system is weakened; after that, it gradually destroys it. The intake of melatonin could provide protection against an AIDS outbreak.

Melatonin stops ageing

Melatonin uses various mechanisms that rejuvenate our cells and make them live longer, not only in the fight against diseases (one often results from the other), but also against ageing. Conversely, the researchers have found almost total melatonin deficiency in children suffering from progeria (rapidly progressing obesity).[540] It is no coincidence that sleep is referred to as 'the daily makeover', which is visually manifested by a smoother skin alone, because the fluid and fat deposits under the skin are only filled during sleep. Sleep invigorates the entire organism and releases energy again; it relaxes and refreshes at the same time.

The researchers and pioneers in melatonin research, Prof. Dr. William Regelson and Dr. Walter Pierpaoli, presented the following thesis, which is comprehensible and well-confirmed by numerous studies in animal experiments and on humans:

The less melatonin is made available to the organism via the pineal gland, the lower the regenerative effect of sleep will be – and the less the cells and organs can regenerate, the more the wear will take hold and the faster the physical decay, which we perceive as 'physical ageing', will occur!

There are several phenomena that can be taken as evidence that melatonin can

[540] Beat René Roggen: Melatonin – ein Schlüsselhormon für gute Gesundheit, erholsamen Schlaf und langes Leben ('Melatonin – A Key Hormone for Good Health, Restful Sleep and Long Life'), 2007, p. 13



affect ageing:

- People with certain types of blindness live for an above-average length of time.

  ⇨The blinds have more melatonin, as it is known to be produced in the dark.

- Patients with Down's syndrome age very fast and only live to the age of 35 on average:

  ⇨Down's syndrome patients have been shown to have low levels of melatonin.

- A food withdrawal close to starvation tends to extend life in animal experiments;

  ⇨during starvation, an above-average amount of melatonin is released from the body.

Melatonin acts as an antioxidant against ageing

As one of the strongest antioxidants (radical scavengers) ever discovered, 50 times more potent than vitamin C, melatonin binds free radicals that attack our cells, causing us to age and leading to disease. Free radicals are caused by oxygen, nicotine, alcohol, environmental influences such as ozone, UV rays and X-rays, but also by intensive physical work. Moreover, melatonin not only proves to be the most effective antioxidant, but its effect on free radicals is remarkable and fundamentally different to that of other antioxidants such as



vitamins C, E, OPC, selenium, Q10, etc.

In contrast to other antioxidants, melatonin binds free radicals to itself, thereby creating a completely harmless bond (the other antioxidants themselves can mutate into free radicals) and transporting the harmless free radicals out of the organism. In this way, melatonin protects the cells and especially the nucleus containing the DNA. The latter determines whether a cell attacked by free radicals can regenerate or die. Many researchers today agree that human beings could reach the age of 120, and once growth is complete, they could avoid 100 % of free radical attacks. In its function as a very potent antioxidant, melatonin protects the cells from such attacks and thus prolongs the life of the cells.

Melatonin protects the body and prevents cell ageing

Furthermore, as a sleep hormone, melatonin reduces bodily functions to a minimum via its biochemical influence on our metabolism and thereby protects our cells. These now work more slowly, can regenerate better and thus live longer. Of particular importance in this context is the gentle cycle of our cardiovascular system and the nervous system that melatonin sets in motion.

Melatonin promotes cell division and thus tissue renewal

Cell division and thus the renewal of tissue can be only initiated in certain sleep phases. If sleep is disturbed or inadequate, this cell division cannot take place, which leads to a reduction in the lifespan of the individual organs and thus our own lifespan. Melatonin regulates our hormonal balance and thus spares the



functions of our body. Balanced hormones are crucial for a long life expectancy, as only hormonal balance can guarantee a harmonious and moderate, but not excessive use of our bodily functions. Physically and mentally overstrained bodily functions lead to premature ageing. This is exactly where melatonin can help, by optimising the interaction of hormones and regulating any imbalance.

Pineal gland as an 'ageing clock' which sets the signals for ageing

Probably the most essential factor, however, is probably the melatonin release of the pineal gland as a measure of ageing. Prof. Dr. William Regelson and Dr. Walter Pierpaoli, who have been mentioned numerous times already, are genuine pioneers in the research of melatonin in the fight against biological ageing. After about 30 years of intensive research into melatonin, both researchers see physical ageing not as an inevitable fate, but in the complementary intake of melatonin, they see an opportunity to not only slow down age-related cell decay, but even reverse it! Their pioneering work has set standards in the study of physiological ageing, as they succeeded in identifying the pineal gland as being responsible for the production of melatonin as an '*ageing clock*' which, in ageing itself, gives the order to all other cells to age as well. If the pineal gland ages, it makes little sense if other parts of the body do not do so at the same rate. By reducing melatonin production, the ageing pineal gland releases signals to other body cells to age as well. A downward spiral of cell ageing and declining bodily functions begins.

The proof:



In a sensational test, scientists transplanted the pineal glands of younger mice into older mice and the pineal glands of the older mice into the younger mice.

The older mice then lived twice as long as the younger mice! You could see a real rejuvenation: their muscles tightened, the fur became shiny and thick, and they were bursting with energy. They eventually lived to 1020 days, a biblical age for this mouse species, while the younger mice with the older pineal gland had hair loss, dull fur, and diminishing energy, and only lived 510 days.[541]

To be sure that this is related to melatonin production, melatonin supplementation to non-operated mice should provide evidence of anti-ageing effects.

The result:

Melatonin administration was able to extend the life of the mice by six months, while the comparison group (without melatonin) reached the typical age of 24-25 months, which corresponds to an amazing 25 % life extension and extrapolated to humans, represents 25 -30 additional years of life!

Long-lived and healthy with melatonin?

The general condition of the mice fed with melatonin, which remained healthy and energetic until their significantly delayed death, was also very promising, while the mice that were not fed melatonin looked sickly, in a manner typical

[541] Dr. Arnold Hilgers and Dr. Inge Hofmann: Melatonin – die Pille für Gesundheit und ewige Jugend? ('Melatonin – The Pill for Health and Eternal Youth?'), 1996, p. 11



for their age, and tumours were found after their death.

In summary, melatonin stimulated the following processes:

- the pineal gland function was restored so that it resumed the body's own melatonin production;
- as a result, the melatonin level rose again;
- the food intake and digestion of the mice normalised;
- the immune system was revived; cancer cells were successfully eliminated;
- the diminished sexual functions were re-established and
- the fur of the mice thickened and assumed the shine of a young animal.

Of course, the question arises as to whether these promising research results can also be applied to the 'human' genus. In fact, neither empirical nor experimental study data exist so far. The endeavour of certain powerful industries that are interested in degenerating people becoming ill, but not in healthy, long-lived humans, might make these investigations more difficult in the future.

On the other hand, we have the experiences of various hormone specialists and age researchers, who periodically prescribe melatonin for their patients over a long period of time and whose physical condition clearly indicates that the additional intake of melatonin slows down ageing and can defy the decay of organs with declining functions as well as age-related diseases.

In conclusion, there is much to suggest that an additional intake of melatonin, due to



- encouraging cell division during sleep,
- the regenerative measures (shifting the body functions to economy mode),
- the hormone control,
- the strengthening of the immune system and the
- antioxidant (cell-protecting) effect,

can contribute decisively to a longer and more vital life. There are also many indications that the pineal gland actually has a significant, if not decisive, influence on our ageing.

Regeneration of the pineal gland as the primary aim of melatonin intake

Over years of studies, the researchers Pierpaoli and Regelson were able to prove that the additional regular intake of melatonin not only slows down the onset of ageing and rejuvenates the human body, but at the same time can revitalise and regenerate the aged, functionally limited pineal gland over a longer period of use.

Since melatonin is absorbed very easily in the digestive tract after its ingestion, it passes very quickly into our blood and quickly reaches our body cells and the glands which are responsible for hormone secretion ('endocrine system'). Last but not least, it reaches the pineal gland itself, and it is there that it continues



its original task of supplying energy.

The high-energy adenosine triphosphate (ATP) replaces the production of harmful pyrophosphate (PPa). The mitochondria regain their energy in this way and can regenerate and resume their original function.

The pineal gland itself can also renew itself and resume melatonin production later on as in a younger body, even without additional intake of melatonin. Many people can therefore hope to go without taking additional melatonin one day, in order to naturally transfer the function of the body's own melatonin production back to the pineal gland.

The statement of Prof. William Regelson, who pioneered melatonin research after 30 years of research in immunology, biochemistry, oncology and pathology, speaks volumes:

'I am seventy years old. To my surprise, I suddenly became aware of my mortality. I cannot afford to wait another thirty years. I do not want to see my creativity, my ability to enjoy the beauty of this earth, and the sensual pleasure of my body destroyed by a process that our research shows to be reversible and even avoidable'.



Melatonin's effect against cancer

Melatonin works against breast cancer

Researchers at Tulane University Medical School, New Orleans, have shown that melatonin inhibits the growth of breast cancer cells.[542]

Blind women suffer less from breast cancer

In one study, researchers found that blind women, who typically produce more melatonin due to their blindness, are less likely to suffer from breast cancer.[543]

Melatonin inhibits breast cancer growth in the laboratory by up to 78 %

Steven M. Hill and David E. Blask showed in a study at the University of Arizona that the growth of a tissue culture of an oestrogen-sensitive human breast cell tumour (MCF-7) could be reduced by up to 78 %.

Studies show that melatonin prevents the onset of breast cancer in animal experiments

In several animal studies, researchers have been able to demonstrate that previously administered carcinogens, which would otherwise cause breast cancer

[542] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 33

[543] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 137



tumours, either prevented or at least delayed the onset of breast cancer in several animal species.[544]

Melatonin also inhibits the growth of other cancer cells in retort studies

Further retort studies have shown that melatonin also prevents tumour growth in other cancers.[545]

Melatonin inhibits the growth of prostate cancer by 50 %

In a study on rats at the University of Texas Medical School, it was demonstrated that the growth rate of prostate tumours could be reduced by 50 %.[546]

[544] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 33

[545] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 137

[546] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 138



Melatonin combined with IL-2 inhibits kidney, stomach, liver and skin cancer

At the San Gerardo Hospital in Monza (Italy), by administering melatonin to IL-2 patients in the very late stages of cancer (renal, gastric, liver and skin cancers), Dr. Paolo Lissoni succeeded in shrinking tumours and even in curing the cancer.[547]

Melatonin boosts chemotherapy and reduces its side effects

Oncologists in Milan demonstrated success with melatonin in combination with chemotherapy in a variety of ways. In their studies, melatonin reduced tumours while reducing the dreaded negative effects of chemotherapy.[548]

Cancer patients with a rising melatonin level after chemotherapy live longer

In a study, Dr. Paolo Lissoni succeeded in clarifying an interesting relationship between increasing melatonin levels after chemotherapy and the recovery of patients. In a study of 42 cancer patients, melatonin levels were studied before and four weeks after cessation of chemotherapy. In 16 patients whose melatonin levels had risen again after chemotherapy, the tumours receded in twelve cases and the remaining four did not enlarge. Out of 26 cancer patients whose melatonin levels had not recovered, only two patients showed improvement. According to Prof. Regelson and Dr. Pierpaoli, melatonin levels could be a

[547] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 141

[548] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 33



meaningful value in giving patient prognoses. [549]

Melatonin suppresses asthma in studies

According to a study conducted at the Hadassah Medical School of the Hebrew University in Israel, intravenous melatonin was found to be an 'excellent bronchodilator' in animal studies.[550]

Melatonin lowers cholesterol levels in studies

Several studies have shown that melatonin can lower high cholesterol levels.[551]

Melatonin strengthens the immune system in studies

Researchers Pierpaoli and Regelson injected mice with encephalomyocarditis virus, a virus that infects the inner wall of the heart, causing fatal inflammation. Next, the mice were given melatonin, which led to a suppression of the heart's typical inflammatory response and reduced mortality.[552]

Melatonin invigorates thyroid function

In animal experiments, the replacement of the pineal gland described above (old for new) as well as the addition of melatonin in the drinking water of ageing mice has demonstrated that melatonin can revive thyroid function.

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[549] Walter Pierpaoli und William Regelson, Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 41

[550] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 171

[551] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 133

[552] Walter Pierpaoli and William Regelson: Melatonin – Schlüssel zu ewiger Jugend, Gesundheit und Fitness ('Key to Eternal Youth, Health and Fitness'), April 1996, p. 125



Melatonin prevents cataracts in studies

According to the findings of the animal experiments of the two melatonin researchers, Prof. Regelson and Dr. Pierpaoli, none of the melatonin-treated mice succumbed to cataracts. It is therefore likely that melatonin can protect against cataracts.

Melatonin dosage

Of course, the correct dose of melatonin depends on the indication or concern for which melatonin intake is considered. The following table is intended to provide an overview of the corresponding effects one must expect for difference indications and doses. The table is based on the recommendations of the two melatonin researchers, Prof. Regelson and Dr. Pierpaoli. The values result from a calculated and averaged melatonin requirement.

Intake recommendation from Prof. Regelson and Dr. Pierpaoli		
Indication	**Dose**	**Additional note**
Anti-ageing (slowing down	40–44 years: 1 mg	The aim here is balancing the age-related loss
	45–54 years:	



ageing)*	1–2 mg	of melatonin. Melatonin fed into the organism from the outside supports the regeneration of the pineal gland and can thus reset the life clock to some extent.
	55–64 years: 2–3 mg	
	65–74 years: 3–6 mg	
	< 74 years: 4–6 mg	
Problems falling asleep	1–6 mg	Start with 1 mg; if sleep does not set in after 30 mins, add another 1 mg, if sleep still does not set in after 30 mins, add a third pill of 1 mg. Continue until you reach 5–6mg/day.



Disturbed sleep	1–6mg	Start with 1 mg; if this does not help, take 2 mg the next day; if sleep is still disturbed on the third day, take 3 mg, etc. until you reach a dose of 5–6mg.
Jet lag	1–6 mg	When you have arrived at the destination, take 3–6 mg at bedtime. Continue this dose for the next 3–4 nights until the inner body clock gets used to the new time zone. At home, repeat the same procedure



		if you experience jet lag.
Potency problems, lack of libido	Take an additional melatonin tablet 15–30 mins prior to sexual intercourse	
Prevention of diseases	See anti-ageing	One in two people dies of cardiovascular disease, one in four dies of cancer. For risk groups, it may be particularly appropriate to take mela-



		tonin preventively (even if a person is younger than 40 years old).
Therapy for diseases	Higher doses temporarily possible	Consult an experienced therapist

*If there is a family history of family members dying of cardiovascular disease or cancer, melatonin replacement therapy can have a meaningful preventive effect as early as the ages of 30-40. The starting dose for 40-44 year olds is recommended here.

Melatonin deficiency

How is a melatonin deficiency expressed?

In contrast to the positive effects that a sufficient melatonin supply offers one's health, melatonin deficiency triggers many symptoms, including fatigue, lack of resistance to stress, increased susceptibility to multiple diseases, general dysfunction and finally premature ageing.

Symptoms of melatonin deficiency



Melatonin deficiency leads to numerous symptoms that have a negative impact in many ways. These are either symptoms of certain disorders that are associated with a melatonin deficiency, or are due to the age-related functional weakness of the pineal gland, i.e. to biological ageing:

- Sleep disorders
- Susceptibility to colds
- Susceptibility to viral infections
- Mood swings
- Higher sensitivity to cold and heat
- Concentration problems
- Memory impairment
- Depression
- Lessening of digestion and urinary excretion
- Chronic fatigue syndrome
- Symptoms of time difference

External influences that promote melatonin deficiency

Electrical equipment and power lines, ultrasonic waves and magnetic fields; including

- microwave ovens



- wireless phones
- mobile phones
- TV sets
- bedside table clock radios
- personal computers
- high-voltage lines

Melatonin deficiency may be due to the proven rise in cancer rates and the enormous increase of certain diseases such as cancer, cardiovascular diseases, allergies, etc. within industrialised nations as a result of the factors and devices mentioned above.

Occupation and way of life: Certain occupations that do not allow for a controlled sleep-wake cycle (pilots, stewardesses, shift workers) are also at risk of melatonin deficiency. The vicious cycle takes its course when the falling melatonin level results in an increasing lack of energy in the cells. This lack of energy transfers to the pineal gland and contributes to the calcification and functional restriction of the pineal gland, which in turn shrinks and restricts its production of melatonin, which manifests itself in further lack of energy in the cells. The result of this vicious cycle is 'ageing', combined with all its unpleasant side effects and illnesses!

Can the melatonin level be measured to detect a deficiency?

According to Focus magazine, at eight years of age, the human body has the highest concentration of approximately 125 picograms per ml of blood, at age



16, it is still around 87 picograms/ml blood, at 45 it is only about 50 picograms/ml blood and at age 80 it is only 25 picograms/ml of blood.

Melatonin level measurement in blood: the fact that 1 picogram is only 1 trillionth of a gram makes it clear how small these amounts are. To complicate the blood measurement, melatonin is rapidly broken down by the liver and 85 % of the melatonin is excreted in the urine after just two hours.

Melatonin level measurement in urine: however, this is exactly where the chance of the most accurate measurement via urine lies, because the break-down product of melatonin in urine, called 6-sulphato-melatonin (6-SMT), can be detected very well chemically and correlates very well with the melatonin level in the blood (except for people with liver or kidney dysfunction).

What to do about melatonin deficiency

There are several potential courses of action against melatonin deficiency. Sufficient, undisturbed sleep is the ultimate prerequisite for stimulating your own melatonin level.

Disturbing, external factors that have an effect on the body's own production of melatonin (see above!) should be restricted as much as possible and, if possible, eliminated.

Certain fruits, vegetables and spices also contain melatonin. These include cherries, sunflower seeds, almonds as well as fennel and coriander.

In addition, one can and in certain cases should resort to taking melatonin



tablets/capsules. The goal is to regenerate the pineal gland in the medium to long term so that it can resume its melatonin production.

When is it too late to take melatonin

In short: NEVER! According to the research of Prof. William Regelson, Dr. Walter Pierpaoli and many other researchers, the chances are good even in people who have long passed their 45th birthday, over a longer period of regular melatonin intake, for the pineal gland to be revived and natural melatonin production to be stimulated to that of a much younger body. The endocrine system fulfils its tasks again, as it does in a young body, and many signs of ageing can be undone in this way.

Side effects of melatonin

From a chemical point of view, melatonin is a very simple amino acid synthesised from another amino acid called tryptophan, and serotonin, a messenger. Melatonin is made from these two substances when needed. Melatonin has been used in studies and research for many years and is used by millions of people every day in many countries, such as the Netherlands and the United States.

In the US and other countries, melatonin is approved as a nutritional supplement and is freely available in every health store. The US National Institutes of Health has repeatedly stated that taking melatonin poses no risk. Furthermore, there are researchers who, experimenting on themselves, have taken a



thousand-fold amount of melatonin, which corresponds to the melatonin levels of a teenager, without side effects, for more than ten years.[553]

To date, not a single case of serious illness, threat to life, let alone death due to taking melatonin has become known. This should be something to think about, especially since melatonin has been available as a dietary supplement over the counter in the US since 1994 and fortunately is now taken on a regular basis by more Americans than aspirin.

In none of their countless experiments and studies did Prof. William Regelson and Walter Pierpaoli detect unwanted side effects and even a high dose of 1000 mg/day could be tolerated by the subjects without problems.

Melatonin is not toxic and no toxic limit is known for melatonin. The only real risk lies in clean production. It is crucial to source products from reliable manufacturers. Furthermore, one should make sure that the melatonin is of synthetic origin.

Contraindications of melatonin

Generally, people with the following indications should refrain from taking additional melatonin or discuss any additional intake with a knowledgeable doctor or therapist beforehand:

- People under 35 years

[553] Dr. Arnold Hilgers and Dr. Inge Hofmann Melatonin – die Pille für Gesundheit und ewige Jugend? ('Melatonin – The Pill for Health and Eternal Youth?'), 1996, p. 21



- Pregnant, breastfeeding women
- People with kidney disease
- Cortisone patients
- Persons with auto-immune diseases
- People who suffer from depression

Since melatonin has a drowsing effect, it should only be taken at bedtime (20-40 mins before).

Interactions with other drugs

If you are taking any of the following medicines, consult your doctor or refrain from taking melatonin.

For the most part, these are medicines that interfere with the natural melatonin cycle (and therefore have side effects):

- beta blockers
- serotonin inhibitors
- antidepressants
- corticosteroids
- non-steroidal, anti-inflammatory drugs (NSAIDS) such as ibuprofen or aspirin



Are there interactions with hormone replacement therapy?

Melatonin does not negatively affect other hormone replacement therapies, such as taking oestrogen during menopause. According to the two melatonin researchers, Prof. Regelson and Dr. Pierpaoli, there are no interactions or other complications to consider!

MMS – MIRACLE MINERAL SUPPLEMENT

What is MMS?

The abbreviation MMS stands for:

Miracle Mineral Supplement

This is an extremely auspicious name for something that hardly anyone knows about. In fact, a whole load of positive effects are needed in order to even get close to justifying such a grand name!

If one believes the author of the book 'MMS: The Breakthrough', Jim Humble, who is also the person who has made MMS popular (MMS was first used by Dr. William Koch in 1926 and has been in use in the USA since the 1930s), then this '*miraculous*' remedy has already cured over 75,000 people suffering



from deadly diseases such as malaria, AIDS, cancer, hepatitis, herpes or tuberculosis.

The vast majority of Humble's experience with the mineral MMS was in Africa and Mexico, since MMS is not approved in the US or in Europe and certain powers seem to be keen for this to remain the case. According to Humble, the government of Malawi in South East Africa is said to have carried out tests with MMS with a cure rate of 99 %. Over 90 % of all treated patients recovered within a maximum of eight hours, and 60 % of AIDS patients treated in Uganda were symptom-free within three days, 98 % within one month. If his claims are confirmed, the ambitious name for the 'miraculous supplement' is quite justified – and there are many indications that support this. Read more in the following sections. But first to the protagonist – MMS, what are we talking about?

Miracle Mineral Supplement – what is it?

It will surely astonish you to read that the main ingredient of this miraculous Miracle Mineral Supplement is something you have been actively or passively confronted with countless times in your lifetime: CHLORINE DIOXIDE with the chemical formula (ClO_2).

We know chlorine dioxide from countless applications to disinfect water, it is used as a bacterial sanitiser in the food industry and is also used in the US as a disinfectant for chicken, beef and other meats.

More specifically, MMS consists of 28 % sodium chlorite powder dissolved in



distilled water. The sodium chlorite powder consists of 80 % sodium chlorite and 19 % sodium chloride, which we also know as 'common salt'. The remaining 1 % consists of various other sodium chemicals that have been classified as non-toxic. The actual amount of sodium chlorite in the finished preparation is thus 22.4 %. Since the Miracle Mineral Supplement (MMS) is neither an officially approved drug nor a dietary supplement, and all recommendations so far are based on observations from practice and not on the basis of regular studies, it must be stressed at this point that any use of MMS is at your own risk and all instructions and tips are for information purposes only!

Nevertheless, MMS can be easily obtained on the Internet in exactly the form described by Jim Humble, even though it is not formally declared for use by the human organism for the reasons given above.

Nonetheless, the right to information and free speech is undoubtedly one of the fundamental rights of every person living in a democracy – Jim Humble's book 'MMS: The Breakthrough' contains a number of letters and acknowledgements, including the addressee and contact address, which confirm the therapeutic success of MMS.

In the remainder of this section, you will find an extremely interesting statement on this topic by a renowned physician. A lot of evidence, albeit not officially recognised evidence, that speaks for the effectiveness of MMS, and the freedom to information and the ability to form your own opinion, should not be missed!



The entire Codex Humanus has dedicated itself to the purpose of disseminating this information, which is probably of interest to everyone. You can decide for yourself if and how you want to use it!

The discovery of the Miracle Mineral Supplement (MMS)

Convinced by his friend to seek gold in the jungles of South America, the 67-year-old Jim Humble packed all the essentials and did not forget the thing that most important for him:

stabilised oxygen!

Humble had learned from various sources that stabilised oxygen (technical term 'sodium chlori**te**' with the chemical formula $NaClO_2$, not to be confused with sodium chlori**de**) disinfects water – a property that can play a vital role, especially in the jungle where drinking water is contaminated with typhoid bacteria and other harmful parasites.

Experimental by his very nature, Jim Humble checked his friends' statements at home by adding stabilised oxygen to wastewater and sending a sample to a test lab.

The result of the laboratory analysis was: 'germ-free'!

With the certainty of being able to disinfect his drinking water with stabilised oxygen at any time when needed, he embarked on the expedition to South America.



Having arrived in the deepest Guyanese jungle, the area, contaminated by malaria, took its first victim among the companions of Jim Humble. With no medicines and being far away from civilisation, the life of two comrades was in acute danger. The two men were getting worse and worse and had nothing to lose except their lives, so they immediately agreed to try Humble's potion.

Humble administered both patients stabilised oxygen with some water. Within an hour, their chills stopped, and four hours later, the two were so well that they were even telling jokes and were able to join the other men on the expedition for dinner.

During the extended expedition, Humble's team travelled countless miles through Guyana. Humble did what one would expect of a good person, trying to cure malaria-infected and typhoid-affected locals with his stabilised oxygen.

For a long time, he could not cure every case with the mixture, but an impressive cure rate of 70 % made it the subject of discussion for thousands of miles, this rate exceeded the success rate of common malaria medicines.

Surprised by the success of what he called his 'health potion', Jim Humble told his friend Bob Tate on the phone about its healing effects on malaria. Both then decided to sell the potion in Guyana.

Some promotion via an ad in the local newspaper was intended to facilitate the launch. What the two of them did not expect at all was the response, which, among other things, included a television station sending reporters to the camp to interview Jim Humble about his 'miracle cure for malaria' A radio and a



newspaper reporter then followed.

It would only take a few days for Humble and his crew to be summoned by the Guyana Ministry of Health for an interrogation, which was followed by a ban on the sale of the potion under penalty of imprisonment. Knowing that the authorities would not follow him, Humble first delved into the deepest jungle and spent a few months exploring the gold mine he had discovered. He stayed there for half a year, and when the city had forgotten about the whole affair, he ventured to come back to freely take the next possible plane to the US.

What happened next

In the US, he continued to experiment with his stabilised oxygen; it was not until later that he found out that it was sodium chlorite. What he lacked, however, was clear evidence that his remedy was actually fighting malaria. He was to receive the opportunity to become his own guinea pig at this point, a little sooner than he might have wished for! Jim Humble landed in Guyana again for further gold exploration and promptly contracted malaria. Instead of being treated with the usual malaria tablets, he pushed it to extremes and was first transported to a hospital and had his blood taken.

The finding clearly confirmed the diagnosis of 'malaria', and, even at this stage, Humble renounced the usual medication; instead he administered his own mixture! And in testing it on himself, Humble confirmed the effect of Miracle



Mineral Supplement. Only a few hours later, he felt much better: he had another blood sample taken to record the change in black and white. There were no signs of malaria in the blood, and Jim Humble was now clear; his mixture definitely cured malaria!

Further tests of MMS followed via the internet

Humble got to know a man in Tanzania on the internet. Humble was able to persuade this person to treat some malaria-infected locals with his stabilised oxygen. As it turned out, Humble's mixture was quite successful in curing malaria, but not in all patients; a riddle that Humble wanted to solve!

Research and own tests improve the mixture

The search for the secret of why stabilised oxygen completely cured malaria in some people and not in others led Humble to the libraries and he performed research. He found out that his stabilised oxygen (sodium chlorite) had already been used in this form in 1926 on mentally ill children by a Dr. William Koch in Germany and reached the United States in 1930, where it was used by many other therapists or, mostly without specification of ingredients, was sold as a kind of 'miracle cure'. Eventually, he realised that the stabilised oxygen was by no means the oxygen available to man in the form of oxygen that is typically useful, but that it was an oxygen ion with the charge -2, a form that is no more useful to the body than the oxygen exhaled by us in the form of carbon dioxide. Obviously, it was not the oxygen that killed the malaria pathogens – but what else was it?



Humble was also able to find out that the active ingredient in the water gradually decomposed. Humble realised that the pH of the mixture had to be low; so he added 1 teaspoon of acetic acid, which is known to lower the pH, to 20 drops of the mixture. To allow the drug to completely decompose, he allowed the sample to stand for 24 hours. The subsequent odour test revealed a strong chlorine odour and confirmed to Humble that he was well on track.

On the internet, he managed to convince the doctors he had befriended in Tanzania to try out his new mixture on their malaria patients. The result was amazing and pleasing:

His new formula resulted in a 100 % cure rate!

An infinite number of further tests followed, which were accompanied by more or less great successes. With no water – just 20 drops of stabilised oxygen and ¼ teaspoon of vinegar – the mix seemed even better, but most importantly, the wait of two hours was reduced to just three minutes, which was impressively demonstrated by a test with a chlorine test strip. Without water, the mixture was barely tolerable in terms of taste – children in particular were afraid of it. So Humble experimented with different juices to conceal the taste of chlorine in his mixture, which takes getting used to; but it was crucial that these did not affect the chlorine content. Simple apple juice without added vitamin C proved to be optimal (vitamin C would have a disruptive effect as an antioxidant).

The mode of action of Miracle Mineral Supplement



Before we explain the effect of MMS on different diseases in detail, it is first of all of interest to explore its general mode of action. If sodium chlorite ($NaClO_2$) is mixed with an acid (e.g. vinegar, lemon or lime juice) chlorine dioxide (ClO_2 dioxychloride), a biocide, is produced which interferes with the metabolism of viruses and the transport of nutrients through the cell walls.

Chlorine dioxide robs the viruses and toxins of five of their electrons via oxidation, an oxidation process that leads to the death and subsequent disintegration of viruses or toxins.

According to Humble, chlorine dioxide is the *'most efficient killer'* of all viruses, bacteria, moulds, yeasts and other parasites. It is therefore no coincidence that it has been used successfully in hospitals and in the food industry for sterilisation for more than 100 years. There is probably no other chemical or medical substance that has a comparable effect; in combination with sodium chlorite and vinegar, these same forces are released in our body to eliminate unwanted microorganisms.

The chlorine dioxide molecule (ClO_2) also breaks down through this reaction and releases oxygen. The oxygen (O_2) combines either with the hydrogen (H_2) to form water (H_2O) or with carbon (C) to form carbon dioxide (CO_2). The charge of the chlorine ion is now neutral and enters into a connection with sodium, i.e. common table salt (NaCl).

From a previously very aggressive oxidation molecule, therefore, three harmless substances are formed via chemical reactions that take place in our body.



As these basic substances are produced, harmful parasites die off during this process.

Tasks of red and white blood cells

Our blood consists of red (erythrocytes) and white blood cells (leukocytes), which have different tasks to perform. The task of the red blood cells is the transportation of oxygen. The red blood cells absorb oxygen in the lung capillaries which they transport via the arteries to the organs.

The tasks of white blood cells (leucocytes) include the defence against pathogens and foreign substances that burden the organism.

So while the red blood cells take on the important task of oxygenating the body cells, the white blood cells protect us from hostile invaders (bacteria, viruses, fungi) and foreign substances and thus represent an essential part of the immune system.

Effect of MMS on our blood

The positive mode of action of Miracle Mineral Supplement is not only measurable by blood analysis when you are looking for active viruses, but it very impressive to watch live under a special microscope!

To put it in the words of Dr. Friedrich R. Douwes, specialist in internal medicine, oncological physician and medical director of the specialist clinic for internal medicine at St. George in Bad Aibling:



'Looking at the blood under a darkfield microscope reveals the invigorating effect of MMS. In contaminated blood, the surfaces of the red blood cells do not show clearly. Often, these are glued together, indicating excess acidity and a lack of water and minerals.

One and a half hours after taking 10 drops of MMS activated with acid, the same blood shows a marked improvement: the red blood cells are much less clotted and, more importantly, the white blood cells of the immune system move to the remaining clumps of crystallisation.

The corresponding footage shows that the white blood cells were 10x more active after taking MMS'[554]

The significance of these four sentences is made clear by the fact that humans can survive for up to 40 days without food, up to 5 days without water, and only a few minutes without oxygen. So oxygen is by far the most important substance for us. Since red blood cells, as we read above, are responsible for transporting oxygen into the cell, their regeneration and activation is extremely important to our health. The activation of the white blood cells, which are responsible for our immune system (defence against viruses, bacteria and other pests as well as foreign substances) by a factor of 10 makes this an all-round package. This would clearly prove the strong effect of MMS on our immune system and a general, cell-stimulating effect as well.

[554] http://www.kstg.net/publikationen/pdf/dr_douwes_informiert/2010-04_MMS_Wirkung.html



To summarise:

- MMS releases the power of chlorine dioxide, which is unbeatable in the disinfection of viruses, bacteria, moulds and other parasites.
- At the same time, it significantly activates the white blood cells; it strengthens the immune system.
- It supplies our cells more efficiently with oxygen via the red blood cells.

Three factors that could potentially have a positive impact on an improbably large number of diseases. It is almost impossible to name all these diseases in addition to the so-called incurable diseases such as cancer, AIDS, hepatitis, even a common cold, flu, pneumonia, sore throat, warts as well as inflammation in the oral cavity. Examples including the description of application are given in the next section 'Effects and application of MMS'.

Effect and application of MMS

Application tips by Dr. Douwes (Medical Director of the St. Georg Clinic):[555]

For a remedy that has not been screened for admission studies (due to unaffordable costs), there may be some assurance that you are learning about it from a medical professional who works as a doctor.

Dr. Douwes, like us, expressly points out that MMS is not an approved drug

[555] http://www.2012-blog.de/wp-content/gratisdownloads/Dr-Douwe.pdf



or dietary supplement and is exclusively taken at one's own risk!

Application tips according to Dr. Douwes:

- Start with 1-2 drops of MMS at bedtime.
- It should be taken 5-10 min before a meal or two hours after a meal, on an empty stomach in any case!
- Vitamins, as antioxidants, dramatically reduce the effects of MMS.

Put MMS in a drinking glass, maintain a 1:1 ratio between MMS and the activator (vinegar, citric acid 10 % or hydrochloric acid 9 %). For 1 drop of MMS, add 1 drop of the activating acid substance (see above!).

- Swirl the glass a little and allow the two substances to react with each other for exactly 3 minutes (use an egg timer or stopwatch!)
- After 3 minutes, immediately fill the glass with water and immediately drink the substance.
- If you are particularly averse to the smell of chlorine, you can also use grape juice (without added vitamins) instead of water.
- If no reaction occurs after 1 drop, for example in the form of nausea or diarrhoea, increase the dose to 2 drops the next day and drink in the morning and in the evening as described above.
- Maintain this dose for two days; if no unwanted reaction occurs, this dose can be increased to 6 drops (6 drops each of MMS and activator) 3 times a day.
- This dose of 3 x 6 drops a day can now be taken for a period of three



weeks.

- In case of side effects such as vomiting or diarrhoea or in case of severe dislike, avoid taking for one day.
- After a maximum of five weeks, take a break for two to three weeks to allow the body to recover from oxidative stress.
- Now you can and should eat plenty of fruit and vegetables, and vitamin supplements are also allowed again and are even advisable.

The following application examples are from Jim Humble's recommendations[556] and should be followed at your own risk (this must be emphasised repeatedly, since MMS is a poorly researched mixture – even though countless examples suggest that this is a harmless substance!)

The following applies for all application recommendations: The sodium chlorite is activated with vinegar, lemon or lime juice or with citric acid solution. The juices should contain no vitamin C, as this reduces the effect of the MMS!

Jim Humble's standard intake protocol

Jim Humble recommends the following intake schedule for general health issues (if you have serious medical conditions, another protocol applies, see below):

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[556] Jim Humble: MMS: Der Durchbruch ('The Breakthrough'), Mobiwell, 9th Edition 2010



Jim Humble's recommendations for general diseases

- Start with 1 drop of activated MMS.
- Increase the dose by one more drop if you feel no nausea.
- Take one dose in the morning and one in the evening.
- Increase the dose from one day to the next, one drop at a time.
- In case of nausea, lower the next dose by 1 drop, take this lowered dose 1-2 times and then try to increase the dose again.
- Gradually increase the dose until you take 3 x 15 drops. Then maintain this dose for at least one week.
- Following this, younger people should continue to take 4-6 drops of MMS 2 x weekly, older people should take 4-6 drops once a day.
- If you have diarrhoea reduce the dose by 2-3 drops. According to Humble, the diarrhoea is due to the cleansing and detoxification of the body and does not need to be treated. It stops by itself once the cleansing and detoxification is complete.

Jim Humble's MMS intake protocol for children

- Proceed as for the standard protocol (see above), with the difference that the children start with half the dose (discard half of the glass!).
- The maximum daily dose is 3 drops per 12 kg body weight.
- Infants should never take more than 2 drops/day.



MMS effect and use for malaria

No other disease has been cured as frequently by MMS as malaria. According to Jim Humble, the Miracle Mineral Supplement has already cured 75,000 malaria patients.

Considering that about 1 million people die each year from malaria, the fact that few doctors have ever heard of MMS, let alone find it widely used against malaria, is cause for consternation.

Application: 15 drops of MMS, another 15 drops of MMS after one to two hours. If symptoms have not resolved after four hours, add a third dose of 15 drops of MMS.

Effect and use of MMS for periodontitis and gum inflammation

In the case of gum infection and inflammation, MMS is extremely effective, and takes no time at all. An inflamed tooth, says Jim Humble, can be cured in as little as four hours, periodontitis and other infections disappear after one week at the latest, and after three weeks, the entire oral cavity can be expected to be completely healthy.

Effects and use of MMS against arteriosclerosis

Arteriosclerosis refers to a condition in which the blood vessels gradually become blocked due to deposits of cholesterol and calcium, which can lead to a heart attack or stroke. The prevailing opinion of conventional medicine that



arteriosclerosis cannot be reversed has been refuted by countless representative studies. According to Humble, MMS is very good at removing plaques in no time. In his book, he mentions that several people have reported that they have been able to use MMS to reduce cholesterol-related deposits in their arteries. Among them was a lady whose arteries were 80 % blocked and after 30 days of taking a dose of 15 drops of MMS 3 times, she was able to reduce her blockages to below 50 %!

Humble advises taking lots of vitamin C for several weeks to stabilise the arterial walls. Once the cholesterol is eliminated, the arteries regenerate.

Effect and use of MMS for heart disease

Many researchers suspect the Coxsackie B virus, which affects the heart muscle and leads to heart muscle inflammation, to be behind heart attacks. The heart is then limited in its function and can suffer an infarction. About 1/3 of all heart attacks are said to be due to this virus.[557]

Effect and use on herpes

Jim Humble recommends a phased intake over several weeks. Start with 1 drop and slowly increase until you take 2-4 drops 5-6 times a day. First results are expected after two weeks. Jim Humble recommends the combination of MMS

[557] Jim Humble: MMS: Der Durchbruch ('The Breakthrough'), Mobiwell, 9th Edition 2010, p. 124



with dimethyl sulphoxide (DMSO).

Effect and use of Miracle Mineral Supplement for Lyme disease

According to Jim Humble, Lyme disease can be controlled with MMS. Here, MMS has an immunostimulating effect; the best results are achieved in conjunction with citric acid.

Application: Jim Humble recommends an initial dose of 9-10 drops. The second dose should be 12 drops. Humble recommends up to 5 doses daily for healing.

Effect and use of MMS for HIV/AIDS

As can be read in the section 'Mode of action of MMS', taking MMS increases the activity of the white blood cells, which are responsible for the immune system, tenfold under the microscope. Jim Humble reports on 390 AIDS patients treated with MMS in Africa. 60 % of these patients felt so strong after just three days that they wanted to go home to work. The remainder took between 3 and 30 days and only *'2 did not return home'*. Due to a lack of money, no blood tests were conducted on these people, but Humble visited them a few months later, and they were still fine. Jim Humble also reports on AIDS patients in the US who have been given MMS intravenously and have undergone blood tests. Some of them later responded with the encouraging news that another blood test would not have confirmed the presence of the AIDS virus.



Application: Gradually and slowly increase the dose, as described in the application tips of Dr. Douwes (see above). The goal should be to drink an hourly dose of 3 activated MMS drops with water or juice. Here, too, it is necessary to lower the dose initially in the event of nausea or vomiting, but not to break off the treatment altogether.

Effect of MMS on diabetes

As with various forms of cancer (as a secondary factor!) and various forms of heart attack, many researchers believe that certain viruses are behind diabetes. The virus, which is occasionally blamed for diabetes, is called Coxsackie B virus. According to virus theory, this attacks the pancreas and causes pancreatitis with resulting diabetes.

Effect of MMS on arthritis

Apart from metabolic arthritis, there are several other types of it, including the bacterial-inflammatory form. Here, the bacteria migrate into the joint as a result of accidents or medical interventions and can lead to the destruction of the articular cartilage within a few hours or days. Worse still, they can spread to the rest of the body and, in extreme cases, even lead to kidney failure and death. In 50 % of all cases, it is a Staphylococcus aureus infestation, Staphylococcus epidermidis in 25 % of all cases and Streptococci in 15 % of all cases.

Another form of arthritis is fungus-related arthritis, which is usually triggered by the fungus species 'Candida krusei' and 'Candida parapsilosis'.



So-called post-infectious arthritis is caused by pathogens that are often not present at the location, so not directly in the joint, but still lead to the malfunction of the immune system and to arthritis, for example, due to Lyme disease bacteria. Since, like no other substance, MMS destroys all viruses, bacteria, fungi and parasites in no time, these forms of arthritis can be controlled in the long term.

Application: See Jim Humble's standard intake protocol above!

Effect and use for asthma

According to Humble, MMS can permanently cure asthma, though not always. An asthma attack, on the other hand, can be stopped within 10 minutes with MMS.

Application: Start with 2 x 2 drops after meals and gradually increase to 2 x 15 drops.

Effect and use of MMS for cancer

The immune-enhancing effects of MMS even work on cancer, and it's not just Jim Humble who believes Miracle Mineral Supplement is more effective than traditional therapies.

MMS cures pancreatic cancer

Humble describes his first experiences with MMS and cancer as extremely successful. One of his acquaintances suffered from pancreatic cancer. When the



doctors diagnosed a recurrence in the man, they wanted to operate on him. Humble's acquaintance, however, rejected this offer; instead, he decided to try treatment with chlorine dioxide, activated with vinegar!

Just two weeks later, the cancer levels, as confirmed by the blood test, had improved a lot. The Ca 19.9 value dropped from 82 to 71 at first, a month later it fell to 55, another two months later it fell to 29 and finally fell under 5. The doctors were very surprised, did not perform the operation and finally released the man as cured.

Use for cancer including leukaemia:

1 day: 2 drops of MMS in the morning, 3 drops of MMS in the afternoon.

2 days: 4 drops of MMS in the morning, 4 drops every 4 hours, then 4 drops every 2 hours.

According to Jim Humble, the dose should be steadily increased and the intervals between administrations should be reduced. Do not hesitate to increase the dose to 30 drops twice a day or 15 drops 4 times daily, if necessary. If nausea occurs, lower the dose and gradually increase it again as soon as the nausea has resolved.

Miracle Mineral Supplement successful against skin cancer

Skin cancer stands out among tumours in that its development on the skin is usually evident. For skin cancer, MMS is applied locally to the affected area of the skin; the cancer usually disappears within a week.



Use of MMS for skin cancer: 15 drops of MMS twice a day (Jim Humble reports of a friend who increased the dose to 25 drops and their melanoma disappeared after two weeks.[558])

Jim Humble's recommendations for cancer as well as other serious illnesses

- Start with 1 drop of MMS per day.
- If this does not make you sick, increase the dose to 1 drop twice a day (morning and evening).
- If you still do not feel sick, take 2 drops the next morning and 3 drops in the evening.
- Gradually increase the number of drops until you reach a number of drops which makes you feel sick. Then you should take fewer drops for the next dose and the one thereafter, and as soon as you no longer feel bad, try gradually to increase the dose again.
- The aim of this is to move the nausea threshold upwards and thus increase the number of drops.
- According to Humble, the nausea can be partly due to the fact that the cancer is decomposing and the body has to excrete the toxins.

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[558] Jim Humble: MMS: Der Durchbruch ('The Breakthrough'), Mobiwell, 9th Edition 2010, p. 127



In addition to nausea, this process of excretion can lead to diarrhoea and vomiting, which, according to Humble, is nothing negative, but an indication that the MMS is working if you can tolerate more and more drops.

- According to Humble, one should persist when treating cancer; start slowly, but then quickly increase the dose.

The goal should be to get MMS into the bloodstream as fast as possible while staying below the nausea limit!

- In severe cases, Humble recommends 3 activated drops

in a drinking glass ('activated' means 3 drops of 50 % citric acid or 5 drops of lemon juice mixed in the glass, stirred for a few seconds and left to stand for three minutes), topped up with water or juice and bottled, every hour for ten consecutive hours a day.

MMS in combination with dimethyl sulphoxide (DMSO)

In order to maximise the uptake of MMS in life-threatening diseases, Humble recommends combining MMS with DMSO. DMSO acts as a carrier and transports the MMS via the skin into the blood. DMSO is a common carrier which has been frequently used by doctors since 1955 to deliver medication through the skin into the body.

Humble relies on experience and various tests designed to prove that DMSO can reach into any region in the body and can invade the cancer cell. The theory is that the MMS mixed with DMSO transports the MMS into the cancer cells,



thus enabling a better penetration of the cancer cells. The dimethyl sulphoxide thus helps to transport the MMS into the cancer cell, where it then destroys the cancer cell from the inside. Administration via the skin should be in combination with oral administration as described above. To do this, proceed as follows:

- Make an MMS dose (as described above) with 10 drops of MMS +.
- Add 1 teaspoon of DMSO, swirl the jar for 15 sec.
- Immediately rub the mixture on your arm, leg or stomach (must be done immediately!).
- Repeat this procedure every hour or three times a day (on a different part of the body each time), then pause for four days, then repeat.
- If the affected area burns, massage in 1 teaspoon of water and apply aloe vera or olive oil after application.
- MMS is also taken orally throughout the entire period (including the four-day break!).

Intravenous use of MMS

In many cases, intravenous administration of MMS has been more successful than oral administration. Of course, intravenous use is exclusively a matter for physicians or knowledgeable therapists. For the first day, Humble recommends 1 drop of NON-activated MMS to 500 ml saline or glucose solution. Now wait one hour before inserting the drip. This should then be completed within two



to four hours. On the second day, you should increase the dose to 2 drops and on the third day to 6-8 drops. From there you should increase daily by 4-8 drops until you reach 22 drops.

External use of MMS

MMS can also be applied externally; Humble recommends spray bottles.

Application: 20 drops of MMS with 100 drops of 10 % citric acid solution. Wait three minutes and then pour everything together with 50 ml of water into a 50 ml spray bottle (available at any pharmacy). The resulting mixture can be used for four days before it loses its effect.

What can be done to counteract the taste of MMS, which takes getting used to?

Many people have a problem getting used to the taste of MMS. Quite a few people develop a veritable aversion during use, and just the thought of MMS brings them close to the limit of keeping their food down. Jim Humble reveals a 5-step strategy for using fruit juice to override the taste as much as possible:

Step 1:

Fill half of the glass into which the MMS solution is to be produced with juice. The juice should contain no vitamin C, as this reduces the effect of MMS. This is followed by 2 teaspoons of the 10 % citric acid solution.

Step 2:



Add another glass of ¼ of the same juice. This should solely be used for rinsing.

Step 3:

In the third and final glass, you prepare the MMS solution. As usual, 5 drops of citric acid solution are added per drop of MMS, followed by three minutes of waiting. Next, add half the glass of juice from step 1.

Step 4:

If you also want to conceal the taste, you can put a piece of confectionery (e.g. lemon or caramel confectionery) into your mouth even before drinking the MMS liquid.

Step 5:

The last and decisive step: Drink half the glass with MMS quickly without breathing and the drink the glass of juice without MMS immediately afterwards. Again, you should drink as much as possible without having to breathe in between. This is important because breathing oxidises the MMS in the mouth and reveals the taste.

Side effects of MMS

Is MMS (Miracle Mineral Supplement) only dangerous to harmful organisms?



At this point, it is important to emphasise once again that MMS is neither approved as a medicine nor as a dietary supplement and that the application is solely at one's own risk!

According to Jim Humble, the Miracle Mineral Supplement (MMS) is harmless to humans when used properly. This is explained by the fact that MMS only attacks and destroys microbes with a pH value of <7. Human blood has an acid value (pH value) of 7.35-7.45, which means that humans are protected.

Chlorine dioxide has been used around the world for over 70 years to kill germs and pathogens in water purification systems without harming benign bacteria. Chlorine dioxide is an oxidising agent in the truest sense that remains stable for only two hours until it breaks down into chloride (table salt).

However, one dose of MMS continuously releases chlorine dioxide ions over twelve hours; in other words − MMS develops its effect in the organism over twelve hours; it does not leave anything that would lead to side effects.

The side effects, which occur very frequently directly after drinking, include nausea. Some people have to vomit; however, according to Humble, this happens only once.

Jim Humble describes this as a positive indication that MMS works by explaining these side effects with the Herxheimer reaction. This refers to a situation where vast amounts of bacteria, viruses, fungi and parasites die suddenly, releasing toxic substances.



The reduction of the dose has been found to be a remedy, but a glass of cold water has proven itself as an immediate remedy. If this does not help, you should dissolve 1-5 g of vitamin C in water and drink it. Alternatively, Jim Humble recommends soda or an Alka-Seltzer tablet dissolved in a glass of water. Humble attributes a protective mechanism to the body: vomiting. He is convinced that even a very high dose could not do any serious harm, because you would simply vomit beforehand. He also states that overdosing may result in hospitalisation but death will not occur under any circumstances.

In case of overdose, drink plenty of water (at least 5 glasses) at once, optimally with vitamin C (5-6 g) dissolved in it, even if you vomit. The vomit flushes the MMS out of the body again.

Humble thinks an overdose would be so high that 50 drops of MMS would not cause one. But there are many people who would take 100 drops a day, even if Humble personally advised against it.[559]

Make your own MMS

Instructions for making your own MMS

It's easy to get ready-made MMS over the internet. However, for those who prefer to make it themselves using the individual ingredients, Humble introduces a guide that we would like to share with you.

The following instructions describe the production of 357 g of MMS. 100 g

[559] http://www.jimhumblemms.de/node/13



sodium chlorite gives exactly 357 g of MMS; hence the somewhat strange number! With 357 g, you receive around 1400 single doses of MMS, which is a quantity of MMS that can supply a whole family for years to come.

The required utensils

The following items are required to make the Miracle Mineral Supplement (MMS) yourself:

- A plastic bottle, at least 500 ml in size and as opaque as possible
- 950 ml of distilled water
- Measuring cup with spout
- A <1 litre saucepan
- A big plastic spoon
- A kitchen scale
- Some smaller bottles to fill with MMS
- 100 g sodium chlori**te** (not sodium chlori**de!**)

The production of the MMS solution

Step 1:

Weigh out 100 grams of sodium chlorite powder.

Step 2:



Add exactly 257 ml of distilled water to the saucepan.

Step 3:

Now add the weighed 100 g sodium chlorite powder to the saucepan.

Step 4:

Turn on the hob and stir with a plastic spoon until the powder has completely dissolved. The water should not boil, but should just be slightly heated!

Step 5:

Transfer the liquid into the measuring cup and fill the bottle with it. Screw the bottle cap closed and let the liquid cool down.

Step 6:

Transfer the liquid to the smaller bottles or leave it in one large one. According to Humble, the MMS lasts for two to four years in dark bottles when stored as prescribed. Since the dried sodium chlorite is highly flammable, you should immediately wipe off any spilled liquid.

MMS – the book

free download:



To maximise the dissemination of information about MMS, Jim Humble decided to provide you with parts of the two-part book, ""The Miracle Mineral Solution of the 21st Century" for free:

https://mijnstrijdtegenkanker.files.wordpress.com/2010/05/mms_part_21.pdf

OMEGA-3 FATTY ACIDS

What are Omega-3 fatty acids?

You have surely already heard that there are 'good' and 'bad' fats. Fats which, on the one hand, can cause illness in our affluent society – on the other hand, other fats which are vital for our organism. Few people are aware of the fact that, within the second group of good fats, there are also those who can act as true health-bringers. The latter undoubtedly include the omega-3 fatty acids, which affect important metabolic functions in the human body and, therefore, can aid both the prevention and treatment of several diseases, such as cancer, cardiovascular diseases, Alzheimer's, arthritis depression and asthma.

According to a study by Professor Michael Crawford of the Institute of Brain



Chemistry, omega-3 fatty acids in the womb affect the eyesight and intelligence of the embryo and their intake by the expectant mother can still determine whether the child, even in adulthood, will be prone to conditions such as cardiovascular disease.[560] Omega-3 fatty acids are therefore a natural substance that can significantly influence our life from its very beginning and protect against the number one cause of death (cardiovascular degeneration). According to numerous studies, just 30 g of fish per day can reduce the risk of a fatal heart attack or sudden cardiac death by half. This is already guaranteed with two to three fish meals per week.[561] Furthermore, recent study results indicate that omega-3 fatty acids have the immensely important, unique property of slowing telomere shortening on our chromosomes.

The telomeres act as 'protective caps' for our chromosomes, protecting our cells from ageing. Telomere length is considered by age researchers to be the unerring measure of biological ageing and the ability of omega-3 fatty acids to protect against telomere shortening is considered a clear indication that omega-3 fatty acids help our cells, and therefore us, remain young and prolong our life.

Omega-3 fatty acids: the name

Omega-3 fatty acids belong to the group of unsaturated fatty acids and, with 18 or more carbon atoms, are long-chain fatty acids. The first part of the name

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[560] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 22

[561] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 32



'Omega' comes from the last letter of the Greek alphabet and stands for the last carbon atom within the fatty acid chain at the methyl end. The first double bond at this end is located at the third carbon atom, which is the reason for the number 3 within the term 'omega-3 fatty acids'.

Good and bad fats

The 'good' fats are also called 'essential fatty acids', which are the fatty acids that are necessary for life, fatty acids that the organism cannot synthesise from other nutrients (such as fats, amino acids or water), therefore they have to be obtained solely through food. From a chemical point of view, all those fatty acids that contain at least one double bond distally (away from the carboxy group) from the 9th carbon atom are essential for humans.

Specifically, these are two fatty acids, namely omega-6 fatty acid (also called linoleic acid) and omega-3 fatty acid (linolenic acid). The essential fatty acids are polyunsaturated fatty acids. The body cannot make some of these polyunsaturated fatty acids with double bonds at specific positions itself.

From these two essential, vital fatty acids, the body produces other, very important fatty acids and derived products, including arachidonic acid, eicosapentaenoic acid and docosahexaenoic acid.

While we do not particularly have to worry about the supply of omega-6 fatty acids, as they are abundant in our diet, omega-3 fatty acids pose a particular challenge because they are rare in the modern diet we are accustomed to. If our original diet was previously balanced in terms of omega fatty acids, today



it is anything but balanced.

According to the 2004 Nutrition Report of the German Nutrition Society, men consume only 250 mg EPA/DHA per day on average, women only 150 mg EPA/DHA (see below for details). The optimal ratio of omega-6 fatty acids to omega-3 fatty acids would be between 2:1 and 4:1. In fact, today's ratio is up to 20:1, which is harmful to our health and needs to change.

Among the most important omega-3 fatty acids are

Alpha-linolenic acid (ALA): Alpha-linolenic acid (ALA) is triple-saturated and occurs in linseed oil, rapeseed oil and walnut oil.

Eicosapentaenoic acid (EPA): Eicosapentaenoic acid (EPA) is quintuple-unsaturated and comes from the fat of cold-water fish, such as mackerel, herring or salmon.

Docosahexaenoic acid (DHA): Docosahexaenoic acid (DHA) is a sextuple-unsaturated fatty acid from fish oils and some algae.

As omega-3 fatty acids are found mainly in oily cold-water fish, such as herring and mackerel, and in vegetable oils, such as linseed oil, rapeseed oil and soybean oil, these foods should be given adequate consideration within an individual diet to ensure adequate nutrition and physiological balance of the omega fatty acids to each other. The importance of a sufficient supply of omega-3 fatty acids becomes clear when one becomes aware of their functions and tasks,



which are important for hormone production, cell metabolism, protein synthesis, the formation of endogenous defence cells and the metabolism of the synovial fluid. Therefore, it is not surprising that omega-3 fatty acids have a great positive effect on our health and can positively affect even chronic diseases such as diabetes, rheumatism and Alzheimer's and can also prevent heart attack, atherosclerosis and even cancer.

On the following pages, you will learn everything worth knowing about omega-3 fatty acids. You will learn more about its occurrence, its preventive and therapeutic effects up to the explicit application for specific diseases or for their prevention, supported by representative studies.

Healthy fats vs. unhealthy fats – a little digression

While it is common, in our affluent society, for dietary fats to be seen as the main culprit for the epidemic-like development of obesity, it is all too often overlooked that dietary fats are indispensable and vital to our health. Fats are vital components of our diet. They provide 9 kcal of energy to the body per gram and are the prerequisite for the absorption of so-called fat-soluble vitamins, which include the vitamins A, D, E and K. As components of cells and building blocks of some hormones, building blocks of the cell membrane and precursors of hormone-like regulatory substances, fats are crucial for metabolic processes and our biochemical balance.

Fats take on some vital functions, including the function of

- Saturation: High-fat diets saturate faster than low-fat diets.



- Insulation: Subcutaneous fat protects the body from cold.
- Protection: The internal organs are protected from mechanical influences by fatty tissue.
- Construction: Fat is involved in building cell membranes.
- Provision of fat-soluble vitamins A, D, E and K.
- Precursor of hormone-like regulatory substances.

Saturated and unsaturated fatty acids

Saturated fatty acids

Fatty acids are loaded with carbon atoms and hydrogen atoms. If all carbon atoms of a fatty acid are saturated with hydrogen atoms, we have a 'saturated fatty acid'.

Saturated fatty acids can increase our cholesterol levels and cause atherosclerotic changes to our blood vessels, so they should only be consumed in moderation.

Saturated fatty acids are mostly of animal origin and occur in:

- butter
- hard cheese
- cream
- lard



- beef tallow
- meat and sausages
- palm kernel fat
- coconut fat

Unsaturated fatty acids

If at least two adjacent carbon atoms are linked by double bonds, we have an 'unsaturated fatty acid'. Again, we distinguish between 'monounsaturated fatty acids' and 'polyunsaturated fatty acids'.

Monounsaturated fatty acids occur in:

- olive oil
- peanut oil
- rapeseed oil
- sesame oil
- avocado

If there are several of these double bonds, it is an 'polyunsaturated fatty acid'. Some of the polyunsaturated fatty acids are among the essential fatty acids that must be taken in food because they cannot be produced by the body.

Polyunsaturated fatty acids occur in:



- nuts
- crops
- linseed oil
- sunflower oil
- almond oil
- soybean oil
- corn oil
- safflower oil
- hazelnut oil
- pumpkin seed oil

The quantity and the right ratio are crucial!

Maintaining optimal health depends on both the right amount of fat and the correct ratio of different fats.

Recommended fat quantity: Our food consists of the three macronutrients 'fat', 'protein' and 'carbohydrates'. The proportion of fats in relation to the other two macronutrients 'protein' and 'carbohydrates' should be a maximum of 35 %. With 2000 kcal consumed daily, this equates to about 77 g of fat per day.

Recommended ratio of fatty acids to each other: Nutritionists recommend a supply of fats consisting of:



- 1/3 animal fats (milk and milk products, meat and sausage products);
- 1/3 from monounsaturated fatty acids (olive oil, rapeseed oil) and
- 1/3 polyunsaturated acids (salt-water fish, rapeseed oil, linseed oil, walnut oil).

It is recommended to eat two servings of salt-water fish every week; opt for linseed, rapeseed and walnut oil instead of the omega-6 rich sunflower, safflower and corn oil to maintain a healthy ratio of omega-3 fatty acids to omega-6 fatty acids.



Omega-3 fatty acids vs. Omega-6 fatty acids

Arachidonic acid is a polyunsaturated fatty acid that belongs to the category of omega-6 fatty acids. Arachidonic acid is usually supplied via animal fats in food, but can also be formed by the body itself from other fatty acids. The most important function of arachidonic acid is the synthesis of tissue hormones. An excess of omega-6 fatty acids, for example, proves problematic in inflammatory diseases such as rheumatism and arthritis. This excess of arachidonic acid or omega-6 fatty acids in practice is the rule in our modern diet rather than the exception. The result is a mismatch between the omega-6 fatty acids and the omega-3 fatty acids, which is extremely problematic from a health point of view.

Eicosapentaenoic acid (abbreviated to EPA) is an omega-3 fatty acid and is the natural antagonist (counterpart) of arachidonic acid, an omega-6 fatty acid. The EPA fatty acid is mostly found in fatty salt-water fish and displaces the arachidonic acid within the metabolism as soon as it is in the right proportion to the omega-6 fatty acids, thus counteracting the harmful and painful inflammation. Thus, to benefit from the health benefits of omega-6 fatty acids without doing harm to yourself, it is crucial to pay attention to the balanced ratio of the two fatty acids to each other. It is desirable to have a ratio of omega-6 fatty acids to omega-3 fatty acids of between 3:1 and 5:1.

Omega-3 fatty acids – what do the experts and the press say?

'There is no more important nutrient for protecting against heart disease – and none are more



frequently absent from our diet than omega-3'. (Dr. William Harris, USA)

'The most striking effect of omega-3 fatty acids is the reduction in triglycerides. They are reduced by up to 60 %'. (Dr. Susanne Engel, Nutrition Officer, Berlin)

'Omega-3 fatty acids decrease arachidonic acid levels, lower blood pressure, decrease leukotriene B4 production, and inhibit the inflammatory component of atherosclerosis'. (Professor Dr. P.C. Weber, Ludwig Maximilian University of Munich)

'*There is no antiarrhythmic drug (drug for the treatment of cardiac arrhythmias) which so clearly preserves the life of people suffering from arrhythmias like omega-3 fatty acids – and with virtually no side effects'*. (Dr. Volker Schmiedel, Habichtswaldklinik Kassel)

'Fish oil, especially that of salmon, not only helps combat atherosclerosis, but also inflammation and allergies. In addition, it has demonstrated its efficacy against arthritis (rheumatism) in scientific studies'. (Harvard Medical School Health Letter 10, 1986)

'The aforementioned variety of anti-atherogenic effects is achieved by no other natural substance (other than omega-3 fatty acids) and no drug'. (Dr. Peter Singer)

'*...there is clear evidence that essential omega-3 fatty acids could be the most potent factors with cardiac-protective function in the human diet. Optimal omega-3 intake can have a profound effect on safely reducing the risk of heart disease and promoting health in men, women and children of all ages'*. (Dr. William E. Butler, Harvard Medical School)

'*Just fatty cold-water fish or their oil is particularly valuable for the body. Reason: polyunsaturated omega-3 fatty acids make the blood flow better'*. (Apotheken-Schaufenster 9, 1997)



'Several studies have found a significant reduction in the mortality rate of heart patients who consumed fish oil (salmon oil)'. (Vital 10, 1997)

'The diet of our modern civilisation is extremely low in omega-3 fatty acids. If you do not want to die of a fatty heart, you should definitely take fish oil capsules, e.g. from salmon. Fish oil compensates for all nutritional deficits and makes us healthier and happier people'. (Prof. S. K. Niazi, University of Illinois, USA)

'Children who have difficulty concentrating and are hyperactive often suffer from a lack of essential polyunsaturated fatty acids. The omega-3 fatty acids contained in salmon oil can compensate for this deficiency'. (Purdue University, Indiana, USA)

'One to two fish meals a week or regular supplementation with salmon oil can have a beneficial effect on asthma. As a team of researchers from Campertown, Australia established, the omega-3 fatty acids they contain protect against hyper-responsiveness of the bronchi and asthma. Vitamins C and E also show similar effects'. (Nature and Healing 11, 1996)

'In 10 clinical trials, 200 patients showed an improvement in psoriasis symptoms (erythema, infiltration, dandruff, itching). According to all previous findings, the recommendation of fish oil preparations, at least for the adjuvant treatment of psoriasis, is justified'. (Dr. M. Ständer, Specialist Clinic for Psoriasis, Bad Bentheim)

'Unfortunately, our body is unable to produce sufficient quantities of long-chain omega-3 fatty acids. We therefore have to obtain them through food. However, we would have to eat 10 times more fish than is usual today. Since this is not for everyone, I recommend salmon oil concentrates as an alternative option'. (Prof. Dr. Olaf Adam, Walther Straub Institute for Pharmacology and Toxicology, Munich)



'Through the intake of omega-3 fatty acids, the cell functions can easily be positively influenced. (....) The polyunsaturated omega-3 fatty acids also exhibit antithrombotic and anti-inflammatory effects by creating a balance with arachidonic acid, the most biologically active omega-6 fatty acid'. (Apotheker Journal, 9, 1997)

'...omega-3 deficiency is the Number Eight cause of avoidable deaths in the USA, and with omega-3 education, we can prevent these unnecessary deaths and promote wellness. The intake of omega-3 fatty acids reduces overall mortality by 20 % and the incidence of sudden cardiac death by 45 %, and has recently been associated with longer life, whereby higher omega-3 levels over 5 years are associated with decreased telomere shortening'. (Dr.med. Carol Locke, USA)

'Salmon oil fatty acids relieve excess cholesterol and lipid levels, improve blood flow and normalise blood pressure'. (Prisma 22, 1997)

'The omega-3 fatty acids contained in salmon oil lower high blood lipid levels. In particular, the neutral fat is reduced. On the other hand, there is an increase in HDL cholesterol. This eliminates important risk factors for myocardial infarction. This effect can only be achieved by a permanent intake'. (Dr. Peter Singer, Internist, Bensheim)

'Omega-3 fatty acids are vital nutrients that we need to ingest on a regular basis, just like vitamins. They are required for the development of the brain and visual function of the unborn child, so a good supply of omega-3 fatty acids is important during pregnancy. Their effects on adults are also very diverse. They keep your heart and blood vessels healthy and protect against heart attacks. They relieve inflammatory diseases such as rheumatism and neurodermatitis and can probably also improve our mood and prevent the onset of dementia in old age'. (Dr



Singer, internist and biochemist)

Scientific investigations and studies on omega-3 fatty acids

There are more than 15,000 studies on omega-3 fatty acids worldwide that testify to their high health benefits for the cardiovascular system and metabolism.[562]

Omega-3 fatty acids protect our telomeres from shortening and thus prolong life

In the period from September 2000 to January 2009, US researchers investigated the leukocyte telomeres of 608 heart patients within the substudy of the large 'Heart and Soul Study' at the start of the study and then after five years. It was found that those patients who had the highest concentration of omega-3 fatty acids in the blood showed the slowest telomere shortening rate. This was 0.05 T/S units during the observation period of five years.

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[562] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 32



Conversely, those patients who had the lowest omega-3 fatty acid concentration in their blood had the fastest telomere shortening rate of 0.13 telomere-to-single-copy ratio T/S. This is a completely new aspect because it had previously been thought that omega-3 fatty acids only activated the telomerase of cancer cells. The researchers explain this phenomenon with the protection of cells by omega-3 fatty acids from harmful oxygen radicals.[563]

Omega-3 fatty acids is able to reverse arteriosclerosis

Arteriosclerosis is without a doubt the main cause of cardiovascular disease, including heart attack and stroke. To be clear: Nothing is responsible for more deaths in industrialised countries than arteriosclerosis! In a clinical study on 233 patients in 1999, Prof. Dr. von Schacky proved that there was a detectable reduction in arteriosclerotic changes over a period of 24 months due to the administration of 6 g of fish oil concentrate.[564]

Two to three fish meals per week preventively reduce heart attack mortality by 50 %

According to a Dutch study in 1985, involving 852 men and stretching over a 20-year period, heart attack mortality rates were reduced by 50 % compared to non-fish eaters.[565]

Deaths after heart attacks reduced by 29 %

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[563] Farzaneh-Far R. et al.: JAMA January 3, 2010; 303 (3) pp. 250-257

[564] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 45

[565] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 32



In a 1989 two-year study of 2,033 men who had suffered myocardial infarction, Dr. Michael Burr (England), found that those participants who either consumed plenty of fish or fish oil capsules had 29 % fewer deaths than the control group.[566]

Sudden cardiac death prophylactically reduced by 40-45 % with omega-3 fatty acids

According to a US study at Boston's Harvard Medical School on more than 45,000 participants with no previous cardiac problems, a daily intake of 250 mg EPA/DHA reduced the risk of sudden cardiac death by 40-50 %![567]

Heart attack and stroke reduced by 30 %, sudden cardiac death decreased by 45 %

A large-scale study of 11,000 patients from 172 Italian hospitals provided evidence of the protective effect of omega-3 fatty acids. The heart attack and stroke rate dropped by 30 % compared to the control group, and sudden cardiac death dropped by as much as 45 %.[568]

Omega-3 fatty acids reduce triglycerides by 30 %

Similar to cholesterol, triglycerides are considered to be a cause of atherosclerosis, often leading to serious cardiovascular diseases and dreaded heart attacks. Omega-3 fatty acids have the ability to limit the production of triglycerides in the liver. According to studies by Professor Dr. Michael Gibney, 1 g of

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[566] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 22

[567] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 34

[568] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 35



omega-3 fatty acid per day was able to achieve a 25-30 % triglyceride reduction![569]

Omega-3 fatty acids and their effect on inflammatory diseases

In one study, omega-3 fatty acids reduced the incidence of inflammatory diseases.[570]

Omega-3 fatty acids in studies on arthritis and rheumatism

Increasing the ratio of omega-3 to omega-6 fatty acids has been shown to lower the incidence of rheumatoid arthritis in studies.[571]

Omega-3 fatty acids and their effect on arthritis and chronic joint arthrosis

Omega-3 fatty acids counteract the inflammatory state. Here, the omega-3 fatty acids EPA and DHA (omega-3 fatty acid) displace the inflammatory arachidonic acid (omega-6 fatty acid) from the lipid membrane of the cell and thus prevent the formation of excessively damaging eicosanoids 2 and prostaglandin E2.[572]

US study recommends 3 g fish oil a day for rheumatoid arthritis

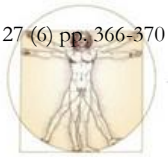
According to a US study, taking 3 g of fish oil every day has a positive effect

[569] Professor Dr. Michael Gibney, 1999

[570] http://www.ncbi.nlm.nih.gov/pubmed/20500789

[571] http://www.ncbi.nlm.nih.gov/pubmed/20500789

[572] Ariza-Ariza R. et al.: Sem in Arth and Rheumat, 1998, 27 (6) pp. 366-370



on rheumatoid arthritis.[573] In 1995, Dr. Paul Fortin and his team of scientists in Boston analysed eleven clinical trials that evaluated the benefits of omega-3 fatty acids in arthritis. He was able to confirm these positive studies collectively.[574]

Omega-3 fatty acids and their effect on arthritis, inflammatory bowel disease, asthma and primary sclerosing cholangitis

In inflammatory diseases with autoimmune components such as rheumatoid arthritis, inflammatory bowel disease, asthma, or primary sclerosing cholangitis, a reduction in pro-inflammatory mediators suggests a therapeutic effect.[575]

Omega-3 fatty acids benefit the treatment of inflammatory diseases and allow a reduction in the medication dose.

Enteric nutrition with omega-3 polyunsaturated fatty acids provides better treatment for chronic inflammatory diseases such as inflammatory bowel disease, atherosclerosis, pulmonary fibrosis, or rheumatoid processes than drugs alone, thereby allowing for a reduction in the dose of anti-inflammatory drugs which have numerous side effects.[576]

Omega-3 fatty acids reduce the incidence of inflammatory bowel disease in studies

In one study, increasing the ratio of omega-3 to omega-6 fatty acids decreased

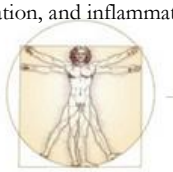
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[573] Kremer J. M., AAm J Clin Nutr. 2000, 71 (1 Suppl) pp. 349-351

[574] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 60

[575] Calder P. C.: n-3 polyunsaturated fatty acids, inflammation, and inflammatory diseases. Am J Clin Nutr., 2006 Jun; 83 (6 Suppl.) pp. 1505-1519.

[576] http://www.ncbi.nlm.nih.gov/pubmed/16771071



the incidence of inflammatory bowel disease.[577]

Omega-3 fatty acids have a strengthening and antitumour effect on cancer patients

Studies have shown that EPA and DHA have an antitumour and strengthening effect in cancer patients.[578]

Omega-3 fatty acids reduce the risk of prostate cancer

As studies have shown, increased levels of EPA and DHA in the blood reduce the risk of contracting prostate cancer.[579]

[577] http://www.ncbi.nlm.nih.gov/pubmed/20500789

[578] Gogos, C. et al.: Cancer, 1998, p. 82

[579] AHF launches nutritional intervention study to combat prostate cancer, Primary Care and Cancer, 1996, p. 33 f.



Omega-3 fatty acids increase the effect of radiotherapy and reduce its damage

The use of EPA and DHA on brain tumours in animal experiments improved the healing effect and reduced the radiation damage to the skin.[580]

Omega-3 fatty acids and their effect on multiple sclerosis (MS)

The increase in omega-3 fatty acids and simultaneous lowering of omega-6 fatty acids has a positive effect on the further development of multiple sclerosis, especially at the beginning of the disease.[581]

Omega-3 fatty acids and diabetes

Diabetics are known to be at great risk of suffering from cardiovascular disease. Omega-3 fatty acids are veritable protective agents that counteract cardiovascular diseases. Some studies have even shown improvements in insulin resistance.[582]

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[580] Hopewell JW et al.: Br J Cancer, 1993, p. 68 (1)

[581] Mayer M.: Folia Biologica, 1999; 45, pp. 133-141; therapy report

[582] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 66



Omega-3 fatty acids help with headaches and migraine

Studies support the theory that the administration of 4 g of EPA and DHA across multiple doses per day helps with headache and migraine.[583]

Omega-3 fatty acids reduce stroke risk by 30 %

One study found that people taking omega-3 fatty acids were about 30 % less likely to have ischemic stroke.[584]

Omega-3 fatty acids successful against bronchitis, asthma and other respiratory problems

The lung mucus of asthma sufferers has a disproportionate amount of inflammatory messengers, which are formed from the arachidonic acid of omega-6 fatty acids. Omega-3 fatty acids are considered to be antagonists of omega-6 fatty acids, and correcting the mismatch with additional omega-3 fatty acids therefore improves respiratory distress.[585] Omega-3 fatty acids are a powerful drug, even in severe respiratory distress cases, according to respected American journal *Critical Care Medicine*.[586]

[583] McCarren T. et al.: Am J Clin Nutr, 1985; 41, p. 874a

[584] Iso H. et al.: Linoleic acid, other fatty acids, and the risk of stroke. Stroke, 2002, 33, pp. 2086–2093

[585] Boughton K. S. et al.: Am J Clin Nutr. 1997

[586] Critical Care Medicine, 1999, 27. pp. 1409-1420



Omega-3 fatty acids and tinnitus

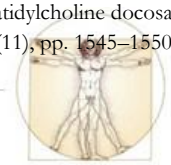
In a large study, researchers were able to prove that people with strikingly low DHA levels are particularly susceptible to tinnitus. This is probably due to the disturbed flow of the blood in the inner ear.[587]

Omega-3 fatty acids help against Alzheimer's and cognitive disorders

Higher levels of eicosapentaenoic and docosahexaenoic acid are associated with lower risk of cognition loss and dementia, according to several studies.[588]

[587] House JW et al.: Patient Care, 1991; April 15, pp. 82-96

[588] Morris M. C. et al.: Fish consumption and cognitive decline with age in a large community study, Arch Neurol, 2005 Dec; 62 (12), pp. 1849–53; Heude B. et al.: EVA Study: Cognitive decline and fatty acid composition of erythrocyte membranes – The EVA Study; Am J Clin Nutr., 2003 Apr; 77(4), pp. 803–808; Schaefer E. J. et al.: Plasma phosphatidylcholine docosahexaenoic acid content and risk of dementia and Alzheimer disease: the Framingham Heart Study, Arch Neurol., 2006 Nov; 63 (11), pp. 1545–1550



Omega-3 fatty acids are neurologically and psychologically efficient

Omega-3 fatty acids play an essential role in the structure and function of the brain and eyes. The intake of omega-3 fatty acids leads to changes in dopaminergic function, regulation of hormone systems, alteration of intracellular message systems, and increased dendritic branching and synapse formation.[589]

Omega-3 fatty acids effective against depression in studies

One study has shown that unipolar depression and bipolar disorder are more common in people with a low intake of omega-3s and low levels of eicosapentaenoic acid and docosahexaenoic acid.[590] In another study, Belgian researchers found significantly lower levels of EPA and DHA (the relevant omega-3s) in 50 patients with depression.[591]

[589] Freeman MP et al.: Omega-3 fatty acids: evidence basis for treatment and future research in psychiatry, J Clin Psychiatry, 2006; 1954–1967

[590] Freeman MP et al.: Omega-3 fatty acids: evidence basis for treatment and future research in psychiatry, J Clin Psychiatry, 2006; 1954–1967

[591] Maes M. et al.: J of Affect Disor, 1996; 38, pp. 35-46



Lack of omega-3 fatty acids leads to more frequent suicide attempts

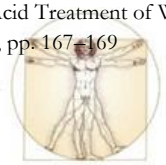
Low levels of omega-3 fatty acids are associated with higher susceptibility to suicide.[592]

Omega-3 fatty acids help with borderline personality disorder

Evaluations of intervention studies in people with borderline personality disorder have shown that eicosapentaenoic acid and docosahexaenoic acid (omega-3 fatty acids) can reduce hostility, aggression, and depression.[593]

[592] Sublette ME: et al.: Omega-3 polyunsaturated essential fatty acid status as a predictor of future suicide risk, Am J Psychiatry, 2006 Jun; 163 (6), pp. 1100–1102

[593] Freeman MP et al.: Omega-3 fatty acids: evidence basis for treatment and future research in psychiatry, J Clin Psychiatry, 2006; pp. 1954–1967; Zanarini M. C. und Frankenburg F. R.: Omega-3 Fatty Acid Treatment of Women With Borderline Personality Disorder: A Double-Blind, Placebo-Controlled Pilot Study. Am J Psychiatry, 2003; 160, pp. 167–169



Omega-3 fatty acids help against schizophrenia

Schizophrenia patients showed a much more stable mental state compared to the group that did not consume fish oil.[594]

Omega-3 fatty acids help with psychosis

After a four-month intake of fish oil, the mood of the affected psychosis patients was considerably more stable than that of the comparison group, including rare psychotic relapses.[595]

Omega-3 fatty acids help against dementia and Alzheimer's

Dementia increases with falling fish consumption: low DHA levels are always observed in the blood of both Alzheimer's sufferers and dementia patients. A Dutch study on 5,000 people aged 55 years and older showed after 21/2 years of observation that those who ate little fish were at risk of dementia.[596]

Dementia decreases with increasing omega-3 fatty acid levels: a significant improvement in dementia was observed after 12 months of DHA administration.[597]

Omega-3 fatty acids and their effect on attention deficit hyperactivity disorder (ADHD)

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[594] Peet M. et al.: Prostagl Leukot Essent Fatty Acids, 1996

[595] Stoll A. L. et al.: Arch Gen Psychiatry, 1999; 56 (5), pp. 407–412

[596] Kalmijn S. et al.: Annals of Neurology, 1997; 42 (5), pp. 776-782

[597] Terano T. et al.: Lipids, 1999; 34 (Suppl), p. 345 f.



People with attention deficit and hyperactivity disorders were found to have lower omega-3 fatty acid levels than healthy people.[598]

Another study found that omega-3 fatty acids increase dopamine levels in the brain; they act like the common stimulants used to treat ADHD; the effect has proven to be long-term.[599]

Omega-3 fatty acids in children with ADHD have a comparable effect to conventional medicines

In clinical trials in which children with attention deficit received approximately 0.6 g of omega-3 fatty acids, the long-term treatment effects (over approximately three to six months) were similar to those of conventional medication.[600]

Omega-3 fatty acids combat osteoporosis

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[598] Antalis C. J. et al.: Omega-3 fatty acid status in attention-deficit/ hyperactivity disorder, In: Prostaglandins Leukot. Essent. Fatty Acids 75, pp. 299–308 PMID 16962757

[599] Sinn N. and Bryan J .: Effect of supplementation with polyunsaturated fatty acids and micronutrients on learning and behavior problems associated with child ADHD, In: J Dev Behav Pediatr 28, 2007, pp. 82–91 doi:10.1097/01.DBP.0000267558.88457.a5. PMID 17435458; Richardson A. J. und Montgomery P.: The Oxford-Durham study: a randomized, controlled trial of dietary supplementation with fatty acids in children with developmental coordination disorder. In: Pediatrics 115, 2005, pp. 1360–1366 doi:10.1542/peds.2004–2164 PMID 15867048; Frölich J. und Döpfner M.: The treatment of attention deficit/hyperactivity disorders with polyunsaturated fatty acids – an effective treatment option? In: Z Kinder Jugendpsychiatr Psychother ('Z Children Youth Psychiatry Psychother') 36, 2008, pp. 109–116 doi:10.1024/1422-4917.36.2.109 PMID 18622940 (Review)

[600] Sinn N. and Bryan J .: Effect of supplementation with polyunsaturated fatty acids and micronutrients on learning and behavior problems associated with child ADHD, In: J Dev Behav Pediatr 28, 2007, pp. 82–91 doi:10.1097/01.DBP.0000267558.88457.a5. PMID 17435458; Richardson A. J. und Montgomery P.: The Oxford-Durham study: a randomized, controlled trial of dietary supplementation with fatty acids in children with developmental coordination disorder. In: Pediatrics 115, 2005, pp. 1360–1366 doi:10.1542/peds.2004–2164 PMID 15867048; Frölich J. und Döpfner M.: The treatment of attention deficit/ hyperactivity disorders with polyunsaturated fatty acids – an effective treatment option? In: Z Kinder Jugendpsychiatr Psychother ('Z Children Youth Psychiatry Psychother') 36, 2008, pp. 109–116 doi:10.1024/1422-4917.36.2.109 PMID 18622940 (Review)



Calcium is known to be the most important building material for our bones. If the bones lose calcium, they become porous and prone to breakage – this disease is called osteoporosis. Observations have shown that people who consume a lot of omega-3 fatty acids actually have a higher bone density. Omega-3 fatty acids thus increase the uptake of calcium in the intestine, activate the osteoblasts and deactivate the bone-degrading osteoclasts.[601]

Omega-3 fatty acids help against kidney disease

Ingestion of omega-3 fatty acids has been shown to be beneficial in studies on glomeruli inflammation (smallest kidney filter unit) and IgA nephropathy (IgAN).[602]

Omega-3 fatty acids help against lupus erythematosus (SLE)

High doses of omega-3 fatty acids were effective against lupus erythematosus; even lower doses are helpful in the early stages.[603]

Omega-3 fatty acids help with Crohn's disease

One study found that omega-3 fatty acid levels were below the norm in Crohn's disease patients compared to the control group; the researchers suggested increasing the consumption of fish oil to counteract Crohn's disease.[604]

Omega-3 fatty acids help against gastric and duodenal ulcers in studies

Omega-3 fatty acids effectively fight the bacterium 'helicobacter', which affects

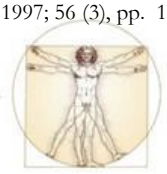
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[601] Claasen N. et al.: Bone, 1995; 16 (Suppl), pp. 385-392

[602] Thaiss F., Deutsches Ärzteblatt (German Medical Journal), 2000; 97 (41), pp. A2708-A2711

[603] Mohan IK et al.: Prostagl Leukot Essent Fatty Acids, 1997; 56 (3), pp. 193–198

[604] Siguel E. et al.: Metabolism, 1995; 45 (1), p. 12 f.



the mucous membranes of the stomach and duodenum, forms ulcers and suppresses their reproduction. According to studies, helicobacter is particularly prevalent in people who consume low amounts of omega-3 fatty acids in their diet.[605]

Omega-3 fatty acids strengthen vision in studies

In a study, Australian researchers have found that just a single fish meal per week can reduce retinal degeneration and maintain vision.[606]

Effect of omega-3 fatty acids on eczema and psoriasis

Researchers recommend omega-3 fatty acids to prevent flaky, dry skin as well as eczema and psoriasis.[607]

Studies show effects of omega-3 fatty acids against tinnitus

According to a large study, people with a noticeably low DHA level are especially susceptible to tinnitus. This is probably due to the disturbed flow of blood in the inner ear.[608]

Omega-3 fatty acids beneficial in studies on kidney disease

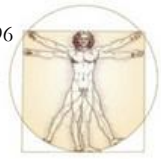
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[605] Manjari V. et al.: Prostagl Leukot Essent Fatty Acids, 1998

[606] Werkman S. et al.: Lipids, 1996; 31 (1), pp. 91-97

[607] Bjorneboe A. et al.: Br J Dermatol, 1987

[608] House JW et al.: Patient Care, 1991; April 15, pp. 82-96



The ingestion of omega-3 fatty acids has been shown to be beneficial in studies on glomeruli inflammation (smallest kidney filter unit), IgA nephropathy (IgAN).[609]

Omega-3 fatty acids help with insomnia

According to a study, omega-3 fatty acids can regulate the formation of the 'biorhythm hormone' melatonin and provide for restful sleep.[610]

Effect of omega-3 fatty acids on night blindness

Regular dietary supplementation with DHA may, according to studies, counteract night blindness.[611]

Omega-3 fatty acids help against viruses

Omega-3 fatty acids help against many viral diseases, such as herpes simplex virus.[612]

Omega-3 fatty acids successful during pregnancy

Omega-3 fatty acids reduce the risk of premature birth

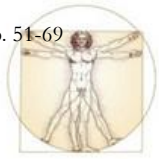
Premature birth is less common if supplementation of omega-3 fatty acids is

[609] Thaiss F., Deutsches Ärzteblatt (German Medical Journal), 2000; 97 (41), pp. A2708-A2711

[610] Zhang H. et al.: Lipid Res, 1998; 39, pp. 1397-1403

[611] Stordy BJ: Am J Clin Nutr, 2000; 118, pp. 401-404

[612] Omura Y., Acupunct Electrother Res, 1990; 15 (1), pp. 51-69



commenced before the 33rd week of pregnancy.[613]

Postpartum depression falls with intake of omega-3 fatty acid

Postpartum depression rarely occurs in people characterised by high fish intake or high levels of breast milk in DHA.[614]

Omega-3 fatty acid intake during pregnancy increases the children's intelligence quotient

In an intervention study, four-year-old children whose mothers consumed 2 g eicosapentaenoic acid and docosahexaenoic acid every day during pregnancy had IQs which were 4 points higher than controls.[615]

Complex brain performance in children taking omega-3 fatty acids during breast-feeding

In children whose mothers took eicosapentaenoic acid and docosahexaenoic acid during lactation, a better complex brain performance was found.[616]

Brain development in children promoted by omega-3 fatty acids

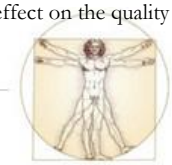
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[613] Akrides M. et al.: Marine oil, and other prostaglandin precursor, supplementation for pregnancy uncomplicated by pre-eclampsia or intrauterine growth restriction. Cochrane Database Syst Rev, 2006; 3: CD003402; Olsen S. F. et al: Duration of pregnancy in relation to fish oil supplementation and habitual fish intake: a randomised clinical trial with fish oil. Eur J Clin Nutr, 2007 Feb 7, e-pub

[614] Hibbeln J. R.: Seafood consumption, the DHA content of mothers' milk and prevalence rates of postpartum depression: a cross-national, ecological analysis. J Affect Disord, 2002; 69, p. 15

[615] Helland IB et al.: Maternal supplementation with very-long-chain n-3 fatty acids during pregnancy and lactation augments children's IQ at 4 years of age. Pediatrics, 2003; 111, pp. e39–44

[616] Jensen Craig L.: Effects of n-3 fatty acids during pregnancy and lactation. In: Am J Clin Nutr. 83, 2006, pp. 1452–1457; Bouwstra H. et al.: Long-chain polyunsaturated fatty acids have a positive effect on the quality of general movements of healthy term infants. Am J Clin Nutr, 2003; 78, pp. 313-318



Brain development is more favourable in children with higher levels of eicosapentaenoic acid and docosahexaenoic acid.[617]

Effect of omega-3 fatty acids

To understand the wide-ranging effects of omega-3 fatty acids, it is important to first be aware of the physical functions that omega-3 fatty acids influence. These are:

- hormone production
- cellular respiration
- cell metabolism
- protein synthesis
- widening of the bronchia
- improvement in oxygen supply to the organs
- dilation of the blood vessels
- protection of blood vessels from atherosclerosis
- formation of the body's own defence cells
- increase in performance
- increase in resistance
- protection against infectious diseases

[617] Jensen Craig L.: Effects of n-3 fatty acids during pregnancy and lactation. In: Am J Clin Nutr. 83, 2006, pp. 1452-1457; Dunstan JA et al.: Cognitive assessment at 2½ years following fish supplementation in pregnancy: a randomized controlled trial. Arch Dis Child Fetal Neonatal Ed, 2006 Dec 21, e-pub



- better metabolism of synovial fluid
- inhibition of inflammation
- protection of telomeres from shortening

Because these are crucial bodily functions that omega-3 fatty acids can influence positively, the broad benefits of taking omega-3s on a regular basis, both prophylactically and therapeutically, become evident.

In studies, omega-3 fatty acids showed a positive effect on:

- Diabetes
- Rheumatism
- Cardiovascular disease
- Atherosclerosis
- Dyslipidemia
- Alzheimer's
- Joint pain
- Asthma
- Bronchitis
- Other respiratory diseases
- Attention Deficit Hyperactivity Disorder (ADHD)
- Depression



- Psychosis
- Dementia
- Psoriasis and eczema
- Neurodermatitis
- Kidney disease
- Viral infections
- Poor eyesight
- Sleep disorders
- Stomach ulcers
- Duodenal ulcers
- Inflammatory bowel disease
- Gastritis
- Crohn's disease
- Blurred vision
- Sleep disorders
- Multiple sclerosis
- Migraine, headache
- Lupus erythematosus (SLE)
- Osteoporosis



- Premenstrual syndrome (PMS)
- Cancer/tumours (colon cancer, prostate cancer,
- Breast cancer, skin cancer)
- Premature ageing

How do Omega-3 fatty acids work?

The omega-3 fatty acids have different mechanisms of action, and it is precisely this that gives them their broad effect spectrum.

Their mechanism of action on our telomeres and our cardiovascular system is impressive, not least due to the fact that the telomere length is a measure of biological age and that cardiovascular disease is the Number One reason for premature death in industrialised nations.

Protective effect of omega-3 fatty acids on our telomeres proves life-prolonging

According to a study by US researchers in the period from September 2000 to January 2009, omega-3 fatty acids protect our telomeres from shortening. Telomeres act as 'protective caps' on our chromosomes.

Telomere length is a marker of our biological age; with each cell division, the telomeres become shorter until further shortening is impossible and the cell dies.

Omega-3 fatty acids appear to stop this! Researchers measured the length of



leukocyte telomeres from 608 cardiac patients within the substudy of the large 'Heart and Soul Study' at the beginning of the study and then after five years.

It has been found that those patients who had the highest concentration of omega-3 fatty acids in the blood had the slowest telomere shortening rate. This was 0.05 T/S units during the observation period of 5 years.

Conversely, those patients who had the lowest omega-3 fatty acid concentration in their blood had the fastest telomere shortening rate of 0.13 telomere-to-single-copy ratio T/S.

The researchers believe the reason for this phenomenon is the protection of the cells by omega-3 fatty acids against harmful oxygen radicals that attack our cells.[618]

Obviously, omega-3 fatty acids act at the cellular level and so can keep us young and prolong our lives! More long-term human studies are needed to show the extent of this; in animal studies, supplementation with EPA/DHA has extended the life of the mice by as much as one third.[619]

Effect of omega-3 fatty acids on the cardiovascular system

Omega-3 fatty acids:

- lower cholesterol,

[618] Farzaneh-Far R, et al.: JAMA January 3, 2010; 303 (3), pp. 250-257

[619] www.hiv-und-aids.de/content/aktuelles/fischoel_verlangsamt_auch_das_altern/index_ger.html



- especially 'bad' LDL cholesterol,
- lower triglycerides,
- increase 'good' HDL cholesterol,
- prevent constrictions of the blood vessels,
- improve blood flow to the heart vessels,
- increase the oxygenation of the heart,
- reduce deposits on the intima (inner skin of the blood vessels),
- protect the blood vessels and thus counteract atherosclerosis,
- can prevent heart attack and stroke and prevent repeat heart attacks,
- improve the fluidity of the blood,
- help to normalise high blood pressure,
- support the heart in arrhythmia and
- protect against sudden cardiac death.

The Greenland Paradox

Under the direction of Dr. H.O. Band and Dr. J. Dyerber, who investigated the dietary habits and health of Greenland's Eskimos in the late 1970s, a sensational observation was made which initially seemed very contradictory:



Despite an extremely high intake of fat in their diet, Eskimos, statistically, suffered only very rarely from atherosclerotic cardiovascular diseases.

The initially paradoxical phenomenon could be clarified by the researchers: It was due to the large amount of omega-3 fatty acids that Eskimos consume in fish and seal meat – something that apparently protects them from atherosclerosis, and thus from heart disease.

The critics' question as to why Eskimos have lower life expectancies has also been clarified by the fact that young Eskimos are often the victims of fatal accidents, something that distorts the statistics.

Observations from countries that traditionally also have high fish consumption, such as Japan, underpin this theory. This is how the Japanese reach the highest age worldwide. In Portugal, comparisons of the same population, with one group living on the coast and the other group living inland, showed a fourfold lower mortality rate within the coastal population compared to the inland population, which can also be attributed to higher fish consumption. They had lower triglyceride levels, as well as lower total cholesterol and LDL cholesterol.[620]

Effect of omega-3 fatty acids on high cholesterol

[620] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 35



Omega-3 fatty acids lower the bad cholesterol VLDL by about 20-40 % and regulate the mismatch between the 'good' HDL and the bad LDL cholesterol and VLDL cholesterol.

Effect of omega-3 fatty acids on high blood lipid levels/triglycerides

Like cholesterol, triglycerides are one of the causes of atherosclerosis and often lead to serious cardiovascular diseases, including dreaded heart attacks.

Omega-3 fatty acids have the ability to limit the production of triglycerides in the liver. According to studies by Professor Dr. Michael Gibney, a daily intake of 1 g of omega-3 fatty acid reduced triglycerides by 25-30 %!

A dose of approximately 4 g of EPA and DHA over a period of at least three months is recommended.

Effect of omega-3 fatty acids on high blood pressure

High blood pressure (<140/90 mmHg) is a risk factor for atherosclerosis, heart attacks, narcoleptic attacks and kidney failure. Omega-3 fatty acids have ten different mechanisms of action that lower blood pressure; these include:

- dilation of capillaries and arteries,
- increase in circulation to the kidney,
- mitigation of the effects of hypertensive hormones (norepinephrine, thromboxane) and
- reduction of blood pressure-promoting electrolytes such as sodium,



calcium.[621]

Therapeutically, a dose of about 4 g of EPA and DHA over a period of at least three months is recommended.

Effect of omega-3 fatty acids on cardiac arrhythmias

Omega-3 fatty acids have a positive influence on cardiac arrhythmias through various mechanisms. For example, they attach directly to the ion channels in the cell membrane of the heart muscle cell, which is responsible for the contraction of the heart muscle fibres, and reduce the excitability of these channels and thus the ventricular fibrillation.

Omega-3 fatty acids can reverse arteriosclerosis

Arteriosclerosis is considered the main cause of cardiovascular disease, including heart attack and stroke. Nothing brings about as many deaths in industrialised countries as atherosclerosis! In 1999, in a clinical study on 233 patients, Prof. Dr. von Schacky showed that the administration of 6 dg of a fish oil concentrate over a period of 24 months brought about a detectable reduction in atherosclerotic changes.

Effect of Omega-3 fatty acids on current risk of heart attack

Omega-3 fatty acids reduce the death rate due to a heart attack by 30 %; a dose of at least 1 g of EPA and DHA is recommended as a preventive measure.

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[621] Prof. Dr. Michael Hamm and Dirk Neuberger: Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea'), 2006, p. 40



Effect of omega-3 fatty acids on cardiac bypass

There is a decrease in serum TG values of about 19 %, with a consequent lower likelihood of reocclusion.

Effect of omega-3 fatty acids on current risk of stroke

Omega-3 fatty acids reduce the death rate from stroke by 30 %, with a recommended dose of at least 1 g EPA and DHA.

Perfusion-enhancing effect

The prerequisite for the supply of each body cell with enough oxygen and nutrients is sufficient blood circulation. Blood transports the nutrients and oxygen to the place of action – to the body cell. A heart attack is the result of a lack of blood flow to the heart, a stroke is the result of a lack of circulation in the brain. Any body tissue dies within a few minutes as soon as its circulation is insufficient.

Omega-3 fatty acids improve the flow properties of the blood through several mechanisms:

- they dilate the blood vessels,
- they improve blood viscosity (viscous blood becomes thinner),
- they increase the elasticity of red blood cells,
- they stabilise cardiac arrhythmias and
- they prevent thrombosis (blood clots).



Effect of omega-3 fatty acids on inflammatory diseases such as rheumatism

The relatively high proportion of omega-6 fatty acids (e.g. as arachidonic acid in meat) develops a constant excess of inflammatory messengers at the molecular level. As counterparts of omega-6 fatty acids, omega-3 fatty acids gradually reduce these inflammatory substances (mediators) and thus have a positive effect on diseases such as arthritis, rheumatism, neurodermatitis, psoriasis, colic and others. The EPA and DHA contained in omega-3 fatty acids displace the inflammatory arachidonic acid from the lipid membrane of the cell and thus prevent the formation of excessively damaging eicosanoids 2 and prostaglandin E2.[622]

Effect of omega-3 fatty acids on arthritis

Our modern diet causes us to eat meat, sausage, eggs, milk and dairy products – an excess of messenger substances that lead to inflammatory reactions in the body. These messengers include eicosanoids, which are formed from the polyunsaturated fatty acid 'arachidonic acid'.

Omega-3 fatty acids prevent inflammatory mediators and joint swelling. EPA (omega-3 fatty acid) binds the active ingredients that make up the inflammatory messengers and displace the harmful arachidonic acid from the cells.

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[622] Ariza-Ariza R. et al.: Sem in Arth and Rheumat, 1998: 27 (6), pp. 366-370



For therapeutic purposes, a dose of at least 1-5 g of EPA and DHA over a period of six months is recommended, as well as a diet rich in vegetables, fruits, low-fat dairy and milk products, rapeseed oil, walnut oil and linseed oil, plenty of marine fish, but as little meat as possible, if any, and no eggs. You should also take vitamin E and selenium. In severe cases, kombucha fungal tea relieves the symptoms very successfully. However, according to Professor Olaf Adam, it takes at least four weeks for the metabolic processes to change accordingly and to have a noticeable effect.

Effect of omega-3 fatty acids on rheumatism

Inflammatory pain and joint swelling is prevented, and morning joint stiffness ('start-up pain') subsides. It is recommended to use <2.8 g of EPA and DHA a day for a period of 12 months.

Effect of omega-3 fatty acids against arteriosclerosis

The intake of omega-3 fatty acids prevents the adhesion of platelets and improves the flow of the blood. For therapy purposes, a dose of approximately 3-6 g of EPA and DHA is recommended over a period of six months.

Effect of omega-3 fatty acids on diabetes

Diabetics are at high risk of suffering from cardiovascular disease. Omega-3 fatty acids are veritable protective agents that counteract cardiovascular diseases. According to some studies, insulin resistance could even be improved.



Omega-3 fatty acids and their effect against gastric and duodenal ulcers

Omega-3 fatty acids effectively fight the bacterium 'Helicobacter', which affects the mucous membranes of the stomach and duodenum and forms ulcers.

Omega-3 fatty acids fight the bacterium and suppress its reproduction. Helicobacter is particularly prevalent among people who consume few omega-3 fatty acids through their diet.[623]

[623] Manjari V. et al.: Prostagl Leukot Essent Fatty Acids, 1998



Omega-3 fatty acids combat osteoporosis

Calcium is known to be the most important building material for our bones. If the bones lose calcium, they become porous and prone to breakage – this disease is called osteoporosis. Omega-3 fatty acids increase the absorption of calcium in the intestine, activate the osteoblasts and deactivate the bone-degrading osteoclasts.

Omega-3 fatty acids help with attention deficit hyperactivity disorder (ADHD)

People with attention deficit and hyperactivity disorders can benefit greatly from regular omega-3 fatty acid intake, as omega-3 fatty acids increase dopamine levels in the brain. They act in a similar way to the stimulants commonly used to treat ADHD. Incidentally, the effect has proven to be long-term.

Omega-3 fatty acids work against ADHD (attention deficit) and dementia

Both individuals with ADHD and dementia suffer from a decreased DHA level. Both target groups consume little fish. Omega-3 fatty acids can re-regulate neurotransmitters in the brain. In addition to omega-3 fatty acids, Prof. Dr. Michael Hamm, in his highly recommended book 'Omega-3-Active – Health from the Sea', also recommends magnesium and zinc.

Omega-3 fatty acids have a beneficial effect on the immune system

Omega-3 fatty acids regulate the production of so-called cytokines, signalling



proteins that control the immune system by transmitting information.

Effect of omega-3 fatty acids on neurodermatitis and psoriasis

Omega-3 fatty acids lower the receptor formation of leucocytes IL-2 from mitogen-stimulated lymphocytes, which may even lead to the condition being completely cured.

Omega-3 fatty acids strengthen vision in studies

According to Australian researchers, just one single fish meal per week can reduce retinal degeneration and maintain eyesight. This effect is attributed to docosahexaenoic acid (DHA) found in fatty marine fish and certain algae, which plays an important role in neurological, mental and CNS disorders.

Effect of omega-3 fatty acids on night blindness

Regular supplementation with DHA can counteract night blindness (see also above 'Omega-3 fatty acids strengthen vision in studies').

Effect of omega-3 fatty acids on eczema and psoriasis

To avoid flaky, dry skin and eczema and psoriasis, researchers recommend omega-3 fatty acids. For chronic inflammatory diseases, such as psoriasis, the intake should be long-term.

Effect of omega-3 fatty acids against neurodermatitis

If omega-3 fatty acids help with eczema and psoriasis, it seems likely that they



will also help with neurodermatitis. Therapeutic experience and pharmacological studies suggest that omega-3 fatty acids also help against neurodermatitis.

Omega-3 fatty acids work against insomnia

According to a study, omega-3 fatty acids regulate the formation of the 'biorhythm hormone' melatonin and allow for a restful sleep.

Effect of omega-3 fatty acids during pregnancy

Omega-3 fatty acids consumed during pregnancy already promote the subsequent IQ of the child, the nervous system, growth, vision and immune system. On top of this, they can protect against cardiovascular disease later in life. Due to the crucial importance of omega-3 fatty acids, these are also found in abundance in breast milk. Therefore, infant formula enriched with DHA should be welcomed, particularly with premature babies and non-breastfed infants, according to Professor William Connor.[624] From the 4th month of pregnancy at the latest up to and during breast-feeding, the mother should take about 2 g DHA and EPA.

Omega-3 fatty acid effect on migraine and headache

As omega-6 fatty acids, eicosanoids play an important role in the management of pain. They act as pain mediators and sensitise people to mechanical, chemical and thermal stimuli, lowering the pain threshold. Acting as opponents to

[624] Prof. Dr. Michael Hamm and Dirk Neuberger, Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3-Active – Health from the Sea'), 2006, p. 23



the omega-6 fatty acids are the omega-3 fatty acids, which can accordingly prevent this lowering of the pain threshold. A daily intake of 4 g of EPA and DHA is recommended to decrease the intensity and duration of the pain. Furthermore, omega-3 fatty acids inhibit the development of inflammatory pain mediators in the body.

Effect of omega-3 fatty acids on brain performance

Increased blood flow to the brain improves brain function and prevents dementia. About 1/5 of our brain fat and the fat mass of our nervous system consists of docosahexaenoic acid (DHA), which is found in fatty marine fish and in certain algae. Omega-3 fatty acids play an important role in the central nervous system, neurological and psychological areas.

Effect of omega-3 fatty acids against depression

The intake of omega-3 fatty acids increases the serotonin level and can therefore effectively prevent depression. It has also been observed that people suffering from depression have an unfavourable ratio of omega-3 to omega-6 fatty acids.

A regular sufficient intake of omega-3 fatty acids, which act as mood boosters, can very effectively counteract depression in many cases.

Postnatal depression (postpartum depression)

Depression, which affects the mother immediately after the birth of her baby,



affects about 10 % of all new mothers. This depression can be directly attributed to the mismatch mentioned above, namely, when the mother has had to divert most of the DHA to the unborn baby during pregnancy.

Omega-3 fatty acids help combat psychosis

Studies show that after about a four-month intake of fish oil, the mood of psychotic patients was considerably more stable than that of the comparison group. The phases typical of the disease occurred less frequently.

Effect of omega-3 fatty acids on menstrual problems

With longer-term use (six to twelve weeks), a relief of the typical premenstrual symptoms (PMS) is possible. We recommend 1.8 g of EPA and DHA.

Effect of omega-3 fatty acids against cancer

The immune function is improved and cancer growth is inhibited, particularly in the case of breast cancer, colon cancer and oesophageal cancer. According to a Spanish study, one to two fish meals per week can reduce the risk of cancer. People who prefer to eat fish, therefore, succumb 50 % less frequently to cancer of the gastrointestinal tract, 30 % less frequently to ovarian cancer and 20 % less frequently to uterine cancer.[625] The death of about half of all deceased cancer patients is not directly attributable to damage by the cancer, but to the depletion and exhaustion of the body, also called 'cachexia'. Studies have shown that EPA and DHA can significantly improve quality of life and extend

[625] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 40



life.[626] Approximately 1.8 g of EPA is recommended over a period of six months.

Effect of omega-3 fatty acids against prostate cancer

It has been scientifically proven that regular intake of omega-3 fatty acids reduces the risk of prostate cancer. In addition, the *Health Foundation* recommends increasing the amount of omega-3 fatty acids in the diet.[627]

Effect of omega-3 fatty acids against breast cancer

In a comparative study of the risk of Japanese and North American women developing breast cancer, a fivefold lower risk of breast cancer was observed in Japanese women, who traditionally consume a lot more omega-3 fatty acids in their fish-rich diet.

Effect of omega-3 fatty acids which prevent colon cancer

The intake of EPA and DHA is also believed to prevent colon cancer, according to many experts.[628]

Effect of omega-3 fatty acids against skin cancer

According to experts, the intake of DHA is particularly effective against skin cancer.[629]

Effect of omega-3 fatty acids on multiple sclerosis

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[626] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 40
[627] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 42
[628] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 42
[629] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 42



The break-out intervals are reduced, and especially at the beginning of the disease, the increase in omega-3 fatty acid content and the reduction in omega-6 fatty acid content have a positive effect on the further course of the disease. Ingestion according to *DACH* recommendation.

Omega-3 fatty acids are effective against bronchitis, asthma and other respiratory problems

The lung mucus of asthma sufferers has a disproportionate amount of inflammatory messengers, which are formed from the arachidonic acid of omega-6 fatty acids. Omega-3 fatty acids are considered to be antagonists to omega-6 fatty acids, and correcting the mismatch with additional omega-3 fatty acids therefore improves respiratory distress. According to *Critical Care Medicine*, a respected American journal, omega-3 fatty acids have a decisive effect in extreme cases of breathing difficulty.

Omega-3 fatty acids relieve pain

Eicosanoids are among the representatives of omega-6 fatty acids and also act as pain mediators. They sensitise us to mechanical, chemical and thermal stimuli, lowering the pain threshold. Omega-3 fatty acids, which are known to counteract omega-6 fatty acids, can help prevent this lowering of the pain threshold. In addition, omega-3 fatty acids inhibit the development of inflammatory pain mediators in the body.

Omega-3 fatty acids vs. drugs



Isolated effect of drugs

The crucial difference between conventional medicine, the conservative form of treatment, and naturopathic medicine, is that conventional medicine uses drugs that almost exclusively fight just the symptoms and not the causes. This results in a specific effect of the conventional drugs, which, for example, only fight high cholesterol or high blood pressure. Among these are, for example, statins that have the goal of lowering the high cholesterol, or beta-blockers that are designed to lower high blood pressure.

Side effects of drugs

Unfortunately, while statins fight high cholesterol quite successfully, they also unfortunately increase the risk of, and may lead to, liver and kidney failure, probably also to oesophageal cancer.

Overall effect of omega-3 fatty acids

Thus, while conventional medicines have a specific effect, but, at the same time, cause nonspecific and very general damage to our organism, natural remedies work across the board, without the risk of side effects, or with a very low one.

With regard to the cardiovascular system, especially for omega-3 fatty acids, the omega-3 fatty acids have a wide range of effects on the entire cardiovascular system and

- reduce the risk of heart attacks,



- reduce the risk of stroke,
- regulate cardiac arrhythmia,
- counteract thrombosis,
- counteract atherosclerosis,
- lower cholesterol and
- regulate blood pressure.

All these effects amplify and complement each other in a harmless manner.

Undersupply and lack of omega-3 fatty acids

According to leading scientists, the supply among the population in the industrialised nations is more than insufficient. Instead of the recommended 0.3 g of EPA and DHA, for example the average German consumes only about 0.1 g per day. According to experts, only 20 % of people in industrialised nations consume the required amount of omega-3 fatty acids. At the same time, the supply of omega-6 fatty acids (linoleic acid) is excessive, which inhibits the conversion of the plant-derived omega-3 fatty acid alpha-linolenic acid into the biologically active forms EPA and DHA.

The optimal ratio of omega-3 fatty acids to omega-6 fatty acids, which would be very desirable from a health perspective, would be 3:1 to 5:1.

Omega-3 fatty acid requirements and recommendations



To ensure an adequate supply of omega-3 fatty acids, the *German Society of Nutrition recommends* containing 0.5 % of total energy in the form of omega-3 fatty acids.

Guide to omega-3 fatty acid requirements: Adults

The following DACH table provides an overview of the average level of energy intake per day and the resulting need for omega-3 fatty acids in adolescents aged 15 or over:

AGE	MALE	OMEGA-3 requirement male:	FEMALE	OMEGA-3 requirement female:
15 to under 19 years	3100 kcal: 9.2 kcal x 0.5 % =	1684 mg	2500 kcal: 9.2 kcal x 0.5 % =	1358 mg
19 to under 25 years	3000 kcal: 9.2 kcal x 0.5 % =	1630 mg	2400 kcal: 9.2 kcal x 0.5 % =	1304 mg
25 to under 51	2900 kcal: 9.2 kcal		2300 kcal: 9.2 kcal	1250 mg



years	x 0.5 % =	1576 mg	x 0.5 % =	
51 to under 65 years	2500 kcal: 9.2kcal x 0.5 % =	1358 mg	2000 kcal: 9.2 kcal x 0.5 % =	1086 mg
over 65 years	2300 kcal: 9.2 kcal x 0.5 % =	1250 mg	1800 kcal: 9.2 kcal x 0.5 % =	978 mg

Guidelines for the omega-3 fatty acid requirement of children

The following table illustrates the omega-3 fatty acid requirement of children:

AGE	MALE	FEMALE
0-4 months	261 mg	233 mg
4-12 months	426 mg	402 mg
1-4 years	668 mg	622 mg
4-7 years	879 mg	788 mg



7-10 years	1089 mg	987 mg
10-13 years	1305 mg	1172 mg
13-15 years	1547 mg	1286 mg

Omega-3 fatty acids and vegetarians

The shortage situation is even more complicated for vegetarians, as they are known to avoid both fish and fish oil. It follows that the intake of EPA and DHA is low, which can lead to a pronounced lack of omega-3 fatty acids. In the meantime, eggs from special production, when the laying hens are fed with DHA or with linseed-enriched feed, may be eaten by ovo or ovo-lacto vegetarians. In addition, it is advisable to resort more to linseed, walnut and rapeseed oil; a dietary supplement can be taken in the form of DHA-rich algae oil to boost levels. A shortage is therefore quite avoidable, even for vegetarians.

Sources of omega-3 fatty acids

There are several ways to ensure an adequate intake of the valuable omega-3 fatty acids:

Omega-3 fatty acids from fish

One option is fatty salt-water fish such as herring, tuna, mackerel and sardines.



These fish species should be on our menu twice a week.

Omega-3 fatty acids from canned fish

Even canned mackerel, tuna, salmon and sardine are still very good omega-3 sources, despite losing some content during the preservation process.

Omega-3 fatty acids from oils

Linseed oil consists of 55 % omega-3 fatty acids and should therefore be preferred. But rapeseed and walnut oils also provide plenty of omega-3 fatty acids. It should be noted, however, that vegetable oils alone can only provide a limited supply of the valuable EPA, since the supply of oils and nuts only ensures the form of alpha-linolenic acid, from which, however, the body must first produce EPA to then be able to form DHA. Fish and special microalgae, on the other hand, provide a direct supply of EPA and DHA.

Added omega-3 fatty acids in food

No less valuable are the omega-3 fatty acids which have recently been added to bread, eggs, yoghurt and margarine as so-called 'functional foods'.

Omega-3 fatty acids from fish oil and microalgae capsules

Those who prefer to take supplements can also obtain omega-3 fatty acids in the form of fish oil capsules and micro-algae capsules, which are comparable to the value of the omega-3 fatty acids from natural food. As a basis, a smaller dose of about 0.5 g to 1 g/day at first and gradually increasing this dose to 1.5



to 3 g per day is recommended. This gives a sensitive gastrointestinal tract the opportunity to get used to the extra fat digestion with fish oil. At the same time, the intake of 400-800 IU vitamin E along with the fish capsules is recommended.

Summary: Sources of omega-3 fatty acids

- linseed oil
- soybean oil
- rapeseed oil
- walnut oil
- herring (especially young herring)
- tuna
- mackerel
- sardine
- Functional food: eggs, bread, yoghurt, margarine, enriched with omega-3 fatty acids
- fish oil capsules
- microalgae capsules

Side effects of omega-3 fatty acids

In studies that observed a daily dose of up to 7,700 mg of omega-3 fatty acids



(a multiplication of the usual dose), no side effects have been reported. A feeling of fullness and diarrhoea may occur at levels beyond 20,000 mg per day.[630]

Contraindications of omega-3 fatty acids

In case of bile problems and liver ailments as well as acute pancreatitis, the intake of fish oil products can lead to side effects. [631]Furthermore, persons taking anti-coagulant medicines should consult their doctor before taking fish oil capsules as fish oil may alter the fluidity of the blood.

Recommended literature

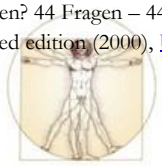
If you want to look more closely at this topic, the following books about omega-3 fatty acids are recommended:

Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), by Dr. Frank Liebke

Omega-3 aktiv-Gesundheit aus dem Meer ('Omega-3 Active-Health from the Sea') by Prof. Dr. Michael Hamm and Dirk Neuberger

[630] Singer, Peter: Was sind, wie wirken Omega-3-Fettsäuren? 44 Fragen – 44 Antworten. (What are Omega-3 Fatty Acids And How Do They Work? 44 Questions – 44 Answers') 3rd completely revised edition (2000), Umschau Zeitschriftenverlag, D-Frankfurt am Main

[631] Singer, Peter: Was sind, wie wirken Omega-3-Fettsäuren? 44 Fragen – 44 Antworten. (What are Omega-3 Fatty Acids And How Do They Work? 44 Questions – 44 Answers') 3rd completely revised edition (2000), Umschau Zeitschriftenverlag, D-Frankfurt am Main



Things to know in advance

OPC, an abbreviation for oligomeric proanthocyanidins, belongs to the relatively young genus of phytochemicals (bioflavonoids) with astonishing properties in the prevention and treatment of diseases and premature ageing.

Most of the time, people are initially very sceptical when they hear about a natural substance with a great spectrum of wonderful effects.

How can one and the same substance help with eye problems, reduce skin wrinkles, make joints painless again, prevent heart attacks and also counteract biological ageing?
Conventional medicine teaches us a very isolated view – we have a specialist ophthalmologist, a dermatologist and an orthopaedic surgeon for different ailments – a fatal mistake, because our body is a unified organism and should therefore be regarded holistically...!

But how can a single natural substance have a positive influence on all things? While the ignorant (qualified doctors often being among them) are puzzled or mockingly sneer about it, the explanation for this phenomenon, which is actually not a phenomenon at all, is still very simple:



the cause is very often one and the same for the development of many diseases and complaints: inflammation, oxidative stress or collagen degeneration, for example!

However, the symptoms only appear in different organs because each human being is an individual and therefore has their own weak points.

If the eyes, the skin, the joints and the heart are threatened by inflammation, oxidative stress or collagen degradation, then it is only understandable, if they, in turn, all benefit from the same natural substance, until the disappearance of any kind of discomfort – from a natural substance that reduces inflammation, breaks down oxidative stress and repairs collagens – this substance is OPC, an all-rounder that lives up to these requirements!

And since biological ageing is ostensibly caused by free radicals, inflammatory processes and collagen degeneration in the body, OPC also successfully takes this challenge onto its strong shoulders...



What is it?

OPC is a relatively 'young' bioflavonoid that is largely sabotaged by Big Pharma and medical profession due to its wide-ranging effect. That's why there are not nearly as many OPC studies as there are for other vitamins. But the studies available to us are enormously auspicious, suggesting unprecedented positive effects on our health; at the same time, they emphasise that OPC is completely safe, even at maximum doses!

Testimonials from therapists and people who already use OPC also suggest that it is an immense gift from nature. In addition to collagen and elastin synthesis and thus the construction and repair of human tissue, which probably no other known substance in the world can do as successfully as OPC *(reminder: OPC is the only substance that binds directly to the body proteins to do its job)*, OPC manages to neutralise the free radicals threatening us with incredible power – with 20 times the effect of vitamin C and 50 times the effect of vitamin E. Furthermore, OPC works very successfully against inflammation in the organism.

These three very well-documented properties probably form the basis for the effects on various illnesses shown in the above table – similar to the effect of vitamin C, but more differentiated and sometimes even more efficient. In the chapter on vitamin C, you can see the amazing effect it has on free radicals in our apple experiment – this effect is actually increased twenty-fold by taking OPC!



Vitamin deficiency and the role of OPC

As already reported earlier in the book, the chronic lack of vital substances in the population is currently the biggest health problem.
Independent studies, such as those of the renowned Karlsruhe Food Laboratory (Sanatorium Oberthal), and the Swiss pharmaceutical company Geigy are a thorn in the side of the state advisory centres and are not passed on to doctors or the public. After all, it was exactly these studies that independently attested to a terrifying decline in the vital substances in our fruits and vegetables of up to 92 % over the last 30 years! The reasons for this are mentioned by the study leaders: *leached soils, air pollution, long storage* and *excessively fast growth*.

While the vitamin and nutrient content of our fruits and vegetables is decreasing from year to year (and in some cases is already close to zero), according to research, in industrialized countries only 10-20 % achieve the already extremely understated vitamin C recommendation of the World Health Organization (WHO) of 60-100 mg a day.

It should be the same for all other vitamins – and this is where OPC comes into play!:



OPC is able to prolong and multiply the effectiveness of vitamins. For example, research suggests that, in the presence of OPC, vitamins A, C, and E are active for ten times longer.[632]

The effect of OPC

Before we talk in detail about the individual diseases that OPC can prevent and even cure, we will look at some important mechanisms that make OPC so unspeakably valuable:

• while vitamin C has a positive effect on 95 % of the total metabolism, OPC has the ability to multiply this effect by a FACTOR OF 10.[633]

• OPC is considered to be one of the most potent antioxidants, 18-20 times as potent as vitamin C and 40-50 times as potent as vitamin E.[634]

• unlike vitamin C, OPC (vitamin P) binds to protein, especially collagen and elastin. Since these organs mainly consist of elastin and collagen, OPC increases the efficiency of the repair processes on the skin, blood vessels, internal organs, bones, etc. many times over.

• For example, blood vessel resistance is doubled as early as 24 hours after

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[632] http://www.vitalstoff-journal.de/aus-der-forschung/bioflavonoide-und-kraeuter/opc-superantioxidans-gegen-das-altern/

[633] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 10

[634] Anne Simons and Alexander Rucker: Gesund länger leben durch OPC ('Living Healthy Longer Through OPC'), 2005, p. 10



the first administration of OPC; overall, it triples over time.

• For stroke patients and people at risk of stroke in particular, this cannot be overemphasised enough, as strokes (cerebral apoplexy) are caused by internal bleeding in the brain area.

• OPC is able to regenerate the skin, smoothen out old wrinkles and prevent new ones even more than vitamin C.

• OPC improves the fluidity of blood, prevents it from clumping and increases the elasticity of the vessels.

• In its capacity as a protector, OPC prevents the penetration of UV rays into the skin and acts like a sunscreen, which should be of interest for sunbed users.

• While vitamin C is considered to be the most powerful water-soluble antioxidant, OPC acts as both a water-soluble and fat-soluble antioxidant, protecting all cells in the human body.

• Just like vitamin C, OPC penetrates the brain barrier and also exerts its antioxidant effect on brain cells; it strengthens the blood vessels and keeps them elastic.

• OPC regulates histamine and histidine production, the two main triggers for various inflammations and allergies.



• By doing so, vitamin P prevents or alleviates all inflammatory and allergic reactions in the body.

It is extremely scandalous to consider that vitamin P (OPC), despite the fact it is as relevant as, or even more relevant than, vitamin C and despite over 50 years of high quality research by renowned professors around the world, all of which attribute amazing positive health benefits to OPC, it has received no official recognition and very few people have ever heard of it, let alone know its benefits!

But thanks to the internet, this information can no longer be suppressed; in addition, there are already some highly recommended, authoritative books on the market.

In the following chapter, you will find detailed information on OPC, the vitamin C co-vitamin which, according to many molecular biologists and vitamin experts, has already surpassed vitamin C and is considered worldwide to be one of the strongest known antioxidants.

You will learn:

• why you should know about OPC;

• the history of discovery and origin of OPC/vitamin P;

• what OPC/vitamin P is;



- the fruits in which OPC are to be found and in which quantities;
- how OPC is made;
- why OPC is considered the 'anti-ageing vitamin';
- how you can make OPC cosmetics yourself;
- whether and how OPC can extend your life;
- how the two co-vitamins vitamin C and OPC optimally strengthen and complement each other;
- which diseases vitamin P (OPC) can prevent and even cure;
- how to easily calculate your personal OPC needs;
- whether OPC has side effects, and if so, which ones;
- what to look for when taking OPC;
- what you should be aware of when buying vitamin P;
- where you can get the best OPC (vitamin P)
- and much more…

Discovery of OPC



A paradox that has troubled thousands of scientists and researchers for centuries has its origins in France, more specifically in the form of red wine. While it is well-known that alcohol harms our health significantly, red wine helps people live longer and above all with more vitality...

An elderly lady, who was the oldest person in the world at the age of 123, soon attracted attention when she said she drank up to a litre of red wine every day. She was no exception; after all, people from the south of France are among the oldest and healthiest people in the world.

But let's go back a few decades, to the birth year of the most valuable vitamin in the world:

In 1947, while researching the reddish-brown skin of the peanut for the possibility of using it as a fattening feed and source of protein for the post-war generation, Prof. Dr. Jack Masquelier found a sensational material that had miraculous effects on the human body in his laboratory connected to the medical faculty.

Mankind's longing for the fountain of youth and the source of health is as old as humanity itself. However, Dr. Masquelier realised in many subsequent, more advanced tests that, with the discovery of oligomer procyanidin (abbreviated to 'OPC' or 'vitamin P'), he had brought this dream closer to humanity.

What exactly is OPC?

Oligomer procyanidins (abbreviated: OPC) is a flavenol which belongs to the



group of flavonoids or bioflavonoids; it is a colourless, water-soluble, bitter substance.

OPC (vitamin P) is the most important partner of vitamin C and it has already been shown in animal experiments that it is the only known substance that can boost vitamin C by up to 10 times. This is done via the so-called 'redox reaction' (reduction-oxidation reaction), within which the OPC can regenerate consumed vitamin C molecules up to ten times.

In a laboratory, guinea pigs were divided into several groups and supplied with different amounts of vitamin C and OPC. The more vitamin C they got, the stronger they became and the longer their lifespan was. The amazing thing was that even those animals which received very little vitamin C, but also received OPC, were in a similar condition to those who received four times that amount of vitamin C. This led to the realisation that OPC had to be the long-sought co-partner of vitamin C.

Nature emphasises this by the fact that the vitamin C contained in fruits and vegetables never appears without its co-partner, OPC.

OPC is absorbed by the body at the same rapid pace as vitamin C; it passes through the oral mucosa in the stomach within fractions of a second and can be detected in the blood within a few minutes. This alone is a clear indication of how important OPC is to the organism, as it is given preferential treatment.[635]

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[635] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 10



Vitamin P (OPC) reaches its highest concentration in the blood 45 minutes after ingestion and is used up within 72 hours. In contrast to vitamin C, a repeated intake of OPC during the day is therefore not necessary.

While (as you learned in the chapter 'Vitamin C') we would have to eat about 40 oranges or 7 kg of sauerkraut every day to meet our natural vitamin C needs, meeting our OPC (vitamin P) needs by natural means is similarly difficult. To do this, we would have to drink 2¼ litres of red wine a day (absolutely not recommended) or ½ kg of peanuts (with the skin on).

Again, the OPC deficiency in our modern diet can be attributed to the same factors as our vitamin C deficiency, namely, the classification of the OPC source as 'waste' (peel of fruits and vegetables) and their disposal. The long storage and industrial processing as well as the accumulation of chemical preservatives do the rest.

This deficiency in vitamin C and vitamin P (OPC) for which humans are responsible is precisely the reason for the rising civilisation diseases, such as allergies, atherosclerosis, cardiovascular diseases, vascular diseases, cancer and others.

And indeed, nature offers an impressive comparison, namely in the form of animals living freely in nature. Not only can they make vitamin C themselves, they also have the ability to instinctively choose OPC-rich foods in a very selective manner.

These animals do not suffer from any of the above-mentioned diseases, which



in many cases bring us to our death after a long ordeal. Even grizzly bears that have cholesterol levels of up to 400 do not even suffer from atherosclerosis, let alone heart attack or stroke.

Which fruits contain OPC/vitamin P?

OPC occurs in red wine, in bark (especially in pine bark) and in wild berries (blackberries/raspberries), as well as in peanuts, leaves, needles, flowers and grape seeds. The USDA lists the following mg quantities of OPC per 100 g for the foods below:

Food 100g	**mg OPC**
Red wine (table wine)	45.63
Forest blueber-ries	44.23
Apples, Gala	41.56
Strawberries	42.01
Cherries, sweet	17.26
Grape juice	14.14



Unsweetened apple juice	12.12
Cocoa beans	5.68
Bananas	03.37
Beer	02.03

Source: USDA, August 2004

At this point, however, it should be noted that these are measurements taken from freshly harvested fruit. By the time these fruits reach the consumer, due to the long transport distances and storage times, little or no OPC is contained in them. Red wine drinkers are more likely to get their money's worth, but high alcohol consumption is not recommended in any case.

Fortunately, OPC is now offered in capsule form, as a dietary supplement derived from pine bark and grape seeds.

While the benefits of garlic, ginseng or rose hips were known and appreciated for centuries, the reasons were quite speculative until recently. The bitter aftertaste and the presence of vitamin P/OPC mean that scientists now assume that this is the very thing that is responsible for OPC's health benefits.

The production of OPC

The production of OPC is quite complex and is accomplished by means of a



complicated extraction process. The raw materials (bark, seeds, etc.) are first crushed and then heated in water. In the following extraction process, patented by Dr. Masquelier, the OPC is separated from the other constituents of the raw materials. In the optimal case, you will get a share of 95 % of OPC, called 'OPC 95' in trade. Incidentally, if the number '95' is not mentioned, it is usually an OPC with a percentage of only 40 %.

OPC and vitamin C – an unbeatable team

If you ask yourself the legitimate question of whether vitamin C enhances OPC or OPC enhances vitamin C, the answer is quite simple: both substances enhance and complement each other.

While vitamin C intake enhances the protective effect of OPC (vitamin P), the miraculous functions of vitamin C are boosted by OPC.

In summary, it can be said that OPC and vitamin C are involved in almost all processes in the body, optimally complementing and enhancing each other, and therefore represent the most important substances for humans after oxygen and water.

How can the personal OPC requirement be calculated?

It is indisputable that EVERYONE needs OPC and would benefit enormously from a sufficient supply of OPC.



However, as already described, modern food processing, long storage times, depleted soils, the use of pesticides, environmental factors and other factors have eliminated OPC and vitamin C almost completely from our diet and we are unable to absorb enough vitamin C and OPC through our natural diet; it is therefore in the interest of everyone to compensate for this vitamin deficiency by taking high-quality, natural supplements.

Experience so far suggests a daily recommended amount of 2-3 mg OPC per kg of body weight; on the other hand, intake of less than 1 mg per kg of body weight makes little sense.

The upper intake recommendations, however, are for healthy people. If a person is unhealthy, a multiple of the recommended intake may be advisable. In healthy individuals, an intake of 3 mg/kg body weight is recommended for the first 14 days, which can then be reduced to 2-3 mg/kg body weight and subsequently maintained permanently. (OPC must be taken over a whole lifetime because any health benefits gained would otherwise be reversed).

When OPC is used in the treatment of disease, it is not uncommon to administer 400 mg or more daily without this causing any interactions or side effects. These doses have been used to treat varicose veins, retinal diseases, PMS,



sports injuries and postoperative oedema.[636]

OPC and its effect on diseases

The following health benefits are attributed to OPC:

I. Table with an overview of the preventive and therapeutic effects of OPC:

Symptoms of a vitamin P/OPC deficiency:	Benefits and effects of adequate vitamin P/OPC intake:
Vitamin deficiency	OPC increases the effects of vitamin C, E and A tenfold.
Allergies	The regulation of histamine and histidine produc-

[636] Anne Simons and Alexander Rucker: Gesund länger leben durch OPC ('Living Healthy Longer Through OPC'), 2005, p. 68



	tion leads to fewer allergies and improves or prevents allergic symptoms such as hay fever, house dust allergy, allergy to moulds, food allergies, allergies to insect bites, animal hair and more.
Asthma	OPC has an anti-inflammatory and anti-asthmatic effect which significantly improves the condition and can even prevent it entirely.
Rhinitis (runny nose)	OPC has an anti-inflammatory and anti-asthmatic effect which significantly improves the condition and can even prevent it entirely.



Fatigue syndrome (CFS)	OPC prevents and combats daytime fatigue (CFS)
Bronchitis	OPC/vitamin P has an anti-inflammatory and anti-asthmatic effect which significantly improves the condition and can even prevent it entirely.
Inflammation	As the most efficient antioxidant, OPC successfully prevents inflammatory processes.
Cold, flu, runny nose, tuberculosis	Vitamin P activates the body's defences and reliably prevents and treats the symptoms mentioned on the left.
Depression/mood	Depression and winter blues diminish or do not



	even occur due to the penetration of the blood-brain barrier and optimisation of calcium conversion.
Hepatitis	OPC is able to prevent hepatitis and positively influence an existing condition.
Lack of concentration/ Intelligence	By penetrating the blood-brain barrier, initiating antioxidative processes and the resulting improvement in blood flow in the brain, it boosts concentration and intelligence. Hyperactivity (especially in children) is prevented, as are learning difficulties, lack of concentration and decreasing responsiveness in old age.



Impotence	Increased blood flow to the genitals can reliably prevent impotence.
Distance travel complaints	The typical problems of long-haul travel such as economy class syndrome, jet lag and swollen ankles, are prevented or relieved.
Fever	Fever is a reaction to inflammatory processes. OPC successfully combats this.
Oedemas	Venous oedemas and lymphedemas are effectively prevented or alleviated.
Smoker's leg	As a reliable antioxidant, vitamin P/OPC protects blood vessels, improves



	blood circulation and prevents smoker's leg.
Kidney disease	Increased filter function as well as proteinuria due to the strengthening of capillary resistance.
Migraine	Migraines are prevented by antioxidant processes and better blood circulation in the brain.
All diseases which end in '-itis' (neurodermatitis, gastritis, meningitis, bronchitis, arthritis, rhinitis etc.)	Because OPC is the most efficient free radical catcher (antioxidant) and also protects articular cartilage through collagen synthesis, it successfully prevents inflammatory processes and protects the cartilage. Furthermore, pain is prevented.



Side effects of alcoholism	Liver detoxification is stimulated, liver cirrhosis prevented, anti-rebound effect.
Arthritis/osteoarthritis	Because OPC is the most efficient free radical catcher (antioxidant) and also protects articular cartilage through collagen synthesis, it successfully prevents inflammatory processes and protects the cartilage from arthritis and arthrosis. Furthermore, pain is prevented.
Gout	Because vitamin P is the most efficient free radical catcher (antioxidant) and also protects articular cartilage through collagen synthesis, it successfully prevents inflammatory



	processes and protects the cartilage from arthritis and arthrosis. Furthermore, pain is prevented.
Gynaecological problems	OPC/vitamin P prevents or relieves menstrual problems, prevents PMS (premenstrual syndrome), controls the duration and regularity of periods
Infertility	The mitochondria of the spermatozoa are protected against antioxidation by vitamin P, which signifi-cantly increases fertility.
Bleeding gums	The active collagen and elastin build-up keep the gums firm and elastic.
Loose teeth/tooth	Gum tissue is strength-



loss	ened by collagen and elastin development – teeth sit firm.
Periodontosis	OPC and vitamin C deficit lead to the demise of capillaries in gums, disturbing the blood supply. Gum tissue is strengthened by collagen and elastin development – teeth sit firm.
Lung and respiratory diseases	The antioxidant effects of vitamin P (OPC) protect the lungs and influence lung function (especially in athletes)
Osteoporosis	The formation of procollagen and collagen synthesis supports the bone matrix and can reliably counteract osteoporosis.



Varicose veins	Repair processes on vascular walls, improved elasticity and the simultaneous reduction of deposits prevent the development of varicose veins and make existing ones disappear.
Spider veins	Repair processes on vascular walls, improved elasticity and the simultaneous reduction of deposits prevent the development of spider veins and make existing ones disappear.
Poor wound healing	As a co-factor in hydroxylation, OPC supports collagen synthesis and elastin synthesis; furthermore, OPC binds to proteins – all of which accelerate



	wound healing enormously.
Muscle injuries	As a co-factor in hydroxylation, OPC supports collagen synthesis and elastin synthesis, and OPC binds to proteins – all of which accelerate the healing of muscle strains and tears.
Bone fractures	As a co-factor for hydroxylation, OPC supports collagen synthesis and elastin synthesis, and OPC binds to proteins, all of which accelerates the healing of bone fractures.
Pressure sores	The increased collagen synthesis of the OPC can successfully prevent pressure sores and heal them.



Haemorrhoids	Improved elasticity and the prevention of deposits in the vascular system prevents haemorrhoids
High cholesterol and triglyceride levels	OPC is involved as a co-factor in the formation of HDL cholesterol ('good cholesterol') and, as the most efficient antioxidant, protects against LDL cholesterol ('bad cholesterol') Vitamin P keeps the blood vessels sealed due to collagen and elastin synthesis, the brain does not report any damage to the liver, so no cholesterol is produced to repair the damage. Incidentally, dietary cholesterol accounts for only 5 % of total cholesterol.



Atherosclero-sis(blood vessel calcification), resulting in high blood pressure, to heart attack and stroke	Through the active collagen synthesis of the OPC, the intima (vessel wall) is kept smooth and silky, calcium and fat deposits cannot attach, atherosclerosis is prevented and existing atherosclerosis is broken down. Furthermore, the proliferation of smooth muscle cells is avoided.
Eyes: macula degeneration	Active collagen synthesis prevents macular degeneration.
Eyes: cataracts	As the most efficient known antioxidant, vitamin P prevents free radical damage (particularly due to light and oxygen in this case), which cause cata-



	racts, as well as other conditions.
Eyes: dry eyes	OPC prevents free radical damage, improves blood circulation in the eye and prevents dry eyes.
Age-related visual impairment	OPC prevents free radical damage, improves blood circulation to the eye, preventing premature vision loss.
Heavy legs (calves)	Through antioxidant processes and better blood circulation in the legs, the blood can flow better, preventing heavy legs.
Lymphatic congestion	Through antioxidant processes and better blood circulation, the blood can flow better, preventing lymphatic congestion.



Meteorosensi-tivity	Through antioxidant pro-cesses and better blood circulation, the blood can flow better, preventing meteorosensitivity.
Cold feet and hands	Through antioxidant pro-cesses and better blood circulation, the blood can flow better through the extremities, preventing cold feet and hands.
Bleeding inside the eye	Due to the collagen and elastin structure, the eye vessels are strengthened and kept elastic.
Dry skin	Thanks to the collagen and elastin build-up and renewal, dry skin is avoided and the skin be-comes supple again.



Wrinkles	Collagen and elastin build-up and renewal prevent wrinkles and minimise existing wrinkles. The anti-oxidant effect protects the cells from destruction (ageing).
Burns of all types	Accelerated collagen and elastin synthesis as well as the renewal of skin cells heal burns more quickly.
Acne/pimples	Hormonal influences as well as accelerated collagen and elastin synthesis prevent acne and pimples and eliminate existing ones.
Eczema	Accelerated collagen and elastin synthesis prevents eczema and counteracts



	existing conditions.
Stretch marks	Accelerated collagen and elastin synthesis prevents stretch marks and counteracts existing ones.
Arthrosis (joint wear)	The hyaline cartilage is regenerated thanks to improved collagen and elastin synthesis.
Stroke	The intima (inner vascular wall) remains smooth and supple due to active collagen development, calcium and fat deposits cannot attach, atherosclerosis, the main cause of strokes, is prevented and existing atherosclerosis is broken down. Furthermore, smooth muscle tumours are prevented, vitamin



	P/OPC protects against fatty acids and deconstructs fatty deposits and represents an antioxidative protection for LDL cholesterol.
Heart attack	Through active collagen construction, the intima (inner vessel wall) is kept smooth and supple, calcium and fat deposits cannot attach, atherosclerosis, the main cause of heart attacks, is prevented and existing atherosclerosis is reduced. Furthermore, smooth muscle tumours are prevented, OPC protects against fatty acids and deconstructs fatty deposits and represents an antioxidative protection for LDL cholesterol.



Thrombosis	Collagen development protects the inner vessel wall from damage and keeps it smooth and supple. Calcium and fat deposits cannot attach, atherosclerosis, the main cause of thrombosis, is prevented and existing atherosclerosis is reduced. Furthermore, smooth muscle tumours are prevented, vitamin P protects against fatty acids and deconstructs fatty deposits and represents an antioxidative protection for LDL cholesterol.
High blood pressure	Vitamin C deficiency and OPC deficiency have a direct correlation with high blood pressure. The intake



	of OPC and vitamin C significantly reduces high blood pressure due, among other things, to the improved collagen and elastin synthesis and thereby the renewal and elasticity of the blood vessels.
High blood lipid levels	Vitamin P/OPC regulates lipid levels (LDL and HDL cholesterol)
Connective tissue: sagging skin and cellulite	The active construction and renewal of collagen and elastin prevent sagging skin and cellulite.
Cancer	Is prevented or combatted by support of the immune system and build-up of collagen and elastin.



Alzheimer's	Due to the prevention of cell destruction by oxidation, Alzheimer's is prevented or the condition gets better.
Multiple Sclerosis (MS)	Due to the prevention of cell destruction by oxidation, MS can be avoided or the condition improved.
Senility	Due to the prevention of cell destruction by oxidation, senility can be prevented or ameliorated.
Forgetfulness	Due to the prevention of cell destruction by oxidation, forgetfulness can be strongly reduced.
Hair loss, hair breakage	The increased blood circulation in the scalp area can



	prevent hair loss and hair breakage; healthy growth is encouraged.
Parkinson's	Due to the prevention of cell destruction by oxidation, Parkinson's is prevented or the condition gets better.
Ageing	As the most important and most efficient antioxidant, OPC/vitamin P very successfully combats oxidation and thus the destruction (ageing) of body cells while reducing cell-mediated immunity.
Detoxification	Vitamin P promotes the decline of so-called oxidases and helps the liver to break down toxins and other toxic substances.



Methemoglobinemia	The cause of this disease is haemoglobin oxidation. Here, vitamin OPC promises a significant improvement as the most effective antioxidant.

II. Detailed explanation of the preventive and therapeutic effects of OPC

OPC/vitamin P is a relatively 'young vitamin' and is scandalously sabotaged to the greatest extent possible by certain lobby groups due to its enormous potential for action. That's why there are not nearly as many studies on OPC as there are for other 'older' vitamins. But the studies available to us are enormously auspicious, suggesting unprecedented positive effects on our health; at the same time, they emphasise the freedom from side effects and the complete safety of the vitamin. Also, testimonials from people who already use OPC speak of an immense gift from nature – with many benefits from one single vitamin which, with current knowledge, we are far from knowing the totality of.

In addition to collagen and elastin synthesis and thus the construction and repair of human tissue, which probably no other known substance in the world can do as successfully as OPC/vitamin P *(reminder: OPC is the only substance that binds directly to the proteins),* OPC, with a previously unknown power, manages to



neutralise harmful free radicals - with 20 times the effect of vitamin C and 50 times the effect of vitamin E.

These two very well-documented properties probably form the basis for the effects shown in the table above in various clinical pictures – similar to the effect of vitamin C (but many times more efficient). OPC certainly has countless other benefits which previously largely unknown.

Arteriosclerosis, heart attack, stroke, pulmonary infarction, thrombosis

Atherosclerosis ('calcification of veins') refers to the deposition of blood lipids and calcium on the inner wall of the blood vessels (arteries). These deposits lead to clogging in blood vessels, meaning the oxygen-enriched blood cannot flow properly.

If the clogging of the artery is so large that the blood does not reach the heart sufficiently, it will not receive oxygen, leading to a heart attack. See details in chapter 'Vitamin C'

Cancer

About one in two people in Central Europe and the USA [637] suffers from cancer, one in four dies of it[638] – and the number is rising.

As we have already seen in the section 'Vitamin C', a number of mechanisms

[637] https://www.medicalnewstoday.com/articles/288916.php

[638] https://gis.cdc.gov/Cancer/USCS/DataViz.html



of the partner vitamin C are involved in the prevention and treatment potential of cancer.

Since there are only a few meaningful studies on OPC and tumour formation to date, we are particularly interested in three mechanisms that have already been well-researched for OPC:

1) strengthening the immune system,

2) preventing of oxidation and

3) collagen synthesis.

It is known

- that cancer weakens the immune system and is very frequently the result of a weak immune system in the first place.
- that oxidation (free radicals) can lead to cancer
- that ravenous cancer cells attack our organs, which are mostly made up of collagen and elastin.

1) *The immune system:* As the most important co-partner of vitamin C, OPC is able to significantly strengthen the immune system – at the same time, our immune system greatly benefits from its ability to multiply and strengthen the effects of vitamin A, vitamin E and vitamin C by a factor of ten.



2) *Antioxidation in the prevention of cancer:* An extremely potent antioxidant (40-50 times as powerful as vitamin E, 18 to 20 times as powerful as vitamin C), OPC can kill attacking free radicals before they can cause damage.

3) **Collagen/elastin synthesis in the treatment and prevention of cancer:** As already described, OPC is the only substance that binds to collagen and elastin and is able to protect and repair them, a mechanism that cannot be overestimated, especially in the case of cancer, which tries to consume the collagens (organ structure).

Of course, OPC can do all this most efficiently with its cooperation partner, vitamin C. The two vitamins act like two inseparable twins, each doing their own thing, but together forming an unbeatable team. It is therefore not very surprising that these two substances only occur together in nature.

Although there are some representative studies demonstrating the efficacy of high-dose vitamin C as a cooperative vitamin of OPC even without additional substances (see section 'Vitamin C'), one should of course not rely on a single remedy for acute cancer – rather it is a 'composition' of natural substances that fight the cancer in interaction.

OPC/vitamin P and allergies

We 'owe' changing environmental conditions, such as radiation, smog and pesticides, for a veritable allergy epidemic, starting with asthma, hay fever, bronchitis, rhinitis, food allergies, pet allergies, house-dust allergies and many more.



In 1985, Japanese scientists succeeded in proving that OPC addresses the root of the problem and unleashes its effect where the allergic reaction (inflammation) begins via the activation of the hyaluronidase enzyme.

At this point, OPC (vitamin P) blocks the allergy-causing histamine.[639] It also suppresses histidine from another allergenic agent.[640]

The answer of conventional medicine cannot and must not represent the conclusion of our knowledge on this, because the drugs of the pharmaceutical industry, the so-called antihistamines, are associated with some unpleasant side effects, from fatigue to nausea, headache, dizziness and... Here, too, OPC interacts with vitamin C to best develop its effect as a natural antiallergic. In a study, Dr. A. Clemetson proved that histamine in the blood is always associated with a vitamin C deficiency; the further the vitamin C level falls, the higher the histamine level rises.[641]

Vitamin C most likely works as a serious co-factor in the degradation and excretion of histamines, reducing the histamine level and preventing allergies or making natural healing possible.[642] In conjunction with OPC, it is a strong antiallergic – without painful side effects.

OPC and Alzheimer's/Parkinson's

According to recent studies, the oxidation and thus the destruction of cells also plays a crucial role in these diseases. In its capacity as one of the strongest

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[639] Anne Simons and Alexander Rucker: Gesund länger leben durch OPC ('Living Healthy Longer Through OPC'), 2005, p. 117

[640] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 10

[641] Clemetson C. A. B.: Histamine and ascorbic acid in human blood. Journal of Nutrition 1980; 110, pp. 662–668

[642] Ziemann B. and Enzmann F .: Vitamin C Ascorbinsäure, Ein lebensnotwendiger Schutzfaktor, 'Vitamin C Ascorbic Acid, A Vital Protective Factor', 1998, MSE Pharmaceutics



known antioxidants (20 times as strong as vitamin C, 40 times as strong as vitamin E), OPC offers reliable protection against brain cell damage. Incidentally, vitamin P (OPC) increases the effect of vitamin C by a factor of ten; this in turn improves hormone production, including the production of dopamine and melatonin, as well as the neurotransmitters (messenger substances) in the brain. The activation of neurotransmitters also improves concentration and memory performance and improves reactions.[643]

Scientists at the John Hopkins University were able to prove that, in 4,740 persons aged 65 or older, taking vitamin C with vitamin E – the two vitamins whose effects OPC increases by a factor of ten – can reduce Alzheimer's disease. Those who took both vitamins were 78 % less at risk of Alzheimer's.

The main reason for this effect is the protection against free radicals.

OPC and its effect on depression

Like vitamin C, OPC is able to cross the blood-brain barrier because of its molecular structure. It increases the effect of vitamin C by a factor of ten; this, in turn, can help prevent depression by optimising calcium metabolism. Calcium in turn has a direct influence on neurotransmitters (messengers).[644]

Conversely, even a slight vitamin C deficiency can cause chronic depression, irritability and fatigue.[645]

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[643] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 17

[644] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 18

[645] http://focus-blog.pharmxplorer.at/2009/08/orthomolekulare-medizin-zusammenhange-zwischen-mikronahrstoffen-und-depression/



OPC against neurodermitis, arthritis, bronchitis, eczema, periodontitis, meningitis

For all inflammations that end in '-itis' or '-is', oxidation (free radicals) plays the decisive role. Since OPC is a very powerful antioxidant, it effectively combats the occurrence of inflammation and all related diseases. In this way, OPC/vitamin P very successfully prevents inflammatory processes and relieves existing inflammations and diseases.

OPC/vitamin P and its effect on cold, fever, flu, runny nose, tuberculosis

OPC activates our immune system, and vitamin C is known to successfully fight colds, flu, runny nose and tuberculosis and fever – OPC boosts vitamin C's effects by a factor of ten and supports very successful recovery.

OPC increases memory and eliminates concentration problems

Memory and lack of concentration are largely related to the decrease in the supply of nutrients and oxygen to the brain. Oxidation, ultimately atherosclerosis, prevents optimal supply of oxygen and nutrients. Owing to its low molecular density, OPC is able to overcome the brain barrier and do its job in its capacity as one of the strongest known antioxidants (20 times as strong as vitamin C, 50 times as strong as vitamin E). OPC offers reliable protection against damage to the brain cells and increases the effect of vitamin C tenfold. This in



turn improves hormone production, including that of dopamine and melatonin, as well as the production of neurotransmitters (messenger substances) in the brain. The activation of neurotransmitters also improves concentration and memory performance and improves reactions.[646]

Wound healing with OPC

The prerequisites for fast wound healing are sufficient collagen and elastin synthesis. Since it is known that this is OPC's strength, wounds and even bone fractures heal much faster with vitamin P.

Respiratory diseases (bronchitis, asthma)

As described, OPC/vitamin P is highly anti-inflammatory and anti-asthmatic. This has a very positive effect on respiratory diseases such as bronchitis and asthma and can minimise and even prevent the onset of both diseases.

OPC against impotence

About 10 % of all men suffer from impotence; 85-90 % of cases can be attributed to medical reasons. OPC/vitamin P repairs the blood vessels and ensures optimised blood circulation. As a result, blood passes to the genitals more easily and thus supports erections ('stiffness').

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[646] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 17



Infertility

Studies suggest that the destruction of sperm by free radicals (oxidants) also plays a key role in infertility. OPC has been shown to protect spermatozoa mitochondria from oxidation and increase fertility.

OPC and its effect on kidney disease

OPC, together with vitamin C, can strengthen the resistance of our capillaries, which results in a higher filtration rate and a better excretion of proteins. Kidney disease can thus be prevented and kidney problems can be completely eliminated.

OPC/vitamin P and its effect on migraines

Migraine is a civilisation disease that affects about 10 % of all people in Central Europe and the United States. As the prevalence of migraine in industrialised countries has increased by a factor of 2 to 3 over the past 40 years, it can be assumed that environmental factors and lifestyle play a significant role in the development of migraines. Migraines can be triggered in sensitive people by special situations or substances, called 'triggers' (key stimuli). These specifically include hormonal factors, sleep, stress, food and environmental factors.[647] Due to the low molecular density, vitamin P/OPC penetrates the brain barrier and acts as a protective antioxidant directly on brain cells. Here, OPC can reliably protect against the effects of environmental factors while ensuring better blood

[647] http://de.wikipedia.org/wiki/Migr%C3%A4ne#Ausl.C3.B6sende_Faktoren



flow to the brain, which can prevent or alleviate migraine.

OPC against periodontosis

OPC and vitamin C deficiency has been proven to cause the destruction of the smallest blood vessels in our gums. As a result, the blood supply is disrupted and the gum tissue is not sufficiently supplied with nutrients and is impaired. OPC, the best-known collagen and elastin modulator, strengthens the gum tissue and reliably prevents periodontosis.

OPC/vitamin P and its effect on gout

Gout is also one of the inflammatory diseases caused by free radicals. No antioxidant can rein in nearly as many free radicals as OPC does. At the same time, OPC docks onto the hyaline cartilage, protects it and rebuilds it via collagen synthesis. Furthermore, OPC has a pain-relieving effect in this area, which makes therapy easier.

OPC for arthritis/arthrosis

The strength of OPC lies precisely in the two factors that guarantee the health of joints: namely, the action against inflammatory processes in the joint (arthritis) and in the protection and rebuilding of the hyaline articular cartilage. Thus, the cartilage is protected from arthritis and arthrosis and even rebuilt.

OPC and its effect on premenstrual syndrome/gynaecological disorders



OPC has proven itself against premenstrual symptoms and also controls the regularity of the female period.

OPC/vitamin P and its effect on osteoporosis

Many menopausal women fall victim to bone atrophy ('osteoporosis') but, due to unhealthy lifestyle and environmental factors, it is affecting more and more young people of both sexes. Through the formation of procollagen and collagen synthesis, OPC is able to support the bone matrix and thus prevent osteoporosis.

OPC helps with varicose veins and spider veins

Repair processes on vascular walls, improved elasticity, and simultaneous reduction of deposits prevent the development of varicose veins and spider veins; existing varicose veins and spider veins may disappear.

OPC against haemorrhoids

OPC improves the elasticity of the blood vessels in the anus area and prevents deposits in the blood vessels; both of these factors prevent haemorrhoids and provide relief.

OPC/vitamin P and its effect on pulmonary respiratory diseases

The antioxidant effects of vitamin P (OPC) on the lung capillaries protect the lungs and positively influence lung function. The latter is especially relevant for endurance athletes.



OPC and heavy legs

'Heavy legs' describe the state of a lymphatic compression and circulatory disorder. Venous disorders in the leg area (especially calves) are the most common cause of 'heavy legs'. Through the antioxidant processes and the resulting improved circulation in the legs, OPC ensures that the blood can also flow better in the lower extremities; heavy legs are thus prevented.

OPC and dry skin

Many people suffer from dry, sometimes rough skin. Here, OPC can help greatly as it binds to the skin's collagens and elastin and nourishes and regenerates the skin from the inside.

OPC and its effect on acne and pimples

Due to the accelerated regeneration of the skin (due to the synthesis of collagen and elastin), the skin renews itself more quickly and acne or pimples are prevented.

OPC/vitamin P against cellulite/weak connective tissue

The tightening of connective tissue of all kinds is the forte of OPC. The active construction and renewal of collagen and elastin prevent sagging tissue and cellulite and reduce existing tissue weakness.

OPC/vitamin P helps with stretch marks

OPC is known to accelerate collagen and elastin production; stretch marks are



prevented and existing ones are even partially eliminated.

OPC and its effect on detoxification

It has been shown that OPC (vitamin P) promotes the breakdown of so-called *oxidases* and helps the liver to break down toxins and other toxic substances in the body. People who drink a lot of alcohol, smoke or take hormones are particularly advised to take OPC.

OPC helps with hair loss and hair breakage

OPC increases blood circulation in the scalp area and contributes to the better supply of nutrients and oxygen to the follicles. In this way, OPC can prevent hair loss and prevent hair breakage.

Both OPC and vitamin C thus produce their effect on several fronts:

hormonal, antiviral/bacterial, purifying as a catalyst, antioxidant, collagen and elastin building. As you can see in the description of the effects on individual diseases above, the antioxidative effect and influence on collagen and elastin development are of the greatest importance here:

OXIDATION = DEGENERATION, DISEASES, AGEING

While the medical profession does not know what to do about deadly diseases such as cancer, heart disease, stroke and others, (you will discover the reason why they do not want to know in the sections 'Reason for fraud' and 'Manipulative network'), nevertheless, all serious scientists agree on one fact:



Ageing processes and most diseases are related to the oxidation of our body cells.

What is meant by this?

As has been frequently stated, oxidation is caused by so-called 'free radicals' which, in combination with oxygen, attack and destroy our body cells. It is precisely this destruction that causes diseases and makes us age.

We believe:

- Free radicals damage our cell membranes, our cells, our genes, our DNA, our protein and our fats.
- Free radicals accelerate tissue breakdown, i.e. physical ageing.
- Free radicals create or accelerate a number of civilisation diseases, such as:
    - Atherosclerosis
    - Respiratory diseases
    - Blood vessel diseases
    - Cancer
    - Diabetes
    - Cystic fibrosis
    - Inflammation
    - Hepatitis
    - Parkinson's
    - Alzheimer's



- Arthritis
- Down's syndrome

ANTIOXIDATION = REGENERATION – PRESERVING HEALTH AND YOUTH

Therefore, the inversion of the argument means that we remain untouched by most diseases and, after we have finished growing, we will NOT age biologically if the body could neutralise all free radicals (oxidants). Since OPC (vitamin P) is one of the most efficient antioxidants (40-50 times as effective as vitamin E and 18-20 times as effective as vitamin C), it is of immense importance.

COLLAGEN ELASTIN RESYNTHESIS = RENEWAL OF TISSUE/ORGANS

Roughly speaking, the most important tissue forms of humans, which determine lifespan, age, youthfulness and health (skin, blood vessels, nerve tracts, joints, organs, bones, etc.) consist mainly of the two protein building blocks (amino acids) 'elastin' and 'collagen'. What do OPC and vitamin C have to do with this? And what do they have in common?

It's quite simple: They are the most effective partners for the reconstruction and maintenance of collagen and elastin. Your body cannot create and regen-



erate collagen or elastin without vitamin C. When supplied with sufficient vitamin C, your body uses collagen and elastin synthesis to protect itself against diseases and degeneration. In contrast to vitamin C, OPC has a protein affinity, binds directly to the collagens and elastin and thus succeeds in performing its task directly where it is needed.

OPC anti-ageing vitamin

Ageing after bone growth is due to oxidative destruction of body cells by free radicals. Here, the antioxidants play the most important role in suppressing and delaying biological ageing. As we have already stated several times, OPC is one of the strongest antioxidants (18-20x as strong as vitamin C and even 40-50x as strong as vitamin E).

OPC fights all free radicals in the body very reliably and helps to significantly delay its biological ageing. Many molecular researchers claim that with OPC, you could live to be 120 or older if you start taking it early. Animal experiments confirmed this theory; on average, the life of the tested mice was increased by 30 % – 40 %.[648] The average life expectancy of a human is about 77 years – a 40 % life extension, as shown by the experiments on animals, would mean a life expectancy of 108 years.

[648] Schwitters, loc. cit., p. 138 f.



OPC prevents wrinkles and smoothens existing wrinkles

OPC has the ability to prevent skin ageing (wrinkles) and partially re-smoothen existing wrinkles. But how does OPC do this? There are three known mechanisms that OPC employs for skin protection and- regeneration:

1) OPC regulates the 'sprouting' of collagen, ensuring that the connective tissue and vessels are neither too weak nor too rigid and solid.

2) Vitamin P (OPC) enhances the effect of vitamin C and its co-vitamin for strong collagen synthesis, even if the body only receives low amounts of vitamin C.

3) OPC protects collagen and elastin (i.e. skin, vessels, organs) from attack by aggressive enzymes and destruction by them.

With the correct dosage of OPC (if possible with vitamin C) the formation of wrinkles is decelerated; existing wrinkles are smoothened and, as a side effect, the emergence of new wrinkles is reliably prevented. At this point, one should mention a study by the Unilever Research Institute in Bedford, UK, which was intended to identify the substance that could keep the skin young and healthy for as long as possible.

4,000 women over 40 years old were asked about their eating habits and then observed for a further 30 years. Those who consumed more vitamin C had



fewer wrinkles – and the more they took, the fewer wrinkles they had.[649] Apart from the fact that OPC already counteracts skin ageing on its own like no other known remedy (long-term studies do not yet exist because vitamin P is relatively 'young'), this illustrates the fact that OPC increases the effect of vitamin C tenfold and thus the enormous effect of both components.

Who needs OPC?

For all the diseases listed above, researchers have found a lower vitamin C concentration in the body than in healthy people (unfortunately, results for OPC are not yet available).

This in itself is a clear indication that the body uses its vitamin C reserves to deal with getting ill. Since a normal diet can include 100 mg of vitamin C per day at most, an additional nutritional supplement with natural vitamin C preparations is essential.

However, supplementation with OPC will work wonders even with insufficient vitamin C intake. The older, sicker and weaker you feel, the faster you will feel the positive benefits.

But healthy and young people can also enjoy the preventive benefits of OPC intake, and completely free of side effects. No complications have been reported in over 40 years, even during pregnancy.[650]

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[649] Source: Natur&Gesund ('Nature & Health')

[650] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 17



Note on using OPC/vitamin P for the first time

As with most potentially effective natural remedies, the first use of OPC may initially make symptoms more severe and cause discomfort, headache, fatigue, and flu-like symptoms.

This is due to the increased release of toxins, such as heavy metals, pesticides and herbicides, and this is a POSITIVE thing. Do not let this concern you – continue to take OPC – the symptoms disappear on their own after a few days and from there you will feel increasingly comfortable and healthy. There is even a rule which applies here: The stronger these initial symptoms are, the better you will feel afterwards. Green tea helps cleanse your body.

General things to consider when taking OPC

- One should take OPC half an hour before or after a meal.
- Since OPC, unlike vitamin C, is stored in the body for about 72 hours, taking it once a day is sufficient.
- Since OPC has the affinity to bind to proteins, you should never take it with a high protein diet (dairy products, eggs, etc.). This would result in OPC binding to the nutritional constituents instead of your body's own protein and being excreted without effect.

OPC cosmetics

'Beauty comes from within' – folk wisdom that applies perfectly to nutrients. Without question, 'cosmetics from within', i.e. the intake of proper nutrients



(vitamins, minerals, trace elements), are much more important to our appearance than applying creams locally. As is known, OPC/vitamin P is as efficient in collagen and elastin synthesis as any other substance known worldwide.

Nonetheless, creams have their relevance and locally enhance the effect of skin protection and skin rejuvenation that you experience from the inside by taking OPC. A test at a German clinic on patients who had undergone skin abrasion to remove scars found that locally applied OPC improves cell regeneration, protects the skin, and provides a generally better cosmetic appearance.[651] The combination of cleansing toner and a body oil lotion has always been well-proven in local cosmetics.

Making your own OPC face tonic

Ingredients:

- 50 mg OPC (in capsule form)
- 50 mg rosewater (available in pharmacies)
- Cotton wool

Instructions:

- First, cut a 50 mg OPC capsule and dissolve the powder in 50 mg of rose water
- Shake briefly, soak a cotton ball in it and clean your face.

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[651] Anne Simons, Alexander Rucker 'Gesund länger leben durch OPC' ('Living Healthy Longer Through OPC') 2005, p. 143



Making your own OPC body lotion:

Ingredients:

- 50 mg OPC (in capsule form)
- 50 mg mixture of wheat germ and evening primrose oil (available in pharmacies, mixing ratio 1:1).

Instructions:

- First, cut open a 50 mg OPC capsule.
- Mix the powder with 50 mg wheat germ evening primrose oil mixture (25 mg each)
- After washing or showering, rub your face or your whole body evenly with the OPC lotion.

Side effects of OPC

According to the discoverer of vitamin P, Prof. Dr. Masquelier, OPC is neither carcinogenic nor mutagenic. A long-term, side effect-free regimen of six months at a dose of 35,000 mg OPC/day (about 100 times the recommended dose) gives vitamin P the same level of safety as vitamin C.



In France, OPC is the foundation in three vascular-protective medications and has long been prescribed there.[652]

ORGANIC GERMANIUM

Things to know in advance

The most common question about this topic is always: 'What is organic germanium?'

This question can be answered very quickly with the description by the discoverer of organic germanium, Dr. Asai: *'It seems that germanium is a substance that originates in heretofore unknown dimensions with an immediate connection to the vital forces of life.'*

But before we approach this question in depth, a counter-question presents itself: How can we describe it as anything but 'scandalous' that a trace element (mineral) with an apparently unbelievable potential impact on our health, free of any side effects and already used with success for over 30 years in other countries for the treatment of the most severe illnesses, is hardly known and that hardly anyone has heard of its existence?

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[652] Anne Simons, Alexander Rucker 'Gesund länger leben durch OPC' ('Living Healthy Longer Through OPC') 2005, p. 10



This is simply an especially large scandal among many within our health system. But it gets worse: While germanium is recognised for what it is, a therapeutic substance, in the United States (where it can be found in every drugstore), Japan, France, Norway and Holland and several other countries, where is can be sold as a dietary supplement, its sale is prohibited in many other countries!

Prices on the black market are sometimes exorbitantly high and reliable sources are difficult to find, even if there are still suppliers on the German-speaking internet. The term 'germanium' might be known to a few technologically-interested people from the field of microelectronics in the construction of transistors; it should not, however, be confused with 'organic germanium', which refers to an almost miraculous substance which has been the subject of intensive scientific and medical research for around 30 years, especially in Japan.

It refers to a mineral, or more precisely a trace element, which, without any side effects, combines amazingly diverse health effects. Without getting into too much detail, it is most likely due to the political structures in our country as well as the excessive lobbying that takes place (in this case by the powerful 'Big Pharma') that the spread of information about miraculous, or at least very helpful, natural substances, not to mention the natural substances themselves, along with all available resources, is prevented.

A prime example of this is organic germanium, the very existence of which your doctor will not have heard of, if he has not coincidentally completed his medical studies in Japan. But back to organic germanium! While minerals and trace elements like zinc, selenium, iron, chrome, manganese, magnesium and



even, in the latest research, silicon have justifiably received recognition in scientific circles in our country, organic germanium has not only, to date, led an outsider existence in central Europe and the United States – it is even prohibited in our own country, which is truly shocking when you become aware of its tremendous

- immune system stimulating,
- oxygen enriching,
- detoxifying,
- antiviral and antifungal,
- anti-radiative and anti-mutational,
- and pain relieving

properties – researched and described in countless scientific papers and studies. Accompany us on a journey of exploration of one of the most repressed and unrecognised health supplements of our era and get to know an 'all-rounder' that knows, due to its broad range of effects, how to treat a variety of illnesses, from the simple flu to circulatory system disturbances and arthritis, all the way to illnesses like cancer or even AIDS , a full list of which would extend far beyond the limits of this preface!

Discovery of organic germanium

As mentioned in the preface, we must very clearly distinguish between 'germanium' and 'organic germanium', even if they are related to each other. Germanium is, first of all, a metalloid with the atomic number 32, an atomic weight



of 72.60 and a density of 5.36 g/cm$^{3.}$ Germanium is found in low concentrations in zinc, lead and copper as well as in several types of carbon. Already about 130 years ago, the Russian Chemist Dimitri Mendeleev, the inventor of the periodic table, predicted the existence of the element 'Germanium'. The element owes the name 'germanium' to the Chemist Clemens Winkler, who discovered the predicted element during an analysis of silver ore. Because Winker was German, he decided to name the element 'germanium' in honour of his homeland. An element was discovered, the use of which, however, could not yet really have been appreciated at the time. The next 60 years saw moderate to little interest in the newly discovered element 'germanium'. Around 60 years later, Shockley, Brittain and Bardeen discovered the usefulness of germanium from American telephone laboratories due to its semiconductor properties in the development of transistors and diodes. This should have represented a milestone in the development of modern civilisation.

The inestimable usefulness of germanium for technology seemed obvious, but a connection to organic germanium, i.e. its biochemical relation, which would later cause a sensation in the medical world, was not at all yet present at the time. The qualities which helped provide germanium in semiconductors with its worldwide success were already making the later discoverer of organic germanium, Dr. Asai, wonder.

Dr. Asai connected the technological phenomenon known as the '+/- hole effect' with the physiological behaviour of the human body, which also follows the physical laws of mass. In the '+/- hole effect', four of the 32 electrons of



the outermost surface of the atom are in continual motion and then, due to their negative charge, emit one of the four electrons when coming into contact with a foreign substance, whereby the remaining three electrons are attracted by other atoms in order to restore balance. In 1945, Dr. Asai, entrusted with the establishment of the Carbon Research Foundation, discovered that coal as well as several plants contained germanium. Asai intuitively researched plants which had been traditionally known for centuries to be highly effective in the treatment of malignant tumours. Next to ginseng, sansukon, shshi, buchsdronsaat and others, the greatest proportion of germanium was to be found in shelf fungi, a type of plant that was already recognised in the past in the struggle against cancer. The further interest of Dr. Asai led him to other plants which were traditionally considered generally beneficial to the health. To his amazement, these also contained a disproportionate amount of (organic) germanium.

First experiments with organic germanium

Asai conducted the first experiments on living material on the ginseng plant. This species of plant is known for being very demanding and only growing in optimal conditions and with perfect soil conditions. As a general rule, it can take up to 30 years after a harvest until the same soil can produce another harvest.

The experiment with organic germanium on ginseng

Dr. Asai planted multiple 8 cm long ginseng sprouts in various containers, only



watering one of them with a solution of germanium acetate. While after a six-month breeding process the sprouts which were watered with germanium acetate reached a height of 30 cm and already gave off a ginseng aroma, the other sprouts only reached a height of 10 cm and only gave off a very weak ginseng aroma.

Other experiments with organic germanium on plants

Obviously inspired by these research results, Asai was able to find out in further experiments that organic germanium was an important element of the plants' immune system. Interestingly, detaching a leaf of bamboo grass from the island of Yakushima led the plant to start to decay. Here, Dr. Asai saw his theory confirmed that the germanium follows a circulatory route from the roots through the leaves and back to the earth. Interrupting this circulation takes away the plant's immune defences which protect against germs and viruses with the help of the germanium. At this point, by the way, Dr. Asai doubted the effect of artificially cultivated ginseng, because as soon as it is taken out of its original soil, the germanium circulation is also in this case interrupted. Further interesting experiments followed. Asai determined, among other things, that rice soaked in germanium thrives at a temperature of 5 °C, while it decays without germanium. Alongside protecting against parasites, germanium turned out to be effective in the strengthening of the immune system against the cold. Even a small amount of germanium solution induced all plans to grow faster.

It seemed as if there was an amazing relationship between living substances



and metals which should be explored in further experiments. However, without extracting results from this, the whole thing would have made no sense, as it was, in the given form, only partially useful for humans.

Transforming germanium into a useful form

While the efforts of the electronics industry to this day have been focused on finding a way to transform organic germanium into an inorganic substance for semiconductors, Dr. Asai was now presented with the opposite task, transforming inorganic geranium into an organic form. For 10 years, Dr. Asai groped around in the dark until, in November 1967, he finally succeeded in developing a synthetic form of a water-soluble, organic germanium compound with the name 'germanium-carboxyl-ethyl-sesquioxyd' and the chemical formula 'GeCH2 CH2COOH203'.

This compound has an extreme degree of hydrogen bonding and its structure is meshed with three oxygen atoms on one germanium atom. The germanium atom has four exchangeable electrons, whereby three alternately bind to an oxygen atom while the fourth is a free radical. The oxygen atoms alternately bind with the germanium atoms in a beautiful shape which reminds one of a flower ornament.

The first test of the organic germanium on human beings

Years often pass until a new substance moves on from all of the toxicity tests and receives approval for trials on human subjects. It is often the euphoria of the inventor that leads him or her to risk testing it on his or her own body,



long before it is tested on other people. Suffering from polyarthritis, which still remains a riddle for conventional medicine, Dr. Asai decided to perform a self-test with organic germanium, especially because he was convinced that his discovery was at the very least harmless and should not lead to any notable side effects. After ten days of this oral medication with organic germanium in connection with water, Dr. Asai could already stand up again and walk around the house. He felt, moreover, '*pronouncedly healthy*'.

Trials with organic germanium on other ill persons ensue

An acupuncturist who was treating Dr. Asai for his illness—considered 'incurable' by conventional medicine—was amazed after only a few weeks by the extremely positive condition of Dr. Asai and asked him to make some of this portentous substance available for his other patients.

After first testing it on himself some further weeks in order to rule out any side effects, Asai gave the acupuncturist some of his organic germanium for his patients.

The acupuncturist gave it to his patients who were suffering from illnesses considered incurable by conventional medicine (including cirrhosis of the liver, cancer, and epilepsy) and was astonished by their visible improvement after consuming organic germanium. And so the inevitable happened: The acupuncturist was forced by the health authorities to immediately end his treatments with organic germanium as a still unresearched medicine. There was, then, nothing left for Dr. Asai to do other than to continue his experiments with



organic germanium on animals, until it might one day officially be permitted for human beings. You can read more about this in the next section 'Effects of Organic Germanium'.

Effects of organic germanium

Amazing healing successes with organic germanium on animals

Before Dr. Asai could extensively test the effect on human beings, then, he had to subject himself to the legal requirements and first test the effects of organic germanium on animals.

Miraculous wound healing on a cat

His own cat became his first test animal, after it emerged the loser from a hard fight with a dog. The wounds were so severe that Dr. Asai and his family feared for the life of the beloved animal. Dr. Asai treated the Siamese cat in the presence of a veterinarian both internally and externally by giving the cat a solution of organic germanium to drink and at the same time applying bandages dipped in organic germanium to the animal.

A few days later, when the veterinarian came to visit, he was amazed by the rapid healing of the wounds and made the comment that he now believed in miracles...

Healing of koi carp



Koi carp are considered highly susceptible to all kinds of diseases. An acquaintance of Dr. Asai was complaining one day that his koi were lying on their sides and gasping for air and were losing their scales. Dr. Asai recommended to his acquaintance that he put a cup of the germanium solution into the water for the carp which were closer to death than life. The fish recovered in a very short period of time, swam around vigorously in their pond and willingly accepted food.

Veterinarians demand quick approval of organic germanium

Not only bad news spreads like wildfire—sometimes good news does, too! The news about the successful treatment of the animals spread like wildfire, so that veterinarians also began to treat their animal patients with organic germanium.

The healing effects were so convincing, even with supposedly incurable illnesses, that many veterinarians thus demanded germanium be approved as quickly as possible.

Organic germanium in official animal trials

In the meantime, his polyarthritis healed with the help of organic germanium, this and the successful healings of animals gave Dr. Asai so much courage that he decided to aim for official animal trials with organic germanium.

Organic germanium non-toxic, safe, and free of side effects

First, the potential toxicity (poisonousness) needed to be extensively tested in



professional toxicity tests. After acute, sub-acute, and chronic toxicity including deforming effects could be ruled out and organic geranium turned out to be totally non-toxic and harmless, it was not especially difficult for Dr. Asai, on the basis of the previous miraculous healings, to accumulate the necessary capital and open his own clinic on the outskirts of Tokyo focused on the research of and treatment with organic germanium.

Amazing recovery of untreatable patients

Parallel to this, Asai's medical colleagues made it clear that they were also ready to treat their patients with organic germanium, so that they could profit from the major experience. In his book *Organic Germanium – A Hope for Many Ill People*, Dr. Asai describes the '*amazing recovery of patients with illnesses that hardly responded to pharmaceutical treatment*'. [653]

How does organic germanium work?

Before we speak about the specific effects of organic germanium on illnesses, it will be interesting to learn which operating principles lead to the astounding recoveries. As soon as an individual natural substance shows itself to have a positive influence on a variety of illnesses, and even to heal them, it is logical to assume that it is a matter of a comprehensive overall effect. This is exactly the case with organic germanium and these properties are due to its specific structure, composition and its electrical properties.

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[653]Kazuhiko Asai: 'Organisches Germanium – eine Hoffnung für viele Kranke' *(Organic Germanium – A Hope for Many Ill People),* 5th Edition 2001, p. 32.



General effects of organic germanium

Effect on the immune system

The most important guard of our health and our lives is our immune system. It protects us from intruders in the form of viruses, bacteria and fungi. It also protects us from foreign substances that endanger our health like heavy metals and chemicals that the modern era in which we live brings more strongly with it. Geranium has been demonstrated not only to stimulate our immune system but also has an immune modulating function in the context of homeostasis. This means that the organic germanium brings the active components of the immune system into harmony and optimises them by encouraging interferon synthesis, among other things.

We may say in summary:

-Organic germanium stimulates the production of immune interferons.
-Organic germanium strengthens the effect of natural killer cells.
-It encourages the production of T suppressor cells.
-Organic germanium strengthens weakened immunity.

Effect of organic germanium on the oxygen enrichment of cells

Dr. Asai ascribes the greatest proportion of the effect against numerous illness to this role. Sick tissues are very often negatively characterised by their inability to absorb much oxygen. Organic germanium binds oxygen atoms to itself, which in turn bind to free hydrogen and see to it that the oxygen taken in by



breathing can get to the body cells unimpeded and revitalise them. In this way, organic germanium transports oxygen via the finest capillaries to every tissue and every body cell of our organism, but is itself broken down after about 20 hours without causing any damage. If it were a metal it could be stored, but as a metalloid germanium cannot be stored in the body. An anaerobic (oxygen-poor) environment itself causes our body problems; for example, it is known that certain negative microorganisms, like Candida, thrive best in such an environment and abundantly reproduce, causing damage to the health.

Organic germanium refills used oxygen reserves in the body and optimises the oxygen delivery of our organism. Oxygen in turn means life, even or especially for our bodily cells. Dr. Asai's thesis thus sounds highly plausible. Interestingly, organic germanium can also generate energy without oxygen, something that does not work without electrons which germanium transports to the location where it takes place. Organic germanium may on the one hand be able to enrich our bodily tissues with oxygen, but also at the same time helps retain energy in the case of lack of oxygen, which in many cases can avoid stroke, heart attacks and general tissue necrosis. Taking organic germanium in appropriate doses leads to a feeling of hyperthermia (warmth) as well as a tingling feeling, which Dr. Asai sees as tangible evidence of oxygen enrichment in the body.

Electromagnetic effect

Because organic germanium is a metalloid, it also naturally has an influence on the behaviour of electrons. With respect to the fact that the total information flow of our organism takes place via electrons, we can already get a sense of



the effect of organic germanium on our body. Organic germanium may bring blocked energies in ill people into harmony via the manipulation of electric as well as magnetic currents and thus stimulate healing processes.

Effect against attacks of free radicals

Another mechanism with which organic germanium protects our health is its potential as an antioxidant. Our cells are attacked millions of times every day by free radicals. In connection with oxygen, oxidation then occurs and thus the destruction of our bodily cells:

- Free radicals destroy our cells, our cell membranes, our DNA, our genes, our bodies' own protein and fat.
- Free radicals accelerate tissue deterioration and that which we perceive as 'bodily aging'.
- Free radicals cause or accelerate many so-called civilisation diseases, for example:
    - Atherosclerosis
    - Respiratory diseases
    - Blood vessel diseases
    - Diabetes
    - Cancer
    - Arthritis
    - Cystic fibrosis
    - Hepatitis



- Inflammation
- Alzheimer's
- Parkinson's
- Down's syndrome and many others

Many studies, including at the Institute for Physiological Chemistry at the University of Hannover, have been able to show that organic germanium has an influence on peroxidase and catalase as well as on the glutathione enzyme system and in this way helps avoid oxidative destruction (in cooperation with other important antioxidants like OPC, Vitamin C, Vitamin E, coenzyme Q10 and selenium).

Cancer cell-destroying, cytotoxic effect

When considered physically, a cancerous ulcer is extremely positively charged, which is not compatible at all with the negative charge of the organic germanium. If a particle of germanium comes into contact with the cancer cell, it cracks open the positive charge of the cancerous tumour like a shell and destabilises it until it disintegrates. The dead remains of the cancer cell are removed from the body via the liver.

Detoxifying effect

We live in a world that is full of stresses by way of toxins, heavy metals and radiation. With organic germanium, a natural substance is available which frees the body of dangerous foreign substances, malignant contaminations, heavy



metals and radiation. Quicksilver, cadmium and other heavy metals are deposited into our bodies and cause serious damages to our health. Organic germanium binds all of these dangerous substances to itself and conveys them out of the body. According to Dr. Asai, this happens because the positively charged ions of the toxins are captured in the net of the negatively charged ions of the organic germanium and are then flushed from the body.

The blood is also detoxified via the negatively charged oxygen ions, which benefits all organs and tissue types. During this process, deformed and diseased red blood cells are repaired. Organic germanium also works efficiently against side effects of cobalt radiation. Here, a very good effect is demonstrated after an introductory dose of 100 mg/day with 300 mg/day.

Antimutagenic effect

Germanium has been shown to have an antimutagenic effect. In strictly controlled studies, organic germanium (Ge-132) was able to reduce mutations in E. coli caused by gamma rays by a factor of 20. The mutation rate of Trp-P-2 induced salmonella typhimurium was able to be reduced by a factor of 40 to 67.

Analgesic effect

Organic germanium has an influence on endorphins and thus has an analgesic (pain-relieving) effect. Additionally, it can augment the effect of conventional pain medications. Due to the fact that organic germanium enhances the analgesic effect of morphine analgesics, one may assume that organic germanium



(Ge-132) activates the analgesic system via an opium receptor in the brain. The analgesic effect of organic germanium has been especially proven with rheumatism patients, cancer patients and patients with angina pectoris.

Antiviral and antifungal effect

Furthermore, organic germanium also has an antiviral and antifungal effect.

Has the effect of organic germanium been proven?

With so much promise related to a single natural substance, the scepticism of those especially who have not yet had many dealings with natural remedies is understandably quite large, and so many of these people might question such a wholehearted promise of organic germanium's health effects.

In contrast to most natural remedies, organic germanium is a substance whose production has a creative, intellectual value. This authorises the patenting of a product.

In such a patent, of course, a proven, unobjectionable usefulness for the end user must be demonstrated

US Patent No. 4.473.581 Title *'Organogermanium Induction of Interferon Production', Ishida et al.,* September 25, 1984:

- Immunising Properties
- Production of interferon (immune gamma interferon type 2) with effects against viruses and cancer



- Activation of macrophages
- cytolytic (cell-damaging) effect on cancer cells

Specific effects on diseases

With the above-mentioned properties of strengthening the immune system, enriching cells with oxygen, protecting healthy cells from free radicals, having a damaging effect on cancer cells and detoxifying the organism, organic germanium is in fact predestined to put an end to many diseases, and not only life-threatening ones! While research into organic germanium is still largely in its infancy, there are nonetheless already findings and evidence concerning its amazing effects on the following illnesses:

Effects of organic germanium on cancer

Studies have shown that organic germanium has a cancer-inhibiting effect and both a directly and indirectly destructive effect on cancer cells. On the one hand, the negatively-charged germanium breaks through the positively-charged cancer wall and destabilises it until it falls apart. Then the remains of the dead cancer cells are transported out of the body via the liver. On the other hand, organic germanium stimulates the T suppressor cells, macrophages, natural killer cells as well as the production of lymphokines which cooperate in conquering the cancer. In animal trials, the effect of natural killer cells was tripled from 10 % to 33 %. Organic germanium has the ability to melt down the tumour and, on the basis of its immune strengthening and bioelectric qualities, to avoid metastases.



Here it is assumed that the bioelectric properties of the metalloid 'germanium' have a highly viscous effect on our blood, which makes it impossible for the cancer cells to become established and develop into a cancerous tumour. Organic germanium is thus able to transform a deformed cancer cell into a normal cell by way of cellular and electrochemical metabolic processes. In addition, it is very efficient in counteracting cancer pain. Similarly to his triumph over his own polyarthritis, Dr. Asai was able, after a larynx operation, to overcome his own cancer entirely without radiation or chemotherapy with the help of organic germanium.

Organic germanium demonstrates particularly good results with the following types of cancer:

- Lung cancer
- Colon cancer
- Cervical cancer
- Breast cancer
- Ovarian cancer
- Prostate cancer
- There is also a positive effect on leukaemia



The suppression of tumours by organic germanium is described in the following way:

- Organic germanium stimulates T cells to produce gamma interferons.
- The interferon activates the macrophages.
- The macrophages suppress tumour growth and tumour reproduction.
- Organic germanium suppresses the DNA, RNA and protein synthesis of the cancer cells.

It is no wonder that contemporary research into organic germanium primarily focuses on its cancer-curing effects and that there are cancer clinics in Japan which exclusively and very successfully use organic germanium treatments.

Effects of organic germanium on cardiovascular disease

High blood pressure

Organic germanium enriches the blood with oxygen, which automatically leads to it becoming thinner and the blood pressure decreasing to normal values. Taking even higher doses does not further decrease the blood pressure after it has returned to normal.

High cholesterol

In animal trials, organic germanium was able to lower the cholesterol level.

Heart attack

A heart attack is characterised by a necrosis of the heart tissue due to a lack of



oxygen supply to the heart. The oxygen enriching function of organic germanium also has a protective effect against heart attacks. If a heart attack is still unavoidable despite germanium, experience shows that it frequently turns out to be milder and does not leave behind permanent damage to the heart tissue.

Stroke

A stroke is mainly based on the same mechanisms as with a heart attack, which lead to the suppression of oxygen supply to the tissue. Here, too, the oxygen enriching effect of organic germanium can prevent a stroke and be life-saving.

Smoker's leg

Because organic germanium makes the blood thinner, it improves circulation and counteracts smoker's leg.

Further effects on cardiovascular diseases

Organic germanium also has an effect on angina pectoris, atherosclerosis and apoplexy.

Effect on multiple sclerosis (MS)

Multiple sclerosis, which to this day is considered an incurable illness, is the focus of much research. The oxygen enriching effect of organic germanium also seems to be present with this oppressive illness. According to Dr. Vries, organic germanium as a combination therapy with an intensive oxygen treatment can lead to an *'incredible improvement'* in the condition of the MS patient.



Among other things, the vision is improved, because eye function is directly related to oxygen.

Effects of organic germanium on epilepsy

There are reports of positive cases of successful cures of epilepsy with organic germanium (sanumgerman and Ge-132).

Effect on arthritis

The best evidence of organic germanium's effect on arthritis is Dr. Asai himself, the discoverer of organic germanium. He suffered from severe polyarthritis, was considered untreatable by conventional medicine and was able to heal himself in only a few weeks with the help of organic germanium! There are numerous studies in which organic germanium (Ge-132) was able to demonstrate successes with arthritis. It led to the normalisation of T lymphocytes, the effect of interferons, the activity of killer cells and antibody-dependent cytotoxicity. With 82 % of patients (14 of 17), their condition considerably improved, expressed by the lessening of joint pain as well as the typical warm-up pain and stiffness in the morning. It is believed that the organic germanium acts in this case as an immunomodulator.

Here the following process is assumed:

- Organic germanium influences those macrophages which take part in the inflammation and the immune regulation;
- these influence the antigen presentation of the T helper cells,



- which then leads to the induction of suppressive cells.

Effect of organic germanium on osteoporosis

According to a 12-month study at the University of Tokyo, not only did the bone density of the patient group treated with 1500 mg of organic germanium (Ge-132) not shrink, it even increased, while the bone density of the control group which received no organic germanium decreased further. It was assumed that this effect could be traced back to the reduction of the PHT serum content. The effect was the most pronounced in the first three months.

Effects of organic germanium on malaria

While malaria is already largely resistant to the common malaria medications, spirogermanium was able to demonstrate significant effects against chloroquine-resistant and sensitive strains of plasmodium falciparum.

Effect on Raynaud syndrome

Raynaud syndrome (morbus Raynaud) is a vascular disease which is characterised by the extremities (hands and feet) growing pale due to vasospasms and which can lead to amputations due to limbs dying off. It was observed that taking organic germanium led to substantial improvements to patient condition.

Effect on high-risk pregnancies



It has been reported that high-risk pregnancies show a milder course of development.

Effect on skin diseases

Positive results with organic germanium have been reported with eczema, burns, warts, herpes and corns. The oxygen enriching effect of germanium on burns especially helps with a quick alleviation of pain and the healing of the burnt tissue.

Effect of organic germanium on AIDS/HIV

AIDS, as is well-known, is an illness that debilitates the immune system. The strong effects of organic germanium suggest that it could also be successful in the fight against AIDS.

In Japan there are AIDS clinics which have specialised exclusively on treatment with organic germanium, with great success. There are also experiential reports on the treatment of Kaposi's sarcoma with organic germanium.

Effect of organic germanium on Candida albicans

In studies, even small amounts of organic germanium (100 ug/ml) could suppress the growth of Candida albicans and other fungi. It is assumed that the oxygen-enriching effect of organic germanium can put an end to the fungi, because these only grow in an oxygen-poor environment.

Effect of organic germanium on Lyme disease



Organic germanium has also demonstrated therapeutic success with Lyme disease and is suited for long-term therapy due to its lack of side effects.

Effect on eye diseases

Positive reports are present for retinal detachment, glaucoma, cataracts as well as retinal burns and burns of the optic nerve. Although the effect is still not entirely clarified, researchers assume that the oxygen enriching effect leads to these positive results. Dr. Asai augments this with this thesis that organic germanium rejuvenates the blood vessels of the retina.

Effect on colds/flu

The strengthening of the immune system as well as the antiviral effect of organic germanium explain its influence on colds and the flu .

Summary of illnesses which studies and observations by therapists show organic germanium influences positively:

- High blood pressure
- Atherosclerosis
- Heart Attack
- Stroke
- Diabetes



- Liver failure
- Liver cell carcinoma
- Hepatoma
- Asthma
- Eye Diseases (neuritis/blindness)
- Retinal degeneration
- Retinal inflammation
- Hearing problems
- Dermatitis
- Lyme disease
- Tinnitus
- Malaria
- Menopause problems
- Chronic fatigue syndrome
- Brain thrombosis
- Dementia
- Depression
- Schizophrenia
- Psychosis



- Disorders of the peripheral nervous system
- Parkinson's
- Flu/influenza
- Reynaud disease
- Kashin–Beck disease
- Epilepsy
- Prostate disorders
- Candida
- Haemorrhoids
- Ulcers
- Gastritis
- Warts

Sources of organic germanium deposits

As a natural trace element, traces of organic germanium are present in almost all foods. That includes grains, leek, garlic, onions and ginseng. Medicinal springs often presumably owe their effect to the high amount of organic germanium; it is present in the famous waters of Lourdes (perhaps the God-given blessing that led to the sudden healings of sick people?), the Haderheck Spring



and the Dunaris Spring in the Eifel mountains. The average intake of organic germanium varies according to diet between 1 and 3 mg/day, whereby a low-carbohydrate diet contains less germanium.

Different germanium preparations on the market

Germanium preparations for internal consumption

Three kinds of organic germanium are offered on the market:

- Carboxylethyl germanium sesquioxide (Dr. Asais Ge-132)
- Sanumgerman
- Germanium lactocitrate

Carboxylethyl germanium sesquioxide: This preparation is the original from Dr. Asai, the discoverer of organic germanium.

Sanumgerman: Sanumgerman is an organic germanium produced by the German company Sanum-Kehlbeck which came to be in cooperation with Dr. Asai and can look back on a 30-year history of use.

It seems however that Sanum-Kehlbeck today only produces sanumgerman in the form of drops which are declared as a homeopathic medicine and thus able to be sold. Here it is important to note that Ge-132 contains the most organic germanium at 42 %, followed by sanumgerman at 17 % and ***Germanium lactocitrate*** with only 10 %.



Germanium products for external use

Alongside the products which are officially prohibited in many countries for internal use, there are also products on the market for external application based on organic germanium. These products are legally available, even if their declaration is not allowed to show any healing or health-promoting effects. They are generally cosmetics and body care products.

Organic germanium – dosage

The usual recommendation for organic germanium (Ge-132 or Sanumgerman) generally lies between 20–1500 mg per day, although 20mg is the minimum limit for achieving any effects. Severe illnesses require a higher dosage and vary between 1000–5000 mg, although the European norm prescribes 200–1200 mg per day of organic germanium.

Organic germanium dosage table (according to Dr. Asai or Dr. Okazawa and Dr. Tanaka and Dr. Okazawa):



ILLNESS	DOSAGE FOR ORGANIC GERMANIUM (Ge-132)/day
Nephrosis	3 x 30 mg per kg body weight
Prostate problems	800 mg
Atopic dermatitis	4 x 20 mg per kg body weight
Kashin–Beck disease	1.5 g
Cerebellum degeneration	2 x 40 mg per kg body weight



Subacute neuropathy	2 x 40 mg per kg body weight
Retrobulbar neuritis/full blindness	2 x 40 mg per kg body weight + germanium eye drops
Extreme pain (e.g. cancer pain)	3-4 g
Hepatoma – benignant liver cell adenoma and malignant liver cell carcinoma	3 x 35 mg per kg body weight + suppositories + injections
Leukaemia	500 mg
Preventing metastases	500mg

Does organic germanium have side effects – is it poisonous?



It is crucial, even essential for survival, to distinguish between organic germanium and inorganic germanium. All inorganic germanium connections are presumably poisonous, which is also true of germanium oxide, but not, however, with organic germanium! The human body does not store organic germanium. Approximately two hours after consumption, the concentration in the blood plasma is at its highest and, after three days at most, is expelled from the body (primarily via the kidneys) together with all of the toxins and contaminants it could bind itself to during this time.

Is it dangerous during the 20 hours?

While inorganic germanium (as found in electronics) can be toxic, animal trials have shown no toxicity with up to 3.4 g of organic germanium per kg body weight in the case of mice and 10g of organic germanium in the case of rats.

A 70 kg human being would thus have to take, instead of the recommended 20–1500 mg, 238,000 mg of organic germanium to expect a toxic effect, which is 158 times the amount of the recommendation. An initial feeling of discomfort, accompanied by headaches, skin outbreaks or initial pains (e.g. with arthritis) can be traced to the detoxifying mechanisms of the organism and generally disappear after a few days, or after two weeks at the latest. One particular form of organic germanium is spirogermanium, which in contrast to the other forms of organic germanium (which is categorized as a dietary supplement) was developed as a medication. According to various reports, the consumption of spirogermanium leads to a temporary (passing) nervousness.



Studies of organic germanium

As already noted in the section 'Effects of Organic Germanium', the research into organic germanium is still in its infancy. Nevertheless, research has been continuing for many years and there are serious studies and scientific papers on the effects of organic germanium.

Organic germanium successful against cancer according to studies

The scientists Brutkiewicz and Pollard were able to demonstrate a clear cancer-inhibiting effect in their studies.

This effect is ascribed primarily to the stimulation of T cells and macrophages as well as the production of gamma interferon (lymphokine).[654]

Successes with organic germanium on lymphomas[655]

Antitumoural activity of organic germanium[656]

Organic germanium with advanced uterine cancer[657]

Organic germanium and advanced ovarian cancer[658]

Organic germanium and advanced breast cancer[659]

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[654] Suzuki et al.: Importance of T-Cells and Macrophages in the Antitumour Activity of carboxyethylgermanium Sesquioxide (Ge-132), Anti-cancer Res., 1986, 6, p. 177-182

[655] Phase II Eastern Co-operative Oncology Group Study of Spirogermanium in previously treated lymphoma. Cancer Treat. Rep., 70, 1986, p. 917 f.

[656] Antitumoral Activity of Ge-132, a new organogermanium compound in mice is expressed through the functions of macrophages and t lymphocytes, Gan-To Kagaku Ryoho, 1985, 12, 1445-1452.

[657] Phase II Study of Spirogermanium in Patients with Advanced Carcinoma of the Cervix, Cancer Treat. Rep. 67, p. 193 f.

[658] Trope, C. et al.: Phase II Study of Spirogermanium in Advanced ovarian malignancy, cancer treat. Rep., 1981, 65, p. 119 f.

[659] Kuebler, J. P. et al.: Phase II Study of Spirogermanium in advanced breast cancer, cancer treat. Rep., 1984, 68, 1515 f.



Organic germanium in the treatment of metastasising breast cancer[660]

Inhibition of cancer growth and metastasis with organic germanium[661]

Organic germanium and metastasising malignant melanoma[662]

Organic germanium and lung cancer[663]

Organic germanium and metastasising prostate cancer[664]

Organic germanium successful against arthritis in studies[665]

Organic germanium counteracts mutations[666]

Organic germanium strengthens the immune system by encouraging interferon production

'Induction of interferon and activation of NKcells and macrophages in mice by oral administration of Ge-132, an organic germanium compound'.

Organic germanium and anti-ageing

One of the most decisive factors in ageing is called 'amyloidosis'. This refers to an enrichment of abnormally altered proteins in the space between the cells. These are insoluble deposits in the form of the smallest motion unit, the so-

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[660] Phase II Study of Spirogermanium in the treatment of metastasic breast cancer, cancer treat. Rep., 1984, 68, p. 1197 f.

[661] Inhibition of tumour growth and metastasic in association with modification of immune response by novel organic germanium compounds, J. Biol. Response Mod., 1985, 3, p. 159-168.

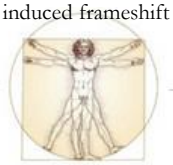
[662] Canada Clinical Trials Group, Invest New Drugs, 1985, 3, 303 ff.

[663] Phase II Study of Spirogermanium in advanced non-small cell lung cancer, Cancer Treat. Rep., 1986, 70, p. 673 f.

[664] Phase II Study of Spirogermanium in metastatic prostate cancer, Cancer Treat. Rep., 1986, 70, p. 673 f.

[665] Antiarthritic and Immunoregulatory Activity of Spirogermanium, J. Pharmacol. Exp. Ther., 1986, 236, 103-110.

[666] Antimutagenic Effect of germanium oxide on trp-p-2 induced frameshift mutations in salmonella Thyphimurium TA98 and TA 1538, Mutation research, 1984, 125, S. 145-151.



called ‘fibril’. There is additionally a so-called ‘AS amyloid’ stored primarily in the heart and brain, which ensures gradually diminishing functions. Organic germanium inhibits the appearance of amyloidosis and in this way counteracts biological ageing.



Conclusion

Quo vadis organic germanium?

While organic germanium is an approved and widely available dietary supplement in other European countries, the United States, and Japan, the official sale of it is strictly forbidden in many countries!

House searches are regularly carried out and fines imposed; with repeat offenses, the 'offenders' are threatened with even more severe penalties. The question may justifiably be asked why a double standard applies here: Why is organic germanium sold legally in other countries that belong to our same trade zone and yet vigorously repressed and persecuted in our own esteemed country? How can it be that there are cancer and AIDS clinics in the United States and Japan that are specialised in treatment with organic germanium and perform successful treatments, while in this country it is most likely that your own doctor has never even heard of organic germanium? A question that could be answered if you were to research the power of lobbyists in our political system and identify the dominant branches in that lobbying...

The wish remains to this date that the decisive structures of our health system turn 180 degrees in favour of the species 'human being' and that a remedy like organic germanium receives the place that it unquestionably deserves in medical treatment and the prevention of disease.



Papaya – the '*Fruit of the Angels*'

It was surely the delicious taste first of all that caused Columbus, upon his discovery of the papaya fruit, to call it the 'fruit of the angels'. That papaya could have so much more to offer than its refreshingly delicious taste—that, of course, Columbus could not have guessed after his first encounter with this potential natural remedy.

The detoxifying, purifying, immune-strengthening – in short: the healing effect of papaya has been appreciated for centuries by native peoples around the globe and used on all variety of illnesses and complaints, e.g. by the Aborigines, the Indians of Central and South America, the native peoples of India, the Kahunas and even the Chinese.

For the native Australians (Aborigines) and the Kahunas on Hawaii, this 'magical fruit' is THE cancer remedy per se – and this rightfully, as the 600 scientific studies about the cancer-healing powers of papaya reinforce!

The immune-strengthening, detoxifying and base-forming potential of papaya in connection with many other mechanisms of action lead to as yet unrecognised healing possibilities as well as to relief of numerous diseases and disorders.



Papaya – the basic botanical information

Name

The papaya (botanical name 'Carica papaya') is also called the 'melon tree' or 'papaya tree', and sometimes also the 'Poor Man's Banana' or the 'Hoosier Banana'. It belongs to the plant family of the melon tree plant. The name 'papaya' originates in the language of the Arawak Indians, who have used the papaya fruit for ages as a medicinal plant.

Appearance

The papaya fruit grows on papaya trees that are approx. 3-8 m tall, often in a bunch of up to 9 individual fruits. Their shapes range from pear-like to oval and become about 8-15 cm long and weigh up to 400 g.

The still unripe papaya fruit is green; once it ripens, it takes on a yellow-green to yellow-orange colour. Within the papaya is a hollow space; the flesh is, independently of type and ripeness, yellow to dark orange. In the middle, there are the black pits which resemble peppercorns.

Taste

The flesh of the papaya fruit resembles that of the melon or apricot, but is very soft and sweet.



Origin

Originally from the coastal regions and lowlands of the American tropics, it was the Spaniards who relocated the papaya as early as the beginning of the 16th century to the Philippines and the Antilles and there began to grow the plant.

Cultivation

The tropical to subtropical climate mirrored the conditions the papaya needs for its growth. Today it is thus cultivated mainly in Florida (USA), India, Australia, Africa, Brazil and in South and Central America. Papaya is offered year-round on the market.

Papaya enzyme 'papain'

Towards the end of the 20th Century, scientists were able to isolate the most important enzyme of the papaya, 'papain', from the leaves and still unripe fruit of the papaya tree. Papain is mainly extracted from the latex of the papaya tree, but a few other fruits also contain smaller amounts of papain. Papain is a so-called 'proteolytic enzyme' which is composed of more than 200 amino acids. Its therapeutic uses are diverse and range from aiding digestion to the healing of wounds and the vitalisation of heart function all the way to cancer. In its role in digestive support, papain primarily splits peptide connections which basic amino acids take part in. It is thus predestined to facilitate the digestion of dietary protein. An interesting fact for people who suffer from gluten intolerance is that it also helps digest gliadin as a part of the gluten and can reduce



the intolerance and sometimes even eliminate it.

The papaya enzymes have a special protein-dissolving power, but attack only sick tissue (cancer tumours) and protect the healthy cells at the same time. Healthy cells possess protective mechanisms against voracious, proteolytic enzymes, while cancer cells only develop enzyme inhibitors within 12 to 48 hours – a time long enough to selectively eliminate cancer cells.[667]

During heart therapy or the prevention of cardiovascular diseases like heart attack and stroke, papain contributes to the breaking down of fibrin and fibrinogen, which could otherwise lead to the clotting of blood cells together with serious cardiovascular health problems.

Incidentally, green, unripe papayas contain almost 5000 % more papain than ripe papayas!

Medical recognition of the papain enzyme

In 1982, papaya extract was officially recognized by American pharmaceutical authorities.[668] Papain assists the papaya tree, which itself almost never suffers from diseases or is infested with parasites, as a defence system against destructive and disease-causing microorganisms. It was thus obvious to try out this operating principle on human beings, and for humans, too, the immune system defended itself best when enzymes activate our immune cells and protect from

[667] Barbara Simonsohn: Papaya – Heilen mit der Wunderfrucht ('Papaya – Healing with the Wonder Fruit'), 2nd Edition, 1998, p. 97.

[668] Andrea Ehring: Das Krebsmittel der Aborigines: Papaya, 1st Edition, 1998, p. 16.



bacteria, fungi, viruses and even cancer cells.

Papain and its medical uses

The therapeutic uses of papain are diverse and include:

- cancer,
- inflammatory diseases of all kinds,
- cardiovascular disease
- digestion problems of all kinds,
- gastrointestinal ulcers,
- poorly healing wounds,
- fistulas.



Active ingredients in papaya

Alongside the extremely important enzyme 'papain' which we described in detail above, papaya also possesses numerous other notable active ingredients. The flesh of the papaya fruit consists of 89 % water, 11 % carbohydrates and 0.4 % protein.[669]

The papaya fruit has honestly earned its Cuban name 'Fruta de Bomba' (Bomb fruit) due to its enormous variety of healthy ingredients, and the papaya is in fact a real 'vital substance bomb' with numerous vitamins, minerals, trace elements and enzymes.

It is assumed that most of the active ingredients contained in the papaya have so far not been identified and defined by science. On this topic, the papaya expert Prof. Chung-Shih Tang of the University of Honolulu speaks of a real '*knowledge gap in the therapeutic value of the papaya plant*', and this despite many hundreds of studies.

[669] USDA 2005



The following active ingredients have so far been demonstrated in the papaya fruit:[670]

Ingredients of a Papaya Fruit 500g/approximate value	
Provitamin A	2.80 mg
Vitamin C	420 mg
Vitamin B1 (Thiamine)	0.15 mg
Vitamin B2 (Riboflavin)	0.20 mg
Vitamin B3 (Niacin)	1.75 mg
Vitamin B6	0.15 mg
Vitamin E	3.50 mg

[670] Barbara Simonsohn: Papaya – Heilen mit der Wunderfrucht ('Papaya – Healing with the Wonder Fruit'), 2nd Edition, 1998, p. 46.



Vitamin H (Biotin)	0.10 mg
Potassium	1300 mg
Calcium	120 mg
Iron	2 mg
Magnesium	200 mg
Phosphorus	80 mg
Sodium	14 mg
Protein	2 mg
Carbohydrates	10 mg
Fat	4 mg

The papaya fruit also contains the following identified active ingredients:

- Papain
- Carpain
- Campesterol
- Cryptoxanthin



- Stigmasterol
- Phenylalanine
- Myrosin
- Pseudocarpain
- Violaxanthin
- Flavonoids
- Essential oils
- Bitter substances
- Tannins
- Selenium
- Riboflavin

Effects/application

'A PAPAYA A DAY – KEEPS THE DOCTOR AWAY' ... they say in Hawaii.

The numerous ingredients of the 'vital bomb' papaya in a perfect relationship to one another explain the broad spectrum of effects of this legendary fruit.



These are present throughout the whole papaya fruit in all of its parts, from the roots to the trunk, the leaves, the blossoms, the skin, the pulp, the milk all the way to the seeds.

The green, unripe papaya is purported, by the way, to have a greater healing potential than the ripe papaya fruit. In the seeds there are, among other things, the highly effective enzyme papain, as well as the enzyme 'carpain myrosin' and essential oils.

Almost all parts of the papaya fruit can be used for medical purposes. The pulp of the papaya combines the effect of the other parts of the papaya fruit in the corresponding relationship. Individual parts of the papaya are predestined for specific diseases:



Effect of the individual plant components of the papaya:

Papaya blossoms	Papaya seeds	Papaya leaves	Papaya root
Bronchitis, Jaundice	Cancer, Weak immune system Flu Colds Digestion problems Intestinal parasites Diarrhoea Diabetes Fungal infections	Fungal infections, Cough, Asthma, Bronchitis, cancer, Detoxifying effect, blood pressure Malaria, Tuberculosis, Wound healing	Bladder weakness, Kidney problems, STDs, Skin diseases, Bleeding, Jaundice, Worms



	High blood pressure Menstrual cramps Meno-pausal com-plaints		

General effects of papaya

The general effects of the papaya fruit are:

- antioxidant/cytoprotective
- immune system-boosting
- rejuvenating
- vitalising
- detoxifying
- purifying
- deacidifying
- accelerates wound healing



- lowers blood pressure
- anti-atherogenic (protects against atherosclerosis and removes existing vascular calcification)
- counteracts the development of cancer
- protects the cardiovascular system
- aids digestion
- builds the intestinal flora
- invigorates the endocrine system
- antibacterial
- antiviral
- antifungal
- anthelminthic (combats worms)
- anti-inflammatory
- helps with weight loss

Antioxidative effect of papaya

Papaya has an enormous antioxidative potential, which cannot be valued highly enough when you think of the fact that around 80 % of all diseases, including early ageing, can be ascribed to cell destruction by free radicals and that our approximately 37,2 trillion body cells are subjected to an astonishing 10,000-80,000 attacks per day. Among these antioxidative cell defenders is, among others, Vitamin C, of which the papaya contains even more than oranges or



kiwi, as well as carotene, which papaya offers more of than carrots.

Immune-strengthening effect of papaya

The strengthening and regulating effects of papaya on our immune system has multiple factors and is based on

- the relief of the immune system by antiviral and antibacterial as well as antifungal effects;
- the elimination of immune complexes and the prevention of the new formation of further immune complexes;
- the purifying and detoxifying effect;
- optimal breakdown of protein-based metabolic products;
- the high proportion of vital substances, again Vitamin C, and the cleansing of the intestinal villi.

Virus-killing and anti-bacterial effects of papaya

In contrast to most fruits, which are protected from intruders like insects and other pests by their hard skin, the papaya fruit possesses proper killer enzymes which protect the fruit from within. These are the enzymes 'papain', 'papayalysozyme', and 'chymopapain', which are especially numerous in the papaya fruit when it is not yet ripe.

Purifying and detoxifying effects of papaya



The papaya enzymes digest food waste, while the gland-activating and vivifying effect of papaya contributes to the improved removal of toxins and waste from the organism.

Effect of papaya on our endocrine system

The endocrine system has a fundamental influence on our health and our biological ageing..

It contains:

1. Pineal gland
2. Pituitary gland
3. Mammary glands
4. Thyroid and parathyroid glands
5. Spleen
6. Corpus luteum
7. Thymus
8. Lymph nodes
9. Adrenal glands
10. Liver
11. Pancreas



12. Ovaries

13. Testes

Looking at the list of organs belonging to the endocrine system, it becomes clear how important it is to keep our endocrine system young and active and thus healthy. Papaya seems to excellently master exactly this!

Specific effects of papaya on diseases

The papaya fruit has a positive influence on the following diseased and conditions:

- Coronary heart diseases
- High blood pressure
- Atherosclerosis
- Flu/Colds
- Bronchitis
- Asthma
- Acne
- Pancreas problems
- Inflammation of the colon (Colitis)
- Irritable bowel syndrome (irritable colon)
- Diarrhoea



- Signs of ageing
- Cancer
- Diabetes
- Multiple sclerosis (MS)
- Thrombosis
- STDs
- Sinus infection
- Sore throat
- Tuberculosis
- Osteoporosis
- AIDS
- Arthritis
- Arthrosis
- Rheumatism of the joints
- Muscle rheumatism
- Cellulitis
- Insect bites
- Flatulence
- Inflammation of all kinds



- Burns
- Liver problems/liver cirrhosis
- Athlete's foot
- Eczema
- Oedema
- Haemorrhoids
- Embolisms
- Fungi , mycoses (Candida albicans e. g.)
- Psoriasis
- Herpes
- Shingles
- Digestion problems
- Gastritis
- General stomach complaints
- Heartburn
- Stomach ulcers
- Libido problems/impotence
- Gingivitis/Parodontosis



Effect of papaya on acidification

Paracelsus had already named the acidification of our organism 'the fundamental evil of all diseases'. Diseases of civilisation like cancer, Diabetes, rheumatism and others were ascribed directly or indirectly to acidification. By way of the false, acidifying modern diet, medications, and modern stress, which also produce acids in the body, our organism is very much over-acidified.

In a state of permanent acidification, we are often depressed, tired, fatigued and irritable. A vicious circle then emerges if we reach for the false means, like coffee, to do something against the tiredness, or alcohol or sweets to numb us or distract us.

These are exactly the foods and stimulants that make the acidification even worse; we become even more stressed, which in turn weakens our immune system and this leads very soon to serious chronic illnesses!

Because the papaya is the most base-heavy of all known fruits, it has the potential to regulate the acid-base balance (measured as a pH value). Parallel to this, papaya provides us with healthy intestinal flora and activates our metabolism which ultimately leads to a detoxifying and intestine-purifying effect as well as a feeling of bodily and mental wellness.

Typical diseases of civilisation which can be ascribed to acidification, e.g. rheumatism, atherosclerosis , diabetes or cancer, have their breeding ground removed and the organism can begin to gradually regenerate.



Effect of papaya on cardiovascular diseases

According to new research, regularly eating papaya can decrease the risk of atherosclerosis, heart attack and stroke. The ingredients of papaya break down blood vessel deposits and the alkaloid 'carpain', contained in papaya, lowers cholesterol and fat levels in the blood. The blood pressure normalising function of carpain takes the burden off the heart muscle. Papain contributes to the breaking down of fibrin and fibrinogen and the avoidance of blood cell clotting.

Summary of the effect of papaya on cardiovascular diseases

- Papaya counteracts atherosclerosis,
- it lowers cholesterol and fat levels in the blood,
- normalises blood pressure and
- counteracts blood clotting.



Effect/application of papaya against high blood pressure

The blood pressure lowering effect of papaya should primarily be ascribed to its blood-thinning properties. Particularly suited to this purpose is the juice of an unripe papaya fruit which one should drink in the morning and evening.

Effect of papaya on AIDS

The new ray of hope on the distant horizon in the struggle against AIDS is enzyme therapy. In the USA, Australia and Costa Rica, Anthony J. Cichoke had notable success with enzyme therapy for AIDS patients and described these successes with the title New Hope for AIDS. Papain and other enzymes in papaya belong to the category of proteolytic enzymes, which have the ability to return immune complexes to the blood circulation and to dissolve them, which can lead to a cessation of symptoms and the standstill of the disease AIDS.

Effect of papaya on pancreas problems

As mentioned above, the enzymes of the papaya are in a position to split proteins. Papain and other enzymes in the papaya fruit can relieve the pancreas and quickly end the typical feeling of fullness.



Effect of papaya on libido problems and impotence

Because papaya stimulates all glands, and thus also the sexual glands, it was truly destined to strengthen our libido and to revitalise our sex lives. Supporting this is the circulation-enhancing effect of papaya on all organs, and thus also the sexual organs.

Effect of papaya on fungal infection (mycoses)

It has been shown that papaya supports a balanced acid-base balance and therefore removes the breeding ground for fungi in the intestines.

Effect on sexually transmitted diseases

As proven virus killers, the enzymes of the papaya fruit, especially papain, work effectively against all forms of sexually transmitted disease.

Effect of papaya on tuberculosis

In the case of tuberculosis, the enzyme 'carpain' is the most significant, as it has traditionally been used to treat tuberculosis on the basis of its antibacterial effects. Carpain can be found in the green papaya as well as in the leaves.

Effect and use on asthma



Papaya is a well-proven remedy for asthma For this purpose, the papaya leaves are boiled in 0.5 L of water and then strained. The decoction of this process is drunk warm twice daily, once in the morning and once in the evening. Alternatively, or as a supplement to this, one can also eat the ripe flesh of the fruit together with the skin and seeds on an empty stomach.

Effect and use of papaya with bronchitis

Boil the papaya leaves in 0.5 L of water and then strain them. Drink the decoction twice per day.

Effect and use on acne

The purifying, antibacterial effect of papaya is also demonstrated in the treatment of acne (pimples). The fleshy side of the papaya skin is laid on the part of the skin to be treated.

Effect and use of papaya on athlete's foot

The antifungal effect of the papaya fruit does not lose its influence with athlete's foot, either. For this condition we recommend foot baths with papaya vinegar. Afterwards, rub papaya oil on the affected area.



Effect and use on digestion problems

In contrast to pepsin, which is often administered for digestive problems, and all other enzymes, papaya is characterised by its effectiveness in both acidic and basic environments. This means that the papaya enzyme 'papain' dissolves foods into their component parts in the shortest amount of time without irritating the intestinal tract. This facilitates our digestion in a very gentle and smooth way and counteracts the digestion problems at the root.

In addition, the papaya enzymes have a cleansing function; no undigested food components remain in the intestinal villi which could lead to the reproduction of putrid bacteria and the resulting diseases (e.g. cancer) or even to the poisoning of the organism.[671] Due to its digestion-aiding effect, it always makes sense to order papaya as a dessert after a heavy meal.

Effect on flatulence

The enzymes contained in papaya facilitate digestion, suppress the accelerated growth of putrid bacteria and the build up of gas. This all counteracts flatulence.

[671] Barbara Simonsohn: Papaya – Heilen mit der Wunderfrucht ('Papaya – Healing with the Wonder Fruit'), 2nd Edition 1998, p. 86.



Effect and use with diarrhoea

The digestion-regulating and antibacterial effect also turn out to be good remedies for diarrhoea. Here the green papaya has proven itself the best, and should be eaten multiple times per day. In South America, 20g of green papaya are boiled in 0.5 L water and are drunk as tea at the main mealtimes.

Effect and use with blood in urine

One should of course immediately consult a doctor in cases of blood in the urine; native peoples prepare a tea from the papaya root and drink about one cup of it three times per day.

Effect of papaya on gastritis

Due to the intestinal cleaning and anti-inflammatory effects described above, papaya and/or its enzyme papain has proven itself highly useful in the relief of gastritis. Papain dissolves dietary protein, which additionally supports gastritis therapy.



Effect and use with general stomach complaints

The use of unripe (green) papaya or ripe papaya depends on the intensity of the complaints. Because the unripe papaya is more potent, it is recommended for more severe stomach complaints, while the ripe papaya is sufficient for more minor stomach problems. Alternatively, one may also use papaya blossom essence or tincture of papaya.

Effect and use of the papaya fruit on heartburn

The ripe fruit, or alternatively its juice, counteracts heartburn and can lead to very quick relief.

Effect and use on stomach ulcers

The green papaya, as well as papain-containing enzyme preparations, counteracts the development of stomach ulcers. A papaya blossom essence is also highly recommended.

Effect and use of papaya on sore throat

Mix the juice of an unripe papaya with honey and drink occasionally throughout the day.



Liver-strengthening effect (liver cirrhosis) and use of the papaya

For a liver-strengthening and liver-healing effect, we recommend the juice of the green and ripe papaya fruit. For liver inflammations, experts also recommend papain-containing enzyme preparations. For liver cirrhosis, we can recommend a papaya juice of ground seeds mixed with a bit of lemon juice. Swallow 1-2 teaspoons of this daily.

Effect and use on haemorrhoids

Native peoples of Africa successfully use the roots of the papaya plant to treat haemorrhoids. Alternatively, dip a cotton pad in papaya oil and dab it on the affected spot occasionally throughout the day.

Effect and use on insect bites

The Indians traditionally use the milky sap of the unripe papaya fruit; another alternative is to use an enzyme salve with papain (e.g. Wobenzym N salve).

Effect and use of papaya on diabetes

The papaya enzymes can support the splitting of the macronutrients 'fat' and 'protein' and be a real help to diabetics. For this purpose, the remedy 'papayasan' is useful. You could also prepare a tea from the decoction of the papaya seeds.



Effect of papaya on multiple sclerosis (MS)

For multiple sclerosis, a combined preparation based on the various enzymes, including papain, is recommended. These successfully counteract not only viruses (many researchers and doctors suspect that MS is caused by viruses) but can also neutralise certain toxic effects of food, e.g. of wheat gluten.

Effect against thrombosis

Papaya keeps the blood thin and in this way can prevent thrombosis. Blood clots, which can become seriously life-threatening as soon as they clog an artery, are dissolved by the enzymes.

Effect of papaya on herpes

People infected with herpes simplex and/or herpes B virus can experience relief and may even be cured with papaya. For herpes simplex, enzyme salves containing papain for external application are recommended, as they are for the herpes B virus. Both therapies should be supplemented by internal consumption of papaya.

Numerous studies at university clinics attest to a recovery rate of up to 80 % after three months of consistent treatment with enzymes. [672]

Effect of papaya on malaria

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[672] Barbara Simonsohn: Papaya – Heilen mit der Wunderfrucht ('Papaya – Healing with the Wonder Fruit'), 2nd Edition 1998, p. 173.



As we have already read a number of times, the enzymes of the papaya are real virus killers which even confront the HIV virus . These can also help with malaria.

Effect of papaya on flu and colds

As we know, flu and colds are caused by viruses. Papaya's effectiveness in combating viruses, bacteria and fungi is, next to its immune strengthening function, what makes papaya a potential remedy for flu and colds. The rest is accomplished by the large number of vitamins and other vital substances which are effective against flu and colds, e.g. Vitamin C.

Effect of papaya on shingles

Enzyme therapy is a proven alternative treatment for shingles.

Effect and use of papain on arthritis and rheumatism

The enzyme 'papain', contained in papaya, thins the blood, detoxifies the inflammatory site and prevents immune reactions which lead to inflammation. The pains that appear with arthritis or rheumatism are eliminated when the papaya enzymes dissolve the contaminants which painfully irritate the nerve endings. In contrast to the traditional medications used by conventional medicine, the immune system is not suppressed but rather supported. Most people suffering from rheumatism are also over-acidified; here, papaya works against acidification and thus facilitates healing. There are combined preparations for both internal and external use for arthritis and other joint inflammations, e.g.



Wobenzym, Mulsal or WobeMugos.

Effect and use of papaya for menstrual cramps

The use of papaya seeds is a well-proven remedy for menstrual cramps and has been used by native peoples for centuries to counteract these complaints.

Effect/use of papaya on burns

The use of papaya's milky sap, or alternatively a papain-based enzyme salve which one rubs onto the wound, can counteract burn blisters and speed up recovery.

Effect and use for wound healing

Native peoples use freshly pressed papaya leaves to treat festering wounds. Alternatively, one can also use a papain-containing enzyme salve.



Papaya as a weight-loss aid

Papaya has an optimal nutritional balance with a very low energy density. This means that papaya is highly nutritious and vitalising but at the same time low in calories, which is crucial for losing weight.

As a true enzyme bomb, papaya also helps stimulate digestion and metabolism. Digestion occurs more efficiently and nutrients are broken down more effectively and quickly and recruited for energy delivery instead of – as is the case with slow digestion – burdening the intestinal tract and getting stored as body fat. The ripe flesh of the papaya fruit is also a real diuretic, which dehydrates the body and flushes water build-ups from bodily tissue.

Effect of papaya on cellulitis

Cellulitis is the result of stored food waste and weak connective tissue. Enzyme-rich fruits like the papaya can counteract cellulitis on the basis of its deacidifying and purgative effects.

Papaya and its effect/use on bleeding of the gums and parodontosis

Best suited for this purpose is the whole ripe papaya fruit. You massage the gums with the flesh of the fruit and with the papaya seeds several times per day until the desired result occurs.

Effect and use of papaya on cancer

Because papaya has primarily proven itself to be an effective remedy against



the life-threatening disease of cancer, we have dedicated a separate section to this subject (see the section 'Papaya and Cancer').

Rejuvenating effect of papaya

The effect of papaya against early ageing has its own dedicated section below (see 'Papaya Anti-Ageing').

Papaya and cancer

Effect and use of papaya (papain) on cancer

Papaya has been used for centuries by the Indians of Central and South America, by the Aborigines, the native peoples of Australia, and by the Kahunas of Hawaii as a traditional cancer remedy.

There are numerous first-hand reports of people, on whom conventional medicine had given up, being healed of their cancer through the use of papaya alone. Cancer-inhibiting substances have been identified in both the skin and the leaves and stems of the papaya fruit.



Proof of effectiveness confirmed by the National Cancer Institute (NCI) of the United States

The effect of papaya on cancer was comprehensively studied from 1992 to 1995 in the Office for Medicinal Chemistry and Pharmacology by the scientists Dr. Jerry L. McLaughlin, Dr. Yan Zhang, Dr. Qing Ye and Geng-Xian Zhao, supported by the National Cancer Institute, the NCI, and National Health Institute of the United States. After extensive research, they came to the result that there are cancer-inhibiting substances in every part of the papaya tree, but especially in the leaves, the stems, and the small branches.

As of today, there are over 600 scientific studies on the healing power of papaya on cancer, and the Australian government officially states that the papaya plant is a medicinal plant for cancer.

The oldest report on the use of papain was found by Barbara Simonsohn, the author of the book Papaya – Healing with the Wonder Fruit, in the British Medical Journal of 16 June 1906. There, W.J. Branch writes about his successes dissolving a tumour with an injection of 2 g of papain: *'One of the tumours needed to be injected with this solution three times before it dissolved.'* But even Columbus, Marco Polo, Magellan and Vasco da Gama had already reported on the healing powers of the papaya fruit.

As already mentioned, the papaya enzymes have a special protein-dissolving power, but attack only sick tissue (cancer tumours) and protect the healthy cells at the same time.



Healthy cells possess protective mechanisms against voracious, proteolytic enzymes, while cancer cells only develop enzyme inhibitors within 12 to 48 hours – a time long enough to selectively eliminate cancer cells.[673]

And a citation from the researcher Allgeier on this topic: *'The impressive thing about this method also: the process of destroying and dissolving which the enzymes carry out ceases at the limits of the tumour. No healthy, normal cells are damaged or destroyed. Enzymes are in fact a specific cancer remedy: they eliminate the cancer and only the cancer.'*[674]

Many well-known researchers and doctors swear on the effect of papaya against cancer, e.g. Professor Chung-Shih Tang, who ascribes a major effect to carpain, a main alkaloid of the papaya, extracted from the leaves and green parts of the papaya plant. His work is also supported in the United States by Dr. McLaughlin of Purdue University in Lafayette, Indiana. He, too, is convinced that 'carpain', extracted from papaya leaves, is a natural substance capable of dissolving cancer cells.

The mechanism of action is multifactorial. The enzymes of the papaya assume a significant role, however. In the opinion of Professor Wrba of Vienna, one could halve the cancer rate simply by preventatively treating people at risk of cancer with enzymes, among other things. Prevention is of course the most essential part. If the cancer has already appeared, however, one should also remember that the great majority of patients do not die of their initial tumour

[673] Barbara Simonsohn: Papaya – Heilen mit der Wunderfrucht ('Papaya – Healing with the Wonder Fruit'), 2nd Edition, 1998, p. 97.

[674] Allgeier, loc. cit., p. 109



but rather of metastases – something that enzyme therapy can effectively prevent!

How papaya counteracts cancer:

- Papaya possesses certain enzymes which expose the cancer cells, remove their fibrin shells and make them recognisable again to our body's own immune system and able to be attacked.
- Papaya enzymes activate the tumour necrosis factor TNF, a molecule that destroys cancer cells within our immune systems.
- Papaya enzymes (papain) possess a selective, protein-dissolving property and destroy the cancerous tissue, while at the same time protecting healthy tissue.
- Types of cancer that are (secondarily) caused by viruses can be avoided and combatted via papain's virus-destroying function.
- Papaya has been proven to strengthen our immune system and increase the activity of natural phagocytes (scavenger cells) as well as macrophages, which combat cancer cells.
- Papaya protects the cells from free radicals and thus also from mutation and the appearance of cancer.
- Papaya has an intestine-cleansing and stabilising effect ('Death sits in the intestines!') and putrid products in the intestines which could lead to cancer are avoided.



- Papaya de-acidifies the organism ('Cancer can only develop in acidic environments!')
- It also possesses numerous other active ingredients that have already been shown in studies to have a cancer-healing effect, e.g. beta-carotene, Vitamin C, selenium and arginine.
- Papaya relieves the side effects of chemotherapy and radiation therapy.
- It assists with wound healing after operations.
- Papaya stimulates the appetite and recovery after cancer cachexia.

Papaya – millions of times stronger than cytostatics?

According to the statement of Dr. Jerry McLaughlin, the active ingredients of papaya are millions of times stronger than the most commonly used cytostatic.[675]

[675] Andrea Ehring: Das Krebsmittel der Aborigines: Papaya, 1st Edition, 1998, p. 19.



Papaya anti-cancer recipe

Papaya leaves assume a major role in cancer therapy and are leading to growing interest on the part of the medical world and the public due to the accumulation of reports of successfully cured cancer sufferers with the fermented papaya leaf concentrate.

The papaya anti-cancer recipe originates with the Aborigines and is based on papaya leaves. The first person to try out this recipe was Stan Sheldon, who successfully used it to combat his own lung cancer. In 1962, a rapidly growing lung cancer was discovered on the sides of Stan Sheldon's lungs. He was on his death bed when an old Aboriginal man revealed to him a secret papaya recipe which came from a shaman. Every day, Sheldon drank 200 ml of the drink, accompanied by 3 teaspoons of molasses, another healing secret of the Aborigines.

Two months later, in the course of his routine X-ray exams, Sheldon was determined to have healthy lungs; further tests confirmed the finding. He shares his experiences with other cancer sufferers; 16 of them were completely healed![676]

[676] Andrea Ehring: Das Krebsmittel der Aborigines: Papaya, 1st Edition, 1998, p. 11.



Instructions for the papaya anti-cancer recipe

Take seven to eight medium-sized papaya leaves with stems, not too young and not too old, and wash them well and then lightly dry them.

Cut them into small pieces (similar to cabbage), let them boil for two hours in a pot without a top with 2 litres of water at medium heat until the water is half evaporated.

Afterwards, strain the leaves and pour the extract into bottles. It can be kept in the refrigerator for three to five days, when it becomes cloudy and then cannot be used anymore.

Papaya extract relieves the side effects of radiation and chemotherapy

The proteolytic enzymes contained in papaya minimise the side effects of chemotherapy and radiation therapy. The anti-radiative effect was first attested to in papain in the 1960s by the *Medical Institute of the USAF*. During radiation therapy, the papaya enzymes prevent or minimise diarrhoea, skin outbreaks, mucous membrane swelling and scarring.

With the use of papaya enzymes, inflammatory and metabolic products are more quickly broken down. The enzymes should be taken in high doses immediately after chemo- or radiotherapy; the recommended dose is 3-5 tablets



3 times a day over the course of a year. Afterwards, the dose may be reduced.[677]

Papaya supports wound healing after operations and minimises complications

Papaya enzymes speed wound healing and minimise the risk of embolisms, thrombosis and oedema, which accompany the operation.

Papaya concentrate counteracts cancer cachexia

Papaya increases the appetite and can thus counteract the weight loss (cachexia) caused by cancer. Body weight and sense of well-being increase together.

Papaya and anti-ageing

'Papaya is the fruit of the long life.' So goes an ancient Chinese proverb. According to Dr. B. Lytton Benard, the director of the hospital in Guadalajara (Mexico), the papaya has a purifying function not only in the digestive tract but also on all bodily tissue:

'The papaya holds the key to bodily rejuvenation and life extension in full possession of our powers.'

Dr. Norman W. Walker confirms the rejuvenating effect of papaya and bases

[677] Andrea Ehring: Das Krebsmittel der Aborigines: Papaya, 1st Edition, 1998, p. 39.



this on the stimulation and harmonisation of our glandular system.

'The papaya is the tree of eternal youth.' (Vasco da Gama)

Helima Neumann sees another rejuvenating mechanism in the fact that the amino acid 'arginine', developed by exposure to papain, causes an increased distribution of the growth hormone HGH (Human Growth Hormone) through the pituitary gland. HGH is a hormone that is important for the renewal of cells and the regeneration of skin, muscles and cartilage as well as the liver; it also helps keep the degeneration of bodily cells in check and protect body tissues from ulcers and cancer.[678]

Enzymes are what keep our glandular system and thus our entire body young. With age, however, our bodies produce fewer and fewer of these enzymes, which is why the regular consumption of enzyme-rich tropical fruits like the papaya is a good preventative measure. For this purpose, experts recommend one or, if possible, two papayas per day.

Papaya studies

Countless studies have been able to demonstrate the high healing potential of papaya and its most important enzyme 'papain'.

Papain enzyme therapy improves the quality of life of tumour patients

[678] Barbara Simonsohn: Papaya – Heilen mit der Wunderfrucht ('Papaya – Healing with the Wonder Fruit'), 2nd Edition, 1998, p. 67.



and increases lifespan

In contrast to the standard treatments of conventional medicine, which often do increase lifespan but worsen the quality of life of patients, studies of papain in cancer treatment show an improvement to quality of life as well as a longer lifespan.[679]

Papaya demonstrates antioxidant effects in studies

In studies, the fresh of the papaya fruit, the seeds, and the pulp of unripe papaya fruits demonstrate an antioxidant effect.[680]

Studies show papaya's antibacterial effect

According to studies, the milky sap of the papaya has an antibacterial effect.[681]

Antimycotic (antifungal) effect proven in studies

The researcher Giordani and his team were able to demonstrate antimycotic substances in the papaya, i.e. components of the papaya that counteract the growth of fungi.[682]

Anthelminthic (anti-worm) effect proven in studies

Satrija et al. were able to demonstrate a clear anti-helminthic effect in their studies on the papaya.[683]

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[679] Hager 1996

[680] Osato et al. 1993

[681] Hewitt et al. 2000

[682] Giordani et al. 1996

[683] Satrija et al. 1994, 1995



Studies demonstrate papaya's anti-helminthic and anti-amoebic effect

Tona et al. (1998) and Okeniyi et al. (2007) were able to demonstrate the anti-helminthic and anti-amoebic effects of the pulp and seeds of the papaya.

Create papaya medicine yourself

The following instructions come from the highly recommendable book by Harald W. Tietze, *Die sagenhafte Heilkraft der Papaya* ('The Legendary Healing Power of Papaya').

Papaya anti-cancer recipe

Take seven to eight medium-sized papaya leaves with stems, not too young and not too old, and wash them well and then lightly dry them.

Cut them into small pieces (similar to cabbage), let them boil for two hours in a pot without a top with 2 litres of water at medium heat until the water is half evaporated.

Afterwards, strain the leaves and pour the extract into bottles. It can be kept in the refrigerator for three to five days, when it becomes cloudy and then cannot be used anymore.

Papaya blossom essence

Papaya essences can be produced from any part of the papaya plant and can be used, for example, on sores or for blood problems.



Essence against intestinal problems

The seeds are crushed and the pulp used for balancing out stomach acids.

Essence for heart problems and stress

Here you make use of all plant components by placing the components in a preserving jar and then placing the jar in the sun.

Papaya tea

Papaya tea is prepared in the same way as all other herbal teas. It is important to pay attention to the quality of the tea you purchase, which is not infrequently reflected in the price.

Papaya tincture

The skin of the papaya, especially, has a high medicinal value; an effective tincture can be extracted from it. For this purpose, peel a ripe fruit, leave a bit of pulp on the skin and then place this in a clean glass. Then pour alcohol (useful for this purpose are vodka, fruit schnapps, cognac) until the skins are all covered. Let it soak in for four to six weeks and shake it vigorously every day.

Papaya compresses

For compresses, crush the young leaves, or alternatively the skins, heat them, and lay them on or bind them to the location to be treated.



Papaya vinegar

You can place thinly cut papaya strips or grated pieces of the unpeeled fruit in vinegar. To do this, fill a jar 2/3 full and pour enough vinegar over the papaya to cover all of it. After at least four weeks of storage, the vinegar can be sieved as needed.

Papaya oil

Cut up leaves and skin and place them in a pot. Then pour olive oil over these until all papaya parts are covered. Bring the oil to a simmer for five minutes and then let it stand for one to two days before pressing it with a towel.

Does papaya cause any side effects or interactions?

Papaya is generally considered a safe medicinal plant; side effects are rare and usually only observed with excessive use. There are people who are allergic to the pollen of the blossoms, but this is rather rare. Yellow-coloured palms and soles of the feet after excessive papaya consumption are harmless and reversible and are due to the storage of beta carotene.

Pregnant people should avoid all parts of the papaya plant except for the pulp of a ripe papaya. Other parts, as well as the pulp of the unripe papaya can lead to miscarriage; they are even used by native peoples as an abortifacient.



What is propolis? – Preface

Since the beginning of time, human beings have used 'Nature' as their major model for both their technical and medical achievements. There would be no aeroplanes without birds, just as there would be no medicine without the healing substances found in nature. That these substances cannot be perfectly imitated is obvious – and so countless numbers of medications emerge which have neither the effectiveness nor the safety which 'Nature' provides, because – to use the example of 'technology' again – aeroplanes sometimes crash, but birds never do...

The smarter among us have already understood that – if possible – it is much more advantageous to refer directly to natural remedies rather than their crude plagiarisms. Luckily, interest in natural remedies is continually increasing among the public.

Not to be forgotten in the medicinal repertoire of 'Mother Nature' is apitherapy, an independent branch of treatment within alternative medicine using natural substances produced by bees. Next to pollen, honey, royal jelly and bee venom, propolis is the most important of these substances. Propolis is a resin produced by bees to resist all kinds of parasites in their warm hives, which are thus well-suited for them, from bacteria to viruses to fungal growths, and to keep themselves and their offspring free of all diseases.

For this purpose, the bees collect resin from tree buds and damaged tree bark



(mainly from poplars but birches, pines, spruces, alders and other kinds of trees are also options) and mix it in the beehive with their own ferments, flower pollen and wax in order to guarantee a sterile and tightly-sealed dwelling for themselves and their offspring, protecting from rain, heat, cold, and wind.

This self-produced mass is what we humans ultimately call 'propolis'. To put it simply, the bees make use of plant extracts that are already quite healthy in themselves and then optimise their effect by mixing it with their own secretions.

Propolis – the name

Translated from the Greek, 'propolis' means 'before the city' in the sense of 'protection for the city', that city being, of course, the beehive.

Propolis – the history

Propolis is not a new discovery for us, as its use by human beings for their own health maintenance is very well documented all the way back to ancient times. Hippocrates, for example, raved about the effect of propolis on sores, and Aristotle recommended propolis for skin diseases and festering wounds. While doctors were already using propolis for treatment of wounds, bruises, sores and other conditions, the ancients had used it for embalming their mummies.

Both were very clever, as the antiseptic and sealing properties of the propolis pitch are demonstrably good for both purposes, as the mummies which are still preserved to this day demonstrate.



Bees also use the same mechanism against intruders, e.g. mice, which they sting to death but are unable to remove from their hives. They cover the intruder's corpse with a thick film of propolis and can thus prevent decomposition bacteria from growing in their own hive.

Propolis – the rediscovery

A supposedly positive-seeming advance of the pharmaceutical industry with patents for penicillin & co. pushed propolis, and other natural remedies as well, from the minds of doctors and therapists.

For the rediscovery of propolis we can thank, among others, a Danish bee breeder names Karl Lund Aagaard, whose experiments covered all aspects of bee colonies and beehives, and thus also the bees' putty resin, i.e. propolis.

He undertook his first experiments regarding the health properties of propolis on himself. A severe sore throat, accompanied by a high fever, was a perfect opportunity for this and, to the amazement of his wife, who was a nurse by trade, fully abated overnight until it was nothing more than a light redness of the throat. This redness of the throat, he claimed, completely disappeared the next day.

This was the occasion for further self-tests, which were soon accompanied by similarly fascinating results.

The recognition, that propolis would help counteract numerous illnesses not only in bees but also, in the same way, in human beings, was not far off.



Active ingredients in propolis

To this day, scientists have been able to identify approximately 200 ingredients in propolis.

Among these ingredients are vitamins, minerals, trace elements, secondary plant substances and essential oils. The main active ingredients are without question, however, the flavonoids which are among the secondary plant substances. [684]

It must definitely first be noted, however, that there is not ONE standardised propolis; rather, its composition (and thus effectiveness) depends heavily upon the region (geographically-conditioned particularities of plants) in which the bees were active, as well as the season. Effectiveness can thus vary from propolis to propolis.

Material composition of propolis

(approximate values)

Propolis is primarily composed of the following individual materials: [685]

- 50 % resin
- 30 % wax
- 10 % essential oils

[684] Burdock, 1998

[685] Eva Marbach: Heilen mit Propolis ('Healing with Propolis'), 2009, p. 12



- 5 % pollen
- 3 % organic substances
- 2 % minerals

Vitamins in propolis

Except for Vitamin K, propolis contains virtually every vitamin which the human organism requires, including Vitamin A, B1, B3, C, E and biotin.

Minerals/trace elements in propolis

Among the minerals/trace elements in propolis are:

- Calcium
- Magnesium
- Iron
- Manganese
- Zinc
- Silicon
- Selenium
- Vanadium
- Copper
- Chrome

Propolis can also be accompanied by numerous secondary plant substances,



whose significance for our health is attested to by the latest modern science. Among these are:

- Flavonoids
- Flavons
- Ruthin
- Quercinine
- Pinobanksin
- Pinocembrin
- Halangin
- Apigenin
- Galangin
-

How does propolis work, and what does it work against?

Before we examine the individual diseases and disorders for which propolis is a well-proven remedy, it will first be interesting to learn the way in which propolis has its effect.

Mechanism of action of propolis

In the case of propolis, too, it is the perfect composition of the individual active ingredients listed above—like the instruments in an orchestra, which together cause an overall effect that cannot be reproduced by human hands—



that causes the desired healing effect, from simple sore throat to life-threatening diseases like cancer . The central role in this, scientists agree, is played by flavonoids.

General effects of propolis:

- Immune system strengthening/regulating
- Revitalising
- Cell-rejuvenating
- antibacterial
- antiviral
- antifungal
- analgesic (pain-relieving)
- antioxidative (against free radicals)
- detoxifying (e.g. heavy metals)
- anti-carcinogenic (against the development of cancer)
- antiallergic
- blood pressure regulating,

Immune system-reinforcing effects of propolis

It is well known that our health rises and falls with our immune system. If we have a strong immune system, all of these pathogens, deformed cells and even allergens know to stay away from our bodies; here it is a case of activating self-healing powers. But if our immune system is attacked for only a short time, we sense it immediately and feel sickly and weakened.



Perfectly coordinated active ingredients in the form of vitamins, trace elements and flavonoids provide our immune systems with a reliable defence. Primarily, though—and here researchers are agreed—, the notable immune system defence can be traced to the flavonoids. In case of an attack by intruders, these activate the immune system and introduce defence mechanisms.

Propolis is also able to reactivate even aged thymus glands which are responsible for the production of antibodies. Experiments indicate an immune-regulating effect; depending on need, the immune system is either strengthened or an overactive immune system is subdued and inflammations inhibited.



Revitalising effect of propolis

By intervening in metabolic processes and speeding them up, propolis is precisely predestined to give older and ill people energy again by boosting their age- or illness-dependent metabolic processes.

Cell-rejuvenating effect of propolis

Propolis is able, in the view of Prof. Dr. E. Dorling, not only to significantly speed up cell rejuvenation, but even to double it![686]

Antibacterial, antiviral and antifungal effects of propolis

In contrast to antibiotics (i.e. penicillin & co.), which are only able to eliminate a dozen different bacteria strains, propolis takes on all parasites, from bacteria to viruses and fungi.

Furthermore, these parasites, in contrast to the situation with antibiotics, cannot develop any resistance to propolis, which makes it an excellent and well-loved alternative to damaging antibiotics.

[686] Prof. Dr. E. Dörling, Propolis Newsletter, Referate-Dienst Nr. 3, 1982



Analgesic effect of propolis

The flavonoids contained in propolis are natural antagonists of prostaglandins, which are known to play a causative role in pain. This entails a true anaesthetising effect and offers a healthy alternative to the numerous, often side effect-heavy medications of conventional medicine.

Antioxidative effect of propolis

One of the most notable abilities of propolis is without question its ability to capture free radicals and to protect us from their attacks.

Free radicals emerge from metabolic processes, stress, pollution, medications and so on and attack every one of our body cells countless times per day, in order to grab an electron from them. In this way, our genome and our organism are gradually destroyed; we suffer from severe illnesses and age more quickly. Propolis can, according to experiments, protect our cells from free radicals more effectively than Vitamin C and Vitamin E.[687]

Free radicals attack our approximately 37,2 trillion bodily cells around 10,000 times per day and permanently damage them. This has been shown to lead to the following diseases and disorders:

[687] Basnet et al. 1997



Diseases caused by free radicals

- Cardiovascular diseases due to atherosclerosis
- Cancer
- Diabetes
- Cataracts
- Arthritis
- Premature ageing
- Alzheimer's
- Pancreatitis
- Down's syndrome
- Chronic fatigue syndrome
- Damage to the central nervous system
- Crohn's disease and many others

Propolis contains an impressive number of antioxidants, biologically active substances which sacrifice themselves to provide the missing molecule to the hungry radical and in this way neutralise it.



Detoxifying effect of propolis

Propolis is in a position to neutralise certain heavy metals, e.g. mercury, by dissolving it from the affected organs and purging it via the blood.

We also primarily have flavonoids to thank for this, which carry out detoxifying work in the body, next to many other jobs.

Propolis may not, however, be seen as an initial medication for severe poisoning. [688]

Anti-carcinogenic effects of propolis:

The anti-carcinogenic effects of propolis are based on a number of factors: Alongside the antioxidative, antiviral and immune-strengthening properties of propolis, it also contains four substances that have been shown to directly kill cancer cells and to inhibit the growth of cancer.

[688] Dirk Rohwedder und Prof. Havsteen: Propolis, der Stoff, aus dem Gesundheit ist ('Propolis, the Stuff that Health is Made Of'), 1987, p. 87 f.



Among the active ingredients of propolis are:

- Clerodanditerpenoide [689]
- Artepillin C[690]
- Benzofurane [691]
- CAPE

More on this topic in the section 'Propolis and Cancer'.

Antiallergic effect of propolis

The antiallergic effect of propolis can primarily be attributed to the flavonoids it contains. Allergies are known to be caused by the release of histamine.

The flavonoids in propolis protect the mast cells which distribute histamine, curtails this distribution and thus directly hinder allergic reactions.

Blood pressure regulating effect of propolis

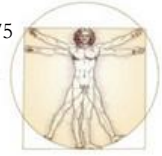
According to corresponding studies[692], propolis can significantly decrease high blood pressure.

[689] Matsuno et al. 1995

[690] Matsuno et al. 1997

[691] Banskota et al. 2000

[692] Prof. Dr. V. Harnay: Propolis, Apimondia Verlag, 1975



Specific effect of propolis on diseases and disorders

It is unnecessary to emphasise that we are talking about a substance that acts effectively against innumerable diseases and disorders—strengthens the immune system, has antibacterial, antiviral and antifungal effects, successfully combats free radicals, detoxifies, protects our DNA and rejuvenates our cells.

The following diseases and disorders are only some examples of conditions for which propolis is an extremely helpful natural remedy:

- Abscesses
- AIDS
- Allergies (Hay fever)
- Ageing complaints (anti-ageing)
- Immunodeficiency
- Tonsillitis
- Gingivitis
- Toothache
- Acne
- Bronchitis
- Cardiovascular disease
- High blood pressure



- Arteriosclerosis
- High cholesterol
- Cardiac arrhythmia
- Asthma
- Colds/sore throat
- Flu
- Sore throat
- Otitis
- Cystitis
- Conjunctivitis
- Joint inflammation
- Lyme disease
- Skin fungus
- Athlete's foot
- Corns
- Shingles
- Intestinal inflammation
- Gastritis
- Duodenitis



- Intestinal infections
- Urinary tract infections
- Haemorrhoids
- Ulcers
- Menopausal complaints
- Heavy metal poisoning
- Boils
- Skin eczema
- Dementia/memory problems
- Shingles
- Psoriasis
- Cuts
- Abrasions
- Bruises
- Tenosynovitis
- Itching
- Nappy rash
- Tuberculosis
- Herpes



- Neurodermitis
- Hives
- Warts
- Skin burns
- Sunburn
- Tennis elbow
- Circulatory disorders
- Claudication
- Smoker's leg
- Menstrual cramps
- Infectious diseases
- Sinus infection
- Wound healing
- Arthritis
- Rheumatism
- Activated arthrosis

Effect of propolis on ageing complaints – anti-ageing



Certainly the most sensational ability of propolis with respect to its anti-ageing effect is the property that enables it to double the rejuvenation rate of cells.[693] Propolis is a proven remedy for all varieties of ageing complaints. Our ageing is primarily caused by the attacks of free radicals. Experts thus claim that a person could live up to 120 years if he or she were able to avoid all attacks by free radicals. Propolis has demonstrated highly efficient antioxidative capabilities in numerous experiments. In addition, our immune systems continually break down with advancing age. The immune-strengthening effect of propolis is also suited for this aspect of ageing. Propolis also has a positive effect on memory loss in old age and can thus counteract senile dementia.

Effects of propolis on AIDS

To this day, AIDS is considered incurable. That is why it is more important than ever to direct our focus to natural remedies that stimulate the immune system to such a degree that they have an effect on AIDS and are able to delay or even prevent the outbreak of the disease. A study by Harish et al. from 1997 gives us occasion for hope, as they emphasised the effectiveness of propolis on HIV and AIDS.

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[693] Prof. Dr. E. Dörling: Propolis Newsletter, Referate-Dienst Nr. 3, 1982



Effect of propolis on allergies

Among the most common types of allergy are pollen allergies (hay fever), animal hair allergies, food allergies, insect allergies as well as dust mite allergy. The flavonoids which are contained so numerously in propolis defend not only the mast cells that are responsible for histamine release, but also inhibit this release.

There are reports of even the most extreme allergy cases, e.g. hay fever, receiving not only relief but even a complete cure after repeated use of propolis treatment, after which no further use was necessary.[694]

Effects of propolis on the flu

Propolis has proven itself effective for all stages and intensities of flu. Its pronounced antiviral and simultaneously immune-strengthening effects are highly relevant to the treatment goal.

Effect of propolis on tennis elbow

A propolis salve, used multiple times per day, seems to work wonders on tennis elbow. During application, the relevant arm should be relieved as much as possible or kept completely still.

Effect of propolis on circulatory disorders, intermittent claudication and

[694] Dirk Rohwedder und Prof. Havsteen: Propolis, der Stoff, aus dem Gesundheit ist ('Propolis, the Stuff that Health is Made Of'), 1987, p. 67



smoker's leg

The use of propolis salve has proven itself highly effective on circulatory disorders, intermittent claudication and smoker's leg. Firmly rub in the salve multiple times per day, especially before going to sleep.

Effect of propolis on skin diseases, acne, shingles, herpes etc.

Propolis, in the form of a salve for external application, has proven to be truly excellent for numerous skin diseases, from acne to shingles all the way to herpes.



Effects of propolis on haemorrhoids

For haemorrhoids, you should apply propolis externally in the form of a propolis salve. The salve should be applied multiple times per day to the anus both externally and internally.

Effect of propolis on rheumatism/arthritis

Propolis has achieved excellent results for rheumatism and arthritis patients in double-blind studies and should be applied externally as a salve.

In a double-blind experiment, 28 rheumatism patients were treated with a propolis salve and a placebo preparation. Those rheumatism patients who were treated with the propolis preparation experienced an *'impressive improvement within the first week.'*[695]

The propolis salve should be applied to the affected joints as a thin film 2-3 times daily.

Effect of propolis on active arthrosis

In a series of experiments on arthrosis patients, more than 80 % of the patients treated with propolis salve were pain-free within a week.[696]

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[695] Dirk Rohwedder und Prof. Havsteen: Propolis, der Stoff, aus dem Gesundheit ist ('Propolis, the Stuff that Health is Made Of'), 1987, p. 85

[696] Dirk Rohwedder und Prof. Havsteen: Propolis, der Stoff, aus dem Gesundheit ist ('Propolis, the Stuff that Health is Made Of'), 1987, p. 86



Effect of propolis on menopausal symptoms

Propolis led to amazingly good results in several series of experiments on menopausal symptoms. This can be attributed to the stimulation of decisive metabolic processes by propolis.[697]

Effect of propolis on infectious diseases

Various parasites can play a primary role in infections, from bacteria to fungi.

Because propolis (in contrast to antibiotics) knows how to take on all three types of parasite, it is basically predestined for use against infectious diseases.

Propolis and its effect on wound healing

Bees use propolis to insulate and disinfect their beehives. A wound needs nothing more: disinfection and to be healed as quickly as possible.

To achieve this, propolis encourages wound-closing collagens and inhibits the influences of certain enzymes that would disrupt would healing.

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[697] Dirk Rohwedder und Prof. Havsteen: Propolis, der Stoff, aus dem Gesundheit ist ('Propolis, the Stuff that Health is Made Of'), 1987, p. 89



Propolis and cancer

Propolis in alternative and complementary cancer treatment

While propolis has become famous mainly for its antibacterial and antiallergic properties, it has been showing, especially in recent years, further unexpected potential, namely in the fight against cancer! Thus, cancer research has lately been showing a strong interest in this natural substance from bees, as it seems that propolis possesses both direct cancer cell-killing and growth-inhibiting properties.

The following active ingredients in propolis are responsible for this:

- Clerodanditerpenoide [698]
- Artepillin C[699]
- Benzofurane [700]
- CAPE (Caffeic Acid Phenethyl Ester)

'We were able to isolate substances that specifically hindered the growth of tumour cells in their growth', according to Prof. Dr. Peter Reusch of the Ruhr University of Bochum. [701]

Scientists at the University of Chicago were able, in animal tests, to inhibit the reproduction of prostate tumours with the help of a substance naturally occurring in propolis called Caffeic Acid Phenethyl Ester (CAPE), as the magazine

[698] Matsuno et al. 1995

[699] Matsuno et al. 1997

[700] Banskota et al. 2000

[701] Prof. Dr. Peter Reusch of Ruhr University Bochum, in vivo on 13.11. 2007

Cancer Prevention Research reported.[702]

Even in small doses, CAPE inhibits the proliferation, that is the growth, of malignant cells by suppressing the nutrient supply of the cancer cell, which after only six weeks led to a noticeable halving of the growth rate of the tumour cells. CAPE also restored cell communication via corresponding cell junctions.[703]

It should be emphasized that all of these effects were, to the greatest possible extent, selectively achieved, i.e. limited to the cancer cells, while the healthy cells were protected (which is not the case with conventional medicine).[704]

There are treatment reports according to which the metastases completely dried up and were no longer dangerous.[705]

As the magazine *Gesundes Leben* ('Healthy Living') reported in the February 1983 edition, there are known cases where the consumption of propolis was able to avert surgical intervention.

[702] May 2012; 5 (5), p. 788–797

[703] Na et al. 2000

[704] Matsuno et al. 1997

[705] K. Olsen, Kreiszeitung Frederiksborg Amts Avis, 15.08.1973



Propolis counteracts cancer in the following concrete way:

Propolis introduces apoptosis (the suicide programme of cancer cells)

The active ingredient 'Artepillin C', contained in propolis, activates the biologically programmed cell death within the cancer cell, the so-called apoptosis.[706]

Propolis suppress the development of new blood vessels in the tumour

The same substance (artepillin C) inhibits the development of new blood vessels in the tumour, which starves it and causes the cancer to shrink.

Propolis strengthens the immune system

The property of propolis which strengthens the immune system – here we should primarily mention the numerous secondary plant substances (flavonoids & co.) – provides the organism with a preventative and cancer-inhibiting defence.

Effect of propolis on cancer as an antioxidant

Free radicals can lead to cell mutations and subsequently the development of cancer. Propolis turns out to be a very effective antioxidant and can already fulfil this aspect.

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[706] Su et al. 1995, Chiao et al. 1995, Jeng et al. 2000



Antiviral effect of propolis on cancer

Today we know that the development of certain types of cancer is related to viruses. By deploying its antiviral function, it also deploys a cancer-preventing and -inhibiting activity.

Which types of cancer does propolis have an effect on?

Due to the comprehensive, multifactorial effect, we can assume that propolis is effective on numerous types of cancer; we will have to wait for further research on the subject though. Propolis has been shown to hinder the following types of cancer (in animal studies):[707]

- Breast cancer
- Colon cancer
- Kidney cancer
- Skin cancer

[707] Huang et al. 1996, Mitamura et al. 1996, Kimoto et al. 1998, Kawabe et al. 2000, Rao et al. 1995



Propolis enhances the effects of chemotherapy and relieves its side effects

There are several studies that indicate that the combination of chemotherapies (with the exception of bleomycin[708]) with propolis strengthens the effect of the chemotherapies and decreases side effects.[709] Among other things, propolis can protect against the weakening of the heart muscle caused by chemotherapy.[710]

Propolis minimises side effects of radiotherapy

Inflamed swelling induced by radiotherapy can be minimised with propolis.[711]

Studies and research on propolis

Numerous studies from around the world emphasise the positive mechanisms against numerous illnesses and all sorts of ailments listed above in the section 'Effect of Propolis'.

[708] Scheller et al. 1989

[709] Or Olli et al. 2005, 2006

[710] Chopra et al. 1995

[711] El-Ghazaly, Khayyal, 1995



Propolis as a helpful, natural anti-histamine

Because propolis naturally inhibits the release of histamines, it works effectively against all kinds of allergies[712].

Patients with severe hay fever completely cured

At the Sorbonne (University of Paris), patients suffering from hay fever in its peak season were treated with 8 propolis capsules per day. After the first week of regular consumption, the patients were already amazingly free of symptoms, which was said to have lasted to the end of the hay fever season. In both of the next two years, they were treated with small doses of propolis and have been cured ever since. Further treatment in subsequent years was no longer necessary.[713]

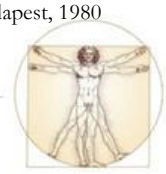
Propolis protects the genome (DNA) from damage

The genome is constantly being attacked by free radicals, among other things. Propolis was proven in studies to be able to defend the genome from this.[714]

[712] Press conference 'Neue Aspekte zum Apitherapeutikum Propolis' ('New Aspects of Propolis Apitherapy'), Prof. B.Havsteen, Dr. H. Modrack, Dr. Galka, Hamburg 1985

[713] Prof. Dr. Chauvin, Paris. Propolis Symposium in Budapest, 1980

[714] Montoro 2005



Lower cholesterol with propolis achieved in studies

For over four weeks, 45 patients with high cholesterol and high blood pressure were administered 1 propolis capsule 3 times per day. Every patient's cholesterol levels were substantially decreased.[715]

Studies show that propolis reduces high blood pressure

A Bulgarian study of 34 patients with chronic high blood pressure showed that it was possible to lower systolic high blood pressure by 10-15 mmHg on average and diastolic high blood pressure by 5-10 mmHg, which should be considered significant.[716]

Propolis demonstrates potential as an efficient antiviral in studies

The antiviral effect of propolis has been supported by numerous studies, including against herpes viruses, influenza, and adeno viruses.[717]

Propolis effective on HIV and AIDS

Studies have shown that propolis even has a positive effect on HIV and AIDS.[718]

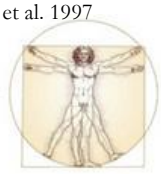
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[715] Dr. Fan Chu, Talk at Apitherapy Symposium in Bucharest, 1980

[716] Prof. Dr. Harnay: Propolis, Apimondia Verlag 1984

[717] Kujumgiev et al. 1999, Neychev et al. 1988, Levkofitz et al. 1997

[718] Harish et al. 1997



Propolis decreases flu outbreaks to 1/6

In Yugoslavia, the effect of propolis on the aggressive Hong Kong flu virus was tested in the framework of a large study. While 60 % of the group which took no propolis became infected with the feared flu, it was only 10 % in the propolis group.[719]

Propolis protects vitamin C

Vitamin C is one of the essential antioxidants in the 'antioxidant orchestra' and also plays a major part in collagen development. Every single second, it protects our cells from innumerable attacks by free radicals and itself breaks down during the process.

Studies have shown that propolis decreases the consumption of Vitamin C. Independently of its own antioxidants which it delivers itself, it also additionally protects Vitamin C.[720]

Propolis protects tooth enamel

Propolis has been shown in studies to significantly strengthen tooth enamel.[721]

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[719] Dr. I. Osmanagic: Report of the preventive properties of propolis against influenza, Sarajevo, 1976

[720] Sun et al. 2000

[721] Giamalia et al. 1999



Propolis demonstrates a 90 % relief of bronchitis in a Bucharest study

A long-term treatment in a Bucharest clinic resulted in an improvement in bronchitis symptoms by 90 %[722]

Propolis protects our liver from poisoning by alcohol and other substances

Numerous studies have shown that the liver cells are protected by the consumption of propolis from damage caused by substances like alcohol, allyl alcohol, galactosamine and others.[723]

Propolis successful against skin diseases in studies

In numerous experiments and clinical tests, propolis was able to achieve amazing successes via external application (propolis salve) on skin diseases like acne, herpes and shingles.[724]

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[722] Prof. Dr. V. Harnay: Propolis, Apimondia Verlag, 1975

[723] Gonzales et al. 1995, Rodriguez et al. 1997, Lin et al. 1997, Baznet et al. 1997

[724] Dr. F. K. Keiks: Application locale d´extrait de propolis dans le traitement du zona. Talk at Apitherapy Symposium in Yugoslavia, 1978



Propolis demonstrates better antioxidative properties than Vitamin C and E

Basnet et al. were able to show in studies that certain substances in propolis demonstrates a higher potential for protecting our cells from free radicals than Vitamin C and Vitamin E.[725]

Propolis products

Propolis products and their use

Increasing demand, resulting from the ever-growing interest from the public in alternative remedies, led to propolis appearing in every imaginable form in pharmacies.

In previous chapters, we were able to illustrate the effectiveness of propolis on individual diseases and disorders. We all know that prevention is always better than healing, and propolis is also suitable as a long-term prophylactic treatment in order to prevent illnesses from appearing in the first place.

The following listed propolis products can be found at the pharmacy. Two advantages of getting these products from a pharmacy, instead of attempting to produce them yourself, are the standardised amounts and consistent quality which products from the pharmacy provide, which play an important role with

[725] Basnet et al. 1997



regard to effectiveness.

Propolis capsules

The consumption of propolis capsules is advisable for the vast majority of illnesses as well as for prophylactic purposes.

Propolis powder

One alternative to propolis capsules is propolis powder. It should be noted, however, that more organs of the body can be reached with the capsule form, as the active ingredients, protected by the capsule, reach the reabsorbing intestinal walls in great amounts and can be better absorbed and transferred to the blood.

Propolis tincture

Dissolved in high-percentage alcohol (preferably 96 %), you can also receive propolis tinctures which are suited for both internal and external use.

Propolis tincture can be used externally in the form of rinses, on compresses and wraps as well as in baths and partial baths. Because the pure tincture is too intense, it is diluted for the vast majority of uses. For this purpose, approx. 15-50 drops of tincture are mixed in a glass with milk, water or tea.

With specific indications, e.g. warts, insect bites, oral aphthae and similar persistent problems which require intensive treatment, it is recommended to apply the pure tincture.



Propolis cream, propolis salve

Propolis cream or propolis salve are applied externally for bruises, tennis elbow, arthritis, acne, smoker's leg, circulatory disorders etc. on the affected spot several times per day.

This very often occurs in combination with the consumption of propolis capsules or propolis tinctures, which supplements the external treatment from within.

Propolis drops

Enriched mostly with essential oils, propolis drops are especially useful against sore throat, hoarseness and scratchy throat.

Propolis toothpaste

Propolis toothpaste contains a special extract named 'propolentum' and can be used for all inflammatory, bacterial and viral diseases and fungi in the mouth.

In addition, studies have shown that propolis strengthens tooth enamel. The toothpaste also makes sense in this case. Propolis also contains tooth enamel-strengthening, healthy ingredients and can be a good alternative to poisonous 'fluoride'!



Propolis mouthwash

A very good supplement to propolis toothpaste for the same indications is propolis mouthwash. Depending on the complaint, you can either rinse with this mouthwash (mouth) or gurgle it (to additionally reach the throat).

Propolis mouth gel

See propolis toothpaste and propolis mouthwash

Storage of propolis products

Propolis products should always be stored in a cool and airtight space; this guarantees the best shelf life (up to five years for propolis resin; pay attention to the manufacturer's expiry date!).

Produce your own propolis powder

You can easily produce your own propolis powder. To do this, you need the following utensils:

- Raw propolis
- Mortar
- Freezer

Raw propolis is a purified propolis which is free of plant-based contaminations and wax. To be able to process the propolis into a powder, a brittle consistency is needed. To achieve this, pack the propolis in foil and place it in the freezer for a few hours. Before the actual production, place it in a mortar and then



gradually mash it and then stir it to turn it into powder.

Produce your own propolis tincture

For this purpose, the purified propolis or the propolis powder (see above!) is placed in 96 % alcohol.

Does propolis have any side effects or interactions?

As a general rule, no side effects, internal or external, are to be expected when using propolis. In rare cases, intolerance or allergy could occur, which is most likely to happen with high doses of natural propolis extract.

In such a case, it is advisable to immediately cease consumption and to consult an experienced physician before resuming. Other side effects apart from rare allergies, which mostly occur among beekeepers, have thus far not been observed.



Royal jelly – the precious liquid that makes kings of workers

How would you like to obtain the pleasure of a liquid that has not only secured the survival of bees for millions of years but is also solely responsible for whether a bee will spend its entire life as a small worker bee or whether it will grow physically into a large, long-lived queen bee in possession of incredible energy in order to spend its life bringing offspring into the world?

Royal jelly is another gift of 'Mother' Nature which you should definitely pay attention to as a health-conscious person!

What exactly is royal jelly and what can it do for our health?

Royal jelly is very special juice with a thick, sticky consistency, produced by bees.

One might immediately think of honey here, but the first part of the name 'royal jelly' already suggests the unique and, yes, 'royal' significance of this juice, which is far superior to honey in terms of its impact on our health!

Creation of royal jelly

At an age of between four and twelve days, the bees secrete royal jelly from their hypopharyngeal and maxillary glands, which will serve as nutrition for the developing bees in the first larval stages.



Exclusively the juice of these young bees (so-called 'nurse bees'), it is used between the fourth and twelfth days. This makes a great deal of sense, as these young juice providers are themselves in possession of correspondingly young cells, in order to produce as high quality of a royal jelly as possible.

In contrast to honey, which, together with pollen, serves as food for all bees, this very special juice is afterwards reserved for a single, predestined bee in the hive: namely, the still-to-be-crowned queen!

The worker bees then raise the young queen with royal jelly.

Every bee in the hive intuitively knows the value of the royal jelly, an elixir that seeks out its own kind and admits of comparison with colostrum, the first milk of mammals, which is also only available for a few days to mammals and which has untold potential for our health!

Extraction of royal jelly

The extraction of royal jelly presents a real technical challenge, which is why royal jelly is exclusively extracted in large, specialised apiaries.

To achieve this, the queen cells are placed into the beehive while the queen itself is removed.



On this website, you will learn everything worth knowing about this special elixir, which is also—in contrast to young growing bees—is also (still) available to you. Let us prevent the bees from dying off, otherwise humans, too, will very soon be robbed of this very special liquid...!

Ingredients and active ingredients of royal jelly

A detailed look at the effects will follow shortly, but let us first take a closer look at the ingredients of royal jelly, which, after all, are the cause of their effect.

Which ingredients are these exactly?

Royal jelly is composed of 66 % water, and the remaining 34 % is dry mass. The dry mass in turn consists of 12 % protein, 12 % carbohydrates (simple sugar), 4 % fats and 72 % minerals.

Vitamins

Among the abundant vitamins in royal jelly are especially the B vitamins (B1, B2, B3, and B4), Vitamin C, E, folic acid, pantothenic acid and biotin.

Minerals

Royal jelly also contains numerous minerals and trace elements, which are examined in more detail in the literature. With this, we come to another phenomenon, namely the numerous highly active substances that are contained in royal



jelly, which cannot, to this day, be demonstrated by the customary analysis methods!

Acetylcholine

Choline is an essential (necessary for life) vital substance which was discovered by the German chemist Adolph Friedrich Ludwig Strecker in 1864 and acquired its 'essential' status in 1998. An especially important choline, which is found in royal jelly, is acetylcholine. This functions in our body as a neurotransmitter in our nervous system which plays a part in the transmission of arousal in the brain as well as in the vegetative nervous system.



Unidentified, unique substances

We humans must without doubt come to terms with the fact that there are things between heaven and earth that cause astonishing things to happen without us ever being able to understand them. We are also a long way away from identifying all existing vital substances—and we will probably never be able to achieve this work of art, as Mother Nature never reveals herself fully to us...

Researchers, for example, claim that the apple alone contains over 10,000 vital substances—yet we have only identified a few...

And so a certain mysticism developed around royal jelly, the most important ingredients of which have not yet been identified. These are primarily highly complex, hormone-like connections to which effects may be ascribed ranging from strengthening the immune system to increasing base metabolism to inhibiting ageing. Royal jelly also is also the only known source of a very particular fatty acid named 10-hydroxy-2-decanoic acid.



Effects of royal jelly

Mechanism and effects of royal jelly

The exact mechanism of royal jelly has to date not been fully deciphered due to the ingredients in it which have not fully identified but are de facto highly active. Researchers assume that it is exactly these still unidentified, hormone-like substances that mobilise the self-healing powers of the body, strengthen our organism and defend against disease-causing influences.

Practice doubtless trumps theory in every case. The fact is thus very convincing that it is *only* royal jelly that allows an average larva to become a queen, which is far larger, stronger, healthier, long-living and powerful than her peers!

In healthy people, royal jelly should generally increase vitality, appetite and physical as well as intellectual power.

How effective royal jelly can potentially be for sufferers of illness is shown by reports from physicians' everyday practice. For example, Prof. Bengsch was able, with a high dose of 50g over two days (the normal dose is around 1-2g/day), to save the life of a patient suffering from meningitis and already given up on by his colleagues. 'True miracles' are, according to Dr. med. Stefan Stangaciu, attributable to royal jelly, particularly with diet-related deficiency symptoms, illnesses in the genital region, and infectious diseases.

General effects of royal jelly

Let us first look at the general effects of royal jelly before we turn to the specific



effects against numerous illness and disorders.

Royal jelly has the following general effects:

- strengthens the immune system
- counteracts effects of ageing (anti-ageing)
- provides energy/toning
- blood pressure regulating,
- anti-inflammatory
- antibacterial/antimicrobial
- antiviral
- regulates cholesterol
- antitumoural
- increases potency
- regulates hormones
- stimulates synthesis of collagen



Special effects of royal jelly on diseases and disorders

Royal jelly is exceptionally effective and helpful for the following illnesses:

- diet-dependent deficiencies
- neurological illnesses
- Immunodeficiency
- Flu
- Allergies
- Premature ageing
- Cancer
- Diabetes
- Stroke
- Infectious diseases
- Breathing problems
- Impotence
- Sterility
- Asthenia (weakness)
- Fatigue
- Meningitis
- Male infertility (sperm mobility)



- Diseases in the genital area
- Atherosclerosis
- Rheumatic arthritis
- Chronic lung illnesses
- Larynx pain
- Throat pain
- Stomach bleeding
- Complaints during menopause
- Hormone deficiency
- Anorexia (lack of appetite)
- Anaemia
- Arterial hypotension (low blood pressure)
- Hypertension (high blood pressure)
- Anxiety
- Depression
- Anaemia
- Atherosclerosis (hardening of the arteries),
- Xeroderma (abnormally dry skin)
- Anaemia
- Mild depression



- Liver problems
- Gall bladder problems
- Shaking palsy
- Heart muscle weakness
- Otitis
- Respiratory inflammation
- Warts
- Skin damage
- Weight loss
- Atopical dermatitis
- Macular degeneration
- Swelling
- Parkinson's
- Dementia
- Hepatitis
- Bile duct disorders
- Itching
- Thorax pain
- Virus-dependent liver inflammation



Effect of royal jelly on allergies

In studies, the protein found in royal jelly with the name MRJP3 (Major Royal Jelly Protein 3) was able to suppress allergic reactions.

Effects of royal jelly on cancer

In studies, the fatty acid 10-hydroxy-2-decanoic acid, which by the way only occurs worldwide in royal jelly, demonstrated a significant anti-cancer effect! Prof. Osmanagic was able to improve the general condition of cancer sufferers in his daily therapeutic practice with the help of royal jelly capsules. Surgical and radiology patients, who due to nausea and other symptoms were confined to bed, experienced substantial improvement only 10 days after the consumption of flower pollen royal jelly tablets (2 tablets half an hour before meals). The liver function test (LFT) results improved and even remained stable during continued radiation, with the result that the patients were very soon able to start working again.

Effect of royal jelly on menopausal complaints

Racing heart, hot flashes, dizziness, sweating, depressive mood, insomnia, nervousness, concentration problems, and headaches are only some of the symptoms that make life difficult for women in menopause (generally between the ages of 42 and 65). This is explained by ageing processes that lead to degeneration in the ovaries and thus hormonal changes.

What can royal jelly do for a woman in menopause?



In therapeutic practice, it has been observed that the hormonal changes after menopause normalise on their own within the woman—or to quote Dr. Osmanagic: 'Women not only fully or partially lost their menopausal complaints; they felt, thanks to the effect of the preparation from royal jelly and fermented pollen, an improvement in general condition—they became psychologically more at ease, fresher, more dynamic and active...!'

Effect of royal jelly on arthritis

The already-mentioned protein 'MRJP3' has an inflammation-inhibiting effect with a pronounced effect on autoimmune diseases, e.g. rheumatoid arthritis.

Effect of royal jelly on impotence and sterility

In the case of impotence, one must distinguish between the 'reliability' of the sexual organ (impotentia coeundi) and the fertility of the man (impotentia generandi).



Effect of royal jelly on the sterility of the man

Royal jelly can have an incredible effect specifically on the latter form of impotence, i.e. male sterility. In a number of studies, sperm count was even able to double with the consumption of royal jelly.

How does royal jelly counteract sterility?

Amino acids are an essential foundation of sperm formation. Royal jelly contains a large number of amino acids, specifically glycine, histidine and arginine. In connection with fructose, which is also heavily present in royal jelly, these building blocks of sperm cells are provided with energy and sperm production is stimulated by the pantothenic acid in royal jelly.

Effect of royal jelly on arthritis

In studies, the protein found in royal jelly with the name MRJP3 (Major Royal Jelly Protein 3) was able to suppress allergic reactions. This protein has anti-inflammatory properties and can in this way improve the quality of life of patients suffering from autoimmune diseases like rheumatoid arthritis.



Effect of royal jelly on meningitis

Royal jelly apparently has an excellent effect even on highly advanced meningitis. Prof. Bengsch was able to save a patient suffering from severe meningitis who had been given up on by other doctors with a high dose of royal jelly, 50 grams in two days.

Anti-ageing effects of royal jelly

The fatty acid 10-hydroxy-2-decanoic acid, which is exclusively found in royal jelly, stimulates collagen synthesis, regenerates skin cells and actively counteracts ageing of the skin. It is no coincidence that royal jelly is used in numerous cosmetics. It is also the numerous, still largely unresearched, highly complex hormone-like chemical bonds in royal jelly that lead to a strengthening of our immune system and in this way work against the biological ageing process. Royal jelly can very effectively counteract age-dependent asthenia (weakness) and emaciation as well as age-related anaemia.

In animal studies, the healing of skin damage was sped up with the help of royal jelly—attributable to the aforementioned fatty acid, 10-hydroxy-2-decanoic acid, which is exclusively found in royal jelly and which has been shown to stimulate collagen production. The latter effect leads to immediate rejuvenation of the skin, as well as all connective tissue.

Royal jelly – intake

Preservation and intake of royal jelly



In order to maintain the full effect of royal jelly for as long as possible, you should keep it cool and protected from light, preferably in the refrigerator. One can take royal jelly as a treatment (i.e. in case of illness) or preventatively (as a prophylaxis against sickness and ageing).

Highly recommended is the combination of royal jelly together with honey. A ratio of 6 g royal jelly mixed together with 8-10 tablespoons of honey is recommended. Over the course of 3-4 weeks, take 1 teaspoon of this mixture in the morning on an empty stomach.

Those who want to take pure royal jelly are best served by 1 gram per day. For children, calculate 0.01g of royal jelly per kg of body weight.

Sublingual consumption (under the tongue) has proven especially effective, in order to optimise the uptake of nutrients and to encourage uptake via the oral mucous membrane. To do this, you should let the royal jelly dissolve for 8-12 minutes under the tongue.

After the 3-4 weeks of treatment, one should take a break for the same length of time and then repeat the treatment in the way described. If oral consumption is not possible, rectal intake (via the anus) can be substituted, something that can be advisable for certain illnesses or for small children.

Side effects of royal jelly

As a general rule, you should generally try to avoid consuming royal jelly with artificial additives. If you rely on a natural product free of additives, then you



will also, if taking it for longer periods of time, generally avoid any side effects.

One exception could, however, be allergies that react to bee products. If you are aware of any such allergies, it is recommended that you begin with cautious, partial consumption.



COENZYME Q10

What is coenzyme Q10?

Coenzyme Q10, ubiquinone, ubiquinol or simply 'Q10' – four terms that describe the same thing, namely an essential (necessary for life) vital substance with remarkable, even miraculous potential.

The discovery of the revolutionary enzyme Q10 was a milestone in the medical sciences and even led to a Nobel Prize in 1978 for its discoverer, Prof. Dr. Mitchell. Of the four listed terms, the term 'Q10' will be familiar to most of the members of the female sex from cosmetics, and some men will have also undoubtedly also taken note of the term. Hardly known to doctors, coenzyme Q10 has been successfully used as a matter of course for years in many other countries on this planet as a recognised therapy.

Supported by numerous representative studies and statements of world-famous experts in the realm of medicine, we will provide another piece of evidence for how reliant upon coenzyme Q10 we human beings are.

For the sake of simplicity, we will use the term 'Q10' for the rest of the text when we are speaking of coenzyme Q10 or ubiquinone/ubiquinol.

Most women will be familiar with the term Q10 from advertisements for anti-wrinkle creams, soaps and body lotions, as Q10 is praised there as a defence of the skin cells against free radicals. Very few people are aware, however, of



the existence of Q10 in capsule form to protect not only our skin cells but ALL of our cells.

On the other hand, you might rightfully ask why we hear about Q10 all over the place in cosmetics but not in the area of health—especially since, as mentioned, Q10 can be taken in capsule form? The answer is close at hand:

Wrinkles are not an illness that can be transformed into billions of dollars in sales, and anti-wrinkle creams do not compete in any way with the expensive medications of the pharmaceutical industry. The revenue of the pharmaceutical industry is thus not endangered if a natural substance becomes known which prevents or decreases wrinkles in local application (as a cream or lotion).

So long as it remains exclusively a matter of the local application mentioned! The story changes entirely exactly when we start to speak of Q10 as a panacea in capsule form, as taking it as a capsule expands the spectrum of effects on our entire organism, and a wrinkle treatment becomes a whole body restoration that, in addition to fighting wrinkles from within, is also able to prevent and curb all sorts of illnesses, something that 'Big Pharma', marketing their medications, does not particularly like.

In other words: If the enormous advantages of coenzyme Q10 for our health, in both prevention and treatment of illness (especially notable for heart disease, of which one in two dies), then Big Pharma would very soon have to lament billions in lost profits. And they definitely know how to prevent this of course...

Opposed to the few qualified statements of 'authorities' which you will find on



the internet are innumerable positive, serious studies and observations carried out by doctors from around the world for 30 years on millions of patients.

Before we extensively illustrate the modes of action and the enormous spectrum of effects of Q10 and present you with representative studies in our accustomed style, let us listen to the voices of experts:

In their declaration at Saas Fee on 15 June 1992, Prof. Dr. Dr. Charles Hennekens of Harvard University, Prof. Dr. Dr. Anthony T. Diplock, London, Prof. Dr. Dr. Karlheinz Schmidt of the University of Tübingen, Prof. Dr. Mulchand S. Patel, Cleveland, Prof. Dr. Julie E. Buring of Harvard University, Prof. Dr. Igor Afanasev, Moscow, Prof. Dr. Lester Packer, Berkley, PD Dr. Bodo Kuklinski, University of Rostock, and Dr. Matilde Maiorino, Padua, declared that Q10 was explicitly 'safe' and emphatically recommended its use. In addition to this, more and more experts from around the world are learning about this miraculous substance and are recommending Q10 out of conviction.

But read for yourself:

'After 31 years of scientific research, Q10 is today considered historic in the realms of health and nutrition. The ability of Q10 to improve and even eliminate a large number of health problems has amazed doctors and patients from around the world.' (Dr. S. Wagner, American Institute for Health and Nutrition, USA)

'Q10 is one of the most important discoveries of nutritional science in the past decades. Q10 gives the heart its natural vitality back. I take it daily.' (Prof. Dr. Linus Pauling, vitamin researcher and two-time Nobel Prize recipient)



'These test subjects whose condition was constantly worsening and who only had 2 years left to live under conventional treatment showed an extraordinary overall clinical improvement. That suggests that Q10 therapy might be able to lengthen lifespan.' (Dr. Langsjoen, Scott and White Clinic, Texas A&M University, USA)

'Our lives are in danger starting at a 75 % Q10 deficit.' (Dr. med. Emile G. Bliznakow

'Q10 achieves better results in persons with severe heart disease than traditional treatments... Improved quality of life for persons with severe heart disease... Normalisation of Q10 levels in the heart causes significant increase in organ performance... Q10 protects against repeat heart attacks... The more serious the clinical picture, the more Q10 the heart absorbs... Dramatic consequences with decrease of additional Q10 dispensations... Successful long-term treatment with Q10... Reduced side effects with a combination of Q10 and heart preparations... Q10 decreases angina pectoris attacks... Q10 protects the heart before, during and after heart operations.' (Dr. med. E. G. Bliznakow)

'Heart patients felt personally less tired, their tolerance for activity increased and existing ageing complaints disappeared.' (Dr. Mortensen, Municipal Hospital Denmark)

'Your improvement in heart performance seems to have been achieved through Q10, which makes the possibility of using this substance during sports significant, including and especially in competitive sports.' (Servizio di Medicina dello Sport, Jesi, Italy)

'Our results show that Q10 can be used prophylactically to protect the heart muscle from the terrible consequences of ischemia.' (Dr. G. Nayler, Cardiothoracic Institute of the University of London)



'The intellectual ethics of doctors, and cardiologists specifically, should be questioned if they administer all possible available and indicated medications without including Q10. Because no heart medication can remedy a lack of Q10.' (Professor Dr. Karl Folkers, University of Texas)

'In healthy hearts, Q10 content is sufficient, but in pathological stages or with heart disease, there is a Q10 deficit.' (Dr. Tsuyuasaki, Kitaseto University Clinic, Japan)

'The increase in heart performance, the minimised susceptibility to heart attack and the increased survival time with patients treated with Q10 is the beginning of a new era in the treatment of heart muscle diseases due to energy deficit and the failure of the heart muscle.' (Dr. W. V. Judy, St. Vicent Hospital, USA)

'The maximum capacity of the heart was able to be continually increased during the 8 weeks of Q10 administration.' (Dr. Vanfraechem, University of Brussels)

'Q10 is simply a prerequisite for human life—no Q10, no life.' (Professor Dr. Karl Folkers, University of Texas)

'Without Q10 there is no energy. If you rob the mitochondria of Q10, the cell is about as powerful as a 4-cylinder engine without an ignition plug. The machine is dead and doesn't start.' (Prof. Bliznakow)

The awarding of the Nobel Prize for the discovery of Q10 to discoverer Prof. Dr. Mitchell as well as the above-mentioned quotes of leading doctors and scientists should silence every objective critic, but, well... (see above)!



Did you know that

- ... Q10 provides 95 % of our total bodily energy?
- ...our bodies are composed of 37,2 trillion cells, that every disease is connected to a malfunctioning body cell and that Q10 is exactly what provides the sparks for energy supply and oxygen delivery for EVERY one of these cells?
- ...a deficit of Q10 of even 25 % leads to illness and a deficit of 75 % or greater can endanger our lives?
- ...a deficit of Q10 can lead to the suffocation of cells and thus to your death?
- ...logically, the reverse must be true that Q10 has the impressive potential to keep our cells and thus our entire organism healthy and vital?
- ... Q10 is a natural element of nutrition but that the supply of Q10 to our bodies via food is insufficient due to drained soils, long storage times, pesticides, and so on?
- ... you would therefore have to eat around 1.6kg of sardines or 3kg of beef daily to receive the recommended amount for healthy people of 100mg Q10 per day?
- ...your body's own production starts continually declining after the age of 20 and, starting then, an additional supply with Q10 preparations becomes necessary?



- ... Q10 is generally required by our bodies at the places where it is used, e.g. with wounds, diseased areas, radiation etc. and that every sick person shows a measurably insufficient Q10 level in their blood?
- ...only 25 % of all healthy people (almost exclusively children and adolescents) have a sufficient Q10 level?
- ... Q10 has the ability to delay ageing and prolong our lives?
- ... Q10 naturally combats excess weight?
- ... Q10 strengthens our immune systems, has been proven to prevent heart disease and decrease high blood pressure?
- ...our heart beats about 100,000 times per day and that coenzyme Q10 provides the ignition for the energy of every one of these heartbeats and is therefore exactly why the highest incidence of Q10 is in the heart?
- ... Q10 can even replace cardio training, because it can increase heart strength without endurance training?
- ...athletes especially profit from Q10, both in its health aspects (defence against the free radicals produced by athletes) and in increased performance?
- ... Q10 was able to improve endurance in studied of performance athletes by 30 %?
- ... Q10 has been taken by millions of people for over 20 years and yet no side effects have been noted at all?



- ...on the contrary, Q10 can even weaken the side effects of medications and strengthen their desired effects?
- ...not many years ago, 1g of coenzyme Q10, painstakingly extracted from cow hearts, was worth an amazing 1000 euros, so 30 times the current price of gold, and that it is now affordable for EVERYONE?

For every halfway intelligent person, this is simply too many convincing arguments in favour of the consumption of Q10.

While the coenzyme Q10, as a relatively new vital substance, has long-since rightfully achieved major popularity in the US and Japan (in Japan alone it is taken regularly by 10 million people and even used as a recognised treatment in hospitals), we were first introduced to the substance through the publication of the book *Herzwunder Q10* ('Heart Wonder Q10') by Dr. Emile G. Bliznakov.

One really has to question why the doctors in our country only know a very small amount about this substance, and still less recommend it to their patients.

But what is coenzyme Q10 and what makes it so valuable?

Q10 is a vitamin-like substance produced in the body which carries out its work in the mitochondria (the 'power plants' of our cells).

In short, one can say:

- Q10 is an energy provider for all organs,
- also protects our organs from free radicals and



- secures the functionality of our body cells via membrane stabilisation.

The book *'Herzwunder Q10'* (Heart Wonder Q10) limits its focus to the almost miraculous effect of Q10 on the heart muscle—without a doubt the most important aspect in light of the fact that the heart is our most important organ.

It is essential, though, that not only the heart muscle but also every individual cell in the body profits substantially from the energy boost via Q10 and that Q10 also demonstrates enormous potential as an antioxidant, thus protecting us against free radicals and so from premature ageing and sickness.

In a nutshell: Without Q10, NO individual body cell in the human organism can function.[726]

Below you will learn:

- What exactly Q10 is and why everyone can endlessly profit from it.
- In which foods Q10 is present.
- Which groups of people have increased Q10 requirements.
- Which diseases coenzyme Q10 can have a proven positive effect on.
- How you can preventatively defend yourself against illness with the help of Q10.
- How you can substantially delay physiological ageing processes with Q10 and even set rejuvenation processes in motion.

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[726] Dr. Emile G. Bliznakov: Herzwunder Q10, 1993, p. 19.



- How you can improve your performance as an athlete and simultaneously defend against the high burden of free radicals.
- Whether Q10 has side effects and if so, what they are.
- How much Q10 is recommended to remain healthy and vital.



Coenzyme Q10 – what exactly is it and why can everyone profit enormously from it?

Q10 is a vitamin-like substance produced naturally in the body which is present almost everywhere in the body. This is why Q10 also goes by the same 'ubiquinone' ('ubiquitous').

Its presence throughout the body also makes a great deal of sense, because Q10 is responsible for the energy generation and oxygen supply for EVERY single one of our cells. All diseases manifest themselves due to a non-intact body cell. Q10 provides a sufficient energy and oxygen supply for EVERY single one of the 37,2 trillion cells present in the body.

The saying applies: Healthy cells mean total health—weak cells means sickness unto cell death. Q10 exercises a positive influence on our health, lifespan and quality of life.

One can thus consider Q10 an elixir of life, and literally EVERYTHING that breathes or has ever breathed must have received Q10—because Q10 even provides the necessary energy for breathing, the most important function of our organism.



Q10 – energy guarantor and defender of our cells

Whether breathing, cell division, movement, nutrient absorption or, or, or...literally EVERY action in our bodies requires the action of the body cells – and every act of the cell is reliant on its own power plants, which delivery the energy for these actions, the so-called 'mitochondria'. In them, the coenzyme Q10 transforms our food after the digestion process into energy for the cells of the body. The ignition spark for the activation of the mitochondria is ALWAYS delivered by coenzyme Q10.

If you take coenzyme Q10 away from the mitochondria, you also take away the cell's energy, and because Q10 is responsible for the energy production of every individual body cell, you also take away energy for life. If a cell has a Q10 deficiency, it is robbed of oxygen, it cannot breathe, suffocates, and can even die of suffocation.

A recognition that Prof. Folkers of the University of Texas summarizes in the following sentence: '*Q10 is simply a prerequisite for human life—no Q10, no life.*'

Expressed in concrete numbers, a shortage of coenzyme Q10 starting at 25 % can initially lead to a physical and psychological decline in performance; starting at 75 %, it can lead to functional impairments and illnesses up to and including death.[727]

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[727] Dr. med. Emile G. Bliznakow, Q10 researcher and President and Scientific Director of the Connecticut Lupus Research Institute (USA).



Q10 as antioxidant – the cell defence for our bodies

Alongside its infinitely large contribution to our energy supply, Q10 also plays another enormous role in our bodies as an effective antioxidant (radical capturer). As we already learned in depth in the chapter 'Vitamin C', free radicals are precisely what lead to the so-called diseases of civilisation like atherosclerosis, heart attack, stroke, diabetes, arthritis, and cancer – and free radicals also lead to the ageing of our cells.

Comparable to rust on our automobiles, free radicals gnaw on our cells and gradually wreak terrible havoc, which leads to illness and ageing.

The following illnesses, among others, can be traced to attacks by free radicals:

- Atherosclerosis
- Heart attack
- Stroke
- Respiratory diseases
- Blood vessel diseases
- Cancer
- Diabetes
- Cystic fibrosis
- Inflammation
- Hepatitis



- Parkinson's
- Alzheimer's
- Arthritis
- Down's syndrome

The fact that Q10 is present everywhere in our bodies explains its ability to capture and neutralise free radicals throughout the body.

Q10 already starts working in the blood, before the free radicals reach their target organs and do their damage there. Q10 is the most important antioxidant in the lipid phase and has the ability to regenerate the antioxidant Vitamin E which is used there and which also takes part in antioxidative processes.[728]

A healthy lifestyle requires the regular consumption of Q10. And even athletes, who are said to have a very healthy lifestyle, have a serious problem without Q10: While not many years ago athletes—especially endurance athletes—were considered to be especially healthy people, new studies clearly suggest that precisely these athletes are especially endangered by free radicals due to their increased oxygen uptake (oxidation requires the presence of oxygen). Coenzyme Q10 is the most important protective factor against so-called 'oxygen stress' during intensive athletic activity.

The spectrum of effects of coenzyme Q10 is, however, many times

[728] Ernster L.: Ubiquinone: redox-enzyme, hydrogen carrier, antioxidant. Biomed. and Clin. Aspects of CoQ10, 1984, 4, S. 3–14; Ernster L. und Beyer R. E.: Antioxidant functions of coenzyme Q: some biochemical and pathophysiological implications. Biomed. and Clin. Aspects of CoQ10, 1991, 6, pp. 45–58



higher:

- Q10 protects our bodily cells from free radicals.
- It preserves our health and mobilises our self-healing powers.
- Coenzyme Q10 delivers the energy to cells for all the imaginable functions and mechanisms that they need to fulfil, such as nerve function, muscle function, repair mechanisms, stabilisation of the immune system and much more.
- Q10 is a cell growth stimulator.
- It stabilises the cell membrane and thereby enables the optimal supply of energy substances from protein, carbohydrates and fats—and, in this way, Q10 also enables the communication of cells among each other.
- Q10 creates the optimal conditions for medications, so that they can be more effective—in this way, medication dosage can very often be decreased (clear this with a doctor!).
- Q10 strengthens the body before surgery in order to ensure a quicker recovery.
- Together with Vitamin C, Q10 regenerates the Vitamin E used up in the antioxidative process.

Presence of coenzyme Q10 in the human body

The coenzyme Q10 is especially present in our heart, and is also found in the



liver, the pancreas and the kidneys. Up to a certain point, the body is in a position to produce its own coenzyme Q10. With advancing age, however, the body gradually loses its ability to synthesise Q10.

While Q10 demand rises during illness, the body is unable to meet this increased need; thus, it does not readjust to the increased demand, which very soon leads to a Q10 deficit with far-reaching consequences.

The fact is also worth mentioning that Q10 is more intensely transported to the area affected by the illness – more evidence of how important it is for recovery.

In addition, we absorb coenzyme Q10 by way of food intake. It is assumed that between 2 and 20 mg of coenzyme Q10 are absorbed via food intake, although the number can become substantially lower due to depleted soils, long storage times, pesticides and food preparation, leading to an inability to absorb enough via natural nutrition.

Which foods contain Q10 and in what quantities?

Coenzyme Q10 is primarily present in:

- Meat (beef, poultry, liver),
- fish (especially in sardines),



- eggs,
- green vegetables (especially spinach),
- nuts,
- almonds,
- soy,
- in some plant-based oils and
- oil-containing plants.

To guarantee the recommended healthy supply of 100mg coenzyme Q10, one would have to eat 1.5 kg of sardines per day, for example.

At our latitudes, beef is the main deliverer of Q10. However, to get 100mg of Q10, one would have to consume over 3 kg of beef per day, something that is physiologically almost impossible and which in any case is out of the question for vegetarians.

While not that long ago one had to pay around 1000 Euros for 1 g Q10 extracted from the heart of a cow (30 times the current price of gold, by the way), today treatment with Q10 preparations has become affordable for anyone.

Which groups of people demonstrate a higher Q10 requirement?

As already explained, Q10 is the prerequisite for energy supply to every single one of the body's cells.



According to the statements of Dr. B. Diamant of the University of Copenhagen and Dr. J. Karlsson of the Karolinska Institute in Stockholm, only 25 % of all healthy people – mainly children and adolescents – have a satisfactory Q10 plasma level.[729]

So nearly EVERY person is dependent on additional Q10 supplements from the age of 20 onwards. All patients, on the other hand, exhibit an excessively low Q10 plasma level; here there can be no question of Q10 intake.

Again: A Q10 deficiency of 25 % leads to illnesses; a deficit of 75 % even endangers our lives.

So while EVERYONE can benefit from Q10, some groups of people are proven to be dependent on sufficient Q10 administration. This is already supported by the fact that these groups of people exhibit a lower Q10 level in their bodies.

In this group in particular are persons who:

- people, as a general rule, who are over 40 years old,
- suffer from cardiovascular disease and heart failure,
- women who take the birth control pill,

[729] Karlson J. et al.: Skeletal muscle coenzyme Q10 in healthy men and selected patient groups. Biomed. and Clin. Aspects of Q10: 1992, 6, pp. 191–204



- athletes, especially endurance athletes,
- people with increased psychological and physical strain,
- people under constant stress,
- disabled people who cannot or are not allowed to exercise,
- diabetics,
- cancer sufferers,
- HIV sufferers,
- smokers,
- people with above-average alcohol consumption,
- overweight people and those who would like to lose weight,
- groups of people who are dieting or fasting,
- people who suffer from sleep disorders,
- people suffering from shortness of breath,
- high blood pressure patients.

Similarly to vitamin C (see the section 'Vitamin C'), illnesses always lead to an increased use of coenzyme Q10, as the body demands this more intensely for recovery. This process is objectively measurable and has been repeatedly confirmed at numerous clinics throughout the world.



The following table illustrates the Q10 deficit measured in patients with different illnesses as compared to healthy persons:

ILLNESS	**Q10 LEVEL IN µg/ml**
Healthy Person	*0.85*
Competitive athlete	0.60
Chronically stressed persons	0.40
Angina pectoris	0.55
Heart failure	0.28
High blood pressure	0.64
Ischemic heart disease	0.60
Allergies	0.65
Obesity	0.45
Parkinson's	0.35
Chronic lung illnesses	0.33
Multiple sclerosis (MS)	0.42



Hyperthyroidism	0.5
AIDS	0.45
Glycogenosis	0.35
Cancer	0.45
Diabetes	0.40
Tinnitus	0.26

Which illnesses does coenzyme Q10 have a positive influence on?

As both an energy supplier and antioxidant which is present in all of our bodily cells, coenzyme Q10 logically takes on a decisive role in the maintenance of the health of our entire bodies and simultaneously in the prevention and treatment of illnesses. The illnesses listed below lead to an acute Q10 deficit which should be balanced out to enable as quick a recovery as possible and to prevent lasting damage.

Among these are:

- Age-related complaints
- Alcoholism
- Allergies



- Alzheimer's
- Angina pectoris
- *Atherosclerosis*
- Offsetting side effects of blood lipid reducers: HMG CoA reductase inhibitors
- Asbestosis
- Autoimmune diseases
- Asthma
- Brucellosis
- Chronic fatigue syndrome
- Chronic poisoning
- Churg-Strauss syndrome
- Colitis ulcerosa
- Crohn's disease
- Intestinal diseases
- Depression
- Diabetes mellitus
- Cholesterol reduction
- Skin diseases



- Immunodeficiency
- Heart diseases (Coronary heart diseases, heart attack, *atherosclerosis*, weak heart, arrhythmias, prevention), supplement to medication-based treatment
- Headaches
- Cancer
- Liver diseases
- Neuropathies
- Neurodermitis
- Down's syndrome
- Mucus membrane diseases
- Various inflammations
- Epilepsy
- Erythematosus,
- Deformities
- Goodpasture's syndrome
- Brain oedema
- Brain trauma
- HIV
- Hormonal imbalances



- Leukaemia
- Cardiomyopathy
- Listeriosis
- Fibrosis of the lungs
- Lung emphysema
- Lyme disease
- Stomach disorders
- Multiple sclerosis (MS)
- Myocarditis (non-bacterial)
- Kidney diseases
- Pancreatitis
- Parkinson's
- Polyangiitis
- Polychondritis
- Preeclampsia
- Progeria
- Sarcoidosis
- Rheumatic arthritis
- Schizophrenia



- Schoenlein-Henoch syndrome
- Shock
- Psoriasis
- Silicosis
- Scleroderma
- Sjörgren syndrome
- Mitochondrial disorder
- General muscle weakness
- Infertility
- Miscarriage
- Coeliac disease
- Metabolic disorders
- Syphilis
- Parkinson's disease
- Systematic erythematosus
- Toxic brain damage
- Tuberculosis
- Ecotoxic illnesses
- Infertility



- Werner syndrome
- Wegener's granulomatosis
- Cystic fibrosis
- Diabetes (prevention of long-term damage, improvement of blood pressure and blood sugar levels)

New research also indicates that dosages of certain medications can be reduced with an additional administration of Q10, as Q10 increases the positive effect of these medications (definitely clear this with the treating physician!).

Q10 has also been proven to be able to simultaneously reduce the negative side effects of certain medications, e.g. with some chemotherapies, cholesterol-reducing medications, and beta blockers.

Unfortunately, many medications intensify cell oxidation; in this case, antioxidants like Q10, Vitamin C, and OPC should counteract this damaging process.



Additional consumption of Q10 is also especially indicated for:

- unbalanced or limited nutrition during diets, fasts and similar, as the resulting nutrition deficiencies also lead to a Q10 deficiency and thus to a decrease in performance and susceptibility to illnesses;
- competitive athletes, especially strength and endurance athletes, as a great amount of Q10 is consumed for muscle and heart work during training and competition, and must be replenished. It is no wonder, then, that American Olympic athletes are typically provided with Q10. In addition, the increased oxygen consumption in the body of the athlete strengthens free radicals which attack the cells – in this case we need to rely on antioxidants like Q10, OPC, and Vitamin C to prevent this damaging mechanism;
- Alcoholism damages the liver and the heart; here, Q10 can introduce detoxifying processes and help these organs regenerate;
- Patients who are receiving chemotherapy, as many chemotherapies damage the heart and restrict heart function. Q10 can counteract this and repair the damage.
- People who have had heart surgery; here, Q10 compensates for the damage by returning circulation to the heart.

What exactly is the difference between ubiquinone and ubiquinol?

Ubiquinone and ubiquinol, a single letter that nonetheless plays an important role for the absorption of Q10 throughout our entire body! In short, the difference between the two substances lies exactly in the mentioned uptake, the



so-called 'bioavailability': the somewhat cheaper ubiquinone must first be transformed in the body in an extensive process into the active, usable form 'ubiquinol'. During this transformation, much of the Q10 potential is lost in the body. By using ubiquinol in the first place, you can avoid this loss and achieve more with smaller doses!

How high is the aforementioned loss?

Here it is recommended that the plasma levels in the body serve as the relevant measure for Q10 consumption. In studies, 150 mg ubiquinol per day led to an immediately Q10 higher plasma level in human patients than with 1200 mg of ubiquinone per day. 300 mg ubiquinol also leads to the same plasma level as 2400-3000 mg of ubiquinone (see graph).[730] [731] [732]

One can thus determine as a result that higher doses of ubiquinone (the most common form of coenzyme Q10 on the market) can be replaced by an 8-fold lower dose of ubiquinol! On the other hand, with lower doses of ubiquinone, the difference of effect to ubiquinol is less pronounced: Consumption of 300 mg ubiquinone per day allows, in this case, the plasma level of coenzyme

[730] Hosoe K, Kitano M, Kishida H, et al. Study on safety and bioavailability of ubiquinol (Kaneka QH) after single and 4-week multiple oral administration to healthy volunteers. Regul Toxicol Pharmacol. 2007;47(l):19-28

[731] Hosoe K, Kitano M, Kishida H, et al. Study on safety and bioavailability of ubiquinol (Kaneka QH) after single and 4-week multiple oral administration to healthy volunteers. Regul Toxicol Pharmacol. 2007;47(l):19-28

[732] Hosoe K, Kitano M, Kishida H, et al. Study on safety and bioavailability of ubiquinol (Kaneka QH) after single and 4-week multiple oral administration to healthy volunteers. Regul Toxicol Pharmacol. 2007;47(l):19-28



Q10 to rise to the same degree as a daily dose of 80 mg ubiquinol. This corresponds to a 3.5-times lower dose.[733] [734]

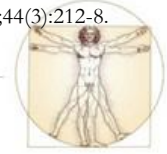
Positive Influence of Q10 on the Heart

So while the entire body can benefit from regular consumption of coenzyme Q10 and counteract this diverse set of illnesses, both as prophylaxis and as therapy, it is primarily the therapeutic effect of Q10 on heart performance that is best proven and, in light of the fact that cardiovascular disease is the number one cause of death in Central Europe, should be especially emphasised. So it is no surprise that the greatest presence of Q10 can actually be found in our heart muscle, and this for a reason: Our hearts beat 100,000 times per day and so needs more energy than any other bodily organ. At the same time, a weak or sick heart is accompanied by a Q10 deficit. Many of the representative longitudinal studies were able to prove the very impressive effect of Q10 on heart diseases like angina pectoris, heart failure, coronary heart disease, acute myocardial infarction or disfunction of the left ventricle as well as heart damage via cytostatic drugs.

P. H. Langsjoen et al., Texas, explain the notable influence of Q10 on heart problems via two concurrent mechanisms: According to this explanation, ubiquinone (Q10) first of all balances out the deficit in the blood and is incor-

[733] Hosoe K, Kitano M, Kishida H, et al. Study on safety and bioavailability of ubiquinol (Kaneka QH) after single and 4-week multiple oral administration to healthy volunteers. Regul Toxicol Pharmacol. 2007;47(l):19-28.

[734] Kematsu H, Nakamura K, Harashima S et al. Safety assessment of coenzyme Q10 (Kaneka Q10) in healthy subjects: a double-blind randomized, placebo-controlled trial. Regul Toxicol Pharmacol. 2006;44(3):212-8.



porated by the Q10-deficient mitochondria cells, which improves the bioenergetic condition of the cells. Q10 also defends the cells from free radicals and the damages that these cause to the heart. Langsjoen also hypothesises together with his colleagues that high Q10 doses of up to 720 mg/day should achieve further improvements in people with illnesses.

In a study by S.A. Mortensen on patients who suffered from heart failure and who did not respond to digitalis and diuretics, eight out of twelve patients exhibited significant improvement after four weeks of consuming 100 mg coenzyme Q10 per day. Similarly good results were exhibited with arrhythmia and cardiomyopathy.[735]

Prominent American scientist and Q10 researcher Dr. med. E. G. Bliznakow very convincingly summarised it with the following words:

'Q10 achieves better results in persons with severe heart disease than traditional treatments... Improved quality of life for persons with severe heart disease... Normalisation of Q10 levels in the heart causes significant increase in organ performance... Q10 protects against repeat heart attacks... The more serious the clinical picture, the more Q10 the heart absorbs... Dramatic consequences with decrease of additional Q10 dispensations... Successful long-term treatment with Q10... Reduced side effects with a combination of Q10 and heart preparations... Q10 decreases angina pectoris attacks... Q10 protects the heart before, during and

[735] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 26



after heart operations.'

Also worth mentioning in this context is especially the American double-blind study by Dr. W.V. Judy et al., in which, over the course of eight years, two groups of patients with severe heart disease were compared: one group were treated with conventional medication and a placebo, while the other group was treated with both conventional medications and Q10 supplements.

While after five years all patients in the placebo group had died, 50 % of all patients in the Q10 group had survived and a further three years later, 36 % of all patients were still living.

In another study, Prof. K. Folkers's team documented an astounding improvement to the relevant parameters of 'cardiac output' and 'heart stroke volume' with an intake of only 100mg Q10/day, which he published in his book *The Discovery:* Energy Vitamin Q10:



AGE	Q10 In-take in months	Stroke volume (SV)		Cardiac output (CO)	
		BE-FORE	AFTER	BE-FORE	AFTER
38	6	45.30	51.80	3.25	3.65
51	8	26.4	38.82	2.43	3.64
58	6	43.55	55.05	3.06	3.65
59	5	28.80	36.37	2.57	3.03
66	4	24.70	43.53	2.42	3.23
71	5	20.95	32.05	2.05	2.89
75	9	45.00	59.65	3.59	4.83
78	6	28.20	30.65	1.99	2.56



Prof. S. A. Mortenson of the National University Hospital summarised the results of nine studies on heart failure that included a total of 1000 patients.

With excellent tolerance of coenzyme Q10, all patients exhibited a significant improvement to resilience and quality of life.

A double-blind study led by R.B. Singh et al. at the Medical Hospital and Research Center in Moradabad demonstrated, with a group of 144 patients with myocardial infarction, that the intake of 120 mg of Q10 over six weeks not only caused a drop in the number of heart attacks but also a significant reduction in heart disfunctions, arrhythmia and angina pectoris attacks.

Another eight-week study of high blood pressure patients who were also suffering from coronary heart disease showed that an additional Q10 intake of 120 mg daily could decrease blood pressure, triglyceride levels, glucose levels and insulin levels, while HDL cholesterol ('good cholesterol') increased.

Dr. A. Keogh and his colleagues at the Transplant Heart Unit at St. Vincent's Hospital in Sydney found a significant improvement in the quality of life of 39 heart patients (cardiomyopathy of classes II and III) who were administered 150mg daily of coenzyme Q10 or, in the control group, placebo. The clinical parameters showed an improvement, quality of life improved and the need for hospitalisation decreased.



According to Prof. Sven A. Mortensen, all nine placebo-controlled and other studies on Q10 concluded with positive results. Moreover, Prof. Mortensen refers to the good results from five double-blind studies of patients with Angina pectoris. According to his statements, the patients had fewer chest pains after supplementary Q10 intake and the medication with nitroglycerine could be decreased.[736]

That stress damages the entire body, but especially to the circulatory system, is well-researched and known to everyone. In a study by A. Syrkin et al. at the Medical Academy of Moscow, it was shown that the consumption of 150 mg Q10 per day led to a decrease in oxidative stress of 37 %; it also incidentally lowered blood pressure[737]

Q10 causes a rapid revitalisation and an increased sense of wellbeing

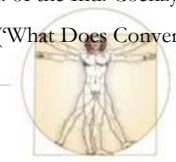
Because 75 % of all heart patients suffer from a substantial deficit of Q10, a rapid revitalisation takes place within a very short timeframe after beginning a sufficient Q10 intake – usually within as little as two to eight weeks.[738] The largest studied undertaken so far on Q10 was carried out on 2664 patients suffering from heart failure. It lasted 90 days, and the patients were administered 50-150 mg daily of coenzyme Q10. After the end of these three months, ALL patients exhibited a substantial improvement to their complaints, as expressed in the following in percentages:

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[736] Mortensen S. A.: Coenzyme Q10 and the diseased heart: blood and tissue levels of CoQ10 in relation to myocardial function and CoQ10 therapy. Boston: 1st Conf. of the Intl. Coenzyme Q10 Assn., 1998, p. 78 ff.

[737] Syrkin A. et al.: The effect of soluble form of Coenzyme Q10 on the oxygen free radical processes and clinical course in patients with coronary heart disease – stabile angina pectoris. Boston: 1st Conf. of the Intl. Coenzyme Q10 Assn., 1998, p. 110 f.

[738] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 28



SYMPTOMS	RELIEF IN %
Cardiac arrhythmia	63.4 %
Severe palpitations	75.4 %
Dizziness	73.1 %
Shortness of breath	52.7 %
Cyanosis	78 %
Oedema	77.8–78.6 %
Insomnia	62.8 %
Urge to urinate at night	53.6 %
Enlargement of the liver	49.8 %
Sweating	79.8 %

The improvements were not simply limited to heart function itself, because, as we all know, the heart provides for all of our organs, tissues and muscles. Thus, parallel to the revitalisation of the heart, all organs are optimised, which expresses itself as a notable increase in the sense of wellbeing and more energy.

Coenzyme Q10 can replace endurance training



The goal of endurance training is first of all to increase cardiac output and stroke volume, or stated simply: an increase in heart circulation per unit of time. The fact that coenzyme Q10 has, despite bodily passivity, benefits for the circulatory system similar to endurance training makes it interesting for all people who are not able or willing to do endurance training, but especially for those who are substantially overweight, disabled or suffer from illnesses that make cardiovascular training impossible.

'It is well known that movement strengthens the heart. But that same strengthening also takes place with the consumption of Q10, without the patient moving. Experiments have also shown a decrease or normalisation of blood pressure.' (Dr. Burgerstein)



Additional effects of Q10

Effect of Q10 on depression

Similarly to Vitamin C and OPC, both of which minimise depression by overcoming the blood-brain barrier and optimising calcium turnover, Q10 proves itself to be a helpful third partner by improving the cell-to-cell communication of the neurons without any side effects, while traditional antidepressants exhibit side effects ranging from dangerous drops in blood pressure to cardiovascular disturbances and deadly arrhythmia. These side effects can also be relieved with additional Q10 supplements.

Coenzyme Q10 against obesity – Q10 helps with weight loss

In a study by van Gaal et al., the researchers were able to demonstrate a Q10 deficit of 50 %, which is already very critical. Men and women with an average age of 37.2 took part in the study, which was connected with a reduced-calorie diet. The subjects were divided into two groups, one group showing a low Q10 level and another with a higher Q10 level. Both groups were administered 100mg of Q10 per day. After twelve weeks, the results showed that the patients with a significantly lower Q10 level before treatment had the greatest weight loss after treatment with Q10. On average, a weight reduction of 16.4 kg in the three months was achieved in the group with the initially low Q10 levels. The group which showed a higher Q10 level as the start of the study were only able



to reduce their weight by 5.8 kg.[739]

Change of Body Weight after Coenzyme Q10 Treatment

Baseline*	Starting weight in kg	After 8-9 weeks of Q10 supplements	After 3 months of Q10 supplements
Lower	110.0+-21.0	97.5+-19.8	94.6+-18.4
Higher	103.5+-17.9	97.7+-15.2	---

* The patients were divided into two groups which showed different levels of Q10.

Change to BMI after Coenzyme Q10 Treatment

Baseline	Baseline index point	After 8-9 weeks of Q10 supplements	After 3 months of Q10 supplements
Lower	41.4+-6.3	36.4+-6.3	35.7+-6.0
Higher	37.3+-1.7	35.3+-1.5	---

[739] van Gaal L. et al. Exploratory study on Coenzyme Q10 in obesity. Biomed. and Clin. Aspects of CoQ10, 1984, 4, pp. 369–374



Percentage Change to Body Weight and BMI

Baseline		**after 8-9 weeks in %**	**after 3 months in %**
Lower	Weight	12.2+-3.4	16.6+-3.2
	BMI	12.3+-3.3	16.5+-2.7
Higher	Weight	5.4+-3.3	5.9+-1.7
	BMI	5.4+-1.8	6.0+-1.8

Some of the subjects initially experienced weight gain in the first days, which the researchers attributed to regulating processes in the body. This receded after three weeks at the longest; afterwards there was continual weight loss.

Q10 helps with rheumatism

In pilot studies of 70 rheumatism patients, Dr. F. Enzmann et al. determined in 1992 that Q10 intake led to an attenuation of rheumatic pain and improved mobility in 60-80 % of patients.

Q10 against chronic fatigue syndrome

In a three-month study on ten women between 28 and 38 years old suffering from Chronic Fatigue Syndrome, Judy et al. were able to show that the administration of 100 mg of Q10 per day achieved a significant improvement. Q10 levels before the study were highest in all subjects at 8:00 in the morning and



lowest at 5:00 in the evening. Stress tests led to leg cramps and shortness of breath. These symptoms substantially improved after two weeks of Q10 intake, pumping of blood was noticeably better in the evenings, and exercises of 1.13 minutes could be carried out without cramps and shortness of breath.[740]

In another study, Judy et al. determined that 60 % of the subjects in the first group (A), who received 100 mg of Q10 per day reacted positively to the Q10 therapy, while 91 % of the patients in the second group (B), who received 300 mg of Q10 per day, reacted positively. The symptoms improved with an increasing dose; the effect appeared after only 30 days with group B, but only after 60 days with group A.[741] This is a further indication that the effect of Q10 is dose-dependent.

Coenzyme Q10 and lung illnesses

According to a study by Fujimoto et al. on patients with chronic obstructive lung disease and idiopathic pulmonary fibrosis, these patients exhibit lowered Q10 levels. The patients suffered from breathing problems and heavy legs, among other symptoms. After an intake of 90 mg of Q10 per day, Q10 plasma levels returned to normal and physical resilience increased significantly.[742]

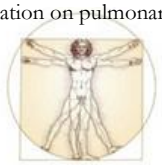
Coenzyme Q10 against pancreatitis

As the Apotheker Journal reported in volume 9/93, the dying off of tissue was able to be restricted to less than 30 % of the whole organ in 173 of 178 patients

[740] Judy W. V. und Folkers K: Management of chronic fatigue syndrome patients with CoQ10. 8th Int. Symp. Biomed. and Clin. Aspects of CoQ10, 1993, p. 55

[741] Judy W. V. et al.: Dose related effectiveness of coenzyme Q10 in the treatment of chronic fatigue. Boston: 1st Conf. of the Intl. Coenzyme Q10 Assn., 1998, p. 86

[742] Fujimoto S. et al.: Effects of coenzyme Q10 administration on pulmonary function and exercise performance in patients with chronic lung diseases. Clin Investig, 1993, 71, pp. 162-166



with a Q10 prophylaxis, with the result that surgical operations and intensive therapies could be avoided.

Q10 and alcohol-related hepatitis

As the Apotheker Journal also reported in volume 9/93, the mortality rate of liver cirrhosis patients with hepatitis was only 6.5 % while the rate of the control group (without Q10 among other things) was 40 %. In addition, the values for MDA, ammonia and bilirubin were significantly better than the control group, with the result that the hospital stay could be reduced by six days.

Q10 problems during menopause

One woman is surprised by it at 35, another only at 60 – menopause, with all of its uncomfortable symptoms in the form of heat flashes, depression, insomnia, headaches, fatigue, osteoporosis etc.

Approximately 25 % of these women are dependent on medical help during this time. It is well known that Q10 levels are also low in women in menopause. Doctors and alternative practitioners report of successes all the way to a complete lack of symptoms with the use of Q10 (approx. 120 mg/day).

Q10 against neurodermitis

As we have already learned, Q10 plays the most important role in skin protection and is thus the first substance used in the skin. Neurodermitis is attributable to a malfunction of the immune system; the immune system is misdirected



and attacks substances that are not its enemies. The conventional medical answer to this is to administer medications with strong side effects. This indication is unsatisfactory, however. Because Q10 stabilises the immune system and significantly improves cell membrane communication, it should not be ignored as a supplementary therapy for neurodermitis.

Q10 successful in the fight against cancer

A Q10 deficit during an illness is a strong indication that the body is increasingly using Q10, and thus requires more for its recovery. The more an illness encourages the Q10 deficit, the more important it is to offset this from the outside as soon as possible in the form of Q10 capsule intake.

In a study by Folkers et al. of 83 cancer patients with eight different types of cancer, it turned out that all of them had a strong Q10 deficiency, especially the breast cancer and lung cancer patients.

This pronounced Q10 deficit is a clear indication of the importance of Q10 consumption during cancer treatment (and prevention). There are many studies which confirm the positive outcomes of cancer caused by the consumption of coenzyme Q10. Studies document, for example, a rise in lymphocytes (white blood cells) and immunoglobulin in the blood of cancer patients. A reduction of cancer symptoms all the way to the degeneration of the tumour were also able to be documented.

At the moment, many mechanisms are being discussed as potential causes of this, ranging from the structure of the immune system to an improved cell



transfer all the way to cell communication which hinders mutations of cells.

In a test on laboratory mice, Bliznakow et al. were able to impressively prove the positive effects of Q10 on tumour emergence and tumour development. The frequency of tumour formation, tumour size as well as the morality rate of a group with Q10 and one without Q10 were compared.

Influence of Coenzyme Q10 on the Emergence of Cancer

Days after Tumour initiation	Tumour formation in the control group	Tumour formation in the Q10 group
55	85 %	25 %
69	100 %	55 %
77	---	77 %

Influence of Coenzyme Q10 on Tumour Size

Days after Tumour initiation	Control group	Q10 group
55	250 qmm	95 qmm
69	360 qmm	170 qmm
77	930 qmm	580 qmm



Influence of Coenzyme Q10 on Mortality Rate

Days after Tumour initiation	Control group	Q10 group
55	5 %	0 %
111	50 %	15 %
132	100 %	?

Even if sceptics would argue here that we humans are not mice, mice are still functional organisms, and the studies also give much occasion for optimism for the 'human' species, particularly since studies on human beings support the positive effect:

Lockwood et al.[743], for example, were able to demonstrate amazing successes with Q10 on 32 (human) patients whose condition seemed hopeless. Three of the patients had a life expectancy which was much lower than the length of the 18 months' study. All patients were initially administered 90 mg of Q10 daily, which led to outstanding results with six of the patients and a substantial improvement to the overall condition of the other 26. No deaths were recorded and even the typical weight loss associated with cancer failed to materialise. To get to the bottom of this positive effect, it was decided to increase the Q10 daily dose for one patient to 390 mg, with the following result:

After only a month, the tumour was no longer palpable and another month

[743] Lockwood K. et al.: Apparant partial remission of breast cancer in high-risk-patients supplemented with nutritional antioxidants, essential fatty acids and coenzyme Q10. Mol Aspects Med, 1994, 15s, pp. 231–240



later a mammogram confirmed a total disappearance of the tumour.

With another patient, the Q10 dose was increased to 300 mg daily, which led to a full disappearance of the tumour after three months. With an older patient who had already undergone a breast amputation and then got another tumour, the second tumour disappeared after six months of treatment with Q10. Another subject had metastases around the scar tissue after a breast operation. The Q10 treatment also caused these metastases to fully disappear. In his report at the Q10 Congress in Boston in 1998, Judy mentioned his remarkable successes with 600 mg of Q10 per day in the treatment of prostate cancer. The PSA value of 10 out of 14 patients decreased after 360 days by 73.6 %, and the prostate shrank by 48.4 %, completely without side effects.[744]

Prof. Folkers gave an account of long-term studies in which, among others, ten severely ill cancer patients with extremely poor prognoses took part. After intensive Q10 therapy, one of them was completely cancer-free after three years, another one after nine years, and another one after 10 years. These successes are attributable to the stimulation of the antibody IgG and the T lymphocytes as well as a potential positive effect on cytotoxic T cells.

Coenzyme Q10 protects against the consequences of tumour operations

It is well known that the bodily stress of an operation leads to the increased formation of damaging free radicals. The immune system is also heavily suppressed during the operation. In both cases, Q10 can intervene supportively,

[744] Judy W. V. et al.: Regression of prostate cancer and plasma specific antigens (PSA)in patients on treatment with CoQ10. Boston: 1st Conf. of the Intl. Coenzyme Q10 Assn. 1998, pp. 143



namely as an antioxidant and immune system modulator. To support wound healing after the operation, it is recommended to rely on OPC and Vitamin C several days before the operation (see the sections 'OPC' and 'Vitamin C').

Q10 as defence against side effects of chemotherapy

The promising studies which support the efficiency of coenzyme Q10 speak significantly in favour of supplementation with Q10 during cancer, with respect to the fact that, even at high doses, Q10 has shown no side effects at all in countless studies.

If you are being treated with chemotherapy, another positive quality of coenzyme Q10 becomes relevant, namely the protection from side effects.

As Iarussi et al. impressively showed in their study of 20 children with non-Hodgkin's lymphoma and lymphoblastic leukaemia, the Q10 group (10 children who were administered 240 mg of ubiquinone) was protected against the cardiotoxic side effects of the chemotherapy 'antracyclin'.[745]

In animal studies, Valls et al. demonstrated a protective effect of coenzyme Q10 against the typical damage caused by the cytostatic drug 'adriamycin', which the researchers attributed to the capture of free radicals in the membrane of mitochondria via Q10.[746]

Q10 as Defence during Radiotherapy and Hyperthermia

It is no secret that radiation therapy can paradoxically produce cancer due to

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[745] Iarussi D. et al.: Protective effect of Coenzym Q10 on anthracyclines cardiotoxicity: Control study in children with acute lymphoblastic leukaemia and non-hodgkin-lymphoma. Molec. Aspects Med: 1994, 15, pp. 207–212

[746] Valls V. et al.: Protective effect of exogenous coenzyme Q against damage by Adriamycin in perfused rat liver. Biochem. Biomol. Biol. Int., 1994, 33, 4, pp. 633–642



increased radical formation, which can lead to cell mutation. Hyperthermia

Here, Q10 can preventatively intervene as a valuable antioxidant. With respect to its high positive potential, the question does not even arise, considering the lack of side effects, whether to take Q10 therapeutically or preventatively in the event of cancer – even for the prevention of other illnesses.

Summary of the effects of Q10 on cancer:

POSTIVE EFFECT OF COEN-ZYME Q10 ON CANCER
Q10 improves the cell-to-cell communication which is interrupted by cancer.
Q10 strengthens the cancer-fighting immune system.
Q10 neutralises free radicals, which are also considered a cause of cancer.
Q10 fortifies the positive effect of conventional cancer medications.
Q10 minimises the severe side effects



of chemotherapy, radiation, etc.

Q10 as prevention against AIDS and therapy supplement with HIV

As is to be expected, the HIV virus leads to a low Q10 level in the body. Q10 levels, differentiated into three groups, are as follows:

Coenzyme Q10 Level in the Bodies of HIV-infected Persons		
Group 1	HIV-infected person	Q10 level in healthy persons
Group 2	HIV-infected persons in the preparatory stage of AIDS outbreak	Significantly lower Q10 level
Group 3	AIDS patients	Lowest Q10 level



It has been observed that patients in group 1 already exhibited a lower Q10 level in the course of transitioning to group 2. While this was initially attributed to the depression, another observation was the turning point: While transitioning from group 2 to group 3, substantially lower Q10 levels were observed. In order to figure out this phenomenon, it was decided to start a pilot study. Under the direction of P.H. Langsjoen and K. Folkers, their four year study determined that patients in group 2 (HIV-infected) remained free of infections and did not change to group 3 (AIDS).[747] The stabilisation of the immune system via coenzyme Q10 will play the decisive role in the case of HIV in hindering the outbreak of AIDS and viral infection. With respect to the fact that most AIDS sufferers succumb to and die of a viral infection, this element of the prevention and treatment of AIDS cannot be valued highly enough.

How you can substantially delay physiological ageing processes with Q10 and even set rejuvenation processes in motion

The fact is: if there were no such thing as cell oxidation and thus no damage to DNA, human beings would not age after the they had finished growing. The body is also capable of life for as long as its DNA can be repaired by the repair mechanisms within its own cells. For this, the so-called antioxidants (especially Q10, vitamin C and OPC, but also vitamin E, selenium and beta carotene) play the decisive role. According to Linnane et al., age-related mutations in the mitochondria (power plants of the cells) very often occur if levels of antioxidants, like coenzyme Q10, vitamin C, OPC etc., are low. In the view of Littarru and

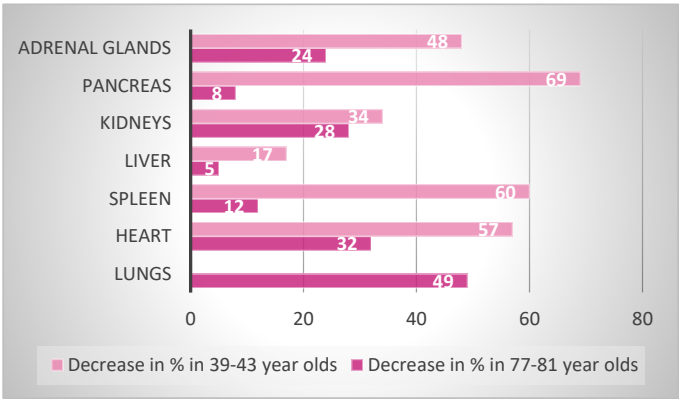
[747] P. H. Langsjoen und K. Folkers, in Biomedical and Clinical Aspects of Coenzyme Q, Vol. 6 Elsevier Science Publishers, Amsterdam, 1991, pp. 409–415



other researchers, low Q10 levels lead to oxidative damage to the mitochondria, which limits the ability of our cells to function. The consumption of Q10 causes the Q10 level in the blood to rise, which prevents damage and recovers the lost functionality ('revitalisation'). With age, unfortunately, the body loses its ability to form sufficient coenzyme Q10. This is attributable to the disruption of functionality in the liver's ubiquinone Q10 biosynthesis, with the result that the Q10 precursors extracted from food are no longer sufficient to be synthesised into Q10.

Ultimately the body needs more Q10 in old age than it is able to produce itself. If it does not receive this, however, then loss of functionality, illness and the typical symptoms of ageing occur, as a Swedish study by Dr. A. Kalén of Stockholm convincingly showed.

The following diagram illustrates this:



The reverse may also be stated, that prophylaxis in the form of regular intake of coenzyme Q10 can counteract the loss of functionality, both internally and

externally, which is typical of ageing. According to a study by Dr. Franklin L. Rosenfeldt et al. of the Cardiac Surgical Research Unit, the contractility (heart performance) of older patients was so good after Q10 consumption that, with respect to heart performance, there was hardly any difference from comparable younger hearts.[748] A notable insight considering that half of all Central Europeans die of heart disease.

Q10 protects and rejuvenates our skin – Q10 prevents wrinkles.

The largest organ of our body is our skin. As our outer protective layer, it is exposed to all variety of environmental stresses, ozone and UV rays from the sun. As we have already learned, the breakdown of nutrients in the organs corresponds, with regard to sequence, their importance for the respective organ. Here, according to studies, Q10 plays a very special role in the protection and renewal of the skin. In the words of Prof. M. Podda of the Johann Wolfgang Goethe University of Frankfurt am Main and Prof. L. Packer of the University of California, USA:[749]

'Q10 is the first substance destroyed in the skin by UV light, ozone and other damaging influences. Q10 thus has the greatest protective function in the skin.'

If a Q10 deficit occurs, the skin is vulnerable to UV rays and environmental toxins, and this leads in the medium term to ageing of the skin (wrinkles) and

[748] Rosenfeldt F. L. et al.: Coenzyme Q10 improves the tolerance of the senescent myocardium to aerobic and ischemic stress: studies in rats and in human atrial tissue. Boston: 1st Conf. of the Intl. Coenzyme Q10 Assn., 1998, p. 58 ff.

[749] Podda M. et al.: Ubiquinol: a marker of oxidative stress in skin. 9th Int. Symp. Biomed. and Clin. Aspects of Coenzyme Q10, 1996, 9, p. 43 f.



all variety of skin diseases.

Conversely, a sufficient, regular supply of Q10, in combination with OPC and vitamin C if possible, leads to a visibly rejuvenating result – skin ageing and a diverse set of skin diseases are effectively prevented. For this purpose, the supply of nutrients from within (by way of Q10 intake in the form of capsule preparations) is more meaningful than local application in the form of Q10 creams. According to a study by Professor Hoppe, skin ageing can be slowed due to the reduction of light-induced oxidative stress.[750]

With regard to a vital, healthy life, delayed ageing and a younger appearance, it thus makes a great deal of sense to trust in these highly valuable and nevertheless very affordable nutritional supplements (Q10, vitamin C, OPC), particularly considering so many representative studies support their use without reservation.

Q10 as a defensive factor in exercise

While not that many years ago it was believed that exercise, especially endurance exercise, was healthy without exception and constituted a wellspring of health and youth, new studies have revealed what was already obvious: what we mean is the increased production of free radicals by athletes, especially in endurance athletes. Oxygen means life, but also has another destructive side.

[750] Hoppe U.: Coenzyme Q10: a cutaneous antioxidant and energizer. Boston: 1st Conf. of the Intl. Coenzyme Q10 Assn., 1998, p. 83



Specifically, it is not completely reduced to water, or in the words of Professor Dr. G.P. Littarru:

'It has been calculated that about 3 % of the oxygen used by our bodies is not fully reduced to water. Instead, there occurs a mono-electric reduction through which the superoxide anion and other reactive types of oxygen are formed, which are capable of initiating radical reactions and attacks.

This rate is noticeably high when an increased total oxygen uptake occurs, such as in the course of physical activity, in particular in endurance athletes.

During highly intensive aerobic exercise, oxygen consumption is extremely high, which in the case of the leg muscles can be a hundred times higher in comparison to consumption in a resting state. The increased formation of radicals in connection with bodily stress is also contingent on hyperthermia, which is typical for exercises of high intensity.'[751]

Oxygen is thus not only necessary to supply our body cells; it also encourages the oxidation of bodily cells via free radicals. Exercise thus, alongside its healthy aspects, also encourages cell oxidation, which fosters numerous diseases and premature ageing.

Q10 as performance enhancer (natural, legal 'doping') during exercise

The results of a double-blind crossover study by Prof. Folkers, Prof. Littarru, Dr. Geiß and Dr. Enzmann are very convincing. In this study, ten competitive athletes were administered with 180 mg of coenzyme Q10 daily. To maintain

[751] Littarru, Gian Paolo: Energy and Defence – Coenzyme Q10: Fakten und Perspektiven in der Biologie und Medizin ('Facts and Perspectives in Biology and Medicine'): engl. Original: Casa Editrice Scientifica Internazionale, Rom



comparable values, the athletes were first burdened in the submaximal range and after that up to maximal intensity before the Q10 supplementation took place. According to the results of the study, the Q10 values of the placebo group were, as expected, always lower than the Q10 group. What was not expected, however, was the major performance difference, with a measured performance increase of up to 30 % in the Q10 group.[752]

Does the consumption of coenzyme Q10 lead to side effects?

As we read above in the Saas Fee declaration, signed by notable professors and doctors, Q10 is safe to use *'even in very highly dosed intake.'* Even with a very high intake of over 600 mg daily, coenzyme Q10 proves to be free of side effects and leads at the most in some few patients to a mild form of nausea.[753] According to Sven A. Mortenson of the Heart Center, Rigshospetalet in Copenhagen, who summarised various studies and nine placebo-controlled studies across 15 years, ubiquinone is very well tolerated without accompanying side effects and with simultaneous significant improvement to disease symptoms and quality of life.

Q10 minimises the side effects of medications

Experiences from around the world, especially in Japan, show that coenzyme Q10 not only is not accompanied by any side effects, it can also even reduce the side effects of medications. A study by Takahashi et al. was able to show

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[752]

[753] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 29



that the heart failure, which is a typical side effect of the medication 'timolol', which is almost exclusively used as a receptor blocker against the glaucoma, could be significantly reduced with the parallel medication Q10 (90 mg/day).[754] Dr. Kishi et al. were able to demonstrate that additional intake of Q10 counteracts the inhibition of mitochondrial breathing as a side effect of chemotherapy (e.g. by means of the cancer therapy 'adriamycin').[755]

How much Q10 is recommended to remain healthy and vital?

As was illustrated in detail with the example of vitamin C, it is the intake amount that determines how efficiently vitamins, minerals or secondary plant substances can work.

Therapeutic effectiveness is expected by experts starting at a daily dose of 100 mg of Q10 (ubiquinone); for heart problems, 50-300 mg are recommended, depending on the severity of the illness; Prof. Dr. Clark even recommends 400 mg Q10 daily.

The utilisation and production of Q10 varies from person to person. If you want to err on the side of caution, you can have your Q10 levels tested via a blood test. We have our greatest supply of self-produced Q10 at the age of 20. Afterwards, Q10 concentration decreases in our bodies to half this level or less. For healthy persons, a daily supply of 100 mg is therefore to be recommended

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[754] Takahashi N. et al.: Effect of coenzyme Q10 on hemidynamic response to ocular Timolol. J. Cardiovasc. Pharmacol. 1989, 14, pp. 462–468

[755] Kishi T. et al.: Protective effect of coenzyme Q on adriamycin in beating heart cells. Biomed. and Clin. Aspects of CoQ10, 1994, 4, pp. 181–194



and is harmless.

In case of illness, the situation is different. Doses of 300 mg Q10 and more can be highly sensible. In the view of Dr. Langsjoen, high doses of Q10 of up to 720 mg per day should achieve further improvements for a diverse set of illnesses.



What is resveratrol?

Imagine a totally incredible natural substance, shown in studies to increase lifespan, prevent and combat even severe illnesses like cancer in every stage, with a positive effect on numerous other diseases like arthritis, circulatory diseases, diabetes and multiple sclerosis and which, if that wasn't enough, regulates fat metabolism (helps with weight loss!) and has been sensationally shown in animal studies to double endurance ability...

This short description applies to resveratrol, a substance that has only been a focus of scientific attention for the past few years, but since then has been more intensively researched and has continually led to sensational insights!

Resveratrol from a chemical perspective

The tongue-twister 'resveratrol' is, chemically considered, a phytoalexin, a low-molecular, antimicrobial chemical bond (from Greek: phytos = 'plant', alekein = 'repel'), which has defence mechanisms that not only benefit itself but also have extraordinarily strong effect on diseases like cancer, heart disease, Alzheimer's, arthritis and numerous autoimmune diseases.



Resveratrol from a botanical perspective

Resveratrol is classified in the family of polyphenols, secondary plant substances that have in the very recent past been able to demonstrate unforeseen positive potential effects on our health.

The original function of resveratrol is in the self-interest of the plants in which it occurs, as self-defence against parasites and fungal infections, especially in damp periods. By taking it regularly, we humans can also make use of this defence mechanism.

Resveratrol – cancer remedy and anti-ageing sensation

Resveratrol's popularity is due to its cancer-inhibiting effect as well as a mechanism that could possibly grant us humans a much longer lifespan. Inspired by the principles of calorie restriction which have been shown in numerous studies to lengthen lifespan by activating certain genes that bring an extension of lifespan to cells and encourage the repair of our genetic code (DNA), resveratrol is able to imitate this mechanism even without a low-calorie diet.

Various studies of numerous animal species have shown a substantial life extension of up to 50 % (life extension of yeast cells by 70 %!), which is not only fascinating but also appears very promising. More recent studies on human beings were also able to confirm these effects!

Resveratrol – the discovery

Resveratrol was first discovered, identified and isolated in 1963 from Japanese



knotgrass (Polygonum cuspidatum) and was also documented in red grapes in 1976.

In the following pages, you will learn the specifics of this remarkable 'new' natural substance which may in future play a decisive role in the prevention and treatment of numerous illnesses and in the slowdown of ageing.

Incidence and natural sources

The polyphenol 'resveratrol' occurs in numerous plants. It is relatively strongly represented in red grapes.

Resveratrol is present in:

- Wine grapes (especially in the skin!)
- Red wine
- Plums
- Grape seeds
- Grape juice
- Raspberries
- Mulberries
- Peanuts
- Peanut butter
- Japanese knotgrass



The National Cancer Institute in the United States examined many thousands of plants for anti-carcinogenic (cancer-inhibiting) ingredients and documented resveratrol in 72 different plants during this process. It occurs relatively frequently in the skin red grapes, even if only in traces. Fresh red grape juice, for example, contains 1100 µg per litre, but red wine only about 30-50mg/L.[756]

How does resveratrol work, and what does it work against?

As is to be expected, the discovery of resveratrol for medicinal purposes is not an accomplishment of modern western medicine (as we know, this has had problems for about 150 years in discovering itself, but that is not the subject of the discussion here...); rather, resveratrol is an ingredient in a medicinal plant, botanically named 'Polygonum cuspidatum', traditionally used in China and Japan for centuries for circulatory disorders, fungal infestations and inflammations, among other ailments.

[756] http://en.wikipedia.org/wiki/Resveratrol



General effects of resveratrol

The effects of resveratrol can generally be described as:

- antitumoural/anticarcinogenic,
- antimutagenic,
- cardioprotective/circulatory system-stimulating,
- anti-atherogenic (protects against atherosclerosis and removes existing vascular calcification),
- cholesterol reducing,
- blood pressure lowering,
- counteracting blood clotting,
- life extending,
- immune system strengthening,
- neuroprotective,
- AMP kinase activating,
- stimulates fat metabolism,
- antioxidative (especially against peroxyl radicals),
- anti-inflammatory,
- antiviral,
- antifungal,



- anti-diabetic (improves insulin sensitivity).

Antioxidative effect – effect on free radicals

Our bodies are attacked daily by free radicals (stress, environmental influences etc.), which leads to ageing and numerous diseases, including cancer! It is among the most important methods available to humans to protect as best as possible against these free radicals. This defence can occur solely via corresponding antioxidants that are primarily components of fruits and vegetables.

Cancer researchers agree that free radicals play a role in all possible phases of cancer development and encourage cancer growth. Resveratrol is, alongside vitamin C, vitamin E, OPC, Q10, beta carotene, selenium and others, among these antioxidants with the special feature that it is both water-soluble and fat-soluble and can carry out its pronounced antioxidative defence in all of our bodily cells. Just like vitamin C and OPC, resveratrol crosses the blood-brain barrier and carries out its antioxidative work on brain cells, too, protecting them from ageing, Alzheimer's and dementia.

Anti-tumour, anti-carcinogenic effects of resveratrol

The anti-tumour/cancer-defending effects are explained by the antioxidative, anti-inflammatory apoptosis induction, the inhibition of prostate glands, the decrease of nitric oxide synthase as well as the chemo-sensitising effect. You can learn more about this in the section 'Resveratrol and cancer'.



Anti-inflammatory effect

Resveratrol has an anti-inflammatory effect by inhibiting both key enzymes for inflammation reactions, cyclooxigenase2 (COX-2) and intrinsic nitrogen monoxide synthesase (iNOS).

Cholesterol-lowering effect

The cholesterol-lowering effect results from the fat-metabolism-regulating effect. Resveratrol lowers the 'bad' LDL cholesterol and raises the 'good' HDL cholesterol.

Fat metabolism regulating effect

In animal studies, mice were given a fat-rich diet that under normal circumstances would have led to weight gain. The simultaneous administration of resveratrol was able to significantly reduce weight gain.

Resveratrol hinders blood clotting

Resveratrol hinders the agglomeration of blood platelets and thus prevents blood clotting, which can lead to thrombosis, heart attack and stroke.

Immune system strengthening effect of resveratrol

Resveratrol is a part of the immune system of plants which protects in this way against bacteria, viruses, fungi as well as from environmental influences like UV radiation and ozone stress. Humans can make use of this originally very self-interested system via the targeted intake of resveratrol in order to protect



themselves from the same stresses. Researchers have determined that the stronger the stresses in the region in which the grapevines grow, the higher the proportion of resveratrol in the respective type of wine.

Specific effects of resveratrol against disease and pain

Due to its strong immune system-boosting, antioxidative and anti-inflammatory effects, resveratrol has proven itself potentially more than helpful for countless diseases.

It has a proven positive effect on the following diseases and disorders:

- Cardiovascular diseases (protection against heart attack and stroke)
- Cancer
- Arthritis
- Glaucoma
- Fungi of all types
- Multiple sclerosis
- Autoimmune diseases
- Fat metabolism disorders/excess weight
- Diabetes mellitus
- Huntington disease (genetic defect)

Resveratrol and cardiovascular diseases



Alongside OPC and other highly active polyphenols in red wine, the 'French paradox' can primarily be explained on the basis of the wine's high resveratrol content. This is justified by the paradox that French people, especially heavy drinkers of red wine in southern France, suffer 40 % less frequently from cardiovascular disease despite a fat-rich diet.

Resveratrol enacts its protective and therapeutic effects on cardiovascular disease via the following mechanisms:

- It counteracts cell oxidation and thus the emergence of atherosclerosis by hindering lipid peroxidation;
- it regulates cholesterol values (increases the 'good' HDL and lowers the 'bad' LDL);
- it lowers high blood pressure;
- it hinders the agglomeration of blood platelets, which can lead to both heart attack and stroke, and
- it crosses the blood-brain barrier and there continues its neuroprotective effect for the brain.



Effect of resveratrol on Alzheimer's, neurodegenerative diseases and stroke

Resveratrol is able to cross the blood-brain barrier to counteract the damage done to brain cells by free radicals and the impact of beta amyloid, which is considered a pathogenic factor in the Alzheimer's/dementia problem.

Researchers at Harvard assume, in line with corresponding studies of resveratrol, that resveratrol can protect against Alzheimer's, neurodegenerative diseases and even stroke.[757]

In studies, resveratrol was able to protect the nerve cells from damage from the beta amyloid peptide, which is co-responsible for Alzheimer's disease.[758, 759, 760,]

[757] http://www.hms.harvard.edu/hmni/On_The_Brain/Volume13/OTB_Winter_07.pdf

[758] Savaskan E. et al.: Red wine ingredient resveratrol protects from beta-amyloid neurotoxicity. Gerontology, 2003 Nov; 49 (6), pp. 380-833

[759] Marambaud P. et al.: Resveratrol promotes clearance of Alzheimer's disease amyloid-beta peptides. J Biol Chem. 2005 Nov 11; 280 (45), pp. 37377–37382.

[760] Wang J. et al.: Moderate consumption of cabernet sauvignon attenuates abeta neuropathology in a mouse model of Alzheimer's disease. FASEB J. 2006 Nov, 20 (13). pp. 2313–2320.



Effects of resveratrol on glaucoma

In studies, resveratrol was able to show a neuroprotective effect on glaucoma. It protects the optic nerve from damaging oxidation and inflammations and counteracts the destructive symptoms of glaucoma.

Effect on multiple sclerosis

Among the elements of the disease progression of multiple sclerosis is the activation of NF-kB, a key enzyme which is responsible for the survival of cancer cells. Resveratrol proved to be a functional NF-kB inhibitor and might potentially have a positive influence on MS. Further studies could provide more information in the future.

Effect on arthritis

Arthritis is an inflammatory disease which afflicts the joints and gradually destroys them. By inhibiting both of the key enzymes for inflammatory reactions, cyclooxigenase2 (COX-2) and intrinsic nitrogen monoxide synthesase (iNOS), resveratrol has proven to be very helpful in arthritis therapy.

In a recently published study (see section 'Studies on Resveratrol'), scientists reported that resveratrol was a promising potential treatment for arthritis. In animal studies, resveratrol protected the cartilage of animals suffering from arthritis from inflammatory reactions.

Resveratrol and its effect on diabetes mellitus



Resveratrol improves insulin sensitivity and can thus prevent diabetes and have a positive influence on it.

Resveratrol regulates fat metabolism and helps with weight loss

In animal studies, the simultaneous administration of resveratrol was able to significantly reduce weight gain despite a fat-rich diet.

Resveratrol and cancer

Prof. John Pezzuto and his team have investigated 2500 natural substances for their cancer-inhibiting effect in a unique research programme, the biggest in the world, and he clearly emphasises the effect of resveratrol against cancer:

'Of all the plant substances which we investigated for their chemopreventive effectiveness, resveratrol was the most promising of all.'* (*preventative effect of substances against cancer)

At Thomas Jefferson University (Pennsylvania, USA), researchers recently removed the SIRT1 gene from mice, which has been proven to be activated by resveratrol. This led to a minimised apoptosis of sick cells and the simultaneous regeneration of cancer cells (prostate cancer) and gives significant evidence for the necessity of the SIRT1 gene in the prevention and treatment of cancer. Resveratrol can both prevent the emergence of cancer and positively influence the development of pre-existing cancer. According to a report from 1997 in the magazine 'Science', a reputable science magazine respected around the world, it was shown that resveratrol is a substance that has a positive effect in



all three stages of cancer development.

The mode of action of resveratrol on cancer takes places via multiple paths (multifactorial):

- Resveratrol acts on NF-kB. In this way, resveratrol is a potent apoptosis inductor, the function of which is to force cancer cells into programmed cell death.
- Resveratrol has similar mechanisms to phytoestrogen and, in this way, can inhibit cancer development.
- Resveratrol influences cyclooxygenase and thus inhibits the effect of the prostate glands, which are responsible for inflammatory processes among other things, which in turn encourage the emergence and development of cancer.
- Resveratrol lowers nitric oxide synthase.
- Resveratrol has a sensitising effect on chemotherapy and radiation therapy and enhances their effect.
- Due to its antioxidative effects (protecting against free radicals), resveratrol has a carcinoprotective (cancer-defending) effect.
- The same is true of its anti-inflammatory effects.

In which types of cancer has resveratrol especially distinguished itself?

We can safely assume that the above-described properties of resveratrol coun-



teract cancer in general. Studies relating to this and on the basis of observations, however, resveratrol has proven itself to be especially effective on the following types of cancer:

- Breast cancer
- Skin cancer
- Lung cancer
- Prostate cancer
- Leukaemia
- Multiple myeloma
- Melanoma
- Ovarian cancer
- Stomach cancer
- Colon cancer
- Liver cancer
- Pancreatic cancer
- Thyroid cancer
- Cervical cancer

Resveratrol inhibits prostate cancer



At Thomas Jefferson University (Pennsylvania, USA), researchers recently removed the SIRT1 gene ('longevity gene') from mice, which has been proven to be activated by resveratrol. The removal led to a minimised apoptosis of sick cells and the simultaneous regeneration of prostate cancer cells and gives significant evidence of the necessity of the SIRT1 gene in the prevention and treatment of cancer.

Resveratrol successful in the prevention and treatment of breast cancer

Researchers at the University of Nebraska were able to show that resveratrol inhibits the formation of oestrogen DNA and the neoplastic transformation into MCF-10F cells, which could prevent or impede the development of breast cancer.[761]

Resveratrol strengthens the effect of chemotherapy

Over the course of treatment, cancer cells develop a certain resistance to chemotherapy, which is attributable, among other things, to the release of survivin, a protein that inhibits apoptosis. Resveratrol seems to suppress the release of this protein and to sustain the effectiveness of chemotherapy. A team of researchers at the University of Ulm was able to extend the effectiveness of chemotherapy with the addition of resveratrol.

Resveratrol and anti-ageing

As early as the 1930s, the scientists McCay, Cromwell and Maynard were able

[761] http://www.hemonctoday.com/article.aspx?rid=29989



to extend the lives of lab rats by a spectacular 50 % with a reduced calorie diet.[762] Around 80 years have passed since then and numerous studies on other animal species (worms, mice, yeast), including primates, which are most physically similar to humans, have been able to confirm this sensational effect in a very similar way. General effects were also ultimately demonstrated in humans, most recently in a study at Maastricht University in the Netherlands. A prerequisite for life extension is of course a sufficient supply of nutrients, which must occur despite the calorie restrictions.

But how can you explain such a sensational effect simply through calorie restriction alone?

The whole mechanism on which life extension following calorie restriction is based has not yet been fully researched, and much is based more on indications than on 'hard' facts supported by studies. On the other hand, not everyone has the time to wait for 20, 30 or 40 years of research which would clearly confirm the anti-ageing effect on humans of certain methods and remedies, especially when it concerns safe methods and remedies.

The following indications are assumed to be the basis of the life-extending effect of calorie restriction.

- Oxidative stress, which is caused by nutrient absorption, is lowered, which also causes a reduction in cell destruction by free radicals.
- The metabolism is re-programmed, which is positively expressed all the

[762] McCay, C. M. et al.: The Effect of retarded growth upon the length of life span upon the ultimate body size. J. Nutr. 1935, 10, pp. 63–79.



way to the genes.

- With a long-term reduced calorie diet, the enzyme 'Sirtuin-1' (gene: Sirt-1) is more intensely produced, which in turn decreases the expression of a receptor called 'mTOR' (Mammalian Target of Rapamycin), among others.

Let us now turn to the latter aspect, the intensified activation of the 'Sirt-1' gene. This is a gene that, in times of famine in our ancestral prehistory, protected against cell damage due to inflammation and oxidation. This gene, like the related Sirt-2, is still present in our bodies, but generally deactivated.

During a period of famine, though, this gene is still activated and takes over true survival mechanisms, which are expressed in the form of important cell defence mechanisms. And these cell defence mechanisms ultimately lead to an extension of life and to numerous health benefits.

Further health benefits of a reduced calorie diet:

It is of course logical that life extension automatically also has health benefits. Many diseases, like cancer or diabetes, usually first appear in advanced age.

The SIRT enzyme activated through calorie reduction ensures optimised energy production in the mitochondria, the detoxification of hydrogen peroxide and better cell defences as well as an optimised repair of sick cells. All of this contributes to diseases, which usually appear more often with age, becoming rarer.



Resveratrol imitates the mechanisms of calorie restriction

Just like a reduced calorie diet (see above!), resveratrol is able to promote the expression of the sirtuin enzyme, which has led, in studies, to life extension and promotion of health. Sirtuin-1 is also among the seven total sirtuins present in humans which possess the ability to deacetylise, another essential aspect of active anti-ageing measures which should be noted.[763]

According to several studies at Harvard University, resveratrol can potentially extend lifespan by 20 years.

After a study carried out on human subjects, scientists from the renowned Harvard University recently caused a minor sensation when, after a resveratrol study, they proclaimed that you could prolong your life by approximately 20 years with resveratrol! [764]

Dr. Miller of the University of Michigan estimates 112 to 140 years of life.

Inspired by his study of mice, Dr. Miller of the University of Michigan estimates that a person could live to a healthy 112 or even 140 years with the help of resveratrol. [765]

Resveratrol can defend against Alzheimer's, neurodegenerative diseases

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[763] http://en.wikipedia.org/wiki/Sirtuin-1

[764]http://www.advancedbionutritionals.com/Products/Dr-Rowen-Favorites/Advacend-Resveratrol-Formula-ABRESV3.htm

[765] Harper J. et al.: Stress resistance and aging: influence of genes and nutrition. Mech Ageing Dev., 2006 Aug, 127 (8), pp. 687–694.



and stroke.

Researchers at Harvard assume, in line with corresponding studies on resveratrol, that resveratrol can protect against Alzheimer's, neurodegenerative diseases and even stroke.[766]

How much resveratrol should you take for the purpose of life extension? – Dosage

If we take the concentration of resveratrol used in the animal studies of Sinclair as our basis, which led to a life extension in animals, and extrapolate this to human beings, then one would have to take 120 mg of resveratrol per day. This is not possible in a natural way and can only be realised via supplementation as a dietary supplement.

Studies and research on resveratrol

Resveratrol can lengthen life by 20 years or more.

As already mentioned above, after a study carried out on human subjects, scientists from the renowned Harvard University recently caused a minor sensation when they announced after a resveratrol study that you could prolong your life by approximately 20 years with resveratrol![767]

Dr. Miller of the University of Michigan estimates 112 to 140 years of life.

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[766] http://www.hms.harvard.edu/hmni/On_The_Brain/Volume13/OTB_Winter_07.pdf

[767]http://www.advancedbionutritionals.com/Products/Dr-Rowen-Favorites/Advacend-Resveratrol-Formula-ABRESV3.htm



Inspired by his study of mice, Dr. Miller of the University of Michigan estimates that a person could live to a healthy 112 or even 140 years with the help of resveratrol.[768]

Resveratrol stops ageing processes and lengthens lifespan

In animal experiments, resveratrol was able to mitigate ageing processes in mice and to extend the lifespan of overweight mice.[769]

Resveratrol lengthens life in studies

Resveratrol was able to achieve significant life extension by encouraging the expression of the sirtuin gene according to the principle of calorie restriction.[770]

Resveratrol demonstrates antioxidative properties in studies

Resveratrol protects bodily cells from free radicals.[771, 772]

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[768] Harper J. M. et al.: Stress resistance and aging: influence of genes and nutrition. Mech Ageing Dev., 2006 Aug, 127 (8), pp. 687–994.

[769] 2008; 10.1016/j.cmet.2008.06.011

[770] D. A. Sinclair and L. Guarente: Schlüssel zur Langlebigkeit ('Key to Longevity'), published in: 'Spektrum der Wissenschaft' ('Spectrum of Science'), October 2006, pp. 34–41.

[771] Vigna G. B. et al.: Effect of a standardized grape seed extract on low-density lipoprotein susceptibility to oxidation in heavy smokers. Metabolism. 2003 Oct, 52 (10), pp. 1250-1257.

[772] Vinson J. A. et al.: MegaNatural((R)) gold grapeseed extract: in vitro antioxidant and in vivo human supplementation studies. J Med Food. 2001, 4 (1), pp. 17–26.



Positive effects on heart and circulation confirmed in studies

Numerous studies have confirmed the protective effect for the heart and circulatory system. [773, 774, 775]

Resveratrol inhibits the agglomeration of blood platelets and protects against heart attack and stroke

In studies, resveratrol inhibits the agglomeration of blood platelets and protects against heart attack and stroke.[776, 777, 778, 779]

[773] Mokni M. et al.: Strong cardioprotective effect of resveratrol, a red wine polyphenol, on isolated rat hearts after ischemia/reperfusion injury. Arch Biochem Biophys. 2007 Jan 1, 457 (1), pp. 1–6.

[774] Goh S. S. et al.: The red wine antioxidant resveratrol prevents cardiomyocyte injury following ischemiareperfusion via multiple sites and mechanisms. Antioxid Redox Signal. 2007 Jan, 9 (1), pp. 101–13.

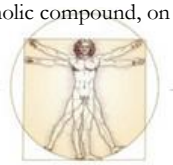
[775] Chen W. P.: et al.: In vitro electrophysiological mechanisms for antiarrhythmic efficacy of resveratrol, a red wine antioxidant. Eur J Pharmacol. 2007 Jan 12, 554 (2–3), pp. 196–204.

[776] Bhat K. P. L. et al.: Biological effects of resveratrol. Antioxid Redox Signal. 2001 Dec, 3 (6), pp. 1041–1064.

[777] Wang Z. et al.: Effects of red wine and wine polyphenol resveratrol on platelet aggregation in vivo and in vitro. Int J Mol Med. 2002, Jan, 9 (1), p. 77 ff.

[778] Olas B. und Wachowicz B.: Resveratrol and vitamin C as antioxidants in blood platelets. Thromb Res. 2002 Apr 15, 106 (2), pp. 143–148

[779] Olas B. et al.: Effect of resveratrol, a natural polyphenolic compound, on platelet activation induced by endotoxin or thrombin. Thromb Res. 2002 Aug 15, 107 (3–4), pp. 141–145



Resveratrol inhibits atherosclerosis in studies

In studies, resveratrol prevents processes that lead to atherosclerosis.[780, 781, 782]

Comprehensive effect of resveratrol on cancer confirmed in studies

Resveratrol acts on NF-kB, a key enzyme that is responsible for the survival of cancer cells. In this way, resveratrol acts as a potent apoptosis inductor, the function of which is to force cancer cells into programmed cell death.[783]

Resveratrol suppresses tumour growth by increasing or decreasing the production of various enzymes and molecules which regulate cellular reproduction and the blood supply of the tumour.[784, 785]

Resveratrol inhibits prostate cancer

At Thomas Jefferson University (Pennsylvania, USA), researchers recently removed the SIRT1 gene ('longevity gene', 'silent information regulator') from mice, which has been proven to be activated by resveratrol. The removal led to a minimised apoptosis of sick cells and the simultaneous regeneration of prostate cancer cells, providing significant evidence for the necessity of the

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[780] Brito P. M. et al.: Resveratrol affords protection against peroxynitrite-mediated endothelial cell death: A role for intracellular glutathione. Chem Biol Interact. 2006 Dec 15, 164 (3), pp. 157–166.

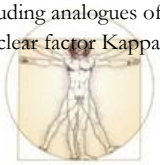
[781] Novakovic A. et al.: Potassium channels-mediated vasorelaxation of rat aorta induced by resveratrol. Basic Clin Pharmacol Toxicol. 2006 Nov, 99 (5), pp. 360–364

[782] Kim H. et al.: Proteomics analysis of the actions of grape seed extract in rat brain: technological and biological implications for the study of the actions of psychoactive compounds. Life Sci. 2006 Mar 27, 78 (18), pp. 2060–2065

[783] Singh U. P. et al.: Resveratrol (trans-3, 5, 4'-trihydroxystilbene) induces SIRT1 and down-regulates NF-{kappa}B activation to abrogate DSS-induced colitis. Appeared in: J Pharmacol Exp Ther November 2009; PMID 19940103.

[784] Trincheri N. F. et al.: Resveratrol induces cell death in colorectal cancer cells by a novel pathway involving lysosomal cathepsin D. Carcinogenesis. 2006 Nov 20.

[785] Heynekamp J. J. et al.: Substituted trans-stilbenes, including analogues of the natural product resveratrol, inhibit the human tumour necrosis factor alpha-induced activation of transcription factor nuclear factor KappaB. J Med Chem. 2006 Nov 30, 49 (24), pp. 7182–7189.



SIRT1 gene in the prevention and treatment of cancer.

Resveratrol successful in the prevention and treatment of breast cancer

Researchers at the University of Nebraska were able to show that resveratrol inhibits the formation of oestrogen DNA and the neoplastic transformation into MCF-10F cells, which could prevent or impede the development of breast cancer, according to the statements of the same scientists.[786]

[786] http://www.hemonctoday.com/article.aspx?rid=29989



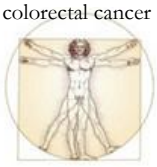
In the laboratory, resveratrol inhibits the growth of cancer cells in numerous types of cancer

In the laboratory, resveratrol inhibits the growth of the following cancer cells[787, 788]:

- Leukaemia
- Multiple myeloma
- Melanoma
- Breast cancer
- Ovarian cancer
- Prostate cancer
- Stomach cancer
- Colon cancer
- Liver cancer
- Pancreatic cancer
- Thyroid cancer
- Cervical cancer

[787] Aggarwal B. B. et al.: Role of resveratrol in prevention and therapy of cancer: preclinical and clinical studies. Anticancer Res. 2004 Sep, 24 (5A), pp. 2783–2840.

[788] Trincheri N. F. et al.: Resveratrol induces cell death in colorectal cancer cells by a novel pathway involving lysosomal cathepsin D. Carcinogenesis. 2006 Nov 20.



Resveratrol increases the effectiveness of chemotherapy and radiotherapy in studies

Resveratrol improves the anti-cancer effect of chemotherapy and radiotherapy.[789]

Resveratrol was able to improve the tolerability of chemotherapy.[790]

In studies, resveratrol inhibits inflammation processes and counteracts arthritis

Chronic inflammation is a cause of cardiovascular disease, arthritis, and other diseases. Resveratrol blocks the inflammatory activity and can have a positive influence on all of these diseases.[791, 792]

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[789] Aggarwal B. B. et al.: Role of resveratrol in prevention and therapy of cancer: preclinical and clinical studies. Anticancer Res. 2004 Sep, 24 (5A), pp. 2783–2840.

[790] Olas B. et al.: Antioxidant properties of trans-3,3',5,5'-tetrahydroxy-4'-methoxystilbene against modification of variety of biomolecules in human blood cells treated with platinum compounds. Nutrition. 2006 Nov; 22 (11–12), pp. 1202-1209.

[791] Martin A. R. et al.: Resveratrol, a polyphenol found in grapes, suppresses oxidative damage and stimulates apoptosis during early colonic inflammation in rats. Biochem Pharmacol. 2004 Apr 1, 67 (7), pp. 1399–1410

[792] Richard N. et al.: Effects of resveratrol, piceatannol, tri-acetoxystilbene, and genistein on the inflammatory response of human peripheral blood leukocytes. Mol Nutr Food Res. 2005 May;49(5):431–42.



In studies, resveratrol protects against the deterioration of joint cartilage in arthritis patients

In a recently published study, scientists reported that resveratrol offered a promising potential treatment for arthritis. In animal studies, resveratrol protected the cartilage of animals suffering from arthritis from inflammatory reactions.[793]

Resveratrol shows a positive effect on Huntington disease

According to a recently published report, resveratrol shows a protective effect in animal studies against Huntington disease, a disease associated with limited motor activity and decreased intellectual capability.[794]

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[793] Elmali N. et al.: Effects of resveratrol in inflammatory arthritis. Inflammation. 2006 Nov 4.

[794] Kumar P. et al.: Effect of resveratrol on 3-nitropropionic acid-induced biochemical and behavioural changes: possible neuroprotective mechanisms. Behav Pharmacol. 2006 Sep, 17 (5-6), pp. 485–492.



Resveratrol tested on humans with complete success[795]

A current study at the University of Maastricht (Holland) researched the influence of resveratrol on the metabolism of obese men. Over the course of a month, the subjects consumed 150 mg of resveratrol daily. The following changes could be determined:

- systolic blood pressure lowered by 5 mmHg,
- muscle function improved,
- fat burning in the muscles increased,
- blood lipid levels decreased,
- lipid levels in the liver decreased,
- an anti-inflammatory effect was noted and
- insulin sensitivity increased.

In studies, resveratrol prevents fat storage despite high-fat diet

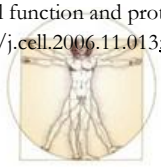
In an animal study, mice were administered a high-fat diet. Parallel supplementation with resveratrol significantly lowered the expected storage of fat.[796]

In animal studies, resveratrol doubled *endurance capacity*

High doses of resveratrol were able to double endurance capacity in an animal

[795] http://www.ncbi.nlm.nih.gov/pubmed/22055504

[796] Lagouge M. et al.: Resveratrol improves mitochondrial function and protects against metabolic disease by activating SIRT1 and PGC-1alpha. Appeared in: Cell 127, 2006, pp. 1109–1122; doi:10.1016/j.cell.2006.11.013; PMID 17112576



study.[797]

Resveratrol effective in the treatment of glaucoma

In studies, resveratrol was able to show a neuroprotective effect with glaucoma.[798] In addition, it lowers oxidative stress in the eye and has an antioxidative and anti-apoptotic effect in the trabecular meshwork and in the neurons of the optic nerve; in this way, it protects the eye from further deterioration.[799]

Resveratrol and its role in multiple sclerosis

Resveratrol activates NF-kB, which also seems to play a role in multiple sclerosis (MS). Resveratrol could thus prove to be very helpful in the treatment of multiple sclerosis.[800]

Intake, Administration and Dosage of Resveratrol

Because resveratrol is an active substance which is new and consequently relatively little researched on human subjects, there are as yet no scientifically-founded recommendations for human consumption.

Further complicating the issue, resveratrol only occurs in a small number of foods; these would be:

- Grapes

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[797] Khamsi R.: Red wine compound boosts athletic endurance. Appeared in: New Scientist 16. November 2006.

[798] M. Mozaffarieh u. a.: The potential value of natural antioxidative treatment in glaucoma. In: J Flammer Surv Ophthalmol 53, 2008, pp. 479–505; PMID 18929760

[799] C. Luna u. a.: Resveratrol prevents the expression of glaucoma markers induced by chronic oxidative stress in trabecular meshwork cells. Appeared in: Food Chem Toxiol 47, 2009, pp. 198–204; PMID 19027816; doi:10.1016/j.fct.2008.10.029

[800] K. S. Schindler u. a.: SIRT1 activation confers neuroprotection in experimental optic neuritis. Appeared in: Invest Ophthalmol Vis Sci 48, 2007, pp. 3602–3609; PMID 17652729



- Red wine
- Plums
- Grape seeds
- Grape juice
- Raspberries
- Mulberries
- Peanuts
- Peanut butter
- Japanese knotgrass

While you can definitely eat large amounts of grapes and peanuts (resveratrol is mostly present in the skins!), for understandable reasons you should avoid using red wine to meet your needs. This would require multiple litres of red wine per day – not exactly healthy (1-2 glasses per day are acceptable!). With red wine, you should also note that there are major differences in resveratrol content which can range from 0.1 mg to 15 mg of resveratrol per litre, although French and Italian wines still traditionally have the highest resveratrol content (recommended are merlot, pinot noir, and cabernet sauvignon). Grape juice only delivers a small amount of resveratrol, which is related to its short fermenting process compared to wine production.

Dosage

If we take the concentration of resveratrol used in Sinclair's animal studies as



our basis, which led to a life extension in animals, and extrapolate this to human beings, then one would have to take 120 mg of resveratrol per day, which appears truly impossible and is only possible with the additional intake of a dietary supplement. The ADI (Acceptable Daily Intake) for humans has been calculated to be 390 mg of resveratrol per 65 kg body weight.[801]

Normally, 3-40 mg are taken daily for preventative purposes; in case of an existing illness, you should consult a knowledgeable therapist. Studies of biomarkers have shown that as little as 20 mg of pure resveratrol can have benefits for longevity and gene expression. But many scientists advocate for a higher dose for humans. However, 20 mg of resveratrol still corresponds to the amount in 41 glasses of red wine! In a current study of human subjects, carried out at the Maastricht University in Holland, a dose of 150 mg/day was successfully administered.

Does resveratrol lead to any undesired side effects?

Resveratrol has proven itself to be a safe natural substance and remained completely free of side effects in an animal study despite an extremely high dose of 300 mg/kg body weight.

The ADI (Acceptable Daily Intake) for humans has been calculated to be 390 mg of resveratrol for a person weighing 65 kg.[802]

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[801] Crowell, J. A., et al., Resveratrol-associated renal toxicity. Toxicol. Sciences 82 (2004) 614–619.

[802] Crowell, J. A., et al.: Resveratrol-associated renal toxicity. Toxicol. Sciences 2004, 82, pp. 614–619.



What is rooibos tea or redbush tea?

Other terms abroad include 'redbos tea' and 'koopmans tea' (merchant's tea). Next to these, there are also a number of other, sometimes very fanciful names which lack all connection to redbush tea.

This tea is gradually coming to enjoy an increasing popularity, including in our geographical region. Present in many people's memory as a milder alternative to black tea or even coffee (rooibos tea contains no caffeine) and due to the fruity-sweet and nonetheless calorie-free taste, redbush tea can be enjoyed at any time of the day and by any group of people (by both children and pregnant persons).

Revered in South Africa for centuries as an elixir of health, rooibos tea is being mentioned more frequently in scientific circles and among doctors and therapists due to its health-benefiting properties. However, the South African apartheid system had to weaken for redbush tea to find its way into the West.



Redbush Tea – the history of its discovery

Redbush tea was first mentioned in the western world in the year 1772, in one of the books of the botanist Thunberg, who for the first time reported on the preparation of a needle leaf tea by the Khoikhoi, a native people of the mountainous region north of Cape Town.

In 1904, the Russian tea trader Benjamin Ginsberg travelled through South Africa and purchased the rooibos tea from the Khoikhoi to sell it for profit in Cape Town. But it was only in 1930 that the redbush plant was analysed for its health-bringing qualities by Dr. Petter la Fras Nortier and cultivated commercially.

In 1954, a state-run supervisory authority was established with the name 'Redbos Tea Control Board' whose task it was to monitor the quality and quantity as well as hygiene in the cultivation and sale of redbush tea.

Rooibos tea was originally a popular drink with everyday people, without requirements for any philosophical background or even imperial ceremonies, as is familiar to us with green tea, for example. Rooibos tea is close to the people, down-to-earth, tasty and healthy. Period. That's it!



Rooibos tea and its naming

'Rooibos' is the South African name for 'redbush' ('rooi' = red, 'bos' = bush), which is why redbush tea is usually called 'rooibos tea'. Among the others names are 'Bushman tea' and 'Massai tea'.

Rooibos tea – botanical information

Rooibos (Latin 'Aspalathus linearis') is a member of the legume family (Fabaceae) and originates in the mountainous regions of the South African province, Western Cape. Around 200 species belong to this family, although only 'linearis' is considered edible. The rooibos plant requires a temperate climate, coarse, sandy soil and a damp and relatively cool location.

Redbush – the appearance

The rooibos bush reaches a height of 1-2 m, is wide and rod-like and is heavily branched. A number of thin branches grow from the sides of the limbs. The name 'rooibos tea' or 'redbush tea' comes from the red colour of the redbush branches. The leaves of the redbush bush are green and their shape reminds one of pine needles; they are about 60 mm long and about 1 mm wide.



Rooibos tea – the harvest

The redbush bush can be used for about 10 years as a tea supplier and can be harvested for the first time after 18 months. The harvest time begins in January and extends into March; the second sowing is harvested from June to August.

Rooibos tea – the taste

The fruity-sweet and at the same time mild taste of rooibos tea is due to its fermentation process, in which the tannins are transformed into flavour ingredients. The taste does not lose its effect on the taste buds even when unsweetened.

In contrast to green tea, it also tastes good to small children and even infants, where it works very well against colic without unnecessarily stressing the body. This is due to two flavones that occur exclusively in rooibos. These make rooibos tea sweet without sugar and calories. Nearly 100 aromatic oils ensure the fruity aroma of redbush tea. Rooibos also contains no caffeine and can therefore be enjoyed daily by every target group and at any time of day, even by the litre.



Active ingredients of rooibos tea

Rooibos tea offers an abundant number of different active ingredients which provide it with an impressive effect on innumerable ailments and illnesses.

To this day, researchers have already been able to provide evidence of 200 individual active substances in rooibos tea, including vitamins, rutin, minerals, trace elements, flavonoids, flavone, phenolic acids, numerous antioxidants and essential oils.

Among these ingredients are, specifically:

- Vitamin C
- Calcium
- Magnesium
- Potassium
- Sodium
- Iron
- Copper
- Fluorine
- Rutin
- Zinc
- Alpha hydroxy acid
- Polyphenols
- Phenolic acids
- Quercetin



- Quercitrine

Minerals and trace elements in rooibos tea

The remarkably high number of different minerals and trace elements in rooibos tea makes it qualified as a much-beloved sports drink, because, as is well known, we lose numerous minerals through our sweat during sports. The loss of minerals, however, leads to decreased performance and muscle cramps. This can be avoided, though, with some cold glasses of redbush tea before, during and after exercise! Rooibos tea also tastes fruity-sweet and refreshing even unsweetened, and the minerals contained in it are quickly absorbed, similarly to a traditional isotonic drink.

Mineral content in a cup of rooibos tea

One cup of redbush tea (3 g in 200 ml) delivers the following mineral amounts:

Mineral/trace element	Amount in mg
Potassium	7.12
Sodium	6.16
Magnesium	1.57
Calcium	1.09



Fluorine	0.22
Iron	0.07
Copper	0.07
Zinc	0.04
Manganese	0.04

In addition, 99 aroma oils could be identified in rooibos.

Rooibos without caffeine and with little tannin – the special feature

In contrast to all other types of tea, rooibos tea is characterised by a total lack of caffeine and also contains only traces of tannin. Next to the already-mentioned benefits which allow one to drink redbush tea around the clock, even by the litre—and this by every group of person, from infants to seniors—, there are benefits which arise from cutting out the negative effect of caffeinated drinks:

Disadvantages of caffeinated drinks:

- Dehydration risk. In the heat, caffeinated drinks can cause the body to dry out with results ranging from exhaustion to circulatory collapse.
- With strong coffee drinks, the risk of addiction with withdrawal symptoms increases.



- Insomnia can develop, especially in children.
- Caffeine carries the risk of high blood pressure.
- The mineral metabolism of the bones can be disrupted (the balance of calcium and phosphorus becomes disturbed).
- Migraine attacks could occur.
- The whole body in general can become acidified.
- Existing stomach ulcers and gastritis can be worsened by the acids that are created.

The polyphenols contained in redbush tea

Especially recently, polyphenols have enjoyed a great amount of attention from researchers, as they can be of excellent service preventatively and curatively for the 'scourges of modern humanity' like cancer, cardiovascular disease, arthritis, diabetes and other illnesses.

Among the polyphenols contained in rooibos tea are:

- Flavonoids
- Flavanols
- Flavons
- Flavanons
- Anthocyane



- Hydroxybenzoic acid
- Hydroxycinnamic acid
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-Antioxidants in redbush tea

The antioxidants (radical catchers) in redbush tea, which protect our cells every single second from numerous attacks by free radicals, are:

- Vitamin C
- Rutin
- Flavons
- Flavonoids
- Nothofagin
- Luteolin
- Quercetin
- Orientin
- Isorientin



Active ingredients in redbush tea

Effects of the minerals

Iron in redbush tea

Iron is vitally important for the transport of oxygen in the blood. Anaemia (pathological blood deficiency) is usually attributable to a lack of iron, which should be considered very significant as about 5 % of all People in industrialized countries suffer from an iron deficiency!

Via the synergy of vitamin C and copper, the iron also contained in redbush tea is optimally absorbed; the absence of taurine (in contrast to green or black tea) additionally facilitates the absorption of iron via the redbush tea.

Apart from athletes, pregnant persons and nursing infants have an especially high iron requirement. In this case, redbush tea can be of very good service.

Natural fluoride in rooibos rea

A diet containing fluoride plays an important role in bone and tooth metabolism, as fluoride can counteract the emergence of caries.

Calcium-magnesium synergy

Both calcium and magnesium are required in bone and tooth metabolism.

Sodium-potassium synergy

The human body, as is well known, consists of 50-80 % water, depending on



age. An optimal ratio of the minerals 'sodium' and 'potassium' plays a major part in the regulation of our water balance via the so-called 'sodium-potassium pump'. The optimal content of sodium in the right ratio can keep our water system in balance and prevent numerous health problems (e.g. high blood pressure, which is often caused by too much salt and thus sodium).

Zinc in redbush

Zinc is responsible for numerous growth processes, including for health skin and hair.

Essential oils in rooibos tea

The essential oils in rooibos tea express themselves not only aromatically but also have a thoroughly disinfecting, anti-inflammatory, appetite-stimulating and antispasmodic effect.

Effect of the polyphenols in rooibos tea

The flavonoid 'rutin', often also referred to as 'vitamin P', is basically a strong antioxidant which repels the attacks of free radicals in the form of damaging oxygen bonds. Because free radicals can be considered directly or indirectly responsible for countless diseases, including circulatory diseases, cancer, rheumatism (e.g. arthritis) and many others, rutin can comprehensively and effectively counteract these. Rutin additionally proves to be very helpful in the prevention and treatment of all circulatory diseases, in that in ensures that the blood vessels remain or return to being elastic and permeable. In combination



with the abundance of vitamin C in rooibos tea, there is a very potent synergy here!

Luteolin

Alongside its antispasmodic effect and its effect against free radicals, luteolin has also demonstrated a cancer-inhibiting effect against colon cancer cells and thyroid cancer cells in the laboratory.

Orientin

Orientin is a flavone glycoside and has demonstrated both antioxidative and anti-radiation effects in studies—and thus a comprehensive defence for our cells.

Quercetin and quercitrine in redbush tea

The flavonoids 'quercetin' and 'quercitrine' counteract diabetes by lowering blood sugar levels. They synergise with rutin and luteolin.[803] Quercetin and quercitrine also suppress the enzyme 'monoamine oxidase' which in turn suppresses the release of serotonin, which is commonly known as the 'happiness hormone'. In this way, both of these flavonoids support treatments of depression and sleep disturbances. The enzyme 'monoamine oxidase' fosters the development of colon and breast cancer, and thus rooibos tea can also counteract

[803] Dr Jörg Zittlau: Rotbuschtee – für Gesundheit und Schönheit ('Redbush Tea – For Health and Beauty'), 3. Edition 1999, p. 26.



these diseases. The antispasmodic effect of rooibos tea is also attributable to both of these flavonoids.

Nothofagin and aspalathin counteract allergies and free radicals and relieve cramps

Both the nothofagin and the aspalathin contained in redbush are responsible for the pronounced antiallergic effect of the tea by having an immune-modulating effect on the whole body. Both substances also have an antispasmodic effect. The effect of nothofagin and aspalathin, which resembles that of the enzyme SOD (super oxide dismutase), neutralises the aggressive free radicals by transforming them into hydrogen peroxide.

Cancer-inhibiting effect of nothofagin and aspalathin

Aspalathin occurs exclusively in redbush tea and exhibits, similarly to nothofagin, a certain protective effect against cancer.



Nothofagin and aspalathin counteract atherosclerosis (hardening of the arteries)

And as if this were not enough, nothofagin and aspalathin also counteract the much-feared atherosclerosis. This in turn takes place via the above-described SOD-like effect, which prevents the microtraumas in the intima and thus the storage of blood lipids, or plaques.

Phenolcarboxyl acids have antibacterial, antiviral and antifungal effects

The phenolcarboxyl acid contained in redbush tea possesses bacteria-, virus- and fungus-killing properties. These support healthy intestinal flora and counteract gastrointestinal problems and diseases. 'Death lies in the intestines' – a very popular and true saying which in medical circles describes a large number of deadly diseases that are originally traceable to intestinal problems. The phenolic acids in redbush tea have proven to be thoroughly helpful here.

General effects of redbush tea

Rooibos tea has the following general effects:

- immune system strengthening,
- protects blood vessels,
- protects the genes (DNA),
- is antioxidative (against the attacks of free radicals),
- detoxifying,



- antispasmodic,
- calming,
- cancer-inhibiting,
- antibiotic/antibacterial,
- antiviral,
- antiallergic,
- antifungal (inhibits fungal growth),
- anti-depressant/mood-lifting.

Immune system-reinforcing effects of redbush tea

Alongside vitamin C, it is primarily the many polyphenols, trace elements (here mainly selenium, magnesium, zinc, copper, manganese and silicon) that strengthen our immune system in synergy.

Antioxidative effects of rooibos tea

As already said, free radicals attack our approximately 37,2 trillion bodily cells around 10,000 times per day and permanently damage them. This has been shown to lead to many diseases and disorders.

Redbush tea contains numerous antioxidants that protect our cells from the constant attacks by free radicals. Among these are vitamin C, rutin, flavones, flavonoids, nothofagin, luteolin, quercetin, orientin and isorientin.



Detoxifying effect of rooibos tea

The detoxifying effect of rooibos tea is attributable to the impact of detoxifying mechanisms in the liver (cytochrome P450).

Calming effect of rooibos tea

The calming effect is primarily based on the two flavonoids 'quercetin' and 'quercitrine'.

Antispasmodic effect of rooibos tea

The antispasmodic effect of rooibos is ascribed to the flavonoid 'aspalathin', which has a spasmolytic and relaxing effect on the intestinal muscles.

Antibiotic effect of redbush tea

Certain substances in redbush tea have an antibiotic effect and can, among other things, kill coli bacteria, which cause diarrhoea and other illness symptoms.

Antiallergic effect of redbush

The flavonoids contained in redbush tea, most particularly quercetin, block histamine release and thus inhibit the inflammations in the body which trigger allergic symptoms.

Antidepressant effect of rooibos

The flavonoids contained in rooibos 'quercetin' and 'isoquercetin' have a



mood-lifting effect by releasing the 'happiness hormone' serotonin, which leads to a true feeling of wellbeing.

Specific effects of rooibos tea

Rooibos tea has proven itself especially effective on the following diseases and disorders:

- Allergies
- Oral apthae
- Skin diseases
- Inflammation of the oral mucous membrane and the gums
- Cardiovascular disease
- Atherosclerosis
- Cancer
- Gastrointestinal complaints
- Intestinal inflammation
- Diarrhoea
- Hives
- Nappy rash
- Liver problems



- Paediatric illnesses
- Infant colic
- Depression
- Migraines/headaches
- Sleep disorders
- Caries
- PMS (Premenstrual syndrome)
- Anaemia (blood deficiency)
- Diet-supporting

Effect of rooibos tea against allergies

Allergies are constantly on the rise; this can largely be explained by an ever more overtaxed immune system which has to combat the constant increase in foreign substances in our environment.

The most common allergies include:

- Pollen allergy (hay fever)
- Food allergy
- Animal hair allergy
- Dust mite allergy
- Insect allergy



The antiallergic effect of rooibos is primarily attributable to the flavonoids which it contains, especially quercetin. This has an influence on histamine release, which is known to be the trigger of allergic reactions. By suppressing quercetin, it prevents allergic symptoms like runny nose, itching, irritation of the mucous membrane, etc.

Effect of rooibos against aphthae (oral aphthae or canker sores)

The anti-inflammatory and antibacterial properties of rooibos on the mucous membrane have proven to be very helpful with aphthae in the mouth. It is conjectured that aphthae are also triggered by allergic reactions. Rooibos tea can accommodate this with its antiallergic properties. The pain-relieving effect of rooibos additionally ensures rapid noticeable relief.

Effect of redbush tea on skin problems

Redbush tea can, used both internally and externally, help with numerous skin problems; among these are:

- Eczema
- Swelling
- Ageing skin
- Hives



- Neurodermitis
- Itching
- Light dermatosis
- Nappy rash
- Psoriasis
- Reddening
- Sunburn
- Herpes

How redbush tea works on swelling

Swelling always involves inflammatory processes. The anti-inflammatory properties of redbush tea, used in both internal and external forms (cold poultice with rooibos tea), can provide very rapid relief. The anti-allergy properties of redbush tea intervene in allergy-related swelling as it occurs.

Effect of redbush against ageing skin and wrinkles

The positive effect on the skin is caused by several factors: For one, the anti-oxidants contained in rooibos protect our skin cells from free radicals which are caused by UV rays. In addition, the vitamin C in rooibos tea in particular protects collagen and supports collagen synthesis.

How redbush tea works against hives



Hives are relieved by the immune system-reinforcing mechanisms as well as the calming of the vegetative nervous system.

Effect of rooibos tea against neurodermitis

The immune-modulating properties of rooibos tea frequently show their effect very quickly in the case of Neurodermitis. With this illness, you should proceed both internally and externally by drinking at least 1.5 litres of rooibos tea per day while also applying a cold poultice dipped in rooibos tea multiple times per day.

Effect of rooibos tea on itching

Itching is very often based on an allergic reaction. Cold poultices with rooibos tea prevent the release of histamine, the substance that triggers allergic reactions.

How redbush tea helps nappy rash

Here, the application of a cotton ball soaked in redbush tea is particularly effective. The anti-inflammatory and anti-allergic properties prove themselves very helpful in this case.

Effect of rooibos tea against psoriasis

The anti-inflammatory effect of rooibos has proven itself very effective on psoriasis. Using rooibos washes and baths on the affected locations proves to be effective.



How redbush works on sunburn

Here, you should treat yourself to both an internal and external application with redbush tea. Internally, the best method is to drink the tea cold, which counteracts the dehydration risk, which would otherwise exist, due to the sunburn. Externally, apply a cold poultice soaked in redbush tea multiple times per day. In this way, you counteract the inflammation processes that occur with every sunburn on both fronts.

Effect of redbush tea on herpes

Here, prepare a strong herbal brew and dab the affected areas multiple times per day with cooled redbush tea in a cotton ball.

Effect on inflammation of the oral mucous membrane and the gums

Redbush tea encourages the healing of fungal infections and has antibacterial, anti-inflammatory and astringent (constricting) effects. All of these aspects rid the oral mucosa and the gums of corresponding parasites, relieve the inflammation and prevent another parasite attack.

For this purpose, the redbush tea should be gargled and only then swallowed, so that both an external and internal application occur and the effect is strengthened in this way.

Effect of rooibos tea on cardiovascular diseases



Rooibos tea can be helpful for existing cardiovascular disease both preventatively and as an accompaniment to treatment. In this case, it counteracts atherosclerosis on the one hand while also increasing blood flow to the heart.

Effect of rooibos tea against arteriosclerosis

- The polyphenols 'nothofagin' and 'aspalathin' prevent microtraumas (very small injuries) in the blood vessels and in this way prevent the emergence of plaque, which introduces arteriosclerosis.
- The flavonoids inhibit the formation of thromboxane A2, a blood clotting substance that encourages buildups in the arteries. In synergy with vitamin C, which has a collagen-building and plaque-degrading effect, this results in a dependable defensive system for our arteries.
- In turn, the rutin strengthens the blood vessels and makes them more resistant to atherosclerosis.
- The antioxidative effect of the polyphenols and of antioxidants like vitamin C also works against the development of plaque, as only with the oxidation of cholesterol can this build up in the artery walls.

Blood-flow-facilitating effect of rooibos

Various ingredients of rooibos tea, rutin for example, have a relaxing effect on the blood vessels and in this way improve their permeability for the blood.



Effect of rooibos against cramps and intestinal problems

The flavonoids 'aspalathin' and 'quercetin' contained in rooibos tea have a general uncramping and relaxing effect, especially in the area of the intestinal muscles. The tannins contained in redbush tea increase intestinal mucosa's resistance to infection and also absorb water.

Redbush tea generally helps with numerous gastrointestinal complaints, for example:

- Gastritis
- Stomach cramps
- Diarrhoea
- Three-month colic in small children
- Intestinal inflammation
- Flatulence

Effect against gastritis

The stomach-calming and anti-inflammatory effect of redbush tea represents an optimal combination for preventing or relieving gastritis.



Effect of rooibos against stomach cramps

The relaxing, uncramping properties of the ingredients in rooibos tea help to relax and uncramp the stomach walls.

Effect of redbush on diarrhoea

The antibacterial effect of some of the substances contained in redbush tea can put an end to various Coli bacteria. This includes Escherichia coli, a parasite that is among the most common triggers of diarrhoea due to its toxic excretions.[804]

Some diarrhoea results from food intolerances—in this case, the antiallergic effect of redbush tea can also score some points!

Effect of redbush on three-month colic in infants

Redbush tea has proven itself highly effective for infants that are suffering from three-month colic. The colic often disappears after a few days and the additional calming effect of redbush tea allows the children to quickly relax (often after the first use!). What stands out as a positive is that the children very much like the sweet and tannin-free redbush tea; it is one of the few remedies that are very gladly consumed by children.

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[804] Dr Jörg Zittlau: Rotbuschtee – für Gesundheit und Schönheit ('Redbush Tea – For Health and Beauty'), 3. Edition 1999, p. 52.



And because it contains no sugar and no caffeine, children can also easily drink large amounts of it.

This is how rooibos tea works against colic:

- the flavonoids contained in rooibos tea have a cramp-relieving effect on the intestinal muscles.
- If the colic is based on allergic reactions to individual food components, then the antiallergic mechanisms of redbush tea additionally have an effect.

Rooibos tea and its effect on intestinal inflammation

Rooibos tea has an antibacterial effect (exclusively) on the negative bacteria strains in the intestines and also inhibits inflammatory processes in the intestines. The anti-inflammatory and uncramping effect relaxes the intestinal muscles and in this way soothes the intestinal inflammation, which should very quickly abate.

If that does not happen, there is no other option but to a doctor. Incidentally, the loss of fluids and electrolytes through diarrhoea is also balanced out by the minerals in rooibos tea.

Effect of rooibos on flatulence

The calming of the intestines also causes gas to be evenly discharged.

Effect of redbush tea on depression



Redbush tea contains two flavonoids which have already strongly proven themselves as natural anti-depressives in St. John's wort, the classic among the calming herbs. Quercitrine, quercentrin and isoquercetine possess similar mechanisms to those ingredients in St. John's wort which have traditionally proven to be helpful in the treatment of depression. The first-mentioned flavonoids exercise a positive influence on the production of the 'happiness hormone' serotonin and also support peaceful, deep sleep.

Redbush and its effect on migraines and headaches

The circulation-promoting, loosening and relaxing effect on the blood vessels and the nervous system predestine redbush tea to be a first-rate remedy for migraines and headaches. It also has several ingredients with a pain-relieving effect.[805]

Effect of redbush tea on sleep disorders

Quercitrine, quercentrin and isoquercetine possess similar mechanisms to those ingredients in St. John's wort which have traditionally proven to be helpful in the treatment of depression. Both of the first-mentioned flavonoids exercise a positive influence on the production of the 'happiness hormone' serotonin and in this way support a peaceful deep sleep.

Effect of rooibos on premenstrual syndrome (PMS)

[805] Dr. Jürgen Weihofen and Angelika Finke: So schmeckt Afrika-Rooibos, reizarmer Tee – nicht nur bei Allergien und Magenproblemen ('The Taste of Africa Rooibos, the Relaxing Tea – Not Just for Allergies and Stomach Problems'), 2nd Edition 2000, p. 77.



The three flavonoids 'quercitrine', 'quercetin' and 'isoquercitrine' have a relaxing and mood-lifting effect and can in this way effectively counteract premenstrual syndrome.

Effect of redbush tea on anaemia (blood deficiency)

Apart from the fact that redbush tea delivers a lot of iron, it also contains vitamin C, which facilitates the uptake of iron on by our bodies.

How rooibos works against gum inflammation

The anti-inflammatory and astringent, constricting effects[806] makes the gums more resilient to attacks by parasites and the inflammation quickly easing. Besides regularly drinking rooibos tea, it is advisable to rinse the mouth with it several times a day.

The diet-supporting effect of rooibos tea

The fact that rooibos tea tastes sweet without fructose, i.e. completely calorie-free, qualifies it as a popular diet aid. The palate is satisfied with respect to the desire for something sweet without providing the body with additional calories.

Effect of rooibos on cancer

The plentiful polyphenols present in rooibos tea have not least demonstrated

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[806] Dr Jörg Zittlau: Rotbuschtee – für Gesundheit und Schönheit ('Redbush Tea – For Health and Beauty'), 3. Edition 1999, p. 75.



a cancer-inhibiting effect.

Quercetin and quercitrine and the enzyme 'monoamine oxidase'

Quercetin and quercitrine also suppress the enzyme called monoamino oxidase, which among other things is said to be responsible for the development of colon and breast cancer.

Cancer-inhibiting effect of nothofagin and aspalathin

In studies, aspalathin and nothofagin demonstrated a certain cancer-protective effect.

Influence of rooibos on free radicals and cancer

Because free radicals play an important role in all phases of cancer, it is always important – preventatively, during treatment and in aftercare – to avoid the attacks of free radicals and simultaneously to provide the body with as many potent radical catchers as possible; among these is rooibos tea.

Ingredients in rooibos and its effect on cancer

Luteolin and cancer

Alongside the relaxing and antioxidant effects, luteolin has also demonstrated a cancer-inhibiting effect against colorectal cancer cells and thyroid cancer



cells.

Detoxifying effect of rooibos tea and impact on cancer

The detoxifying effect of rooibos tea can also be attributed to the effect of detoxifying mechanisms in the liver (cytochrome P450). Toxins burden the immune system and often lead to tumour development.

Antiviral and DNA-protecting effects prevent cancer

In studies, both antiviral effects and DNA-protecting effects could be demonstrated, which also provides evidence of a cancer-preventing character.

In summary, researchers are discussing the following cancer-inhibiting effects of rooibos tea:

- Rooibos tea counteracts free radicals.
- Redbush tea detoxifies the body.
- Rooibos tea counteracts DNA damage, and thus prevents cell mutations.
- It suppresses cell regeneration and inhibits cell division.
- Rooibos tea inhibits proteolytic enzymes and thus metastasis.
- It has an antiviral effect; some types of cancer are suspected to be triggered by viruses.

The role of vitamin C on cancer has been sufficiently supported by countless



studies. Redbush tea is a natural source of vitamin C and thus can also be recommended from this point of view.

The advantage also lies in the fact that you can drink redbush tea at any time throughout the day, as it neither contains caffeine nor must it be sweetened (do not consume sugar during cancer, as sugar feeds the cancer!). In addition, no interactions with dietary supplements or medications are known.

Studies on rooibos tea

Rooibos tea and its scientifically-proven effects

Currently, research on rooibos tea is scarce, even though rooibos has aroused strong interest in scientific circles and this shortcoming is now being addressed in order to improve the sparse quantity of research.

The reason for this low quantity of research is not any kind of lack of interest on the part of science, which used to be the case. Rather, this circumstance is much more related to the fact that—in contrast with tea varieties from Asia, which culturally, as far as the written tradition is concerned, is in no way inferior to our own—there is only a comparatively short tradition in South Africa. Thus, not too many ideas were handed down in written form which could be built upon and deepen existing scientific knowledge through further studies. Nevertheless, there are initial scientific studies on the topic of rooibos tea,



too:[807]

Antioxidant effect of rooibos tea proven in studies

In 1995, the team surrounding Prof. J. Ferreira was able to provide evidence of the first antioxidants in rooibos tea and their strong effect on free radicals.

Confirmation of the antioxidant effect of rooibos tea

One year later, the antioxidant effect of redbush tea was confirmed by Gadow et al. In the meantime, in Japan, the researcher Dr. Nakano made the claim that rooibos tea has an antioxidant effect that is 50 times stronger than that of green tea.

In studies, rooibos protects our DNA from damage

At the Medical Research Council in South Africa, researchers could prove that rooibos tea protects our genes, DNA, from damage.

In studies, rooibos demonstrates a protective effect against X-rays

In Japan, Komatsu et al. were able to show that rooibos tea protects against damage caused by X-rays.

In animal studies, rooibos protects against skin and colon cancer

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[807] Dr. Reuther: Das Rooibos-Buch ('The Rooibos Book'), 3rd Edition 1999, pp. 256-260.



At the Medical Research Council, researchers first triggered skin cancer in rats and simultaneously fed the rats rooibos. This lead to an 80 % decrease in skin tumours as opposed to the control group which received no rooibos. In another experiment, rats were treated with colorectal cancer-triggering substances. None of the rats which were fed rooibos experienced malignant changes.

Redbush tea – preparation

Preparing redbush tea is as uncomplicated as imaginable and thus is not subject to any profound ceremonies, as is familiar from Chinese tea varieties, for example. The rooibos tea can simmer for any length of time, can be drunk hot or cold, can be drunk in the morning or evening and can be infused as often as you like—rooibos tea is simply tasty, healthy and unpretentious! Whoever is not satisfied with the natural sweetness should avoid sugar and sweeteners for the sake of health and a good figure and turn to healthy stevia as a natural sugar substitute.

Rooibos preparation – the utensils

Among the utensils for rooibos tea are:

- Steel kettle or pot
- Teapot
- Filter or tea strainer
- Cups



Make sure that the strainer is as tightly meshed as possible, otherwise tiny components of the tea could 'slip through'; for this reason, a tea infuser is not suitable!

Actual preparation of rooibos tea

- Bring water to the boil in a kettle or pot;
- put one heaped teaspoon of rooibos (or a teabag) per cup of tea into the teapot;
- pour the boiling water over the tea in the teapot and let the redbush tea steep for two to three minutes;
- strain the rooibos tea and pour it into the teapot; multiple infusions are possible.

Rooibos can take up to three infusions; the steeping time for subsequent infusions should be 30-60 minutes.

Does rooibos tea cause any side effects or interactions?

Rooibos tea has been traditionally drunk for centuries by South African tribes, sometimes in amounts of up to 3 litres or more per day, without any side effects! Because redbush tea neither contains caffeine nor needs to be sweetened, there are no aspects to it that could burden the body.

What should I pay attention to when buying rooibos tea?



Redbush tea can be bought loose or in teabags, although the latter is rarer. The loose tea allows you to judge the quality of the tea before purchasing. The tea should have as intense a red or brown colour as possible and should consist of up to 1 mm-thick pieces of leaf and individual branch remains, which are somewhat longer. You should smell a fresh, fruity aroma when opening the packaging.

You can, incidentally, buy rooibos tea in all sorts of aroma variants—from the natural flavour 'natural rooibos' to strawberry, apricot, vanilla, wild cherry, honey or lemon flavours and many others.

You can also purchase rooibos tea that has been enriched with certain herbs and fruits to enhance the healing effect.

Storing rooibos tea

To preserve as long as possible the fruity aroma and healthy effect of the tea, you should always store it

- in a dark place,
- in an airtight container,
- in a cool and dry place.

Tea caddies made of porcelain or wood are suitable for this purpose; rooibos tea should not come into contact with metal.



SELENIUM

Selenium – what is it?

Selenium is nothing less than an 'essential', which is to say vital, trace element which is not produced by our bodies and therefore must regularly be ingested via our food. Selenium was discovered in 1817 by the Swede Jöns Jakob Berzelius; however, it was not until the mid-70s that the natural presence of selenium in the human organism (10-15 mg) was proven.

Selenium is a component of the earth's crust and is the 60th most common element there. 1 kg of earth matter is required to extract 0.09 mg of selenium, which has approximately the same scarcity as gold in the earth. In the natural world above the earth's crust, selenium is much more common and can be found in almost all bodies of water, rocks and soils. Named after the Greek moon goddess 'Selene' because of its silvery sheen, selenium was discovered for technological needs long before its enormous benefit for our health became apparent.

Selenium is used in photo technology, ceramics production, the glass industry, the steel industry and in other sectors. The discoverer of selenium himself, Jöns Jakob Berzelius, pointed out multiple times that selenium could be poisonous in certain quantities. This assumption, and observations of the poisoning of cattle which grazed on land with an enormously strong presence of selenium, initially led to enormous scepticism regarding the new trace element. Selenium was considered 'poisonous' and there was therefore no interest in impartial medical investigation into the substance.



This situation changed drastically when analysis showed that there were far more regions in the world with a selenium deficit than a selenium surplus and it was also revealed that people and animals were healthier and more energetic in the regions with a slight selenium surplus, while people and animals in selenium-poor regions were less healthy and suffered from more illnesses. In fact, numerous studies have shown that the number of people suffering from cancer, circulatory diseases and other civilisation diseases is dramatically higher especially in selenium-poor regions, while in selenium-rich regions, on the other hand, the people remain healthy and energetic and also reach an above-average age!

The scientists Schwarz and Foltz were able to demonstrate in 1957 that selenium is essential for the human organism, i.e. necessary for life. Selenium is a component of numerous important enzymes in our bodies and thus integrated into crucial physiological processes in the body. Gradually, further important tasks in the body were ascribed to selenium—this research continues to this day but has already revealed highly exciting insights and makes selenium a crucially important substance in the prevention and treatment of numerous diseases. Learn about these exciting details in the following pages, for example: that selenium strongly inhibits the emergence of cancer, heart attack and arthritis and has extended life by 175 % in animal studies. Be amazed at what selenium, as a true all-rounder, is capable of doing for your health, too.

Did you know that...

- ... selenium is an 'essential' trace element, which is to say that it is necessary



for life and must be consumed through our diet?

- ... selenium is an important component of enzymes which are responsible for the activation of numerous hormones and metabolic functions?
- ...we are constantly surrounded by innumerable toxins and that selenium, as a component of protective enzymes, plays a crucial role in the detoxification of the body?
- ...our bodily cells are attacked around 10,000 times per day by free radicals (caused by UV rays, environmental toxins, diet, stress, cigarettes), which makes us sick and causes us to age early?
- ... selenium, as a potent antioxidant, repels these voracious free radicals?
- ... selenium protects us from stress caused by UV rays and radiation?
- ... circulatory diseases are the Number One cause of death, but that selenium helps prevent these and can positively influence pre-existing cardiovascular disease?
- ... cancer is the second most common cause of death and that selenium has been successfully used as a supplementary treatment for decades by complementary oncologists?
- ... selenium can enhance the positive effects of chemotherapy for cancer by a factor of 10 and can relieve the side effects?
- ... selenium optimises the effects of radiation therapy and limits the side effects?
- ...as a consequence, where the soil is low in selenium, a conspicuously



large number of people die of diseases like heart attack and cancer and in those places where the soil is rich in selenium, people grow old while remaining energetic and cancer-free?

- ... selenium, in combination with vitamin E, has been able to increase life expectancy by 175 %?
- ... selenium strengthens our immune systems and counteracts infections, and can thereby resist countless illnesses?
- ...our depleted soils are no longer able to provide the required amount of selenium in our diets, as defined by all medical professionals?



Effects of selenium

Selenium, as an essential trace element, looks after essential tasks in our bodies and is an important component of enzymes that are responsible for the activation of numerous hormones and metabolic functions via the liver, the kidneys and the thyroid.

General effects of selenium on our bodies

- protects the circulatory system
- lowers blood pressure
- antioxidant/cytoprotective
- detoxifying (heavy metals like lead, cadmium, amalgam, mercury)
- anti-inflammatory
- antiviral
- antitumoural (prevents development of cancer)
- antimutagenic
- supports the programmed cell death of deformed and abnormal cells
- supports the repair mechanisms of damaged DNA (genes)
- life-extending
- immune-modulating (strengthens the immune system)
- liver-strengthening



- UV ray protection
- protection against radioactive rays
- aids sperm maturation
- protection against allergens

Selenium's effect on the cardiovascular system

Selenium protects against the agglomeration of blood platelets and has a positive influence on our blood vessels. As a potent antioxidant, it protects the heart muscle cells from damage from various metabolic products and normalises excessively high blood pressure.

Our heart also possesses a so-called 'autonomous electrical conduction system', its own stimulation system which ensures that the heart continues beating even outside of the body. The sinus nodes function as a kind of pacemaker and send 60-80 electromagnetic impulses per minute to the heart muscle, which then contracts accordingly.

Selenium supports nerve stimulation in the area of the sinus nodes. On the other hand, selenium, with its metalloid properties, lowers electrical resistance, which generally optimises the control of all impulses in the body within the nerve pathways, including the electromagnetic impulses of the sinus nodes in the heart muscle.



Antioxidant effect of the selenium enzyme 'glutathione peroxidase' on our bodies

As a highly potent antioxidant, the selenium enzyme named 'glutathione peroxidase' protects our bodily cells against the attacks of free radicals which attack our approximately 37,2 trillion body cells about 10,000 times per day and thus lead to numerous illnesses and premature ageing (including cancer). These voracious little particles emerge due to, among other reasons, environmental stress, diet and in our own normal metabolic processes.

The selenium enzyme 'glutathione peroxidase' transforms the attack-happy free radicals into harmless derivates and can thus protect our cells from something even worse!

Detoxifying effect of selenium

As a component of important protective enzymes, selenium plays an important role in the detoxification of the body. It binds toxic heavy metals like lead and cadmium, heavily present in automobile exhaust, and forms defensive mechanisms against the destructive effects of zinc, mercury, tin, arsenic and cobalt as well as amalgam in tooth fillings.

In addition, selenium encourages the breakdown of harmful substances in the body and has a strengthening effect on the liver, which, as we know, functions as *the* detoxifying organ per se in our bodies.



Anti-inflammatory effect of selenium

Selenium minimises the production of cytokines and prostanoids, which are considered the precursors of inflammatory reactions. It also supports the immune system in its struggle against intruders (bacteria, viruses, etc.) and thus renders the use of inflammatory substances for their elimination unnecessary. Selenium also protects healthy body cells against the free radicals that emerge in the process of inflammation.

Antitumoural effect of selenium

The antitumoural effect of selenium is highly diverse and can primarily be attributed to the following mechanisms:

- Selenium boosts the immune system. In this process, the NK cells (natural killer cells) which attack the tumour cells are activated and produce antibodies more intensively.
- Selenium decreases the number of surface molecules on the cancer cells and 'marks' these for the NK cells, which discover and destroy cancer cells.
- Selenium inhibits the growth of tumour cells via direct interference in their metabolism.
- Selenium neutralises cell toxins.
- Selenium neutralises the attacking free radicals.
- The cells that have already been attacked are repaired.



- Selenium protects the body from deformed cells.
- Selenium supports the programmed cell death of deformed cells (apoptosis).
- Selenium inhibits chromosome damage.
- Selenium neutralises cancer-causing substances (carcinogens).
- Carcinogenic metabolic toxins are buffered by selenium.
- Selenium activates certain enzymes which take on repair mechanisms on the genes.
- Selenium protects against radiation.
- Because selenium plays a very special role in cancer in particular, this topic is given its own section 'Selenium and its effect on cancer'.

Immune system-boosting effect of selenium

The immune system is our biological defence system, one of the responsibilities of which is to prevent tissue damage due to pathogens. The immune system takes on the fight against bacteria, viruses and fungi, destroys mutated body cells and removes substances foreign to the body. A stricken immune system inevitably leads to potential illnesses; on the other hand, diseases can only be healed with the help of an intact immune system. By encouraging the production of antibodies, selenium strengthens our immune system. In this way, when exposed to selenium in animal studies, the number of antibodies could be increased by a factor of 30.



Protective and antimutagenic effect against radioactivity and UV rays

The public became aware of selenium primarily after the reactor accident of Chernobyl, as Prof. Dr. Schmidt of the University of Tübingen indicated in his statements about selenium as a first responder in the atomic catastrophe. Prof. Dr. Schmidt certified selenium's first-class properties for containing the prevailing health threat after the reactor accident as much as possible.

Accordingly, selenium, in combination with vitamin E, possesses qualities which protect against radiation (alpha and gamma rays) as well as antimutagenic properties, which makes it the preventative measure of choice after a catastrophe, like those we had to witness in Chernobyl and recently in Fukushima.

Specific effect of selenium on diseases and disorders

It is almost impossible to count all of the illnesses that are positively influenced by a substance which takes on a key role in the immune system, which detoxifies the body, protects against inflammation, has an anti-mutagenic effect and facilitates the repair of the genes. The following illnesses, however, have been shown to benefit from a sufficient supply of selenium:

- Atherosclerosis (vascular calcification)
- Cardiovascular disease (angina pectoris, Keshan disease, protection against heart attack and similar)



- Cancer/tumour development
- UV damage to the skin (protects against premature ageing)
- Sterility
- Allergies
- Diabetes mellitus
- Hypothyroidism
- Autoimmune diseases of the thyroid
- Hashimoto thyroiditis
- Kashin-Beck syndrome
- Myxedematous endemic cretinism
- Arthritis/rheumatism
- Hair loss
- Depression
- Bekhterev's disease
- Crohn's disease
- Basedow's disease
- Parkinson's
- AIDS
- Accelerated ageing



- Muscular atrophy
- Eye disorders (cataracts)
- Retinal problems as a consequence of diabetes

Effect of selenium on cardiovascular diseases

Selenium unfolds its cardiovascular-protecting effect via multifactorial mechanisms: On the one hand, it reliably protects (especially in combination with vitamin E!) the heart muscle cells from damage by free radicals and also normalises high blood pressure. On the other hand, selenium, with its metalloid properties, lowers electrical resistance, which generally optimises the control of all impulses in the body within the nerve pathways, including the electromagnetic impulses of the sinus nodes in the heart muscle. One particularity is the positive effect on the work of the sinus nodes in the heart, the 'heart pacemaker', which supplies the autonomous electrical conduction system of the heart with corresponding electrical impulses, which cause the actual heartbeat. Selenium can, in combination with vitamin E, have an excellent effect on angina pectoris, hypertension (high blood pressure) and arrhythmia, and can protect against heart attack.

Protection against heart attack

Selenium facilitates nerve stimulation and simultaneously lowers electric resistance. It has the property of supporting nerve stimulation in the area of the sinus nodes. In this way, selenium can optimise the heartbeat rhythm and help



avoid heart problems up to and including heart attack. A pioneer in the research of selenium's influence on the cardiovascular system is the Finnish doctor Dr. Johan A. Bjorksten. He was the first to analyse the high mortality rate of his compatriots in eastern Finland and was able to determine an almost frightening lack of selenium in this region. He was also able to determine that in countries whose water contained notably little selenium, heart attacks occurred three to four times as often and were seven times as likely in the regions of Finland with low levels of selenium than in those with higher levels.

While in industrialized countries like USA or UK one in two deaths is due to a cardiovascular disease, in Bulgaria, where the soil is considered very selenium-rich, only 331 of every 100,000 people die of a heart attack! One meta-analysis summarising 30 empirical studies is also very convincing. It showed an inversely proportional relationship between the selenium status of the subject and the risk of contracting cardiovascular disease.

Selenium helps during acute heart attack

If the heart attack could not have been avoided, selenium helps with reducing heart muscle damage and rehabilitation. During the heart attack, harmful substances which damage heart tissue are produced more intensively, for example lactate dehydrogenase and serum creatine phosphokinase.

Selenium has the property of quickly normalising this, which has an overall



positive effect on tissue damage and consequently a positive effect on rehabilitation after the heart attack. Research led by Dr. Johann Reisinger has also shown that the administration of selenium after circulation disruptions caused by heart attack or stroke caused brain function to stabilise more quickly.[808]

*'All signs point to this: an insufficient selenium supply in the human body increases the risk of the affected person contracting heart disease. We have learned that the heart muscles need the trace element selenium'. (*Prof. Dr. R.J. Shamberger)

[808] Linz 2009



Effect of selenium on sterility

50 % of the total amount of selenium stored in the male body is located in the testes and the prostate glands of the man. Therefore, it is no wonder that selenium plays a decisive role in the reproductive process. And in fact, studies have shown that men with a selenium deficit have problems with sterility. With every single ejaculation, the man loses a considerable portion of the selenium stored in the body. It is therefore vitally important to compensate for this loss with a regular intake of selenium, in order to maintain health and prevent impotence.

Effect of selenium on allergies

The cause of the constantly increasing number of allergies in our part of the world lies in parallel with the decreasing selenium content in the soil. Selenium plays a crucially important role in allergic reactions, as it counteracts the allergens, i.e. the allergy-triggering substances.

Effect on diabetes

Diabetes seems to be at least partially connected to a selenium deficit. A lack of selenium and vitamin E has been shown to prevent insulin production. A selenium deficit also has a negative influence on the islets of Langerhans in the pancreas, which are responsible for the production of insulin and glucagon. By implication, an adequate supply of selenium can prevent diabetes and positively influence existing diabetes. In general, however, diabetics are threatened by



strong oxidative stress in their blood vessels. Efficient antioxidants like selenium can rein in oxidative stress and protect the diabetic's blood vessels.

Regulating effect of selenium on the thyroid gland

Our thyroid gland takes on important tasks in our bodies, from controlling our energy balance all the way to controlling our metabolic processes. Selenium is a component of the enzyme 'deiodinase', which is responsible for the production of thyroid hormones.

A selenium deficit can, due to insufficient deiodinase activity, lead to hypothyroidism with its unpleasant symptoms ranging from weight gain, hair loss and depression all the way to cardiovascular problems. An adequate supply of selenium can prevent hypothyroidism and thus the above-mentioned problems.

Effect of selenium on Hashimoto's thyroiditis

Selenium can significantly decrease the number of antibodies that combat thyroperoxidase (TPO); patients then feel better, according to George Kahaly of the Mainz University Clinic. For this purpose, 200 µg of sodium selenite per day are required.

Effect of selenium on arthritis, polyarthritis and Bekhterev's disease

Because selenium also assumes an important role in the case of arthritis and all inflammatory rheumatisms, you can find more detailed information about this in the dedicated section 'Selenium for rheumatism and arthritis'.



Effect of selenium on muscular atrophy

The following appears in the minutes of a team of physicians from the University of Göteborg at the International Symposium on Trace Elements in Munich in 1986:

- Electromyographic measurements showed a normalisation of the muscle tone over the course of treatment with protecton selenium with vitamin E.
- The strength of the arms and hands improved.
- Bodily condition improved.
- 6 patients with severe muscular atrophy were healed.
- 3 of 6 were able, after several months of treatment with selenium, to leave their wheelchairs and walk again.



Effect on vision, cataracts and diabetes symptoms

Cataracts are a clouding of the eye lens which can be recognised by a grey colouration behind the pupil. The affected person loses his or her sight painlessly and insidiously, introduced by a continual decrease in visual acuity and glare sensitivity.

In 90 % of cases, cataracts appear in older people, but can also be caused by UV radiation, diabetes mellitus or eye injury in younger years.

To protect the eye from going blind, surgical intervention is usually undertaken and an artificial eye lens put in place. Conventional medicine is not aware of alternatives to this.

Interestingly, the eye lens and the retina are rich in selenium, while they contain only 1/6 of this selenium in patients with advanced cataracts.

Selenium also apparently protects our eye lenses and the retina from environmental toxins, which could also be causes of cataracts.

In animal studies, an induced selenium deficit in the diet led to cataracts; by implication, vision can be improved and cataracts avoided by ensuring an adequate supply of selenium.

Effect of selenium on retinal problems due to diabetes mellitus

The same is true of the destructive effect of diabetes on the retina. In this case, selenium can preventatively protect the retina.



Synergetic effect of selenium in combination with vitamin E

While both substances both take on important tasks on their own, neutralise free radicals, counteract inflammations, lower high blood pressure, keep the cardiovascular system healthy, counteract the development of cancer and demonstrably lengthen life, the combination of both—without exaggeration—can be described as sensational!

Both natural substances combined with each other produce a powerful defensive wall against the attacks of free radicals, which can be held primarily responsible for illness and premature ageing.

Or to put it in the words of the selenium researcher Dr. Richard A. Passwater:

'Selenium, together with vitamin C, protects every one of the 60 trillion cells of our bodies against destruction in an excellent way!'[809]

For example, vitamin E on its own extended lifespan by 30 %; vitamin E in combination with Selenium extended lifespan by a sensational 175 %!

In connection with vitamin E, downright astounding clinical results on angina pectoris were celebrated.

Selenium for rheumatism and arthritis

Arthritis, an inflammatory, joint-destroying disease which still has not been controlled by conventional medicine, can be relieved and often even cured with

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[809] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 89



the help of selenium, preferably in combination with vitamin E. An indication of this enormous effect is the fact that arthritis sufferers demonstrate an acute deficit of both substances.

In tests, 70 % of quadrupeds on the way to recovery, 1/3 healed:

In his highly recommendable book 'Bio-Selenium – Natural Defence for our Immune System', Hademar Bankhofer describes the sensational findings with the use of selenium, initially in an animal study on dogs suffering from severe arthritis. In 1981, in an animal research institution of a hospital in Boston, researchers tested selenium in combination with vitamin E on dogs suffering from severe arthritis symptoms (painful swelling of the joints all the way to paralysis and crippled joints). The first notable thing was the acute selenium deficit as determined by blood tests, which is already an indication that something in the body is not functioning properly. After four months of therapy with selenium in combination with vitamin E, 1/3 of the dogs were successfully healed and 70 % of them were on the way to recovery.

Selenium successful on severe arthritis in human self-tests Furthermore, the author of the book continues, Charles Ware, the head of the British Arthritis Society, became aware of these animal studies with sensational results.

This man, who had already been an arthritis patient himself for 50 years and on whom conventional medicine had given up, decided there and then to try out self-experiments with selenium. He acquired a selenium preparation from the United States and started the experiment on his own body.



As the media reported, Charles Ware's joint pain and skin rashes disappeared in a very short period of time; the effect on his hips was especially pleasing. They were no longer in pain and regained, as the legs did before them, full mobility.

Charles Ware was discharged from his clinic as cured and was already planning a long-term experiment with selenium on many other arthritis patients, exactly 100 in number.

The results were astonishing:

- After only one month, the arthritis patients reported significant pain relief and an improvement in their overall condition.
- In the following months of selenium therapy, joint swelling, hip pain and signs of paralysis disappeared from the hands and legs.
- In the autumn session of the Arthritis Society, the successes of this series of experiments were revealed and selenium recommended as a treatment for rheumatism and arthritis.

The conclusion of the speaker of the British Arthritis Society was: *'We are convinced that selenium can help thousands of suffering people. Our members who took part in the experiment are enthusiastic and thankful.*

For many of them, the illness could be relieved, and even sensationally improved, even in those cases which had been designated as incurable'.



Further experiments throughout the world then followed which verified the successes of the initial pilot studies, especially when bio-selenium was used in combination with vitamin E and natural vitamin C (in the form of fruit juices, camu camu or acerola).

In the case of sodium selenite, vitamin C should be taken with a time delay, as the simultaneous intake of vitamin C and sodium selenite suppresses selenium absorption.

When does selenium start having an effect on arthritis?

Because selenium is a natural remedy, the healing effect takes place very quickly, although this occurs alongside many other positive processes in the course of selenium saturation. Selenium is not a painkiller in the traditional sense. The easing of pain accompanies the healing process; an improvement in condition is, as a general rule, to be expected after four to six weeks—until that point, there can even be an initial worsening of the symptoms connected to the activation of the immune system, although this is generally a good sign of the onset of the healing mechanisms.

Selenium and cancer

Numerous observations by doctors and researchers from around the world have confirmed an interesting phenomenon. It is a fact that people fall ill with cancer much more often in regions where the soil contains a notably low amount of selenium or none at all to pass on to plants, animals and ultimately humans via the natural food chain.



From this fact, it was concluded that selenium demonstrates an extraordinarily high potential for cell protection which can even counteract carcinogenic substances and the onset of cancer.

As early as 1910, Prof. Dr. August von Wasserman was able, in an animal experiment, to dissolve tumours with selenium injections and to heal cancer-afflicted animals. Unfortunately, he neglected to publish the correct dosage early enough. The reproductions of other doctors led to selenium poisonings as, without knowing it, they used doses that were too high.

Sensational cures of cancer with the help of selenium

It was only after the First World War that a therapist was able to find out the correct selenium dose for cancer patients. Dr. E. Watson Williams was able to release 6 of 18 cancer patients as cured whom he had treated with intramuscular and intravenous selenium injections; the other five patients experienced a shrinking of the tumour and an improvement in overall condition. Two representative studies from the 1980s and 1990s have meanwhile shown that the risk of developing cancer rises by 2 to 6 times in case of inadequate selenium supply.

How does selenium work against cancer?

Selenium works against cancer by

- ...boosting the immune system in general, i.e. by activating NK (natural killer) cells which completely dissolve the tumours.



- ...causing an increased production of antibodies and other messenger substances.
- ...decreasing the number of surface molecules on cancer cells and 'marking' these for the NK cells so that the NK cells can better locate and destroy them.
- ...inhibiting the growth of the tumour cells by interfering with their metabolism.
- ... neutralising cell toxins.
- ...neutralising free radicals.
- ...repairing attacked cells.
- ...protecting the body from deformed cells.
- ...supporting the apoptosis (programmed cell death) of deformed cells.
- ... preventing chromosome damage.
- ...neutralising carcinogenic (cancer-causing) substances.
- ...buffering/neutralising carcinogenic metabolic toxins.
- ...introducing gene repair mechanisms via the activation of certain enzymes.
- ...protecting against radioactive radiation.

As we can gather from the above list, selenium has a multifactorial effect on



cancer and can be of very reliable service in every phase, from prevention to treatment to aftercare.

By activating the natural killer cells (NK cells), which can locate, attack and start the apoptosis of cancer cells even in the early phases, selenium takes an active part in the destruction of cancer cells.

Scientists have determined that cancer patients have on average 25 % less of these natural killer cells—the administration of selenium can substantially minimise this deficit. In addition, a higher portion of NK cells accompanies a longer metastasis-free time and a longer survival time.[810] Selenium also activates certain enzymes which take part in the repair of our genes and protect them from a deformity which could directly lead to a malignant tumour. Selenium also protects us from the negative influence of the free radicals that attack our cells every day and which can change them to such a degree that they mutate into cancer cells.

In which stages of cancer is selenium used?

Selenium is used in complementary oncology in the following ways:

- in the prevention of cancer,
- in active cancer treatment,
- accompanying chemotherapy,
- accompanying radiation therapy,

[810] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 66 f.



- before, during and after the tumour operation and
- in aftercare.

In all stages of cancer, the strengthening of the immune system and the warding off of free radicals are an essential and indispensable component of effective biological cancer therapy. It should be emphasised, however, that selenium should never be regarded as a standalone anti-cancer remedy and should always be used in combination with other useful substances and measures in a comprehensive cancer treatment plan.

Against which types of cancer/tumour has selenium been shown to be effective?

Current findings allow us to conclude that the use of selenium within a comprehensive treatment plan is more than useful for all types of cancer.

Selenium cuts the mortality rate of cancer patients in half

In a study investigating the effect of selenium on different types of cancer, the conclusion was reached that selenium reduces cancer mortality by 50 %![811] However, selenium has demonstrated particular successes in studies and treatment on the following types of cancer:

- Breast cancer
- Stomach cancer

[811] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 72



- Colon cancer
- Leukaemia
- Lung cancer
- Liver cancer
- Prostate cancer

Selenium therapy successful on breast cancer

Further tests by other researchers have been able to confirm the positive results. As early as the 1930s, for example, Dr. A Todd was able to increase the survival rate of all women who were being treated/operated on for breast cancer.

A research at the renowned Hahn Meitner Institute in Berlin, led by Prof. Dr. Peter Brätter, has been able to demonstrate that a daily dose of 300 micrograms of bio-selenium decreases the breast cancer rate in women to zero.[812]

Selenium can prevent the recurrence of lung cancer tumours in 45 % of cases

In a study, researchers investigated the effect of selenium on lung cancer. Selenium was able to reduce recurrence by 45 %.[813]

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[812] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 148

[813] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 70



Selenium successful in the prevention of prostate cancer

According to a study on 34,000 men at the renowned Harvard School of Public Health, scientists were able to demonstrate that men with high selenium absorption have half the risk of developing prostate cancer.[814]

Selenium prevents the recurrence of prostate cancer

In another study, the recurrence of prostate cancer was reduced by 63 % with the help of selenium.[815]

Colon cancer recurrence decreased by 58 % with the help of selenium

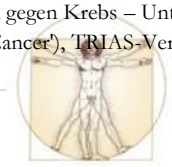
In a study, the recurrence of colon cancer was reduced by 58 % with the intake of selenium.[816]

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[814] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 70

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[816] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 71



Selenium during chemotherapy[817]

Selenium does not have a negative influence on chemotherapy. Various studies have been carried out both on cell cultures and on patients with the goal of finding out whether selenium could in any way interfere with the effectiveness of chemotherapy (adriamycin/cisplatin). None of the studies could confirm this!

On the contrary: selenium enhances the desired effect of chemotherapy up to tenfold!

Apparently, selenium efficiently breaks the defences of the cancer cells against chemotherapy and in this way inhibits the cancer cells' resistance to chemotherapy medications by binding glutathione, which would otherwise be used by the cancer cells as a defence against the chemotherapy medications.

Even types of cancer that do not respond to chemotherapy can be re-sensitised to chemotherapy with the help of selenium. Selenium often also makes it possible to lower the dose of chemotherapy—with equivalent or better results!

In cell cultures, a normal dose of chemotherapy (5-Fluorouracil) had its effect doubled with selenium, and the effect of high-dosage chemotherapy was even increased by a factor of 10.

Selenium reduces the undesired side effects of chemotherapy

[817] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 81, 82, 90



In studies, it could further be demonstrated that selenium protects our leukocytes (immune cells in the blood) and that their number decreased by a third less. At the same time, the heart damage (adriamyacin), kidney damage (cisplatin) and phlebitis caused by chemotherapy could be reduced or even prevented with selenium (sodium selenite). The patient feels subjectively better.

Selenium during radiation therapy[818]

Selenium enhances the desired effects of radiation therapy. It has been shown in studies that selenium makes the cancer cells more sensitive to the radiation and increases their 'suicide rate'.

Selenium decreases the undesired side effects of radiation therapy

Numerous studies have been able to show that selenium protects healthy cells from the damage of radiation during radiotherapy, while the cancer cells receive no benefit from this protection. Selenium therefore does not negatively influence radiation therapy in any way, but does protect the healthy cells from the dreaded side effects. In addition, it also protects against the undesired negative effects on the immune system and spares the immune cells a third of the damage.

Selenium successful in the prevention of cancer

With a disease that by now strikes one in two Americans and Central Europe-

[818] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 70



ans and of which one in every four people dies, we do not even need to mention the necessity of preventive measures against cancer.

Selenium has proven, in numerous studies and treatment experiences for decades across the world, to be so effective that it is recommended by international societies of experts as the first 'chemo-preventive measure' against cancer![819]

Selenium reduces breast cancer by 100 % in studies

At the Hahn Meitner Institute in Berlin, a study directed by Prof. Dr. Peter Brätter showed that a daily dose of 300 milligrams of bio-selenium reduced the breast cancer rate of women to zero.[820]

Selenium reduces risk of falling ill with prostate cancer by 50 %

Experiments on 34,000 men at the renowned Harvard School of Public Health were able to demonstrate that men with high selenium absorption have half the risk of developing prostate cancer.[821]

In studies, selenium reduces the risk of falling ill with cancer by 40 %

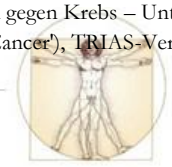
A five-year Chinese study on numerous subjects was able to reduce the occurrence of liver cancer by 40 % by enriching table salt with selenium.

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[819] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 69

[820] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 148

[821] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 70



Selenium intake recommendation in all phases of cancer development[822]

Treatment phase	Intake recommendation in micrograms per day
Cancer prevention	100 micrograms of selenium additionally as needed (blood test indicates need)
Preoperative phase (before surgery)	100-500 micrograms
Operation day	300 to maximum 1000 micrograms as infusion
After operation until chemo or radiation	100-300 micrograms
On the day of chemo and/or radiation	1 hour before treatment, if possible in the form of an infusion of 300 to a maximum of 1000 micrograms
Between chemo or radiation days	300 micrograms
Aftercare phase	200 micrograms selenium as needed

[822] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 80



Selenium and anti-ageing

In a highly recommended book 'BIO-SELENIUM, Natural Defence for Our Immune System', Hademar Bankhofer describes the amazing commonality between different regions of the earth which are populated by the oldest inhabitants. Whether in Azerbaijan or north Pakistan, where people often live to be older than a hundred years with the best vitality, there is always an undisputed connection between this amazing life expectancy and a rich presence of selenium in the soil.

Statements of the Ministry of Agriculture in Great Britain[823]

After countless series of experiments on the topic of 'Selenium and Life Extension', the Ministry of Agriculture in Great Britain made the following statement:

- Selenium, absorbed through diet, reduces and diminishes all damage which the ageing process accelerates.
- A selenium deficit conversely leads to faster ageing of all body cells.
- It was possible to extend human life by 10 to 15 years with the required amount of selenium, and this with full vitality and health.

[823] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 50



The combination of selenium with vitamin E extends life by 175 %!

While the administration of vitamin E alone still extended the lifespan of laboratory mice by 30 %, in an experiment directed by the scientist Prof. Dr. Richard Passwater, the combination of vitamin E with selenium achieved a sensational life extension of 175 %![824]

Selenium studies

Effect of selenium on mortality and cancer

In a five-year Chinese study, known as the Linxian Study, researchers administered selenium to 30,000 Chinese subjects in conjunction with vitamin E and beta-carotene.

In total, the mortality rate was decreased by 9 %, the cancer mortality rate by 13 % and the mortality due to stomach cancer by a significant 21 %.[825]

Without selenium, the risk of cancer rises by 2 to 6 times

According to two representative studies from the 1980s and 1990s, the risk of developing cancer rises by 2 to 6 times in the case of inadequate selenium supply.

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[824] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 50

[825] J Natl Cancer Inst 1993, 85, p. 1483



Selenium halves the mortality rate of cancer patients in the Clark Study

In the so-called 'Clark Study', it was shown that patients who received additional selenium only died of cancer at half the rate of the placebo group after > 6 years.

Selenium successful on breast cancer in studies

Current research at the renowned Hahn Meitner Institute in Berlin, led by Prof. Dr. Peter Brätter, has been able to demonstrate that a daily dose of 300 micrograms of bio-selenium decreased the breast cancer rate in women to zero.[826]

Lung cancer recurrence decreased by 45 % in studies

In a study, researchers investigated the effect of selenium on lung cancer. Selenium was able to reduce recurrence by 45 %.[827]

Selenium successful in the prevention of prostate cancer in studies

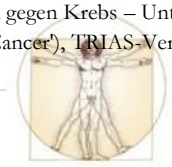
According to a study on 34,000 men at the renowned Harvard School of Public Health, scientists were able to demonstrate that men with high selenium absorption have half the risk of developing prostate cancer![828]

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[826] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 148

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[828] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 70



Selenium prevents the recurrence of prostate cancer by 63 %

As seen above, in another study, the recurrence of prostate cancer was reduced by 63 % with the help of selenium.[829]

Colon cancer recurrence decreased by 58 % in studies

In one study, the recurrence of colon cancer was reduced by 58 % with the intake of selenium.[830]

Selenium during chemotherapy[831]

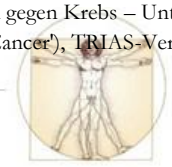
As already mentioned, selenium does not have a negative influence on chemotherapy. Various studies were carried out both on cell cultures and on patients with the goal of finding out whether selenium could in any way interfere with the effectiveness of chemotherapy (adriamycin/cisplatin). None of the studies could confirm this!

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[829] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 71

[830] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 71

[831] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, pp. 81, 82, 90



Selenium enhances the desired effect of chemotherapy up to tenfold!

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Selenium reduces the undesired side effects of chemotherapy

In studies, it could further be demonstrated that selenium protects our leukocytes (immune cells in the blood) and that their number decreased by a third less. At the same time, the heart damage (adriamyacin), kidney damage (cisplatin) and phlebitis caused by chemotherapy was able to be reduced or even prevented.

Selenium during radiation therapy[832]

Selenium enhances the desired effects of radiation therapy. It has been shown in studies that selenium makes the cancer cells more sensitive to the radiation and increases their 'suicide rate'.

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[832] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 70



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As already mentioned, studies have been able to show that selenium protects healthy cells from the damage of radiation during radiotherapy, while the cancer cells receive no benefit from this protection. Selenium thus does not negatively influence radiation therapy in any way, but does protect the healthy cells from the dreaded side effects. In addition, it also protects against the undesired negative effects on the immune system and spares the immune cells a third of the damage.

Selenium facilitates quicker stabilisation of brain function after stroke and heart attack

Research led by Dr. Johann Reisinger has also shown that the administration of selenium after circulation disruptions caused by heart attack or stroke effected a faster stabilisation of brain function.[833]

30 studies demonstrate the importance of selenium in the prevention of heart disease

As already mentioned, in a meta-analysis summarising 30 empirical studies, an inversely proportional relationship between the selenium level of the subjects and the risk of contracting cardiovascular disease was shown.

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[833] Linz 2009



Selenium incidence

Selenium is present in the following foods:

- Fish
- Meat (pork, innards)
- Liver
- Milk
- Vegetables
- Nuts
- Grains
- Sesame
- Porcini mushrooms



SELENIUM PRESENCE IN FOODS[834] (per 100 g of food in micrograms of selenium)	
Meat and meat products	
Beef liver	0.4
Pork liver	0.6
Beef kidneys	1.4
Veal kidneys	2.1
Beef steak	0.2
Seafood	
Tuna	0.6
Salmon	0.4
Cod	0.3

[834] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 69



Lobster	0.6
Oysters, shrimp	0.7
Freshwater fish	1.3
Squid	3
Eggs	
Chicken egg	0.2
Vegetables	
Garlic	0.3
Asparagus	10
Pulses	1.2
Celery	1.4
Kohlrabi	1.6
Fungi	
Mushrooms	0.2



Cereal products	
Whole grains (from the United States)	1.2
Wheat germs	1.1
Whole grains	0.3
Whole grain bread	0.4
Whole grain barley	0.3
Whole grain rye	0.2
Whole grain oats	0.3
Maize	0.1
Brown rice	0.5



Bioavailability of selenium

'Bioavailability' describes the ability of our bodies to absorb and utilise nutrients. Here, there are notable differences between the various selenium sources. While selenium from grains has a bioavailability of 90-100 %, the selenium from tuna fish, for example, has a bioavailability for just 50 %. The simultaneous intake of selenium with certain vitamins like vitamin E, C and A increases the bioavailability in the body.

Selenium requirements

Across the world, almost nothing else is as differently defined from country to country by local health authorities as selenium requirements, which does not make it easy for individuals to make accurate estimates. While the German Nutritional Society recommends a daily selenium consumption of only 30-70 micrograms, British experts recommend 80-100 micrograms and even 200 micrograms for high-risk groups like smokers, people with weak immune systems and cancer sufferers.

It is also problematic that soils throughout the world contain highly variable amounts of selenium. In Central and Northern Europe, in Germany and Switzerland for example, the soils are very low in selenium.

Selenium deficit, a modern problem with catastrophic consequences

It is thus no wonder that in the blood of the average German, instead of the optimal amount of 120-160 micrograms/L, a selenium content much lower



than 85 micrograms/L can be measured. This negative development is catastrophic. In the 1970s, selenium intake still amounted to about 60-70 µg daily, while it is estimated today to be about 30 µg in women and 40 µg in men. Could this be the reason for the parallel rise of illnesses like cancer and heart attack?

Selenium levels can, by the way, be monitored with a simple blood or urine test; however, health insurance policies do not cover this. The cost is around 30 euros and is therefore affordable.

In the opinion of independent experts (the latter must unfortunately be emphasised repeatedly!), there is a pronounced selenium deficit in Central Europe which is due to the Ice Age, which deprived the soil of selenium, but is also attributable to the use of fertilisers, among other things.

The ammonium sulphate contained in fertiliser absorbs the selenium in the soil, meaning that the plants growing there are in fact low in selenium or have no selenium at all. The animals that graze on these lands receive hardly any selenium; this is transmitted through the food chain and ultimately to humans, too. This selenium deficit already begins in infants whose mothers refrain from breastfeeding them.

The alternative, in the form of cow's milk, leads to a real selenium deficit in the body of the newborn, something that accompanies the young person all the way to adulthood and leads to a high susceptibility to all sorts of illnesses. Another cause of the selenium deficit is the industrialisation of our nutrition,



in the process of which half of selenium content is already lost in the grinding of the grain. The production of white flour even causes a loss of 80 % of selenium. The mercury in our diets, e.g. in salt-water fish, binds selenium to itself. The rest is accomplished by acid rain which contains sulphates which in turn prevent the absorption of selenium.

Signs of a selenium deficit

The following signs or symptoms can accompany a selenium deficit:

- white spots under the nails, brittle nails,
- lighter hair than usual,
- hair loss,
- paleness of the skin,
- fatigue,
- arrhythmia,
- reduction of performance,
- liver problems,
- hypothyroidism,
- susceptibility to immune diseases,
- male infertility,
- joint pain,



- high blood pressure,
- growth disorders in children,
- cardiovascular problems,
- cancer.

External factors which encourage a selenium deficit

Among the external factors which exacerbate an already-existing selenium deficit are:

- Stress (stress is a real selenium robber—anyone who has a lot of stress needs to regularly top up on selenium!)
- Air pollution, car exhaust fumes consume a lot of selenium.
- Cigarette consumption/nicotine taps increasingly into selenium for the purpose of neutralisation (the blood of smokers has been proven to have 25 % less selenium!)
- Alcohol burden the liver; here, selenium switches on in order to protect the liver and is thus used up in greater quantities.
- A protein-heavy diet uses up a large amount of selenium.
- Excessive masturbation in combination with frequent ejaculation uses up selenium reserves which need to be restored afterwards.
- Cooking grains eliminates about 45 % of the selenium.

Groups of people at high risk of selenium deficit



- older people,
- people with unbalanced diets,
- people on diets,
- smokers,
- heavy consumers of alcohol,
- performance athletes,
- vegetarians,
- people with a parenteral diet,
- dialysis patients/sufferers of kidney diseases,
- people taking dehydrating medications,
- people taking laxatives,
- people taking cholesterol-lowering medications,
- pregnant women and nursing mothers,
- stress-plagued people,
- rheumatism patients,
- cancer sufferers,
- chemotherapy patients,
- radiation therapy patients,
- heart disease patients,



- patients with inflammatory illnesses of the intestinal tract,
- people with autoimmune diseases,
- people suffering from immunodeficiency,
- people with amalgam in their mouths,
- people professionally exposed to toxic substances,
- residents of large cities (car exhaust fumes),
- people more heavily exposed to solar radiation (UV rays).

Among the regions with a pronounced selenium deficit are:[835]

- Germany (demonstrated without objection in 1987 by Prof. Dr. Hartfiel of the University of Bonn)
- Austria
- Switzerland
- England
- Scotland
- Canada
- Scandinavia

[835] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 26



- Australia
- New Zealand
- Parts of China
- Japan
- Parts of South America
- The East and Northwest of the United States

In contrast, selenium-rich regions with a selenium surplus are:[836]

- Western United States
- Venezuela
- Colombia
- Ireland
- Israel
- Parts of China

The selenium deficit resulting from this, among other things, is visually reflected in the form of thin hair or nail changes (white spots under the nails). Much more serious, of course, are the simultaneously occurring changes in the interior of our bodies, which only manifest themselves with the outbreak of an

[836] Hademar Bankhofer: BIO-SELEN, natürlicher Schutz für unser Immunsystem ('BIO-SELENIUM, Natural Defence for Our Immune System'), 5th Edition, July 1998, p. 26



illness, often many years later.

Selenium intake

Because selenium is a trace element, humans do not need very much of it to remain healthy—but nevertheless require a constant amount that must be regularly administered to the body! If selenium supply remains deficient or insufficient for a long period of time, this can express itself in serious illnesses like cancer or cardiovascular disease. Selenium is constantly present in the body of a healthy person in total amounts of 16-20 mg and is located in:

- Thyroid gland
- Kidneys
- Hearts
- Testes
- Prostate
- Sexual glands
- Blood plasma

Experts recommend a daily administration of 100-250 micrograms. Here it is important that selenium is consumed daily with food and/or as a dietary supplement, as it is constantly consumed.

A supplementary intake of selenium is especially recommended for persons



over 40.

Many researchers support the following regimen:

Selenium intake for the prevention of illness:

- Adults: 50–200 μg/day
- Adolescents: 100–200 μg/day
- Children: 50 μg/day

Selenium intake during illness

A therapeutic dose can amount to up to 1000 μg/day and should be cleared with an alternative practitioner or a knowledgeable therapist.

A blood test six to eight weeks before the start of selenium intake can provide useful information for further dosing.



Supplementary information on dietary supplements

What is a suitable selenium product?

Most alternative practitioners and naturopathic physicians agree that humans can hardly meet their actual selenium requirements in a natural way (via food), which studies of blood tests demonstrate perfectly. We therefore recommend, especially for persons over 40 and high-risk groups, those with weak immune systems and at risk of cancer, supplementing the natural diet with a good selenium preparation.

Bio-selenium vs. sodium selenite

Many experts recommend the consumption of organic selenium, so-called 'bio-selenium', as the absorption of nutrients by our bodies naturally takes place most efficiently via organic sources, as a general rule.

Presently, though, the majority of voices disagree; they are of the belief that the inorganic form of selenium, sodium selenite, can be best absorbed by the body.

This has been used successfully in the treatment of many illnesses and seems to be the more modern variant which has proven itself best—especially in the treatment of the following illnesses: More on this topic in the section 'Selenium products'.



Selenium – the products

First, we must fundamentally distinguish the two categories 'organically bonded selenium' and 'inorganically bonded selenium'.

Organically bonded selenium

Organically bonded selenium is bonded to either (selenium) yeast or to the amino acids of (seleno)methionine and/or (seleno)cysteine. While selenomethionine is constantly modified in the body and can lead to an accumulation of selenium in the body, selenocysteine forms no such accumulation and cannot, therefore, cause an overdose, in contrast to selenomethionine. Selenium yeast in turn has the disadvantage that the products do not contain a standardised amount of selenium, as this cannot be influenced during production. An exact dose appears difficult here.

Inorganically bonded selenium

Inorganically bonded selenium is mostly bonded to sodium in the form of sodium selenite. It is claimed that this can be absorbed and utilised in the body more quickly. The amounts of selenium contained in it are strictly defined, which makes this form of selenium the preferred substance in the treatment of illnesses. Any surplus is eliminated from the body. IMPORTANT: Sodium selenite should always be taken with a delay (at least an hour) after consuming vitamin C, as vitamin C inhibits the uptake of sodium selenite!

Should I expect side effects from selenium?



As with everything, the following applies in the case of selenium: The dose makes the poison! A potential selenium overdose can manifest itself in the following symptoms:[837]

- nausea, vomiting, stomach pain,
- digestion problems,
- strong bad breath after garlic or radish,
- strong smell in the armpits,
- fatigue,
- headaches,
- irritability,
- runny nose, hoarseness,
- skin rashes
- hair loss,
- soft nails,
- weight loss,
- Caries,
- gingivitis.

[837] Prof. Dr. Josef Beuth and Dr. Verena Drebing: Selen gegen Krebs – Unterstützung in der Tumorprävention und –therapie ('Selenium against Cancer – Support in the Prevention and Treatment of Cancer'), TRIAS-Verlag 2006, p. 46



Overdosing on selenium is extremely rare in our region of the world; the following intake amounts are considered tolerable for selenium:[838]

AGE	**Selenium consumption per day**
1–3	60
4–6	90
7–10	130
11–14	200
15–17	250
Adults (incl. pregnant woman and infants)	300

[838] Heinzow B. und Oster O: Metalle und Metalloide: Selen. ('Metals and Metalloids: Selenium.') Praktische Umweltmedizin, Springer Verlag 2004



Things to know at the beginning

Silicon is among the oldest elements on our planet and has existed since Earth came into being. In nature, silicon never appears in a pure form, but only in combination with oxygen as silicon dioxide.

The combination of silicon and water is in turn called 'silica'.

After oxygen, silicon is the most common element on our planet and belongs to the category of minerals. It is one of 104 elements of which our Earth is composed. It is above all abundantly present in stone, for example in granite, quartz, sandstone and slate.

Amazingly, thorough research of these nutrients, so important for our health and lives, was relatively late. In the case of trace elements, which are present in our bodies in only tiny amounts, it can take decades until they earn the attention which they have long since deserved.

This fate was also shared by the trace element 'silicon'. While, as early as before the Second World War, some individual scientific treatises by dedicated scientists praised silicon to the skies as a natural remedy, it would take until 1972 before the presence of silicon in the human body was recognised as 'necessary for life' and silicon was given the predicate 'essential'.



For botanists (plant experts), however, silicon was already at the centre of attention in the 19th century. Research into the reasons why certain wafer-thin plants like horsetail demonstrate an incredible stability in their support functions and structure and, moreover, enjoy a tenacious integrity led straightaway to silicon as their most important component, and as it turned out...

...the more silicon these plants have, the healthier and more stable they are!

Should this principle also apply to higher life forms? Maybe for humans, too? That would be a substantial breakthrough in medicine!

The feather of a bird, for example, light and yet stable at the same time, is composed of 70 % silicon, and silicon apparently plays a role wherever stable yet elastic structures are required.

Take the human body: the need for stable and simultaneously elastic elements is very high. Thus our entire blood vessel system, which has a total length of around 100,000 km (including capillaries), consists in our younger years of an elastic and simultaneously stable structure. The entirety of our bodily tissue, the skin, the tendons and ligaments as well as the joint cartilage, need to endure these simultaneous demands for elasticity and firmness. An indispensable nutrient, so that these bodily tissues remain this way for our whole lives, is silicon, and the scientist Hugo Schulz is among the first to have recognised that there is no human tissue which is without silicon and—thus—is not dependent on silicon!

The fact that silicon is present in our bodies only in a low total amount of



about 7 g is the reason for silica's classification among the so-called trace elements, just like iron, zinc, copper, chrome, fluoride, iodine or selenium.

Many years passed before the importance of silicon was also acknowledged in medical circles. Maybe the reason for this is that trace elements are present in such minimal amounts in the body that one does not straightaway want to ascribe to them the degree of potential that the potential of silicon represents. This is a major mistake, knowing as we have for quite some time now the essential functions of, for example, the trace element iron.

While, as early as 1878, the famous French chemist and bacteriologist Louis Pasteur prophesied a major role for silicon in healthcare, it was the development of silicon gel (also known as 'silicea') by Dr. Becker after the Second World War that first led to the groundbreaking development in the use of and treatment with silicon. Fascinated by the healing properties of the element as described in the scientific media, Dr. Becker laid an emphasis on developing a silicon product that would enable as efficient an absorption in the body as possible and that could be used both internally and externally. A watery, gel-like solution was to fulfil these criteria. Silicon gel is to this day considered one of the most effective silicon products. But it would take even longer until the potential of silicon could be classified in a scientifically clear way, because, among other reasons, the studies in the early years were distorted by the use of glass test tubes; glass is, of course, made of silicon. Later objective experiments with materials containing no glass and thus no silicon revealed amazing things and ascribed important tasks to silicon and/or silica, for example:



- cell metabolism,
- cell development,
- development and reinforcement of the connective tissue,
- strengthening of our immune systems and
- the elasticity of our blood vessels.

Not least, silicon was classified as anti-inflammatory and disinfecting.

Further scientific studies confirmed that silicon is an essential element, necessary for life, even comparable to vitamin C! This is emphasised by the fact that silicon accomplishes important processes within our bodies which are exclusively possible in the presence of silicon.

If we grasp the above-mentioned influence of silicon on cell regeneration, the strengthening of the immune system, the reinforcement of the connective tissue and the elasticity of our blood vessels, we have a nutrient that demonstrates potential for preventing countless illnesses, healing these illnesses and efficiently counteracting ageing processes.

It is well-known that the tribe of the Hunzas, a people in the Himalayas, drink glacier water enriched with silicon. The average age of these people is an amazing 130 years with optimal health!

Silicon is also the only known substance which has the ability to bind itself to 300 times its weight in water. The healthy functioning of our cells is directly related to water-binding ability, which enables an adequate supply of nutrients



and functioning metabolic processes.

We are familiar with the degrading development of the human body from older people, whose skin becomes wrinkly in old age due to loss of fluids and therefore the loss of silicon that accompanies age.

Newborns have the highest proportion of body fluids. Over the course of life, the ratio of fluids to dry mass in our bodies decreases more and more.

Via the supplementation of silicon as a substance produced by the body itself, which has the ability to bind itself to 300 times its weight in water, a resource is available to humans to significantly delay biological ageing and to remain healthy and attractive into old age. So silicon is a nutrient that simultaneously makes you healthy, attractive and young? That's exactly right, and not too long ago, science would have never considered such mechanisms possible. Enough reason, then, to more closely examine this very special element as a wonderful gift from Mother Nature!

Did you know that

- ... silicon is a recognised essential element (necessary for life)?
- ... silicon directly strengthens our immune systems and, in this way, effectively protects our health?
- ... silicon activates cell metabolism, renews our cells and thus causes a biological rejuvenation of our bodies?
- ... silicon strengthens and regenerates our connective tissue?



- ... wrinkles, cellulitis etc. can be combated both internally and externally with silicon?
- ... silicon can repair split ends and brittle fingernails and can make the skin wrinkle-free again?
- ... silicon keeps our blood vessels elastic and can make brittle blood vessels elastic again?
- ... silicon can even partially reverse atherosclerosis (hardening of the arteries)?
- ... silicon (silica) can strengthen our bones?
- ... silicon keeps our joints young and can even partially reverse arthrosis?
- ...our bodies begin to break down silicon as early as age 10, even if this process only become visible at 35 years of age?
- ... silicon is the only substance that can bind 300 times the amount of water to itself and can cause wrinkles to disappear naturally in a few weeks?
- ... silica (silicon) can not only put the brakes on all ageing processes, it has been proven to reverse them?
- ... silicon also disinfects and is anti-inflammatory?
- ... silicon, due to these abilities, can make people attractive and healthy and at the same time substantially lengthen lifespan?



- ...around 80 % of all people suffer from a silicon deficit and unnecessarily age, become sick and lose the flush of youth?
- ...only very few doctors know about these findings due to the young state of silicon research?

Studies on silicon

Silicon rejuvenates blood vessels and counteracts atherosclerosis

In one study, blood vessels were rejuvenated with colloidal silicon. The protein of the vessels walls was rejuvenated, which led to a reduction of blood pressure and the proliferation of lymphocytes and phagocytes.[839] Other studies on rabbits also showed a decline in atheroma lesions after supplementation of the diet with silicon.[840]

In studies, silicon rejuvenates the skin

Researchers noticed a significant decrease in wrinkle depth in 100 women who were treated three times per day with silicon gel for three weeks. Regardless of which skin locations were treated, 40 % of the treated women still showed a lasting effect in the next six months, and 35 % of the subjects after one year.

Significant rejuvenation of the skin in animal studies

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[839] Gohr and Scholl (Dr. Kobbe: Sklerosol)

[840] Loeper et al.: Atherosclerosis, 1979, 33, pp. 397-408.



Researchers wanted to investigate the structural changes to the skin of hairless mice with the use of silicon. For this purpose, they subjected the skin of six-month-old mice to a comparison with the skin of 17-month-old mice. The 17-month-old mice were administered silicon daily, starting at the age of 12 months (on five days of the week). In these mice, a restructuring of the collagen and elastin fibres set in, while the interfibrillar spaces and the strength of the dermis remained unchanged despite chronological ageing. The structure of the dermis corresponded to the skins of the six-month-old, untreated mice.

Rejuvenation mechanisms demonstrated in further studies

It is to the two scientists K. Letters and O. Scholl that we owe the knowledge that the primary process of ageing can be ascribed to dehydration, the drying out of the body's cells. The consequence of this dehydration is the demacerating of protein, which causes the flocculation and coagulation of the body's own protein. In 1949, the scientists Scholl and Gobor were able to delay and even ultimately reverse these ageing processes in human tissue with 1 % dissolvable silicon. The silicon content of the blood rose over several weeks, all the way to 400 %.

Silicon (silica) strengthens hair structure and makes the hair significantly thicker

In a study on 55 women with thin hair at the University Clinic of Hamburg-Eppendorf, the research team of Prof. Dr. Matthias Augustin demonstrated an average hair thickening of 13 % after six months of daily intake of silicon gel



(1 tsp/day). This thickening of the hair was reflected in a visible increase in volume and radiant health. It was also stated: *'It can be assumed that an extended intake of silicon gel leads to further strengthening of the hair'*.

The scientists described the increase in hair volume as a *'highly significant improvement'* and the director of the study believed that the conclusion was that silicon gel can, while considering the benefit-risk profile, be used without restriction for the effective treatment of thin hair.

Another experiment, this time at the Karlsruhe Skin Clinic, even showed an increase in hair thickness of 16 % after six months. By means of a special evaluation scale, the subjects judged the quality of their hair to have improved by 30 %.

Silicon helps with insomnia, tinnitus and dizziness

In human experiments, the scientist H. Gohr remedied insomnia, tinnitus and dizzy spells with a daily administration of 30 ml of silicon.

Silicon helps with osteoporosis

In studies, silicon consolidates bone structure and thus helps against osteoporosis.[841]

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[841] Eisinger und Clairet, 1993, Magnesium Research, 6, pp. 247-249.



Silicon decreases blood pressure values in studies

K. Kohler was able to decrease the systolic blood pressure of three patients from 240 to 160 mmHg with colloidal silicon.

Silicon protects against Alzheimer's

It is presumed that aluminium poisoning is the cause of Alzheimer's. Silicon protects the brain from aluminium poisoning.[842]

In another study led by the researcher Sophie Gillette-Guyonnet, the data of a large long-term French experiment with over 7,500 participants in total over 75 years was evaluated.

The researchers reached the conclusion that women with good to very good intellectual ability absorbed approx. 10 % more silica than those with inferior cognitive function.

Silicon gel counteracts gum bleeding and caries

In a study on 43 patients with gum inflammation, the silicon researcher Kober substantially reduced gum inflammation and caries with a silicon toothpaste after four to five days.[843]

Silicon and silica – the effect

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[842] Carlisle und Curran, 1987, Alzheimer's Disease and Associated Disorders, 1, pp. 83-89.

[843] Klaus Kaufmann: Silicium – Heilung durch Ursubstanz, ('Silicon – Healing by Original Substance'), January 1997, p. 48



The range of effects of silicon and/or silica is enormously broad. This is no wonder when we realise that silicon is present in almost all of our organs and that our organs can only fulfil their functions when they are administered a daily amount of 20-30 mg of silicic acid.

General effects of silicon/silica on our bodies

- Strengthening of the immune system,
- involvement in cell formation and activation of cell metabolism,
- development and reinforcement of the connective tissue,
- maintaining and increasing the elasticity of blood vessels as well as strengthening them,
- inhibition of the ageing process in human body tissue,
- disinfectant,
- anti-inflammatory.

Strengthening of the immune system

The immune system is a biological defence system in our bodies with the task of preventing tissue damage due to pathogens.

In this process, the immune system acts against intruding microorganisms like bacteria, viruses and fungi, but also has the function of removing foreign sub-



stances and also destroying the body's own mutated cells. Whenever the immune system is attacked, we become susceptible to all variety of illnesses. Conversely, illness can only be tackled with the help of a strong immune system.

Effect of silicon on immune system

The immune system-strengthening effect of silicon is based on several mechanisms: For one, it strengthens the body's own defence cells and stimulates the reproduction of lymphocytes (white blood cells) and phagocytes in the spleen and lymphatic system, which is to say the scavenger cells which fight, for example, against carcinomas and sarcomas and thus against cancer. On the other hand, it binds harmful substances and in doing so directly supports the immune system in its work.

Cell formation and cell metabolism

Silicon is an elementary component of every cell and has been proven to activate cell metabolism as well as cell formation.

Formation and strengthening of skin and connective tissue

Our connective tissues, i.e. skin, tendons, ligaments, joints and spinal discs, are composed of protein molecules; connective tissue in fact makes up the majority of our bodies. Silicon is an important component of our connective tissue. It is located in both the fluid base substance and the individual protein fibres



of the connective tissue and it activates the metabolism of our connective tissue and stabilises it. Silicon is known to be a 'bridge element' for the four constituent macromolecules in the connective tissue of our skin. It gives the skin its mechanical properties. Silicon reorganises our skin structure by causing a volume increase to the skin recesses between the glycoproteins via siloxane bonds.

While we generally associate connective tissue weakness with external factors like wrinkled skin, cellulitis or varicose veins, the inner damage due to weak connective tissue is omnipresent and thus notably greater. Among these conditions are hardening of the arteries, joint pain, bronchial problems and much more.

Silicon/silica enables rejuvenation of the skin and connective tissue

Experiments have shown that silicon can not only slow the ageing process, it can even enable rejuvenation! With the regular consumption of silica, even at an advanced age, you can not only slow further ageing—you can also rejuvenate your skin in a way that is visible to everyone.

The skin contains sugar components that bond with protein and form a net that enables the skin to preserve water. The ability to bind this water to itself is supported by hyaluronic acid and especially by silicon. This ability keeps our skin young and wrinkle-free, while silicon content continually decreases with age and the skin becomes old and wrinkly. Silicon can rejuvenate the skin from both inside and outside—via oral intake and the application of silicon gel to



the skin. In this way, you more quickly achieve a visible effect.

From a biological point of view, silicon bonds to 300 times its weight in water, reactivates cell metabolism in the connective tissue and stimulates cell division. This results in new cell growth and the replacement (rejection) of aged cells, which equates to true rejuvenation in the form of the reversal of ageing symptoms, something unknown to science just a few years ago!

Maintenance and increase of blood vessel elasticity

Our blood vessels are elastic rather than rigid in order to transport the blood pumped jerkily from our heart to all locations of activity. But this is only true in our younger years, because, as early as our adolescence, calcium and cholesterol accumulate on the inner walls of our blood vessels, which gradually become rigid and brittle.

In this way, the efficiency of blood transport, and thus the transport of nutrients and oxygen to all of our organs and cells, severely declines. What's worst is that the debris thickens and narrows our blood vessels: This is called atherosclerosis. A heart attack, namely when a sufficient amount of oxygen cannot be transported to the heart, and a stroke, when oxygen transport to the brain is stopped by this restriction, represent the final stage of this pathological development.

Is it a matter of fate? Not at all! A healthy diet can halt this development at an early stage. This requires a sufficient supply of silicon (silica). Silicon has the



extraordinary ability not only to keep our blood vessels elastic, but also to restore elasticity to them.

Anabolic effect

Silicon is also said to have an anabolic, i.e. tissue-building effect. This is something that should appeal to power athletes and bodybuilders in particular, as it is a natural substance and thus a legal, natural means of doping.

And the following should also be of interest to athletes:

Silicon helps prevent muscular injuries

The silicon researcher Robert A. Anderson points out that muscular injuries only occur in athletes who suffer from severe silicon deficiency. Those who have sufficient silicon in their tissue, however, are spared from such injuries.

Anti-inflammatory effect

It has been found that people who are prone to any kind of inflammation almost always suffer from silicon deficiency. Internal and external use of silicon (absorbed through the stomach or applied in the form of gel) helps to heal or prevent such inflammation.

Disinfecting effect

Silicon is also believed to have a slight disinfecting effect, which is why it shows



successful effects when applied externally for skin diseases and fungi. From these general, very wide-ranging effects, specific effects arise on the following physical ills and diseases:

Specific effect of silicon/silica

- Atherosclerosis (vascular calcification)
- High blood pressure
- Arthrosis
- Arthritis
- Abscesses
- Varicose veins
- Immunodeficiency
- Inflammation
- Osteoporosis
- Bone fracture
- Brittle nails
- Wrinkled skin
- Skin diseases
- Skin damage



- Blemishes/acne
- Erythema
- Neurodermatitis
- Skin rash
- Itching
- Warts
- Sunburn
- Burns
- Insect bites
- Premenstrual syndrome (PMS)
- Cough
- Haemorrhoids
- Fragile, split hair
- Hair loss
- Respiratory problems
- Memory impairment
- Poor concentration
- Night sweats
- Cold



- Inefficiency
- Fatigue
- Enamel problems
- Caries
- Allergies
- Lung and bronchial problems
- Sleep disorders
- Increased sensitivity
- Diarrhoea
- Intestinal disorders
- Flatulence
- Congestion
- Stomach disease
- Stomach pain
- Heartburn
- Bleeding gums
- Gum inflammation
- Gum disease
- Dizziness



- Tonsillitis
- Muscle strain
- Ligament strain
- Pulled tendon
- Sprains
- Tendonitis
- Hernia
- Ulcers
- Cellulitis
- Ringing in the ears
- Headaches
- Cancer

Silicon/silica – the products

The importance of a substance for the human organism can be deduced, among other things, from the frequency of its occurrence in our body. Silicon is in all types of tissue in our body.

Today's food also provides fewer and fewer nutrients due to industrial processing, artificial fertiliser methods, growth promoters, long-term storage and



environmental factors. So it makes a lot of sense to resort to using silicon supplements for prevention and cure and supplement these with external applications for certain indications. Although the concentration of silicon in our tissue steadily decreases with age, studies suggest that this concentration may be increased by additional external application.[844]

Internal application of silicon/silica

For internal applications, silicon/silica is taken orally.

Silicon products for internal application

The following silicon products for ingestion are commercially available:

- Silicon gel
- Effervescent tablets
- Mineral clay (healing clay or green clay)
- Silicon clay
- Silicon capsules
- Chewable silicon tablets
- Silicon powder

[844] Schiano A. et al .: Silicon, tissue osseux et immunité. Revue du Rhumatisme 1979, 46, pp. 483-486.



- Silicon drops
- Silicon cough drops
- Silicon mouthwash

Silicon products for external application

The following silicon products are available for external application:

- Silicon gel
- Silicon balsam
- Silicon cream
- Silicon jelly
- Silicon facial mask
- Silicon shampoo
- Silicon hair conditioner
- Silicon hair treatment
- Silicon toothpaste (often with healing clay)
- Silicon hand cream
- Silicon cleansing cream
- Silicon peeling cream
- Silicon face tonic



- Silicon skin oil

Silicon for beauty

The regular oral intake of silicon preparations strengthens our body cells. The effect always occurs from the inside out, which is why the optical changes are only visible over time. After several weeks of regular use, hair texture improves and the skin becomes smoother, the fingernails and toenails also become firmer.

This development begins immediately, but only becomes visible after weeks of regular intake. Depending on the tissue shape and individual cell renewal, it takes about three to six months until these beautifying mechanisms become visible. Skin renewal takes 28 days, hair grows very slowly at 1 cm per month, and a nail completely renews itself after around five to six months.

An application period of six months is recommended, especially for first use; thereafter, it is usually sufficient to perform a three-month silicon treatment two to three times a year to keep the silicon content in the organism sufficiently high.

In addition to taking silicon internally, creating silicon gel masks is highly recommended for skin renewal. To make this, dilute the silicon gel with a little water and rub this on the skin. After a reaction time of about half an hour,



wash the mask off with water.

Silicon for health

As the outer attributes of beauty gradually become visible, we are undergoing internal changes in parallel to these which positively affect our health.

First and foremost, positive changes to the so-called degenerative manifestations should be mentioned here. These include atherosclerosis, the calcification of the blood vessels, which leads to cardiovascular degeneration and causes 50 % of all deaths in industrialised countries, then arthrosis and arthritis, i.e. cartilage wear both in the presence and absence of arthritis, osteoporosis, as well as gastrointestinal problems, skin diseases and all diseases that are caused by inflammation or a weak immune system.

Ability of the body to absorb silicon

The prerequisite for the optimal uptake of silicon is the colloidal form. The 'colloidal form' refers to a size of the silicon particles which is only an order of magnitude higher than an atom. This is very small. The smallest colloidal particles easily penetrate the intestine to be then taken up in the blood and transported to the target site. For comparison, the size of silicon particles present in silica is 1,800 times greater than the silicon particles colloidally present in the silicon gel.



Silicon deficiency is due to human behaviour

According to Prof. Dr. Karl Hecht, a dedicated silicon researcher, about 80 % of the world's population suffers from silicon deficiency. Before man rejected nature and made the previously organic farmland virtually free of minerals with artificial fertilisers, nature could help people through plants. Since the body cannot absorb crystalline substances, plants have taken on this task for us humans by taking the crystals from the earth via their roots and transforming the crystalline form into the amorphous form with the help of microorganisms.

We were thus granted vegetable food to obtain the precious silicon in usable form. Since the soils have lost most of their minerals, a natural diet is no longer sufficient to meet the silicon demand without supplements.

In addition, modern food processing has led to the removal of nutrient-rich components from food, which are no longer available to the consumer. For example, ground flour contains only 2 % of the original silicon content, which is what makes modern flour beautifully white. Peeled grain also loses 98 % of silicon.



Which silicon sources are suitable?

Colloidal silicon gel

Those who want to play it safe should resort to silicon gel, which is colloidal and can be optimally absorbed by our organism.

The bioavailability of silicon is highest in the form of colloidal silicon gel. The active particles of silicon gel are about 1,800 times smaller than those of silica and can therefore pass through the intestinal wall much more efficiently.

In studies, up to 90 % of silicon gel could be absorbed and it was proven to have by far the best absorption capacity by our organism.

Even small-grained silicon products cannot match silicon gel, neither in terms of effect nor in terms of price-performance ratio.

Silicon gel can do even more, because unlike other silicon products, it can be applied very successfully both internally and externally. And this is where silicon gel shows its full potential.



Silicon gel

- smoothens wrinkles from the outside,
- fights cellulite,
- treats eczema, rashes,
- relieves itching,
- heals burns,
- relieves sunburn,
- helps with insect bites,
- relieves inflammation,
- binds wound secretions and
- helps wounds to heal faster.

Furthermore, plant-based products are suitable

100 g of horse tail contains 2,200-5,400 mg of silicon,

100 g of hemp nettle contains 2,680 mg of silicon and

100 g of couch grass contains 210-840 mg of silicon.

Silicon in mineral water

Certain waters also contain plenty of silicon. Silicate distributions in mineral



waters containing silicon contain between 70 mg and 400 mg/litre. This can be explained by the rocks and sand through which the water sources flow and absorb the silicon in colloidal form.

Silicon content in mineral water

Mariánské Lázně forest spring = 400 mg/l

Baden-Baden spring = 155 mg/l

Wilhelm spring = 100 mg/l

Dunaris spring water = 80 mg/l

Glashäger healing water = 70 mg/l

Teinacher Hirschquelle spring = 70 mg/l

Silicon in healing clay

Even in non-colloidal form, silicon seems to be effective in corresponding amounts. Thus, scientists are largely agreed that healing clay owes its healing effect to the high proportion of about 58 %-65 % of (non-colloidal) silicon. Healing clay can do even more: It binds toxins in the intestine and excretes them out of the body.

However, since the effect of the healing clay cannot be attributed to silicon with 100 % certainty and the exact amount of silicon absorbed by our body cannot be measured with the healing clay, you should supplement your intake



with some silicon gel in case of doubt.

Specific effect on diseases and conditions

Effect of silicon on intestinal disorders, diarrhoea, constipation, flatulence and abdominal pain

Silicon and silica have the ability to bind inflammatory secretions as well as toxins and waste in the intestine. The extreme ability to bind here is comparable its ability to bind water, i.e. 300 times its own weight. Furthermore, silicon has a disinfecting effect. In this way, most causes of intestinal problems, diarrhoea, constipation, flatulence and abdominal pain are naturally counteracted and prevented with long-term intake of silica.

Application: take up to 1 tablespoon per hour of lightly diluted silica gel until the symptoms resolve themselves.

Effect of silica (silicon) on inflammation

Many naturopaths see inflammation itself as the origin of every disease; the role of silica, which has anti-inflammatory effects on all sorts of diseases, therefore, seems all the more relevant.

Silicon can be applied internally (as a silicon gel, healing clay, etc.) and externally, and has been proven to be effective against many inflammatory processes, from tonsillitis to possible dermatitis. The anti-inflammatory effect is



due to the binding of inflammatory secretions and the simultaneous production of lymphocytes and phagocytes.

Effect of silicon on connective tissue

Not only are the skin, tendons, ligaments, cartilage and intervertebral discs regarded as connective tissue, but also internal components of our organs.

Silicon is present in varying amounts in all human tissue forms and as part of our connective tissue, both in the liquid matrix and in the individual protein fibres. It activates cell metabolism, strengthens it and thus prevents skin wrinkles, cellulitis, varicose veins, atherosclerosis, joint wear and respiratory problems.

Application: 1 tablespoon of silicon gel daily; for wrinkles, varicose veins and haemorrhoids, we recommend the external local application of diluted silicon gel.

Effect of silicon on cellulite

Several reasons are provided for cellulitis. Among other things, it is believed that acidity from an unhealthy diet and environmental factors or stress lead to cellulitis, deposited in adipose tissue in the form of waste.

However, cellulite undoubtedly arises because of weak connective tissue, namely when fat cells clump together. The most important measures in the fight against cellulitis are therefore deacidification, purification and strengthening of the connective tissue.



Application: take 1 tablespoon of silicon gel daily, in addition, apply diluted silicon gel externally locally to the cellulite tissue.

Effect of silicon on blemishes and acne

Both the internal and external application of silicon are proven measures against acne and any skin blemishes and inflammatory processes. Silicon helps to detoxify the intestine and purify the connective tissue internally, disinfect it externally, allow the skin to reduce in size and heal without scarring.

Application: take 1-3 tablespoons of silicon gel per day, apply externally undiluted on the affected skin and allow to work in for about ten minutes before washing it with lukewarm water.

Effect of silicon on warts

Silicon strengthens our immune system and thus acts against wart-causing parasites. Applied externally, it supports the healing process.

Application: take 1-3 tablespoons of silicon gel per day, apply externally undiluted on the affected skin and allow to work in for about ten minutes before washing it with lukewarm water.



Effect of silicon on skin injuries and cuts

Silicon, applied externally as a gel, has also been proven to combat skin injuries and cuts. Here, silicon acts as a disinfectant, absorbs the tissue fluid, counteracts inflammation and promotes wound closure by promoting cell renewal. In gel form, silicon stops small wounds from bleeding by stretching a kind of protective layer over the wound.

Application: for this purpose, after the wound is washed with water, the silicon gel is applied undiluted and the wound is covered with a plaster or bandage.

Effect on insect bites

Silicon helps with insect bites by first disinfecting them when they occur, then absorbs the secretion, counteracts inflammation and closes the wound faster. Silicon gel is best for this.

Application: Apply silicon gel undiluted several times a day.



Effect of silica on brittle nails

As well as skin problems and split hair, silica has also proven its worth against brittle nails. Silicon creates cross-connections between the keratin-protein building blocks and thus strengthens the nail structure; the nails become firmer. Furthermore, silicon/silica improves the metabolism of connective tissue, which is also crucial for healthy, firm fingernails and toenails. According to scientific studies, 80 % of study participants demonstrated greater stability, structure and appearance after 24 weeks of silicon gel therapy.[845]

Application: one tablespoon of silicon gel daily

Effect of silicon on gastrointestinal diseases, gastritis, diarrhoea, etc.

For gastrointestinal diseases, gastritis, diarrhoea, etc., silicon is used internally, for example in the form of silicon gel, silica or healing clay (contains about 50 % silicon). The silica spreads over a large area in the stomach, buffers the excess stomach acid, binds toxins, pathogens and gases (the latter helps combat flatulence!) and counteracts inflammation by eliminating the inflammatory agents and binding inflammatory secretions. Due to the enormous binding ability of the silica particles contained in the gel, the pathogens are bound in a purely physical way and lose their unpleasant effect.

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[845] Dr. Jürgen Weihofen: Heilwunder Silicium ('The Healing Miracle of Silicon'), 1st Edition 2003, p. 72



Application: take up to one tablespoon of silicon gel every hour until the symptoms subside.

Effect of silicon on premenstrual syndrome

Diluted in water in a ratio of 1:4, silicon also helps with premenstrual syndrome, before and during menstruation. Here, silica (silicon) has a positive effect on cell metabolism, cell renewal and the cell tissue to be repelled while relieving pain at the same time.

Application: 3 teaspoons of silica, healing clay or silicon gel per day.

Silicon and HIV/AIDS

Due to the ability of silicon to strengthen the immune system and stimulate the production of phagocytes, many scientists consider silicon to be potentially effective in the fight against AIDS. Specifically, the power of silicon can help prevent the onset of AIDS in HIV-infected people.

Effect of silicon on arteriosclerosis

The effect of silicon on arteriosclerosis (also commonly referred to as 'hardening of the arteries') is becoming increasingly important, bearing in mind that around 50 % of all deaths can be attributed to cardiovascular disease, which is due to atherosclerosis in almost all cases. The heart pumps blood in a jerky manner via the heartbeat. However, to ensure that it can be transported fluently and evenly to the target organs, our blood vessels are elastic at a young age. However, as early as in adolescence, the structure of our blood vessels



changes because calcium and cholesterol adhere to the inner walls of the arteries and gradually make the previously elastic blood vessels rigid and brittle.

Not only does the efficiency of the transport of oxygen and nutrients decline, the deposits also condense and constrict our blood vessels more and more.

If this happens in the arteries that lead to the heart and if sufficient oxygen can no longer be transported to the heart, this results in a heart attack. On the other hand, if it affects the cerebral arteries, it results in a stroke.

French researchers have shown in 72 adults aged 60+ that atherosclerotic arteries contain 14 times less silicon than healthy ones, which is a clear indication of the deficiency of a crucial nutrient!

A regular supply of silicon not only keeps blood vessels elastic, but studies have even shown that silicon can even make the blood vessels more elastic again to a certain extent. This is done by the silicon depleting the inner lining of the intima, thus 'absorbing' the deposits.



Effect of silicon against high blood pressure

As we have already discussed, the heart pumps blood through our blood vessels. However, in order to freely reach our organs, the heart needs our blood vessels to compensate for the impulsive pumping, and this is only possible if the blood vessels are elastic.

Unfortunately, calcium and cholesterol accumulate over the course of our lives, making the blood vessels rigid and brittle. Since the blood vessels can no longer yield elastically, the blood pressure must be increased so that the blood can continue to be transported to the destination.

Silicon now has the ability to drain the blood vessels and make them elastic again. The blood can be pumped again with less resistance, and the blood pressure is brought back to a normal level.

Effect of silica (silicon) against heartburn

Silica has a basic effect on our acid-base balance, buffers excess gastric acid and spreads a kind of protective coating over the stomach which covers a large area of the entire stomach surface.

Application: 1-3 tablespoons silicon gel a day



Effect of silica (silicon) on colds

Silica relieves the irritation of the throat, disinfects the throat and has anti-inflammatory and decongestant properties.

Application: here, gargling with silicon gel (dilute 1 teaspoon of silicon gel in ¼ glass of lukewarm water) and then swallowing the mixture is recommended. Thus, silicon or silica act both internally and externally.

Effect of silicon on muscle strain

You can buy silicon gel pads to reduce swelling. In addition, the internal intake of silica promotes the healing process.

Application: dilute silicon gel for the pads and take 3 teaspoons of healing clay across the day.

Effect of silicon on sprains

Moist silicon pads can reduce swelling in the case of sprains. Here, too, an additional internal intake of silica supports the process.

Application: silicon gel diluted with water in the ratio of 1:4 for the pads and internal intake of 3 teaspoons of healing clay distributed across the day.



Effect of silicon against tendonitis

For tendonitis, both external and internal application is recommended. Silicon has an anti-inflammatory effect on the inside as well as on the outside, accelerating the healing process.

Application: the affected area is rubbed with silicon gel and supported with a stiff dressing. In addition, 3 tablespoons of silicon per day are recommended for oral administration.

Effect of silicon on night sweats

At the same time, people suffering from night sweats suffer from a lack of silicon. This can be prevented by regular use of silicon preparations.

Application: 3 teaspoons of healing clay, silicon gel or silica daily.

Effect of silicon against allergies

Since allergens are often absorbed through the skin and mucous membranes, the firmness and elasticity of the skin, which are associated with the intake of silicon, can successfully defy them.

However, allergies are also often due to disrupted intestinal flora which can regenerate silicon. In this case, silicon should be applied both externally and internally.

Application: apply undiluted silicon gel; also, take 1-3 teaspoons of silicon gel in ¼ glass of water, 3 times a day.



Effect of silica on burns and sunburn

Here, too, silica (silicon) acts in multiple ways, cooling the burn, relieving pain and any itching, soothing the inflammation and thus accelerating healing.

Application: dilute silicon gel with water in a glass in a ratio of 1:4, apply several times a day or moisten a cloth and apply a bandage.

Effect of silica on migraines and headaches

A throbbing pain over one eye, accompanied by nausea, can often be attributed to silicon deficiency.

Application: take one teaspoon of silica or silicon clay 3 times a day.



Effect on arthrosis and arthritis

Silicon has an anti-inflammatory effect on the joint; it enhances the ability of the hyaline cartilage to bind water and increases its elasticity.

The connective tissue is strengthened, the cartilage can even partially regenerate, because the chondrocytes (cells in the joint capsule), which constantly regenerate the degraded cartilage in the joint throughout your life, increase their activity by 243 % in the presence of silicon! This quickly results in significant pain reduction and increased mobility.

Silicon therefore has a positive influence on the structural strength of collagenous cartilage and its metabolism.

Application: dilute 1-3 tablespoons silicon gel in water daily.

Effect of silicon on gum inflammation

Gum inflammation is caused by tartar, impurities in dentures and poorly fitting fillings and crowns.

Silicone gel mouthwashes can help relieve inflammation, reduce swelling and can stop bleeding gums. Toothpastes which contain silicon are highly recommended.

Application: dilute 1 teaspoon of silicon gel in ¼ glass of water and rinse for at least one minute 3 times a day.

Effect of silicon/silica on caries and tooth enamel problems



As we know, teeth are made of calcium. Since silicon supports the incorporation of calcium, regular use can counteract caries and enamel degeneration.

Application: take 3 tablespoons of silicon a day.

Action against osteoporosis and bone loss

As we know, osteoporosis, or bone loss, is associated with calcium breakdown in the bone. Additional calcium intake is therefore recommended. Silicon has the useful property of storing calcium more efficiently in bone tissue as a so-called 'calcium trafficker'. Furthermore, the synthesis of the bone matrix is stimulated, which further improves bone compaction.

Application: one teaspoon of silicon 3 times a day.

Effect of silicon on cancer

The stimulation of phagocyte production and the development of lymphocytes makes silicon a valuable weapon in the fight against cancer. Silicon repairs the cell protein by re-enabling the synthesis of normal protein bodies, and it has the ability to normalise the dissolution of cell walls caused by carcinogens. Thus, silicon has the ability to regenerate a damaged or denatured protein through structural re-incorporation.

It also strengthens the immune system by strengthening the defence cells and also binds pollutants that may be carcinogenic. Many cancer researchers report successful treatment of carcinomas and sarcomas with silicon, including Lériche and Boncour:



'In our experience, silicon is one of the great basic drugs in the fight against cancer. It is important for change processes. It is indispensable for anyone with cancer, because it is always lacking in the ageing organism'.[846]

In this context, Klaus Kaufmann, the author of the book 'Silicon – Healing by Original Substance' mentioned the amazing fact that the Daun region has the lowest cancer rate in Western Europe. Here, he sees a connection with the Dunaris spring, where the water contains a large amount of silicon - 80 mg per litre.

Application: unless otherwise prescribed, 50 to 100 mg silicon/silica per day.

[846] Klaus Kaufmann: Silicium – Heilung durch Ursubstanz, ('Silicon – Healing by Original Substance'), January 1997, p. 54



Effect of silicon on respiratory problems (bronchial problems)

The bronchi and lobes are embedded in an elastic connective tissue. This is also located under the lung membrane and naturally contains a lot of silicon in young and healthy people. With increasing age, the proportion of silicon decreases. This can be countered by taking silicon supplements.

Application: 1 tablespoon of silicon gel daily.

Effect of silicon on sleep disorders

People who suffer from sleep disorders often suffer from silicon deficiency. Sleepwalkers and people who often suffer from nightmares also have this problem.

Application: 1 tablespoon of silicon powder or silicon clay 3 times daily

Effect of silicon on the hair

Silicon is considered one of the most important, if not THE most important nutrient for the hair.

In studies, it has been proven that the intake of silicon gel significantly improved the hair structure in 70 % of subjects after just 24 weeks. The hair was stronger, had more shine and fewer split ends.[847]

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[847] Dr. Jürgen Weihofen: Heilwunder Silicium ('The Healing Miracle of Silicon'), 1st Edition 2003, p.66



Taking 1 tablespoon of silicon gel every day for six months has produced on average up to 16 % thicker hair in studies (see 'Silicon studies').

Silicon has a dual effect here. On the one hand, it strengthens the hair structure by optimising the cross-linking within the creatine-protein building blocks of hair, on the other hand, the silicon gel goes directly from the intestine through the bloodstream into the hair root and has a positive effect on hair growth here.

Application: again, it is advisable to apply silicon internally and externally. For internal use, take 1 tablespoon silicon gel per day. Externally, after shampooing, take a fingertip-sized amount of silicon gel, dilute with a little water and rub on the wet hair. Leave briefly to work in and then rinse off.

Effect of silicon on hair loss

Hair loss is not always genetic. Very often, the hair roots lose their elasticity and become loose. Silicon can strengthen the resilience of the hair root and counteract hair loss.

Application: take 3 teaspoons of green clay (healing clay) or silicon clay per day.

Silicon as a preventative measure – prevention instead of cure!

Of course, we should not wait until the above symptoms and illnesses come into our lives and make things difficult for us. On the contrary: The tried-and-trusted motto is 'prevention is better than cure!'.



Symptoms of silicon deficiency, such as dull hair, wrinkles or brittle nails, make it urgently necessary to start a continuous silicon intake. The intelligent ones among us start with supplementation beforehand and avoid these symptoms and diseases altogether.

The principle is very simple: if we consume too little silicon through food, the body degrades the body's own silicon from our connective tissue in order to maintain vital functions. Let's get a surplus! Then, not only does our body no longer have to use its own reserves, but it can use the surplus of silicon to build up the body through restocking. Turn old into young!



Silicon for rejuvenation

Silicon slows down ageing and rejuvenates!

Ageing takes place from the inside out, which means that all of our visible features, developing wrinkles, grey hair, dull eyes, loose connective tissue, etc., are always preceded by internal, degenerative changes which, apart from the aesthetic problem, present a much more serious problem.

External attributes of ageing viewed from top to bottom:

- Grey hair
- Hair loss
- Wrinkles on the face and entire body
- Enamel reduction and tooth loss
- 'Hunchback' as a result of poor posture
- Connective tissue weakness/cellulitis
- Fat gain
- Muscle loss
- Brittle fingernails and toenails



Internal attributes of ageing:

- Visual and hearing impairment
- Senile dementia
- Cardiovascular degeneration
- Joint wear (arthrosis)
- Bone loss (osteoporosis)
- Degeneration of nerve cells
- Cell degeneration on all organs

We can influence biological ageing!

In contrast to chronological ageing, that is, the age shown in our identity card, we can strongly influence biological ageing by:

a) protecting the body from free radicals,

b) preserving the organism from the body's own acids and those from one's diet and

c) giving the body all the nutrients that our body cells need for regeneration.

Here, silicon (silica) proves to be THE all-rounder par excellence! It protects against free radicals, neutralises harmful acids, serves as a nutrient for the body's cells and promotes cell division and cell renewal. New cell growth is



achieved, the new cell tissue is enriched with silicon and can also act as a bio-catalyst and stimulate the metabolism. According to studies, the degradation of silicon in the body begins as early as the age of 10 and it becomes visible from about the age of 35.

These are mechanisms that you can not only slow down with additional silicon intake, but can even reverse to a certain extent! These mechanisms are not just about slowing down ageing, but about age-reversing processes that are completely new within gerontology (the research of ageing) and amaze scientists around the world. According to the researcher Loeper, the wall of the aorta (main artery) contains 4 times more silicon in children than in adults.

The scientists O. Scholl and K. Letters were able to prove that the main ageing process is due to dehydration, whereby the body cells dry out.

The result of this dehydration is the swelling of the protein and, as a result, flocculation and coagulation of the body's own protein.

In 1949, the scientists Scholl and Gobor succeeded in delaying the described ageing processes on human tissue with 1 % soluble silicon and subsequently reversing it.

The silicon content of the blood increased over several weeks, by up to 400 %.

Silicon strengthens our connective tissue and smoothens skin wrinkles



Skin, tendons, ligaments, cartilage and intervertebral discs consist largely of protein molecules. Silicon stimulates cell division, activates cell metabolism of our connective tissue and strengthens it.

Scientific studies confirm that silicon plays an important role in connective tissue metabolism. Through certain enzymes, it promotes the formation of the connective tissue fibres 'collagen' and 'elastin'. While elastin is responsible for the elasticity of the skin, collagen makes the skin firmer. Silicon is therefore indispensable for the synthesis of collagen and elastin fibres in connective tissue; a deficiency reduces the elasticity and strength of the connective tissue and causes wrinkles.

Here, silicon acts as a connecting element between skin elements - namely elastin and collagen fibres, the proteoglycans and glycosaminoglycans and the structural glycoproteins, which together form the three-dimensional mesh that we perceive as the outermost layer of skin.

Ageing means gradually drying out – as already mentioned, silicon binds 300 times its own weight in water and ensures that the water comes back to where it was still taken for granted at a young age: into the body tissue!



Silicon rejuvenates the skin through several mechanisms:

- By affecting the biosynthesis of elastin and collagen, skin elasticity is increased; tissue hardening resulting from lipid peroxidation and non-enzymatic glycosylation is counteracted.
- Cell metabolism is stimulated, allowing skin cells to renew faster.
- The skin stores decidedly more water (from the age of 40, the skin dries out gradually without silicon!).
- The attacking free radicals are repelled.

The cellular function of protein structures and collagens in human connective tissue as well as in muscle fibres relies on a kind of tissue swelling that particularly satisfies silicon's ability to bind several hundred times its own weight in water. A study on mice is interesting in this regard. Mice were given silicon gel five days a week for five months at 12 months of age.

Subsequently, the skin of the 17-month-old mice was compared with the untreated skin of 6-month-old mice at the end of the experiment. The results of this study were able to show that the skin's collagen and elastin fibres were rebuilt, the interfibrillar spaces were preserved and the thickness of the dermis remained the same.

The structure of the dermis corresponded to the skin of the 6-month-old mice. A proof of the rejuvenation mechanisms of silicon!

The role of vitamin C is also worth mentioning, which in combination with



silicon – and exclusively in its presence – also plays a crucial role in the regeneration and strengthening of connective tissue and skin. Both substances are true natural rejuvenation artists who need each other for the optimal enzymatic activity that these rejuvenation mechanisms accomplish.[848]

Silicon makes hair firmer and gives it new shine

Silicon stimulates the cells of the scalp and the hair root and

- strengthens the hair structure,
- prevents excessively greasy hair,
- optimises microcirculation,
- accelerates hair growth and
- prevents hair loss.

[848] Klaus Kaufmann: Silicium – Heilung durch Ursubstanz, ('Silicon – Healing by Original Substance'), January 1997, p. 41



Silicon strengthens our fingernails and toenails

Silicon is one of the structural elements occurring in nails.

- It strengthens the nail structure,
- increases the pace of growth and
- gives the nails a healthy shine.

Silicon counteracts cellulite

Silicon also has a multifactorial effect against cellulitis, in which it

- promotes collagen synthesis and strengthens the skin,
- promotes elastin synthesis and keeps the skin elastic,
- counteracts the peroxidation of the lipids,
- prevents glycation by preventing the sugar molecules from binding with collagen proteins and making their structure more rigid and
- increases the capillary resistance and lowers its permeability.



Silicon strengthens our bones

Unfortunately, ageing does not stop with external or visual changes. As most people know, bones need calcium to maintain their strength.

However, it is not enough to just take in calcium, because silicon acts as a 'calcium trafficker', allowing calcium to be stored more efficiently in bone tissue. Furthermore, silicon improves the synthesis of collagen, which improves bone compaction.

Silicon counteracts joint wear

In old age in particular, you can clearly see in the bones that it is painful to put a burden on the joints, and crunchy sounds take any joy out of movement.

Silicon can positively affect both the inflammatory form of joint wear (arthrosis) and inflammatory arthritis. For this purpose, the internal intake of silicon has a firming effect on our articular cartilage, helps it to bind more water and makes the cartilage more elastic overall. These mechanisms help cartilage to regenerate and form new cartilage cells.

In the presence of a lot of silicon, the chondrocytes, those cells within the joint capsule that constantly renew the articular cartilage, are 243 % more active. At the same time, silicon has an anti-inflammatory effect on the joint and very quickly ensures freedom from pain.



Silicon slows the ageing of blood vessels

In almost all cases, it is ultimately our blood vessels that give the clearest identification of biological ageing. When we are babies, our blood vessels are elastic and smooth like the surface of a mirror.

As early as adolescence, however, their structure changes as food components, such as calcium and cholesterol, attach themselves to the inner walls of the arteries and gradually make the previously elastic blood vessels rigid and brittle.

Moreover, the resulting atherosclerosis constricts our blood vessels and prevents the fluid transport of oxygen and nutrients to the destination organs.

If this occurs in those arteries that lead to the heart and sufficient amounts of oxygen can no longer be transported to the heart, the result is a heart attack. In contrast, if it affects the cerebral arteries, this inevitably leads to a stroke!

The regular intake of silicon preparations keeps the blood vessels elastic. Studies have even shown that silicon can even make the blood vessels elastic again to a certain extent. In the process, silicon depletes the inner lining of the vessel, so it absorbs the deposits, as it were.

In this way, silicon or silica keep our blood vessels young and can even make biologically aged blood vessels even younger, thereby prolonging life! An experiment by the scientists Letters and Scholl on rats suffering from severe atherosclerosis is definitely worth mentioning here. Feeding the rats colloidal silicium eliminated swelling and the brownish, discoloured, degenerated kidney



cells reverted back to a healthy pink, which reflected significant cell renewal.

Silicon supports breathing

In old age, breathing becomes more and more difficult, and this has its reasons: the loss of lung function due, among other things, to degenerated respiratory organs. The bronchi and the lobes are embedded in an elastic connective tissue. This is also located under the lung membrane and naturally contains a lot of silicon in young and healthy people. With increasing age, the proportion of silicon decreases, which makes breathing increasingly difficult. Regular intake of silicon not only slows down this process, but sometimes even reverses it.

Silicon and organs in general

Since all organs contain some silicon, but this amount demonstrably decreases with advancing age, it makes a lot of sense to counteract this process by taking additional silicon in a natural way and to slow down, indeed even partially revise, organ ageing. So silicon contributes significantly to keeping us biologically young. The theory that the reason that the population of the Hunza tribe in the Himalayas live to 130 years old on average and enjoys the best of health is that they drink glacier water enriched with silicon could very well be true.

Silicon – intake recommendation

The daily requirement for silicon is not fully understood, due to the research being relatively new. If you want to know more, you can have a hair analysis done in a good laboratory to check the silicon content in your body. Minerals



(including silicon) are deposited layer by layer in the hair as well as inside the body.

It is a well-researched fact that there are three forms of silicon in human blood: of these, 60 % are bound to protein, 30 % to fats, and the remaining 10 % are in aqueous form in the body.

The loss of silicon in the human organism varies very widely and depends on individual metabolism as well as eating habits. According to studies by Ravin Jugadaohsingh[849], the body excretes 10-25 mg of silicon daily in urine. Up to another 15 mg are excreted in stool. Accordingly, at least 10-40 mg is indicated in order to safely prevent silicon deficiency.

The importance as well as the recommended intake of silicon is expressed with some certainty in the words of the silicon researcher and author of the book 'Silicon Minerals and Health', Prof. Dr. Karl Hecht:

'*Through extensive research and practical experience, we know that silica is able to slow down the ageing process and increase physical and mental performance.*

It is believed that 80 % of the world's population has a shortage of silicon. I recommend taking about 50 to 100 mg of silica per day. In addition to horsetail tea, clays, zeolite and colloidal silicon, siliceous healing waters are ideal and natural sources of silicon'. (Prof. Dr.

[849] Ravin Jugadaohsingh et al ., 2002



Karl Hecht)

Does silicon cause side effects?

So far, no significant side effects have been observed for silicon or silica, even for high amounts. With a long-term, high-dose intake of silicon preparations (far beyond the recommendation), the formation of silicon-containing kidney stones is possible in very rare instances.

SPIRULINA PLATENSIS

What is spirulina platensis?

Most people with an interest in health have already heard the name 'spirulina', either consciously or unconsciously, but very few associate it with what is best described as the 'Swiss army knife of natural medicine'.

If there were a Nobel Prize for a plant or any nutrient with the highest nutritional content, it would in all likelihood go to spirulina platensis.

No other plant studied to date and no other food has such a wide variety of nutrients as the blue-green freshwater algae spirulina platensis. These include an incredible 2,075 vital substances, which are in a synergy with an unbeatable bioavailability of almost 100 % to us humans for the very effective prevention and treatment of numerous diseases! But what exactly is it, this spirulina?

Spirulina platensis – the mother of all algae



In fact, spirulina is a cyanobacterium; the roots of its ancestors go back around 3.5 billion years. From an evolutionary point of view, spirulina platensis is the 'mother' of all 30,000 known species of algae and at the same time is at a developmental level somewhere between plant and animal – because spirulina has neither a cell nucleus nor a hard cell membrane, even though both are characteristic of a plant.

The metabolism of spirulina platensis occurs via photosynthesis. For this purpose, it collects sunlight with the pigments phycocyan and chlorophyll, which give it its characteristic blue-green colour. From this, it first builds up carbon dioxide and water and thus creates this incredible spectrum of highly concentrated nutrients.

The nomenclature

Under the microscope, spirulina platensis resembles a small spiral, which gives it the synonymous name.

Spirulina – a vital substance miracle!

The fact that spirulina platensis has no hard cell walls and that its vitamins, minerals and other nutrients are also organically bound makes it possible for us to benefit from a very fast and smooth absorption of all the nutrients contained therein.

The nutrient supply of spirulina platensis is made up of around 2,000 enzymes, 75 nutrients and amino acids as well as essential fatty acids. Spirulina offers us



the full range of vital (essential) and ten non-essential amino acids. Considering that humans practically consist of water and proteins, this fact cannot be over-stated!

Spirulina researchers agree that humans would survive many days with just 10 g of spirulina per day, because apart from vitamin C, spirulina provides us with the complete arsenal of nutrients and vital substances that we need to survive – compressed into the smallest space!

Spirulina platensis – the extraction

The Mayans and Aztecs appreciated the health benefits of spirulina algae, and today spirulina is the most researched and best selling supplement - even NASA uses as food for their astronauts. While the Aztecs fished green algae foam from Lake Texcoco, the Maya went further by developing the first algae farms.

But it was not until the year 1964 that the western world would discover the blue-green wonder algae for itself. This is due to a Belgian botanist named Jean Leonard, who watched the Kanembub population skim off a blue-green foam from the surface of a lake with large straw baskets to make a kind of cake.

The Japanese scientist Nakamura and his colleagues then pushed forward the research of spirulina and its first processing for commercial purposes.

Today, spirulina platensis is grown in industrialised countries, mainly in Hawaii, China, India, Thailand, the USA and Australia in large farms with numerous



man-made ponds under supervision and quality control.

Fortunately, demand is rising, considering that spirulina not only provides extremely high levels of nutrients, but at the same time detoxifies the organism, protects against radiation, builds up the intestinal flora and positively influences allergies, cancer and even AIDS, and can, frequently, even cure them!

This very healing effect is the subject of this section. The mode of action of a 'vital miracle' is objectively analysed and substantiated by hard facts in the form of study results from all over the world.

The ingredients and active ingredients of spirulina platensis

Before we come to the most interesting point, namely the mode of action and the concrete effect of spirulina platensis, it makes sense to first take a closer look at the ingredients and active ingredients of spirulina.

Spirulina platensis has an incredible **2,075** active ingredients, consisting of 2,000 enzymes and 75 vital substances, amino acids and fatty acids,[850] and in a condition that is optimally absorbed by the body with a bioavailability of almost 100 %!

[850] Frank Felte: Spirulina – Die Wunderalge: Essen Sie Leben! ('Spirulina – The Wonder Alga: Eat Life!'), 2002, p. 74



With small variations depending on origin and product, the analysis of the ingredients of spirulina platensis is as follows:

Nutrient analysis of spirulina	**Averages**
Protein	65 %
Carbohydrates	15 %
Fat	7 %
Minerals	7 %
Fibres	3 %
Moisture	3 %
Vitamin analysis of spirulina	**Averages**
Biotin	250 mcg/kg
Vitamin B12	2,000 mcg/kg
Pantothenic acid	8 mg/kg
Folic acid	610 mcg/kg
Inositol	830 mcg/kg



Vitamin B3 (niacin)	146 mg/kg
Vitamin B6	7 mg/kg
Vitamin B2	35 mg/kg
Vitamin B1	21 mg/kg
Vitamin E	80 mg/kg
Vitamin D	120,000 IU/kg
Vitamin K	22 mg/kg

Mineral analysis of spirulina	**Average**
Calcium	8950 mg/kg
Phosphorus	8940 mg/kg
Sulphur	6,900 mg/kg
Iron	980 mg/kg
Sodium	9,000 mg/kg
Magnesium	3690 mg/kg
Manganese	38 mg/kg
Copper	5 mg/kg



Zinc	30 mg/kg
Chrome	1 mg/kg
Potassium	16,000 mg/kg
Selenium	140 mcg/kg
Cobalt	230 mcg/kg
Germanium	6,000 mcg/kg
Natural phytopigments	
Total carotenoids (yellow and orange)	4,700 mg/kg
Chlorophyll (green)	11,900 mg/kg
Phycocyanin (blue)	49,500 mg/kg
Natural carotenoids	
Beta-carotene	2,100 mg/kg
Other-carotenes	400 mg/kg
Myxoxanthophyl	900 mg/kg
Zeaxanthin	800 mg/kg
Cryptoxanthin	100 mg/kg



Other xamthophyll pigments	400 mg/ kg

Other ingredients	**Averages**
Nucleic acids	4.5 %
Gamma-linolenic acid	12,800 mg/kg
Linoleic acid	9,000 mg/kg
SOD activity	1,100,000 IU/kg
Glycolipids	20,000 mg/kg
Sulpholipids	1,000 mg/kg
Polysaccharides	46,000 rag/kg
Essential amino acids	
Isoleucine	4.1 %
Leucine	5.8 %
Lysine	4.0 %
Methionine	2.2 %



Phenylalanine	4.0 %
Threonine	4.1 %
Tryptophan	1.1 %
Valine	6.0 %
Nonessential amino acids	
Alanine	5.8 %
Arginine	6.0 %
Aspartic acid	
Cystine	0.7 %
Glutamic acid	8.9 %
Glycine	3.5 %
Histidine	1.1 %
Proline	3.0 %
Serine	4.0 %
Tyrosine	4.6 %

Source: Wolframkober.de



Spirulina platensis – what it works against, and how

The spirulina algae is a veritable nutrient bomb, because just a few grams of it can counteract deficiency symptoms, even if food intake is severely restricted.

This fact is related to a remarkable nutrient density, a considerable amount of compressed nutrients in the smallest of spaces, created over 3.5 billion years of evolution! In total, there are 2,075 active ingredients (2,000 enzymes and 75 nutrients) that spirulina may call its own; it contains all but one of the substances that humans fundamentally need to maintain their health.

Due to the outstanding number and concentration of nutrients (see 'Ingredients'), the effect of the spirulina algae is expected to be very broad. But before we look more closely at the effect, we first clarify the mode of action – that is, the reasons why spirulina platensis works as well as it does.

Of course, it's the optimal combination of perfectly balanced ingredients that make spirulina a masterful, natural active ingredient.

In dry form, spirulina consists of up to 65-71 % of protein and is impressive not least because of its almost complete amino acid profile, consisting of all eight essential and ten nonessential amino acids. These include the essential amino acids leucine, isoleucine, lysine, phenylalanine, methionine, tryptophan, threonine and valine, on the nonessential side, cysteine, arginine, glutamic acid, alanine, histidine, serine, proline, glycine and aspartic acid. Our organism needs these components of protein to build our cells, maintain our immune system and produce hormones and enzymes. The amino acids, however, have other,



often misunderstood functions.

Effect of the individual ingredients

Essential amino acids

Effect of leucine

Leucine is responsible for energy metabolism within the muscles and the brain.

Effect of isoleucine

Among other things, isoleucine is responsible for the maturation of our cells, the growth and development of mental intelligence.

Effect of lysine

Plays an important role in our immune system as a building block for antibodies. Furthermore, it is critically important for cell growth and for a healthy cardiovascular system.

Effect of phenylalanine

Needed for healthy metabolism, including in the production of thyroxine.

Effect of methionine

Indispensable for our nervous system as well as for fat metabolism. It supports liver function during detoxification.

Effect of tryptophan



Also plays an important role in our nervous system and our emotional well-being.

Effect of threonine

Influences the digestive enzymes and is therefore responsible for the digestive process.

Effect of valine

Valine is involved in controlling muscle coordination.

Nonessential amino acids

Effect of cysteine

Plays an important role in carbohydrate metabolism, which is why it is responsible for the regulation of blood sugar levels. Furthermore, cysteine exerts a positive influence on food allergies.

Effect of arginine

Arginine, among other things, assumes a detoxifying role. Furthermore, sperm is mostly arginine, which is why it plays an important role in reproduction.

Effect of glutamic acid

Glutamic acid plays an important role in our emotional feelings and is responsible for the proper functioning of the brain.



Effect of alanine

Alanine plays an important role in energy and cell metabolism.

Effect of histidine

Is very important for iron formation and oxygen transport in our organism. Is responsible for hearing within our brain and can successfully treat some types of deafness.

Effect of serine

As an important component of many enzymes, serine plays an important role in our health.

Effect of proline

Important among other things for healthy blood vessels and healthy joints.

Effect of tyrosine

Acts as a neurotransmitter for the transport of information in the brain, slows cell ageing, can positively affect the hunger centre and suppress hunger in diets.

Effect of glycine

Important component of structural proteins in the body, important for skin, joints, bones and teeth. Furthermore, glycine is an important component of glutathione, which protects our body against free radicals as one of the most important antioxidants.



Effect of aspartic acid

Among other things, is involved as a neurotransmitter within the transmission of signals in the brain and the metabolism of carbohydrates.

Effect of vitamins in spirulina platensis

Spirulina has a respectable content of vitamins, especially A vitamins, B vitamins, vitamin E, biotin, folic acid and pantothenic acid.

It should be emphasised that all of these vitamins are in organic form and therefore absorbed by the body much more efficiently than any isolated or synthetic vitamins.

Effect of vitamin E

Vitamin E acts as a radical scavenger and also assumes many other important functions in the organism. Among other things, it positively affects the skin and hair metabolism, so in addition to health benefits, it also benefits appearance, and not for nothing is it given the title of anti-ageing vitamin par excellence. Vitamin E has a positive effect on cancer and positively influences Alzheimer's and diabetes.

Effect of B vitamins

Vitamin 12, B6 and folic acid are a potent trio in the fight against atheroscle-



rosis (hardening of the arteries, which causes heart attacks and strokes), vitamin B12 is involved in the formation of nerve fibres and is needed for the formation of red blood cells.

B vitamins are rare in plant foods, so vegetarians are at risk of nutrient deficiency. A regular supply of spirulina can counteract this very effectively.

Effect of folic acid

Folic acid is needed for healthy cell renewal and is involved in blood formation and protein metabolism.

Effect of biotin

Biotin is popularly known as 'beauty vitamin', because it strengthens the hair, nails and keeps the skin supple and wrinkle-free. Furthermore, it is needed for carbohydrate and fat metabolism, providing our nerves and brain with the required glucose.

Effect of vitamin D

We need vitamin D for the storage of calcium as well as phosphate in the bones; only this ensures a stable and healthy skeleton construction.

Effect of vitamin K

Vitamin K prevents atherosclerosis, has a cancer-inhibiting effect and controls blood clotting.



Effect of minerals in spirulina platensis

Spirulina platensis is one of the most popular sources of minerals in the world, as these are also found in organic form in spirulina and can therefore be better absorbed by the body.

Spirulina contains abundant magnesium, calcium, potassium, manganese, iron, selenium, phosphorus, copper, zinc, chromium, selenium and germanium.

Effect of calcium

Interestingly, calcium is the only mineral known for its function in bone growth and bone compaction, as well as healthy teeth. But calcium can do more, as it also counteracts cardiovascular disease and cancer.

Spirulina contains more calcium than milk, whereas the latter only harms the body, since no adult mammal, including humans, is predestined to tolerate milk without further ado. In addition, the heating of milk destroys the calcium.

The role of potassium in our organism

Potassium is responsible for regulating the fluid balance in our body and is important for the proper functioning of nerves and muscles.

The role of iron in spirulina platensis

Iron deficiency is the highest mineral deficiency in the world, affecting 80 % of the world's total population. Iron plays an important role in our immune system and circulation in our organs and an iron deficiency can cause many



diseases ranging from blood anaemia and permanent fatigue to mental developmental disorders in children and adolescents.

It is difficult to achieve an adequate supply of iron through the normal diet, especially for vegetarians.

Iron preparations in isolated form can even be dangerous; spirulina, on the other hand, provides iron in an organic, highly absorbable form and contains 25 to 50 times as much iron as is contained in meat. This makes it a must for vegetarians!

Effect of manganese

Manganese is also a mineral which is indispensable for brain function and a strong immune system. Furthermore, it is important for healthy joints and a healthy nervous system. By regulating blood sugar levels, manganese also has a positive influence on diabetes.

Effect of magnesium

Magnesium is strongly involved in enzyme activity and activates the so-called 'osteoblasts', which are responsible for strong bones; last but not least, it works against cardiovascular diseases and lowers high blood pressure.

Effect of selenium

Selenium acts as an antioxidant, is involved in strengthening the immune sys-



tem, protects the cardiovascular system, lowers high blood pressure, has a detoxifying and anti-inflammatory effect, acts against viruses and prevents mutations. Selenium counteracts carcinogenesis and can positively affect existing cancers. Selenium protects against UV rays and prolongs life. It can also reduce the side effects of chemotherapy and radiation.

What effect does chromium from spirulina have?

Chromium helps prevent atherosclerosis by lowering cholesterol levels and counteracting cardiovascular disease. It also controls blood sugar levels to prevent diabetes.

Effect of zinc

Zinc is important for our immune system. It is involved in wound healing and, moreover, significantly involved in enzyme activity.

Effect of germanium

While almost all minerals and trace elements are known to most people, at least by name, and numerous healthy functions in the organism require their presence, germanium stands out because very few people have heard of it and it seems to have almost miraculous powers. Or, to put it in words of the discoverer and researcher of organic germanium: '*It seems as if germanium is a substance that comes directly from previously unknown dimensions with immediate connection to the vital forces of life*'.

Germanium has been the subject of numerous experiments and its effects have



been proven in reports by experienced therapists on diseases such as arthritis, cancer, cardiovascular diseases, multiple sclerosis, epilepsy, HIV/AIDS or osteoporosis.

This is described as:

- stimulating the immune system,
- anti-inflammatory,
- activating natural killer cells and
- promoting T-suppressor cells.

The expressly oxygen-promoting mechanisms of organic germanium reduce the risk and consequences of a heart attack or stroke.

The optimal absorption of the various minerals through the body proves to be very satisfactory. The formation of chelates with amino acids increases the capacity of our organism to make better use of the minerals.

The minerals contained in spirulina have a positive effect

- on the regulation of the acid-base balance,
- on the detoxification of the organism and
- on the strengthening of the immune system.

Effect of pigments in spirulina platensis



Colour pigments not only give plants their typical colour, but also play an important role in their health. The green colour of spirulina is due to the pigment 'chlorophyll', which has an astonishing pharmacological effect.

However, in addition to chlorophyll, spirulina algae have a large number of pigments, including poryphyrin, tetrapyrrole, phytonadione, phycoerythrin, as well as beta-carotene, which is most commonly known for giving carrots their orange colour, and phycocyanin, both of which are also potentially highly potent substances for the prevention and treatment of diseases!

Role of chlorophyll in the human organism

Chlorophyll gives spirulina algae its green colour and very strongly resembles the haemoglobin of our blood in its chemical structure. Haemoglobin is responsible for the transport of oxygen into the individual tissues and thus for the oxygen supply of our body. Chlorophyll mimics this role and thus takes on an additional oxygen-enriching role. Furthermore, it is involved in the detoxification of our organism, blood purification and the immune system.

Role of phycocyanin in the human body

Phycocyanin provides the bluish part of spirulina; it is a phycobiliprotein and acts as an accessory pigment of photosynthesis in spirulina. It plays many important roles in the human body, including as a powerful antioxidant; it protects our body cells against the attacks of free radicals, strengthens our immune system, supports the work of the kidneys and the liver and also eliminates degenerated cancer cells.



Role of beta-carotene in the human organism

Carotenoids, especially beta-carotene (also called provitamin A), are among the most important colour pigments in spirulina, which spirulina produces for its own light absorption. Beta-carotene is an important antioxidant which, together with other antioxidants, thwarts aggressive free radical attacks on our body's cells. Beta-carotene protects against infectious diseases and has even successfully prevented the development of cancer or contained existing cancer in numerous studies. Many researchers agree that 15 mg of-carotene per day effectively protects against the onset of various cancers; this amount is guaranteed with just 5-10 g spirulina. In addition, beta-carotene has been proven to protect against macular degeneration and also protects our skin from ageing.

It is noteworthy that spirulina provides the most beta-carotene of all foods, even more than carrots – 10 g of spirulina contains 17-28 mg of beta-carotene, while carrots contain just 0.76 mg!

Effect of fatty acids in spirulina platensis

Most of the fatty acids found in spirulina consist of very healthy, polyunsaturated fatty acids; these include alpha-lipoic acid, arachidonic acid, gamma-linolenic acid and the omega-3 fatty acids EPA and DHA.

The omega-3 fatty acids in particular offer very interesting health benefits:

Effect of omega-3 fatty acids in the human organism

There are thousands of positive studies on the health effects of omega-3 fatty



acids; the effect on the following body functions of humans can be summarised below:

- cell metabolism as well as cellular respiration
- hormone production
- protein synthesis
- protection against atherosclerosis
- production of the body's own defence cells
- increase in resistance
- strengthening of the immune system
- building intestinal flora
- reduction of inflammation
- metabolism of synovial fluid in the joints

Effect of gamma-linolenic acid

This fatty acid belongs to the group of omega-6 fatty acids that are essential for our organism and its functions. Gamma-linoleic acid is responsible for cell renewal, is involved in numerous metabolic processes in the body and is a structural element of our skin.

Effect of superoxide dismutase (SOD)



Another essential natural substance in spirulina is superoxide dismutase, a copper and zinc-containing enzyme that inhibits inflammation and, according to many nutritionists, is the most potent antioxidant. 10 g of spirulina contain 4 mg of this wonderful enzyme.

Effect of biophotons in spirulina platensis

While we are familiar terms such as vitamins, minerals, trace elements and perhaps even specific phytochemicals, pretty much every reader asks the question: What are biophotons?

According to the pioneer in biophoton research, Prof. Fritz-A. Popp, it is food (of plant or animal origin) which has been irradiated by the sun, which makes the food valuable. They store electromagnetic energy in the form of light and have a great impact on our metabolism and therefore our health! Spirulina is considered to be an excellent reservoir of solar power and provides these valuable biophotons, which Prof. A. Popp has referred to as the *'pillar of food quality'*, to us humans![851] Unfortunately, we do not have too many biophotons at our disposal as greenhouses or chicken batteries do not exactly encourage the uptake of biophotons by vegetables, fruits or chickens!

Specific effects of spirulina on diseases and conditions

[851] Marianne E. Meyer: Spirulina – Wundernahrung der Zukunft ('Spirulina – Wonder Food of the Future'), 2002, p. 22



Before we examine the specific effects of spirulina on diseases and conditions, let's first examine its general effect:

General effect of spirulina platensis

Spirulina platensis has the following effects:

- strengthens the immune system
- antioxidant (cell protection against free radicals)
- detoxifying
- discharges heavy metals
- excretes toxins
- discharges radiation
- deacidifies
- cleanses the blood
- antiallergic
- antibacterial
- builds cell metabolism
- builds connective tissue
- anti-inflammatory
- disinfectant
- strengthens blood vessels (strengthens and keeps them elastic at the same



time)

- increases aerobic endurance
- protects the liver
- lowers cholesterol
- regulates fat metabolism
- lowers high blood pressure
- regulates/builds up intestinal flora

Immune-strengthening effect of spirulina platensis

Although it is somewhat unfair to the numerous other active ingredients in spirulina, which are also involved in building a strong, functioning immune system, one active ingredient in it, namely the pigment 'phycocyanin', stands out in particular.

Phycocyanin activates the white blood cells (lymphocytes), which recognise, encase and eat up hostile invaders, such as bacteria, viruses and fungi.

Antibacterial effect of spirulina

The antibacterial effect of spirulina is based not least on the pigment 'chlorophyll', whose oxygen kills germs such as bacteria.

Antioxidant, cytoprotective effect of spirulina platensis

In addition to numerous other, highly efficient antioxidants that protect our



cells from aggressive free radicals, one stands out in particular – superoxide dismutase!

Superoxide dismutase (SOD) is a copper and zinc-containing enzyme and arguably the most potent antioxidant. 10 g of spirulina contain 4 mg of this enzyme.

Deacidifying effect of spirulina platensis

Increasingly, in our world, our organism is over-saturated with acids, and knowledgeable physicians and naturopaths agree that acids are directly and indirectly responsible for hundreds of diseases. It was Dr. Warburg, among others, who was able to prove that cancer can only spread in an acidic environment.

The deacidifying effect of spirulina is due to it containing chlorophyll and numerous basic minerals.

Cholesterol-lowering effect of spirulina

The cholesterol-lowering effect of spirulina has been demonstrated in numerous studies, including a study carried out at the University of Tokai on 30 male volunteers. The men were divided into two groups:

Group A was given 4.2 g of spirulina every day for eight weeks and group B received the same amount but only for the first four weeks – this group was



given a placebo for the remaining four weeks.

As a result, a significant reduction in cholesterol levels from 243.5 mg/dl to an average of 232.7 mg was found in the group which received spirulina all the way through.[852]

Anti-inflammatory effect of spirulina platensis

The anti-inflammatory effect of spirulina has been confirmed in studies by the reduction of TNF alpha-immune colouring in the inflamed feet of mice and the myeloperoxidase release from human neutrophils.[853]

Special effect of spirulina on health

Considering the fact that spirulina, with 2,075 synergistic vital substances, which are also easily absorbed by the body, is probably the most nutrient-rich plant, it is not surprising that there is an enormous range of diseases which can be avoided or positively influenced with spirulina!

The general effect, such as the strengthening of the immune system, protection against free radicals, detoxification (removal of heavy metals, binding of pollutants), deacidification, anti-inflammatory effect, regulation of lipid metabolism and creation of a healthy intestinal flora ('Death is in the gut!') underline this comprehensive effect of spirulina platensis.

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[852] Marianne E. Meyer: Spirulina – Die blaugrüne Wundernahrung ('The Blue-Green Wonder Food'), 1998, p. 68

[853] Joventino I. P. et al.: The Microalga Spirulina platensis Presents Anti-inflammatory Action as well as Hypoglycemic and Hypolipidemic Properties in Diabetic Rats, J Complement Integr Med. 2012 Aug 10; 9 (1).pii: /j/jcim.2012.9.issue-1/1553–3840.1534/1553–3840.1534.xml.doi: 10.1515/1553–3840.1534.



Spirulina has shown a positive influence on – and even healed – the following diseases:

- Chronic fatigue
- Energy deficiency
- Vital substance deficiencies
- Poisoning with heavy metals
- Hepatitis
- Cirrhosis
- Cardiovascular disease (cholesterol, high blood pressure)
- Gastrointestinal complaints
- Gastritis
- Acidification of the organism
- Neurodermatitis
- Protein deficiency
- Iron deficiency
- Anaemia
- Premenstrual syndrome
- Cancer
- Arthritis



- Allergies
- Asthma
- Premature ageing
- Difficulty concentrating
- Learning disabilities
- Depression
- Cellulitis
- Excess weight
- Insufficient weight
- AIDS

Effect of spirulina on gastritis

Due to the acid-buffering properties of the chlorophyll and basic minerals contained in it, spirulina can have a soothing effect against gastritis and gastric ulcers.

Effect of spirulina on cardiovascular diseases

The beneficial effects of spirulina are not surprising given that it contains ingredients such as omega-3 fatty acids or beta-carotene, which in themselves have already been proven to have a respectable effect in terms of cardiovascular strengthening and protection against heart attacks in numerous scientific studies. Spirulina has a multifactorial effect on cardiovascular diseases and can



positively affect existing cardiovascular disease. In this way, consequences such as heart attacks and strokes are prevented.

In numerous studies Spirulina has been able to prove that it can neutralise cholesterol and lower blood pressure; among other things, the amino acid 'leucine' is responsible for this. The chlorophyll pigments in spirulina can bind not only heavy metals but also calcium.

It is calcium, however, which, in combination with fatty deposits, creates plaque on the inner vessel walls of the blood vessels and thus causes the dreaded arteriosclerosis which leads to heart attacks and strokes. The numerous antioxidants in spirulina platensis also prevent the oxidation of cholesterol, which is considered a prerequisite for the formation of plaque.

The following mechanisms of action counteract cardiovascular diseases:

- Spirulina normalises a high cholesterol level
- Spirulina lowers high blood pressure
- Spirulina strengthens the blood vessels
- Spirulina increases the elasticity of the blood vessels
- Spirulina prevents atherosclerosis
- Spirulina breaks down atherosclerosis

Effects of spirulina before and after a stroke



The high-blood-pressure-lowering, blood-vessel-strengthening and elasticity-regulating action of spirulina, which regulates the metabolism of lipids, protects our brain from a stroke. According to various experiments, spirulina platensis reduces the impact of any stroke that has already occurred, and victims regain their mobility faster.[854]

Strengthening effect on the liver

The liver is the kitchen of our metabolism and has to detoxify tonnes of harmful substances every day. Spirulina strengthens the liver cells; chlorophyll and beta-carotene are primarily involved in this. Spirulina is used in the treatment of cirrhosis of the liver and chronic hepatitis in Japan and the USA.[855]

Effect of spirulina platensis on diabetes

In several studies, spirulina has been shown to lower glucose levels. Among other things, a water-soluble part of spirulina is responsible for this; after just five days, an anti-diabetic effect has been achieved in animal tests.[856]

Furthermore, the glutamic acid and the amino acid 'leucine' have a negative effect on the blood sugar level. Spirulina also contains chromium, which acts as a coenzyme activating insulin, protects the pancreas and prevents blood sugar fluctuations.

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[854] Wang Y. et al.: Dietary supplementation with blueberries, spinach, or spirulina reduces ischemic brain damage. 2005 May, 193 (1), pp. 75-84.

[855] Frank Felte: Spirulina – Die Wunderalge: Essen Sie Leben! ('Spirulina – The Wonder Alga: Eat Life!'), 2002, p. 48

[856] Joventino I. P. et al.: The Microalga Spirulina platensis Presents Anti-inflammatory Action as well as Hypoglycemic and Hypolipidemic Properties in Diabetic Rats. J Complement Integr Med. 2012 Aug, 10; 9 (1).pii: /j/jcim.2012.9.issue-1/1553-3840.1534/1553–3840.1534.xml.doi: 10.1515/1553–3840.1534.



Effect of spirulina on poisoning

Spirulina has detoxifying properties; the amino acids and alginates it contains, especially chlorophyll, bind to toxic substances such as lead, mercury, aluminium, tin and others, which are then released from the body. Pesticides are also flushed out of the body with the help of spirulina.

In the course of this detoxification process, some people experience an initial and temporary discomfort.

In a placebo-controlled study on the effect of spirulina in conjunction with zinc following arsenic poisoning, the treatment was able to quickly transport most of the arsenic out of the body. There were fewer traces of arsenic in the people who had taken spirulina and after several weeks of spirulina intake, there was as much as 47.1 % less arsenic present in their hair roots![857]

Effect of spirulina on arthritis

Spirulina contains numerous nutrients that are able to remove acid crystals on their own, remedy arthritis pain and inflammation and even heal arthritis; these include, for example, gamma-linolenic acid, which has potent anti-inflammatory effects, as well as the omega-3 fatty acids and the trace element selenium, which made headlines when the former president of an arthritis association in the UK succeeded in curing his severe arthritis with bio-selenium and further

[857] Misbahuddin M. et al: Efficaof spirulina extract plus zinc in patients of chronic arsenic poisoning: a randomized placebo-controlled study. 2006, 44 (2), pp. 135–141



studies confirmed this effect.

Another very important substance in spirulina is superoxide dismutase, a copper and zinc-containing enzyme that inhibits inflammation and is one of the most important antioxidants in the world!

People suffering from arthritis and gout may experience pain in the first weeks of taking spirulina as a result of dissolved acid crystals which are now being transported out of the body.

Effect on anaemia

In particular, a shortage of iron, B vitamins (including vitamin B12 and folic acid) and vitamin E is often responsible for anaemia. Since spirulina platensis contains all of these nutrients in high amounts and a highly bioavailable form, a regular intake of spirulina protects against anaemia.

In studies, the intake of 4 g of spirulina after each meal increased the haemoglobin level of the test subjects by 21 % after 30 days (109 to 132 g/l).[858]

Effect against premenstrual syndrome

The numerous active ingredients in spirulina platensis counteract premenstrual syndrome.

Effect of spirulina platensis on depression

Depression occurs to a significant degree when certain messengers are missing

[858] Takeuchi, T.: Clinical experiences of administration of spirulina to patients with hypochromic anaemia, Tokyo Medical and Detnal University, Japan 1978



in the brain. The vitamin B12 contained in spirulina, folic acid and the amino acid 'methionine' are responsible for the production of these beneficial substances in the brain.

Tryptophan is a precursor to the neurotransmitter and happiness hormones 'serotonin', tyrosine and phenylalanine supply the body with a benzene ring responsible for the synthesis of epinephrine, norepinephrine and dopamine. In addition, minerals such as calcium and magnesium break down the stress acids.

All these substances, in the right proportions to each other and with the highest bioavailability in spirulina platensis, are important building blocks in the prevention and avoidance of depression.

Effect of spirulina against AIDS

In her book *'Spirulina – die blaugrüne Wundernahrung'* ('Spirulina – the Blue-Green Miracle Food'), the author Marianne E. Meyer mentions several studies in which spirulina platensis has shown success in AIDS:

Studies confirm the beneficial effects of beta-carotene in AIDS

A study under the direction of Dr. Gregg Coodley of the Portland Health Science University on 21 AIDS patients, who received 180 mg of beta-carotene for four weeks, saw an increase in CD-4 or oct-4 or T-4 lymphocytes, which all belong to the group of helper cells that fight HIV viruses.



Another (in vitro) study by the Laboratory of Viral Pathogenesis, Harvard Medical School, substantiates that a water-soluble extract of spirulina platensis inhibits HIV-1 replication in human blood cells.

Effect of spirulina on allergies and asthma

Histamine secretion is the main cause of allergic reactions. In studies, spirulina has reduced histamine release.

South Korean researchers have tested the effects of spirulina powder on anaphylactic reactions, with positive results. 0.5-1 g of spirulina powder per kg of body weight completely suppressed anaphylactic shock.[859]

[859] Marianne E. Meyer: Spirulina – Die blaugrüne Wundernahrung ('The Blue-Green Wonder Food'), 1998, p. 60



Effect of spirulina platensis against neurodermatitis

The numerous active ingredients contained in spirulina, especially B vitamins, can restore the mental balance that is disturbed in people suffering from neurodermatitis.

Protective effect of spirulina against radiation

Immediately after the nuclear disaster in Chernobyl, children were treated very successfully with spirulina algae. A Chinese study on mice demonstrated very impressively that taking a polysaccharide extract from spirulina has a significant protective effect against gamma rays, which is probably due to the stabilisation of the DNA.[860]

Spirulina counteracts ageing

Ageing is mainly caused by the free radicals that attack our body cells about 10,000 times per day. Another crucial aspect of ageing is the shortening of so-called telomeres. The attacks of aggressive radicals are intercepted by a highly effective network of antioxidants, including perhaps the most potent one, superoxide dismutase. Other substances, such as omega-3 fatty acids, have been shown to protect our telomeres on the chromosomes in studies, protecting them from shortening.[861]

Spirulina increases endurance and promotes fat burning

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[860] Qishen, P. et al.: Radioprotective effect of extract from spirulina platensis in mouse bone marrow cells studied by using the micronucleus test. Toxicolog Ltt. 48

[861] Farzaneh-Far R. et al. JAMA, January 3, 2010, 303 (3), pp. 250-257



According to a study published in the magazine *Medicine and Science in Sports and Exercise*, the consumption of spirulina significantly increased endurance performance in the test subjects when compared to the placebo group. In the study, nine men were given spirulina for a month and a further nine were given a placebo; both groups took part in two hours of running training on a treadmill at 70-75 % and 90 % of VO2 until exhaustion. In the spirulina group, recovery time was shorter, fat burning was 11 % higher and KH oxidation was 10 % higher, indicating a significant increase in performance due to spirulina.[862]

Effect of spirulina against cancer

Spirulina contains a formidable amount of active ingredients that have been shown to have anticancer effects in numerous studies, including beta-carotene, selenium, omega-3 fatty acids, phycocyanin and germanium.

Spirulina, and in particular the pigment 'phycocyanin', further supports the production of TNF (Tumour Necrosis Factor), a protein of our immune system with a cancer-destroying effect. Even Dr. Warburg was able to prove that cancer can only spread in an acidic environment. The basic minerals contained in spirulina, particularly chlorophyll, can successfully bind body acids and regulate the acid-base balance in this way.

[862] Kalafati M. et al.: Ergogenic and antioxidant effects of spirulina supplementation in humans, Med Sci Sports Exerc. 2010 Jan, 42 (1), pp. 142–51.



The anti-carcinogenic effect of carotene in spirulina

The carotene contained in spirulina proliferates the T-helper cells of the immune system, which cause the release of antibodies and activate other immune cells.

Effect of selenium on cancer cells

Selenium has a multifactorial effect on carcinogenesis:

- it boosts the immune system,
- it activates the natural killer cells that attack the cancer cells,
- it produces other antibodies that eliminate cancer,
- it lowers the number of surface molecules on the cancer cells and marks them so that the NK cells recognise and attack them,
- it repairs attacked cells,
- it supports apoptosis, i.e. programmed cell death in degenerated cells,
- it prevents damage to chromosomes,
- it neutralises carcinogenic substances and carcinogens and
- it protects against radioactive radiation.

Effect of phycocyanin on cancer

Phycocyanin plays the same role that chemotherapy plays by exerting a cyto-



toxic effect on the cancer cells, bringing about a direct destruction of the cancer cell, and at the same time a cytostatic effect, resulting in an inhibition of cancer development.

Phycocyanin accomplishes this by increasing lymphocyte activity. The advantage is obvious, because the phycocyanin acts selectively, so it only destroys cancer cells, and – in contrast to chemotherapy – spares the healthy cells!

Effect of polysaccharides on cancer

The abundant polysaccharides in spirulina increase macrophage activity. Macrophages are scavenger cells of the immune system that encase and destroy the cancer cell.

Effect of omega-3 fatty acids against cancer

Omega-3 fatty acids inhibit cancer growth by improving immune function. Omega-3 fatty acids have a particularly good effect on breast cancer, oesophageal cancer and colon cancer. It has been proven that people who prefer to eat fish, therefore, succumb 50 % less frequently to cancer of the gastrointestinal tract, 20 % less frequently to uterine cancer and 30 % less frequently to ovarian cancer.[863]

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[863] Dr. Frank Liebke: Omega-3-Fettsäuren – Gesundheit aus dem Meer ('Omega-3 Fatty Acids – Health from the Sea'), 2001, p. 40



Effect of beta-carotene against cancer

Beta-carotene

- stimulates our immune system,
- controls cell growth and cell proliferation,
- suppresses mutation of procarcinogens into carcinogens
- and inactivates cell-damaging substances.

Effect of organic germanium against cancer

While the carcinoma has a positive charge, the charge of organic germanium is negative, and they collide with each other. When a (negatively charged) germanium particle comes into contact with the cancer cell, it breaks its positive charge and the cancer cell disintegrates.

In summary, organic germanium affects the cancer cell as follows:

- It stimulates the T cells to produce gamma interferon, which activates the macrophages.
- Macrophages suppress the proliferation and growth of the tumour.
- The germanium inhibits the DNA and RNA synthesis as well as the protein synthesis of the cancer cells.

Germanium has proven its worth against the following cancers:



- Breast cancer
- Lung cancer
- ovarian cancer
- Prostate cancer
- cervical cancer
- Colon cancer
- Leukaemia

Effect of spirulina against cancer explicitly proven in studies

At the renowned Harvard University School of Dental Medicine in Boston, repeated tests were performed against cancer in the late 1980s. Scientists Schwartz and Shklar were able to determine the following in all the studies:[864]

- Spirulina reduces the number as well as the size of tumours.
- Spirulina slows the development of cancer.
- Spirulina prevents the development of cancer.

In another study in 1995, Quereshi et al. were able to demonstrate that a water-soluble extract of spirulina promoted the death of cancer cells.

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[864] Marianne E. Meyer: Spirulina – Wundernahrung der Zukunft ('Wonder Food of the Future'), 2002, p. 58



Just 1 g of spirulina heals cancer!

The researcher Mathew and colleagues from India administered 1 g of spirulina to 44 tobacco chewers who were in the preliminary stage of tongue cancer, the control group were given a placebo.

In the group which was given spirulina, 20 people were cancer-free after one year, but only three were healed in the placebo group.[865]

Spirulina protects against the side effects of irradiation

Taken before or after radiation treatment, spirulina algae helps to protect against undesirable side effects, without reducing the desired effect (ray protector).

Spirulina protects the heart against the side effects of chemotherapy

In studies on mice, spirulina demonstrated a cardioprotective effect against the chemotherapy substance 'doxorubicin', without having an influence on the effect of the substance.[866] It stands to reason that it would have the same protection if used on people. This is almost certainly thanks to the selenium contained in spirulina which can relieve the side effects of chemotherapy (and radiation therapy!) on its own without having an unfavourable influence on the treatment.

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[865] Marianne E. Meyer: Spirulina – Wundernahrung der Zukunft ('Wonder Food of the Future'), 2002, p. 58

[866] Khan M. et al.: Protective effect of Spirulina against doxorubicin-induced cardiotoxicity, 2005 Dec; 19 (12), pp. 1030–1037



Spirulina protects hair, skin and mucosa from the side effects of chemotherapy

Furthermore, spirulina can protect hair, skin and mucosa from the side effects of chemotherapy (chemo protector).

Weight loss with spirulina

Based on several aspects within a diet which spirulina fully satisfies, it has demonstrated itself to be a perfect nutritional supplement during diets or fasting. Spirulina is generally considered to be a metabolic activator. The heavy macerating effect of spirulina creates a feeling of satiety via the dilating receptors of the stomach wall. Tyrosin and phenylalanine suppress feelings of hunger by triggering biochemical reactions in the affected brain regions. The supply of protein, which is simply too low in may diets and results in muscle loss and the associated yo-yo effect, is another aspect. Yet we need every gram of muscle in order to maintain our metabolism.

Spirulina is an excellent protein supplier with just a few calories (barely 4 kilo calories per gram of protein!) There is a pleasing aspect where exercising is concerned during a diet. In this case, fat-burning increases significantly!

Summary of the advantages of spirulina during a diet or fasting

- Spirulina regulates the metabolism.
- Spirulina macerates significantly and ensures a feeling of satiety.
- Tyrosin and phenylalanine trigger hunger-suppressing activities in the



brain.

- The amino acids in spirulina combat the dreaded muscle loss.
- More fat is burned during exercise.

Spirulina increases fat-burning by 11 % during exercise

According to a study published in the magazine 'Medicine and Science in Sports and Exercise', the consumption of spirulina was able to significantly increase fat burning. In the study, nine men were given spirulina for a month and a further nine were given a placebo; both groups took part in two hours of running training on a treadmill at 70-75 % and 90 % of VO2 until exhaustion. In the spirulina group, recovery time was shorter, fat burning was 11 % higher and KH oxidation was 10 % higher, indicating a significant increase in performance due to spirulina.[867]

Spirulina – the scientific studies

Cholesterol-lowering effect confirmed in studies

Spirulina has exhibited a cholesterol-lowering effect in several studies and is therefore predestined for preventative and curative use for numerous cardiovascular diseases.[868] In another study at the University in Tokai, 30 male test subjects demonstrated a cholesterol-lowering effect using spirulina. The men were divided into two groups. Group A was given 4.2 g of spirulina every day for eight weeks and Group B received the same amount but only for the first

[867] Kalafati M. et al.: Ergogenic and antioxidant effects of spirulina supplementation in humans, Med Sci Sports Exerc. 2010 Jan, 42 (1), pp. 142–151

[868] Joventino I. P. et al.: The Microalga Spirulina platensis Presents Anti-inflammatory Action as well as Hypoglycemic and Hypolipidemic Properties in Diabetic Rats. J Complement Integr Med. 2012 Aug 10, 9 (1). pii: /j/jcim.2012.9.issue-1/1553–3840.1534/1553–3840.1534.xml. doi: 10.1515/1553–3840.1534.



four weeks – in the remaining four weeks, this group was given a placebo. A significant reduction of the cholesterol level from 243.5 mg/dl to an average of 232.7 mg was observed.[869]

Effect of spirulina after a stroke

In an animal trial, spirulina reduced the extent of a stroke and affected animals regained their movement more quickly.[870]

Effect of spirulina against cancer explicitly proven in studies

Spirulina was tested repeatedly on cancer during the 1880s at the famous Harvard University School of Dental Medicine in Boston. Scientists Schwartz and Shklar were able to determine the following in all the studies:[871]

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[869] Marianne E. Meyer: Spirulina – Die blaugrüne Wundernahrung ('The Blue-Green Wonder Food'), 1998, p. 68

[870] Wang Y. et al.: Dietary supplementation with blueberries, spinach, or spirulina reduces ischemic brain damage. 2005 May, 193 (1), pp. 75-84.

[871] Marianne E. Meyer: Spirulina – Wundernahrung der Zukunft ('Wonder Food of the Future'), 2002, p. 58

control group were given a placebo. In the group which was given spirulina, 20 people were cancer-free after one year, but only three were healed in the placebo group.[872]

Spirulina protects the heart against the side effects of chemotherapy

In studies on mice, spirulina demonstrated a cardioprotective effect against the chemotherapy substance 'doxorubicin', without having an influence on the effect of the substance.[873]

Spirulina increases endurance performance and promotes fat burning

As already mentioned above, according to a study published in the magazine '*Medicine and Science in Sports and Exercise*', the consumption of spirulina was able to significantly increase endurance performance in test subjects when compared to the placebo group. In the study, nine men were given spirulina for a month and a further nine were given a placebo; both groups took part in two hours of running training on a treadmill at 70-75 % and 90 % of VO2 until exhaustion. In the spirulina group, recovery time was shorter, fat burning was 11 % higher and KH oxidation was 10 % higher, indicating a significant increase in performance due to spirulina.[874]

Spirulina is successful in detoxifying arsenic poisoning

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[872] Marianne E. Meyer: Spirulina – Wundernahrung der Zukunft ('Wonder Food of the Future'), 2002, p. 58

[873] Khan M. et al.: Protective effect of Spirulina against doxorubicin-induced cardiotoxicity, 2005 Dec, 19 (12), pp. 1030–1037.

[874] Kalafati M. et al.: Ergogenic and antioxidant effects of spirulina supplementation in humans, Med Sci Sports Exerc. 2010 Jan, 42 (1), pp. 142–151



As seen above, in a placebo-controlled study on the effect of spirulina in conjunction with zinc following arsenic poisoning, the treatment was able to quickly transport the most of the arsenic out of the body. There were fewer traces of arsenic in the urine of spirulina test subjects, after several weeks of spirulina consumption, there was even 47.1 % less arsenic in their hair follicles![875]

Removal of lead with the help of spirulina platensis confirmed in studies

A study on 16 women in Belarus with lead poisoning who only took five spirulina tablets a day showed a reduction of lead levels in the blood and urine; after two months' consumption, this led to a normalisation of lead values.

Spirulina demonstrates a hypoglycaemic effect in studies and therefore helps with diabetes

Even after consuming spirulina for five days, animal trials demonstrated hypoglycaemic, or blood sugar lowering, properties, which could also play a decisive role in people where diabetes is concerned.[876]

Spirulina has been shown to have anti-inflammatory effects

The inflammation-inhibiting effect of spirulina has been confirmed by the reduction of TNF alpha-immune colouring in the inflamed feet of mice and the

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[875] Misbahuddin M. et al.: Efficacy of spirulina extract plus zinc in patients of chronic arsenic poisoning: a randomized placebo-controlled study. 2006, 44 (2), pp. 135–141

[876] Joventino I. P. et al.: The Microalga Spirulina platensis Presents Anti-inflammatory Action as well as Hypoglycemic and Hypolipidemic Properties in Diabetic Rats, J Complement Integr Med. 2012 Aug 10, 9 (1).pii: /j/jcim.2012.9.issue-1/1553–3840.1534/1553–3840.1534.xml.doi: 10.1515/1553–3840.1534.



myeloperoxidase release from human neutrophils.[877]

Spirulina platensis – introducing THE beauty elixir

It may be the case that the saying 'beauty is in the eye of the beholder' is true. However, as before, there are certain aspects which follow an ideal beauty.

Of course, there is another saying, 'a leopard can't change its spots'; however, this is to be taken relatively if we consider that healthy, shining eyes, smooth skin, a healthy complexion, long, thick hair, strong fingernails and toenails and healthy teeth are precisely the things we would want to change our spots to possess – yet which we can also heavily influence in reality with appropriate nutrition!

Staying with these two sayings, the following is also applicable and can be understood in two respects: 'Real beauty comes from within!'. On the one hand, this saying means that it is a person's character which makes them 'beautiful' and that the visual appearance plays a secondary role. On the other hand, this saying applies precisely to the core of what influences our beauty: experts agree that all the creams, lotions and tonics in the world cannot nearly achieve the same effect as a targeted nutritional supply!

The quality of skin, hair, fingernails and all organs is directly dependent on our daily nutritional and oxygen supply and with the appropriate supply of essential substances it can be gradually improved, albeit always from the inside out. Put

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[877] Joventino I. P. et al.: The Microalga Spirulina platensis Presents Anti-inflammatory Action as well as Hypoglycemic and Hypolipidemic Properties in Diabetic Rats, J Complement Integr Med. 2012 Aug 10, 9 (1).pii: /j/jcim.2012.9.issue-1/1553–3840.1534/1553–3840.1534.xml.doi: 10.1515/1553–3840.1534.



simply, this means that even from the first moment of supplying the appropriate essential substances, even if at first this is unnoticed, positive changes take place in our organism.

Attacks from tissue-destroying free radicals are successfully warded off, circulation and with it the supply of nutrients and oxygen is improved, repair mechanisms in tissues increase incrementally, the entire cell metabolism is optimised, cells can renew themselves more easily, which manifests itself within a few months initially in the fingernails and toenails becoming more solid, followed by the hair which become thicker, longer and shinier and, a few months later, improvements in complexion.

The person becomes not only HEALTHIER but also more visually ATTRACTIVE!

How does spirulina platensis have an effect on our beauty?

This is down to the symphony of perfectly matched nutrients and enzymes (numbering 2,075!) which are present in organic forms in spirulina and thereby guarantee an unbelievable bioavailability of almost 100 %!

Which vital substances are responsible for what? It is simply impossible to analyse the effect of all the nutrients in spirulina on our beauty. However, the most important are explained here:



Iron for optimum oxygen supply

As we saw further above, beauty (and health!) are dependent on two elementary things: oxygen and nutrient supply! Iron is responsible for the formation of red blood cells which transport oxygen to cells: skin cells, hair follicle cells and others.

Amino acids for healthy, smooth skin

Our body largely consists of proteins and water. Not only organs and muscles but also skin, hair, nails and eyes largely consist of proteins which make up the elemental components of all cells and enzymes and ensure their function and appearance.

Spirulina supplies all eight essential and ten non-essential amino acids in perfect harmony.

Biotin for skin and hair

Biotin has earned the synonym 'beauty vitamin' among the population. Biotin strengthens hair and nails and keeps skin soft and smooth.

Beta-carotene for skin and eyes

Beta-carotene keeps our skin young and smooth and our eyes shining and healthy.

Gamma-linolenic acid for beautiful skin



Gamma-linolenic acid belongs to the category of omega-6 fatty acids and is a solid component of our skin structure.

Calcium for healthy teeth

Calcium strengthens our tooth structure and keeps teeth strong and healthy.

Zinc for skin and hair

A lack of zinc leads to dry, cracked skin and brittle, dull hair, premature greying, hair loss, and brittle nails – conversely, an optimal supply of zinc results in smooth skin, thick, shiny hair and solid fingernails.

Consumption of spirulina

A New Yorker comparative study between the bioavailability in 250 different multivitamin preparations and the bioavailability in spirulina proved that it is worth taking spirulina rather than artificially created vitamin preparations. Spirulina left all 250 preparations in its wake.[878]

The fact that spirulina platensis has no hard cell walls but only a soft cell membrane and that its vitamins, minerals and other nutrients are also organically bound makes it possible for us to benefit from a very fast and smooth absorption of all the nutrients contained therein. The bioavailability of almost 100 %

[878] Frank Felte: Spirulina – Die Wunderalge: Essen Sie Leben! ('Spirulina – The Wonder Alga: Eat Life!'), 2002, p. 30



can be called sensational!

The consumption of spirulina may well be used to compensate for bottlenecks in vital supplies, detoxifying the organism, improving performance, mobilising self-healing resources and preventing diseases and illness.

Spirulina should not be taken concurrently with vitamin C as vitamin C destroys the important oxygen-enriching chlorophyll in spirulina.



Who needs spirulina?

In today's fast-paced, stress-inducing society with poisons in food, water and the air and a dramatically falling nutrient content in foods - practically everybody! Performance athletes, people with physically hard jobs, smokers, alcoholics, people under stress, pregnant and breast-feeding women, children and young people in the process of growing as well as older people can maintain their performance and ensure their health by regularly taking spirulina.

Spirulina dosage

Assuming a weight of 400 mg per tablet, a preventative dose of 8-15 tablets over the course of the day is generally prescribed, taken with lots of fluids. In the case of disease, follow the recommendation from your treatment therapist; the dose is generally in the range of 15-30 tablets per day.

Herxheimer reaction

In the course of detoxification, during the first days and weeks of taking spirulina platensis, some people may initially feel unwell or nauseous. This should be seen as a positive sign and can be attributed to increased detoxification as well as the sudden destruction of bacteria and parasites. After a period of time, these will recede by themselves (in the case of heavier symptoms, reduce the dose initially!) and afterwards you will feel better than before.

Observations when taking spirulina

In the highly recommended book 'Spirulina – the Blue-Green Miracle Food',



author Marianne E. Meyer describes the observations about spirulina consumption from evaluating the data of people with immunodeficiencies.

79 % of participants were able to improve their health after regularly taking 10 g of spirulina or more for several months.

The subjective improvements indicated by participants:

- State of mind 60
- Digestion 60
- Memory 55
- Excretion 45
- Circulation 35
- Appetite 35
- Skin 30
- Relaxation/sleep 30

Objective health improvements:

- Reduced occurrence of infection 16
- Increased energy 14
- Improved liver values 10
- Absence or reduction of arthritic pain 8
- Less hunger/fewer sugar cravings 7



- Improved blood values including increased haemoglobin content 6
- Improved digestion 5
- Less fatigue 5
- Normal blood sugar level 3
- Less exhaustion 2
- Improved wound healing with open hands 2
- Improved blood circulation 2
- Improved ability to concentrate 1

Quality differences in spirulina

As spirulina algae sucks up its minerals and trace elements from the water in which it lives, its contents depend directly on the mineral substance content of this water. A mixture of fresh and salt water provides the best medium for spirulina. The darker the green colour of the spirulina tablet, the better its quality!

Does spirulina cause any side effects?

There is practically no risk associated with consumption as using spirulina in the human diet can be traced back for hundreds and thousands of years in some cultures. People suffering from arthritis and gout initially experience pain as a result of dissolved acid crystals which are now being transported out of the body



Possible interactions

If you take blood thinners, you should discuss the consumption of spirulina with your doctor as spirulina contains the blood thinning vitamin K (1 tablet contains approx. 0.006 mg of vitamin K)



Stevia – what is it?

Stevia, sweet herb, sweet leaf, honey leaf, sugar loaf – five terms which describe the same thing, namely an alternative to harmful, calorie-rich household sugar and the highly questionably 'healthy' artificial sweeteners on the market.

For simplicity's sake, we will refer to it using the most common of all designations in this text: STEVIA.

The name 'stevia' comes from its origin, namely 'Stevia rebaudiana' (Eupatorium rebaudianum), a plant type from the Stevia genus of the Asteraceae family.

Stevia, a sweet medicinal plant as a healthy sugar substitute

'Stevia rebaudiana' originates from the sub-tropical annual plants and grows to about 70-100 cm tall. It has 2-3 cm-long leaves and white flowers. When raw, i.e. unprocessed, the stevia plant stands out by developing 10 to 30 times more sweetness compared to household sugar, depending on the surroundings and climate. As a processed extract, it even has 300 to 400 times more sweetness.



What makes stevia so sweet?

Stevia owes its pronounced sweetness to its complex molecule, called stevioside, a glucoside from glucose, steviol and sophorose. In conjunction with other ingredients which are related but some of which have not been studied down to the last detail, the stevia leaf appears to be 10 to 20 times sweeter than sugar.

Origin and history of the stevia plant

The original name of the stevia plant comes from Paraguay in South America and it is thanks to its impressive sweetness and health benefits that it has been used by the native inhabitants of Paraguay and Brazil for centuries as both a sweetener and medicine. The Guarani and Mato Grosso Indians have used stevia for centuries as a sweetener for their slightly bitter Mate tea and in other dishes and also as a medicine, to heal wounds and for diabetes among other things.

The sweetening properties and health benefits of stevia were revealed to Europeans as far back as the 16th century when the Spanish conquistadors first reported that the native South Americans used its leaves to sweeten their herbal tea.

Is stevia therefore a health-promoting alternative to unhealthy sugar and artificial sweeteners? Yes. We will look at this more closely later...



Stevia cultivation

Despite its tropical origins, the stevia plant is characterised by a relative lack of sensitivity to temperature. Thus, Stevia rebaudiana can also be cultivated on our latitude; however, when cultivating seeds, a continuous germ temperature of at least 22 °C should be ensured.

For this, sow the seeds in the compost in a bowl and then place it on the surface of the soil (stevia is a light germ so do not cover it with soil) and lightly press. The slightly damp soil is covered with a glass or film and the bowl is kept in a light, warm location (for example, a window ledge, heat in the winter!). After about ten days, the first seedlings should appear.

As soon as the plants are there, each one must be transferred into its own pot with highly permeable soil. At this point, ensure that the pot is the right size (approx. 16 cm) so that the plant can spread out its storage roots. Similarly to basil, the stevia plant flourishes in a varied environment of moisture and dryness; however, standing water (in the tray) should be avoided as far as possible.

Scientific studies on stevia

The first scientific realisations regarding stevia were made by the botanist Moisés Santiago Bertoni who travelled from Tessin to Paraguay and presented it in his scientific treatises in 1899. Since then, stevia has been researched across the world, which has led to the approval of stevia in many countries including Japan, New Zealand, Australia and recently also in Switzerland.



Stevia has also been intensively researched in Germany, for example since 1998 at the University of Hohenheim. Field tests have been carried out with stevia in the Rhineland since 2002.

Stevia in cancer studies

Contrary to the initial and now discredited theory that stevia could cause cancer, several studies on animals reinforce the very opposite (for example the studies of Hagiwara et al. (1984), Yamada et al. (1985), Xili et al. (1992) and Toyoda et al. (1997), namely that stevioside causes a clear inhibition of tumour development.

Furthermore, Konoshima and Takasaki were able to prove in 2002 that stevioside inhibited the formation of skin cancer in animal trials.

The authors of this study concluded from this that stevioside is a valuable sweetener which could be suitable as a protection against chemically triggered cancer.

Stevia in blood pressure studies

In a study by Chan et al. (2000), 60 test subjects with high blood pressure were prescribed 250 mg of stevioside 3 x a day for a duration of one year. After three months, the systolic and diastolic blood pressure of the test subjects had significantly decreased and the effect was sustained for the entire year.

The values at the start of the study were, on average, 160 mmHg systolic and 102 mmHg diastolic, while, by the end of the study, the blood pressure sank



to an average of 153/90 mmHg.

Neither the blood parameters (lipids and glucose) nor the quality of life changed and no harmful signs were observed. The authors of the study determined from this that stevioside is a tolerable and effective substance for use within nutritional supplement treatments of patients with high blood pressure.

Stevia in fertility studies

The initial scepticism that stevia could negatively influence our reproductive organs was refuted by Shiotus (1996). No negative influence was observed in the reproductive organs of rats, mice or hamsters.

This was confirmed in a study by Oliveira-Filho et al. (1989).

Studies regarding the maximum dose of stevia

'The dose makes the poison' – a saying which affects all foodstuffs, even pure water (in adults more than 10 litres at once due to hyponatraemia[879]). With stevia, too, there is a tolerance level. A study (Xili et al., 1992) calculated a permissible daily dosage of 7.9 mg of stevioside per kg of body weight, which would still mean 592 mg of pure steviol a day for a person weighing 75 kg.

If we work on the basis that the total average sugar consumption per day (131 g/day) should be replaced by stevioside (which is practically impossible), this could be achieved with less than 436 mg of stevioside or 4.36 g of dried stevia leaves.

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[879] https://en.wikipedia.org/wiki/Poison



A daily dosage of 20 mg/kg body weight could be derived from various toxicological studies with a safety factor of 100.[880] Study results in Japan and Brazil showed that no toxicity should be expected with the daily consumption of less than 38.5 mg of stevioside/kg of body weight.[881] In April 2010, the *European Food Safety Authority* classified up to 4 mg per day per kg of body weight as harmless.[882]

The JECFA study by the World Health Organisation

The JECFA (Joint FAO/WHO Expert Committee on Food Additives), an expert commission for foodstuff additives which belongs, among other organisations, to the World Health Organization, published a study in 1999 which confirmed that the oral consumption of stevioside with a concentration of 2.5 % demonstrated no significant toxic effect in rats over two years. This corresponds to 970-1,100 mg of stevioside per kg of body weight. In addition, the JECFA and the WHO determined a temporary ADI VALUE ('acceptable daily intake') for steviol-glycoside at their 69th meeting, providing worldwide confirmation of the harmlessness of stevia to our health. Unlike with sugar and artificial sweeteners, centuries of use of stevia across the world have not resulted in a single known case of poisoning or other health impairments from the use of stevia.

The decisive approval study in the EU

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[880] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 222

[881] https://en.wikipedia.org/wiki/Stevia

[882] https://en.wikipedia.org/wiki/Stevia



While there are still some individual health reservations to be discussed, on 14 April 2010, the *European Food Safety Authority* (EFSA) classified stevia as neither genotoxic nor carcinogenic, without any negative effects on human fertility and reproductive organs, based on current studies. The realisations made about the harmless nature of stevia on the part of the EFSA in April 2010 made an imminent approval of sugar substitutes from stevia in the EU highly likely.

Market cultivation and approval of stevia sugar substitute – Japan as a pioneer

It is estimated that approx. 150 million people across the globe use stevia daily, in particular in Japan, China, Malaysia, Korea, Thailand and South America but also in the USA, New Zealand, Israel and Mexico. Korea has been producing stevia for the Japanese market since 1973 and it has been permitted as a sweetening agent on the world market since 1975. There, it has already been able to conquer 50 % of the sweetening agent market and so it is understandable that stevia has been used as a sweetener in things such as ice cream and lollies as well as cakes, biscuits, lemonade, milk products and toothpaste for over 30 years.

In June 2008, the UN panel of experts classified stevia as harmless to health following extensive research, which quickly led to the approval of stevia sugar substitute in Switzerland.

France was the first EU state to issue a 'temporary' approval for stevia sugar substitute, initially limited to two years.



Approval by the FDA in the USA

The FDA (Food And Drug Association in the USA), concluded that stevia is a harmless foodstuff with high nutritional value and approved it in the USA.[883]

Stevia officially classified as harmless in Europe

Stevia is still classified as a 'novel food' in the EU; a new type of food stuff which must provide clear proof that it is harmless.

Stevia now also approved in the EU

After years of efforts and enthusiastic campaigning, stevia has now also been approved as a foodstuff supplement in the EU since 2 December 2011 under the identifier E960. However, this does not mean the stevia plant, rather the artificially created substance! (See 'Stevia lies')

Stevia's chronological history[884]

- 1920: Cultivation of stevia in plantations
- 1931: Physiological studies carried out by Pomeret and Lavieille: Stevioside proven as non-toxic and not reabsorbed in guinea pigs, rabbits and chickens.
- 1941: Testing of sugar substitutes in England due to sugar shortage caused by German U-boat blockade.

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[883] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 216

[884] https://en.wikipedia.org/wiki/Stevia



- 1952: The main components of the natural substance extract of stevia are determined by the National Institute of Arthritis and Metabolic Diseases.
- 1954: Japan: Cultivation of stevia in greenhouses
- 1969–1971: Further cultivation experiments in Japan
- 1971: Stevia becomes known in China, industrial use begins in Japan.
- 1970s: Successful approval of stevia as a sugar substitute in Japan.
- 1981: 2,000 tonnes of stevia used in Japan
- 1982: P. J. Medon et al., Pharmacy College of the University of Chicago, Illinois, USA: Steviol is mutagenic.
- 1985: John Pezzutto et al.: Metabolically activated steviol, the aglycone of stevioside, is mutagenic. No EU approval.
- 2007: Coca-Cola submits 24 patents based on stevia as a sweetener.
- From August 2008: A provisional individual permit is issued for steviol glycoside in Switzerland according to art. 2 (1) of the Regulation governing additives permitted in foodstuffs (ZuV; SR 817.022.31).
- October 2008: Approval granted in Australia and New Zealand.
- December 2008: Approval granted by the Food and Drug Administration in the USA the component Rebaudioside A in sweeteners as a food supplement.
- August 2009: France issues a preliminary approval by decree for sweeteners from Stevia rebaudiana.



- April 2010: The European Food Safety Authority classifies up to 4 mg per day per kg of body weight as harmless.
- December 2011: Stevioside is approved in the EU, stevia remains banned as a foodstuff.

It's a trap – the stevia lies!

Of course, it would be highly atypical if a natural substance which could turn off the tap for the entire sugar lobby in our country were approved without any difficulty. As this does not even come close to covering the industrial conduct of our country, not to mention the EU, I was already very sceptical when the stevia activists, who have fought for EU approval of stevia as a nutritional substance for many years, started to rejoice.

We had done thorough research and ought to have been proven correct!

Actually, it was not the healthy 'stevia' plant which they approved, rather a substance gained from an expensive chemical industrial process with the name 'steviol glycoside' and the identifier E960 for the sweetener which was created artificially in a laboratory which the EU Commission had approved.

An innocent by-stander might think this seems relatively harmless, if it were not the fact that steviol glycoside is harmful to health and hardly different to the previously described poison 'aspartame'. Chemicals, solvents and dyes are used in the manufacture and, because steviol glycoside has a bitter aftertaste, it



is first mixed with sugar, sugar substitutes and sweeteners!![885]

This supposed 'stevia' has little in common with the natural, healthy 'stevia' plant and can cause complications in cancer treatments! Incidentally, stevia leaves continue to be excluded from this questionable EU approval!

With a little luck, you can buy a stevia plant at a weekly market where it is declared as an ornamental plant.

15 g of stevia leaves costs about 6 Dollar or 5 euros, 100 g between 7 Dollar or and 8 euros.

Is stevia healthy or just harmless?

The astounding sweetening properties explained in the section 'What is stevia?', which are around 300 to 400 times greater than in our unhealthy household sugar and are much sweeter than the conventional, artificial sugar substitutes, is already an argument in itself to switch to stevia.

While normal household sugar has rightly earned itself the name 'white poison', stevia is not only harmless, it also has many health benefits.

[885] http://lichtweltverlag.blogspot.de/2012/05/stevia-betrug-e960-jjk.html



The benefits of stevia as a sugar substitute compared to sugar and sweeteners

The biggest advantage of stevia is in the prevention of diseases that are caused by the high consumption of household sugar as well as the relief of diseases associated with blood sugar level such as diabetes.

The most important advantages of stevia at a glance

General

- The sweetening agent in stevia, stevioside, has practically no calories.
- Stevia is a product from Mother Nature and completely non-synthetic.
- Stevia is neither poisonous nor harmful to health.
- Stevia does not require fermentation.
- Stevia is a flavour enhancer and is not addictive (ideal for children).
- Stevia is stable up to a temperature of 200 °C.
- Due to its high level of sweetness, only very small amounts are required.
- Stevia aids digestion.
- Stevia is suitable for diabetics.
- It is accepted that regular consumption of stevia stems the desire for sweets and fatty foods.



- Stevia is said to suppress the desire for tobacco and alcohol.

Stevia is purported to have the following benefits from a health perspective:

- Protection from cardiovascular disease (highest cause of death in industrialised countries)
- Positive influence on the blood sugar level (important for diabetics)
- Aids digestion
- Regulates weight, helps with weight loss
- Impedes infections
- Anti-bacterial effect
- Inhibits the growth of fungi
- Blood pressure-lowering effect without affecting normal blood pressure
- Boosts immune system thanks to chlorophyll and vitamin C content
- Impedes infections
- Calming effect on the stomach and intestine
- Combats symptoms of fatigue and states of exhaustion
- As a face mask (see below), stevia combats acne, dermatitis and eczema
- Prophylaxis against caries
- Strengthens the immune system (due to vitamin C, numerous mineral



substances and trace elements)

Stevia as a perfect sugar substitute for diabetes

What makes stevia so different that it does not harm diabetics like sugar does?

Unlike sugar, stevia is not absorbed through the intestinal wall and not converted by enzymes in the gastrointestinal channel as the sugar bonds in stevioside are ß-glucoside bonds. Instead, stevioside is turned into steviol and sugar by bacteria in the large intestine.

However, in order to replace the average 150 g of sugar a German consumes each day with stevioside, 400 mg of stevioside would be required and only approx. 200 mg of glucose would make its way into the circulatory system. However, the body only absorbs 1/3 of the amount of glucose, which would leave us with about 70 mg per day which is, of course, absolutely negligible.

What ingredients/active substances make stevia so healthy?

It is the synergetic effect of the vitamins found in stevia (almost all B and C vitamins as co-vitamins from OPC and others), trace elements, alkaloids and diterpenes.



Why is sugar unhealthy and what are the effects?

People in industrialized countries consume approx. 110 pounds of sugar a year and it is becoming a problem of epidemic proportions which not only burdens people themselves but also our health systems.

Approx. 75 % of the sugar we absorb is found in 60 % of processed foods. As with 'hidden fats', we are largely dealing with 'hidden sugars' here, that is the use of sugar not only for direct sweetening but also as a preservative (for example: in jam) or as a flavour enhancer in meat and sausage products. Studies certify that the sweeter a foodstuff is, the more frequently it is consumed.

The fact that our palate is programmed for sugars and that the desire for sugar grows in parallel to sugar consumption is particularly problematic. Sugar is addictive – and unhealthy!

Readers got a rude awakening to the risks with the publication of Dr. Otto Bruker's book, 'Sugar, Sugar', as sugar, also known as 'white poison' has been proven to be directly responsible for numerous diseases.

The layperson may spontaneously think of caries; however there are many more, much more serious diseases which are attributed to high levels of sugar consumption.



Direct and indirect damage caused by sugar:

- Metabolic disorders, for example, excess weight
- Acidification
- Increased cholesterol values
- Nervous system diseases, multiple sclerosis
- Cancer
- Caries
- Osteoporosis/demineralisation of teeth and bones (sugar draws calcium from the body)
- Hypo and hyperglycemia
- Digestive organ diseases
- Diabetes/adult-onset diabetes
- Poliomyelitis
- Gastritis
- Diseases of the movement apparatus (rheumatism, gout, slipped discs)
- Depression
- Cancer
- Heart attack
- Acne



- Fatty liver

The following table contains some examples of 'hidden' sugar or sugar traps:[886]

180 g	Fruit yoghurt	14-4 - 19.8 g
10 g	Powdered condiment	0.3 g
15 g	Cocoa drink	10 g
50 g	Ketchup	8.5-11 g
2 dl	Sweetened drinks, for example, cola	22 g

[886] http://www.biogans.ch/erica/ern_infos/Zuckervortrag.html



2 dl	Iced tea	15 g
1 dl	Ready-made sauces	0.7 g
1 plate	Soup	0.7 g
Total		91.5 g



Further examples of 'hidden' sugar in foodstuffs:

Iced tea contains approx. 19-24 sugar cubes per litre

1,000 g of Nesquick contains approx. 840 g of sugar

Nutella consists of 60 % sugar

1 litre of cola contains 11 % sugar or approx. 37 sugar cubes

- Jam: 60 %
- Marmalade: 55–65 %
- Chocolate: up to 56 %
- Sweets: 96 %
- Liquorice: 78 %
- Chewing gum: 78 %
- Sherbet: up to 32 %
- Gummi bears: 76 %
- Cocoa drink: 79 %
- Breakfast cereals: 40–50 %
- Tomato ketchup: 30–50 %
- Apple sauce: 20 %
- Muesli: 20–30 %
- Tinned pineapple: 20



- Fruit nectar: up to 20 %
- Mustard: 18 %
- Dairy ice cream: 15 %
- Lemonade: 12 %

Why are artificial sweeteners/sugar substitutes unhealthy and how exactly do they work?

Even though, to be fair, we must classify various sweeteners differently due to their contents, any reasonably intelligent person would hear alarm bells when they read that the sweetener 'aspartame', for example, creates dangerous nerve gases when it is created which can cause, among other things, memory loss, blindness, hearing loss and depression.

Yet, in regard to aspartame, which was discovered in 1965 by a chemist from the Chicago Searle Company and enjoyed great popularity due to its sugar-like taste, it is shocking to learn that it is still contained in over 9,000 products in over 90 countries.

According to a list from the American FDA, there are over 92 symptoms which can be traced back to aspartame poisoning – here are the most serious:

- Arthrosis
- Anxiety
- Asthmatic reactions



- Abdominal pains
- Itching and skin irritations
- Dizziness
- Trembling
- Blood sugar level fluctuations
- Burning eyes and throat
- Pain when urinating
- Impotence
- Migraines
- Chronic fatigue
- Hair loss
- Circulatory disorders
- Tinnitus
- Menstrual cramps
- Eye problems
- Weight gain



In summary, the following can be said

Stevia offers the benefits of a natural sweetener with the simultaneous exclusion of disadvantages (risks) associated with artificial sugar substitutes (sweeteners) and also comes with many health benefits – or, in short: poisons welcome, healthy foodstuffs forbidden. In particular, for people who, due to chronic disease, must avoid sugar as much as possible (diabetics), stevia opens up new possibilities which expand the quality of life.

Stevia dosage: how much stevia should be used for sweetening?

As harvested and dried stevia leaves contain a greater or larger proportion of the actual sweet substance 'stevioside', depending on their origin, there is no overall answer to this question. The stevioside content fluctuates between 6 and 15 % of the dry weight of stevia leaves. Accordingly, dried stevia leaves are 18-45 x sweeter than sugar; therefore, 10 g of dried stevia leaves is equivalent to 180 g of sugar (with a 6 % proportion of the sweet substance 'stevioside', it is 450 g of sugar with a sweet substance proportion of 15 %).

Therefore, there is no clear statement which can be made here.

As a rule of thumb, you should replace 100 g of white or 90 g of brown sugar with one to two teaspoons of stevia powder or about 57 drops of fluid stevia.

CONCLUSION: You can sweeten healthily and without calories with very little stevia.

Furthermore, stevia is available in different dosage forms, such as



- a primary product in the form of fresh stevia leaves (very sweet but with a certain liquorice aftertaste)
- a primary product in the form of dried and powdered stevia leaves (but with a liquorice aftertaste)
- a fluid concentration (liquorice aftertaste)
- a powdered, white extract (no aftertaste, often mixed with the artificial sweetening substance 'maltodextrin').

Storing stevia

There are three storage rules for all forms of stevia, be it in the form of dried leaves, powder or tabs: cool, dark and dry. This can even guarantee the stevia lasts for years.

Instructions for stevia extract

It is very easy to create a fluid stevia extract yourself from stevia leaves.

Instructions

Cover dried or pulverised stevia leaves with alcohol (corn or fruit based) and leave to soak for 24 hours. Then filter off the fluid with a coffee filter and dilute with water according to taste. This also works without alcohol by using pure water. However, less of the sweet glycoside is dissolved in water, which means that a water-based stevia extract is not as sweet.

Stevia – the cosmetic



The Native Americans have been making use of the cosmetic properties of stevia for centuries. Thus, stevia is sought after for its skin-cleansing and skin-tightening effect; skin appears in a new, glowing light.

Further, stevia protects the skin with its active antibacterial and antifungal properties and accelerates wound healing.

Stevia for soft, smooth skin

It is not only the coenzyme Q10 but also stevia extracts and entire leaves which make the skin softer and smoother, improve tone and smooth wrinkles.

Stevia steam bath for even skin tones

A steam bath with stevia offers a tried and tested possibility to cleanse and refresh skin. Simply place one to two tablespoons of stevia leaves in a large bowl and cover with boiling water. Lean your head over the bowl with a towel covering it and allow to work in for a few minutes.

Stevia face mask

Massage 1 teaspoon of fine cut stevia leaves mixed with 1 teaspoon of almond meal and 2 teaspoons of water on clean skin and leave to work in for 20-30 minutes. Then wipe off with a damp towel and rinse with water.



Face mask for uneven skin tones

Mix a little quark with freshly pressed pineapple or papaya juice (combining the two will strengthen the effect) and some green healing clay. Now add a few drops of stevia extract and mix everything together.

Apply the mask evenly and leave to work in for 20-30 minutes – then rinse off with water.

Face mask for dry skin

The following face mask has proven itself to be highly suitable for dry and flaky skin: Mix a little quark with egg yolk and olive oil and a few drops of stevia. Now spread the skin mask evenly on your face and leave to work in for approx. 20-30 minutes.

Face mask for oily skin

Mix fat-free quark with stevia powder or extract and freshly pressed cucumber juice, apply the resulting face mask and allow to work in for approx. 20-30 minutes.

Stevia face mask for wrinkles

Mix quark with pineapple and papaya juice as well as stevia extract or green stevia powder. Apply the face mask evenly and leave to work in for 20-30 minutes.



Stevia bath essence

Allow stevia leaves to boil in 1 litre of water for three minutes and add the stevia bath essence to your bath water. This will soften your skin and free it from inflammation and bacteria.

Stevia dental care

The antibacterial and anti-inflammatory effects of stevia make the plant ideal for all-round dental care. Stevia prevents caries and fights gum inflammation and periodontosis. It is therefore not surprising that toothpastes in Japan and Brazil contain stevia.

Stevia mouth wash

Place some finely chopped stevia leaves or 1 teaspoon of stevia powder in boiling water and leave to boil for three minutes. Pour the cooled water through a sieve and store in the refrigerator.

This is ideal as a mouth wash and has an antibacterial effect against gingivitis, periodontosis and sore throats.

Stevia toothpaste

Obtain almond meal, peppermint oil, plant-based glycerine, cream of tartar powder and propolis powder from your health food shop. Mix 30 g of cream of tartar powder, 15 g of almond meal and 15 g of propolis powder with 15 g of stevia powder into a paste and use this as toothpaste.



Stevia as a care shampoo

Traditionally, stevia is used for dull hair and dandruff and is even meant to help with grey hair and hair loss when used regularly.

For this, use normal shampoo with some stevia extract; after washing the hair, leave this stevia shampoo to act for a short while.

Stevia as a hair conditioner

Stevia hair-cure is a special hair conditioner which returns shine and vitality to hair while restoring its natural colour and also helps combat brittle hair.

It is very easy to prepare a stevia hair conditioner: Mix 2 teaspoons of green stevia powder or stevia extract with 2 tablespoons of olive oil and 2 egg yolks. Apply the resulting conditioner to hair and leave to work in for about 1 hour then wash out with stevia shampoo.



Stevia – FAQs

What is stevia and what are its benefits?

Stevia, also known as sweet herb, sweet leaf, honey leaf or sugar loaf, is a plant species from the Stevia genus of the Asteraceae family.

Stevia's speciality lies in the fact that, even when raw, it is already 10-30 times sweeter than normal household sugar; stevia which has been processed into an extract can be as much as 300-400 times sweeter than household sugar.

This fact makes stevia ideal as a sugar substitute or a natural sweetener.

Can stevia replace sugar and artificial sweeteners?

Unlike harmful sugar (sometimes referred to by specialists as 'white poison'), stevia has a healthy sweetness and is therefore not only harmless but also a healthy alternative to unhealthy sugar and artificial sweeteners.

Why are sugar and artificial sweeteners unhealthy?

Readers became aware of the risks of sugar consumption at the very latest with the publication of Dr. Otto Bruker's bestseller 'Sugar, Sugar'. It is not without reason that sugar has been titled the 'white poison' by experts. Sugar is proven to be directly and indirectly responsible for numerous diseases.

Sweetener in itself can be unhealthy as it has nothing to do with natural foodstuffs. The sweetener aspartame is still used very frequently in numerous products, as its sugar-like taste has made it extremely popular and people assume



that governments protect us from harmful substances.

Unfortunately, this is not the case as poisonous nerve gases are created in the manufacture of aspartame which, among other things, can bring about memory loss, blindness, hearing loss and depression. You can find more details in the section 'Stevia – a healthy sugar substitute'.

Is stevia harmless to health – or even healthy?

Stevia has been extensively researched for many years and studies diagnose the plant as medically harmless. The JEFCA (including the World Health Organisation) and recently the European Food Safety Authority (EFSA) have classified stevia as having no health risks, which should soon lead to its approval as a food supplement in the EU.



Stevia is purported to have the following benefits from a health perspective:

- Protection from cardiovascular disease (highest cause of death in industrialised countries)
- Positive influence on the blood sugar level (important for diabetics)
- Aids digestion
- Regulates weight, helps with weight loss
- Impedes infections
- Anti-bacterial effect
- Inhibits the growth of fungi
- Blood pressure-lowering effect without affecting normal blood pressure
- Boosts immune system thanks to chlorophyll and vitamin C content
- Impedes infections
- Has a calming effect on the stomach
- Combats symptoms of fatigue and states of exhaustion
- Stevia combats acne, dermatitis and eczema as a face mask (see above)
- Prophylaxis against caries
- Strengthens the immune system (due to vitamin C, numerous mineral substances and trace elements)



It is suspected that the synergetic relationship between the vitamins (almost all B and C vitamins), trace elements, alkaloids and diterpenes contained in stevia is responsible for these health benefits.

Furthermore, stevia has shown itself to be a perfect sugar substitute for diabetics as, unlike sugar, stevia is not absorbed through the intestinal wall and not transformed by enzymes in the gastrointestinal channel as the sugar bonds in stevioside are ß-glucoside bonds. Instead, stevioside is turned into steviol and sugar by bacteria in the large intestine.

Does stevia contain calories?

Stevia contains no calories.

How much stevia should be used for sweetening?

There is no single answer here as this depends on the sweetness content of 'stevioside' in the dried stevia leaves.

The stevioside content fluctuates between 6 and 15 % of the dry weight of stevia leaves. Accordingly, dried stevia leaves are 18-45 x sweeter than sugar; therefore, 10 g of dried stevia leaves is equivalent to 180 g of sugar (with a 6 % proportion of the sweet substance 'stevioside', it is 450 g of sugar with a sweet substance proportion of 15 %). As a rule of thumb, you should replace 100 g of white or 90 g of brown sugar with one to two teaspoons of stevia powder or about 57 drops of fluid stevia.



Can stevia be used for baking and cooking?

Stevia is ideal for baking and cooking. This is due to the high melting point of stevia of 198 °C. Furthermore, stevioside is very resistant to fermentation and pH stable.

Therefore, stevia is not only perfect as a sugar substitute in meals and drinks but also in baking and cooking. You can find some inspiration about how to use stevia in cooking and baking under the section 'Stevia recipes'.

Is stevia available on the EU market?

Stevia is not yet available as a nutritional supplement or foodstuff in the EU. However, this should change soon, as stevia has successfully passed all the most important approval studies of the EU committees (see section 'Stevia studies') and has already long been available as a nutritional supplement on the markets in the USA, France and Japan, among others.

Suppliers use tricks and declare stevia as a cosmetic, mouth wash or bathing supplement. It is already available as such within the EU.

Ironically, stevia is already offered in the same dispensers we are already familiar with for artificial sweeteners.



How is the stevia extract prepared?

You can prepare fluid stevia extract yourself, here are the instructions;

Cover dried or powdered stevia leaves with alcohol (corn or fruit based) and leave to soak for 24 hours. Then filter off the fluid with a coffee filter and dilute with water according to taste.

Stevia recipes

Stevia breakfast recipes

Pancakes (10 pancakes)

Ingredients:

- ¼ teaspoon of stevia extract (powder)
- 3 teaspoons of baking powder
- 8 tablespoons of rye flour
- ½ teaspoon of cream of tartar
- 200 g barley flour
- ¼ teaspoon salt
- 2 eggs
- 120 ml soya milk



- 300 ml water

Preparation: mix the fluid ingredients in a bowl and the other ingredients in a separate bowl then combine the two.

Heat a pan and pour approx. 80 ml of batter into the pan for each pancake, fry until golden-brown on both sides.

Oat porridge (2 portions)

Ingredients:

- 400 ml water
- Pinch of salt
- ½ teaspoon of stevia extract (powder)
- 70 g oat flakes
- 1 cup of yoghurt.

Preparation: boil the stevia powder with water and salt in a pan, then add the oat flakes and stir. Allow to simmer for five minutes at a low heat, stirring occasionally.

Then remove the pan from the heat and leave uncovered to rest for about 5



minutes. Serve in small bowls and garnish with yoghurt.

Stevia snacks

Banana, kiwi and pear shake (2 portions)

Ingredients:

- 2 bananas
- 2 kiwis
- 1 pear
- 2 teaspoons of soya milk powder
- 2 pinches of green stevia powder
- 120 ml of apple juice

Preparation: cut the banana into slices, peel the kiwis, peel the pears, remove seeds and quarter. Place the kiwis, pears, stevia, soya milk powder and apple juice in a mixer and mix at full power – add the banana slices bit by bit and mix again until creamy.



Sweet strawberry and banana shake (2 portions)

Ingredients:

- 1 banana
- 250 g strawberries
- 150 ml grape juice
- 3 teaspoons of tofu
- Pinch of stevia extract (powder)
- 2 teaspoons of low-fat milk powder)

Preparation: place all the ingredients except the strawberries in the mixer and mix. Add the strawberries while the mix is being pureed and continue to mix until you have a creamy shake.



Rice pudding (6 portions)

Ingredients:

- 450 ml milk
- 1 teaspoon of stevia extract (stevia powder)
- 2 eggs
- ¼ teaspoon of salt
- 5 raisins
- ¼ teaspoon of nutmeg
- 2 teaspoons of vanilla extract
- 2 cups of rice (cooked)

Preparation: pre-heat the oven to 180 °C; place all the ingredients except the cooked rice into the oven dish then layer over the rice. Bake for about an hour then leave to cool.



Main courses

Sweet potato gratin (3 portions)

Ingredients:

- 2 sweet potatoes
- 11/2 onions
- ¼ teaspoon of stevia powder
- ¼ teaspoon salt
- 3 tablespoons of orange juice
- 1 tablespoon of lemon juice
- 11/2 vegetable oil
- 2 apples
- 1 teaspoon of garden herb mix

Preparation: cut the sweet potato and onions into cubes. Layer the sweet potatoes and onions in a greased oven dish. Mix the orange juice, stevia, salt and lemon juice together with the vegetable oil and then pour over the sweet potatoes and onions.

Mix everything together, cover the oven dish and bake for approx. 25-30 mins



in a pre-heated oven at 175 °C.

Herby pollack fillet (3 portions)

Ingredients:

- 450 g pollack fillet
- 3 tablespoons of red pepper, cut into small cubes
- 2 tablespoons of butter
- Pinch of stevia powder
- ½ chopped onion
- 11/2 chopped basil leaves
- 1 garlic clove, peeled and cut into slices
- 4 tablespoons of low-fat yoghurt
- 11/2 rice vinegar
- 4 tablespoons of rye bread cubes
- 1 tablespoon of vegetable oil

Preparation: place the pollack fillet into a greased oven dish. Melt the butter in a pan over a medium heat and sweat the onions and the pepper for 5 minutes in the butter, add basil and pour over the entire fish. Mix oil, stevia and yoghurt and pour over evenly. Briefly sweat the garlic and oil, add bread cubes and stir



while frying; add on top of the fish and leave to braise in a pre-heated oven at 175 °C for approx. 30-35 minutes.

STEVIA PRESS REVIEWS

'BIO' (published September 1999)

All-clear for stevia

It was widely believed that the natural sweetener stevia (see report in BIO June 1999) was carcinogenic. Here is the author's position

Friedrich Reuss, certified chemist and publicly sworn-in expert, describes the following in his report: 'Rumours about the alleged cancer risk in the use of stevia are completely bereft of any scientific basis. Due to its antioxidative contents, it can be assumed that stevia tea even has a protective effect against cancer.

The World Health Organization is currently making a concerted effort to recommend stevia as a sweetener worthy of promotion.'

Due to the scientific interests of the sweetener industry, stevia powder extract is unfortunately only sold with the label 'animal food supplement'. Do not be afraid of this enforced declaration.

Barbara Simonsohn, 22607 HAMBURG

Diabetiker Ratgeber (published June 1999)

Natural sweetener: Are you familiar with stevia?



Better known as Stevia rebaudiana *under the designation sweet herb. This is a plant which originates in Paraguay where it is known under the name ka'a he'e' and used to sweeten food and beverages. Its leaves contain different terpene compounds such as stevioside, which is much sweeter than sugar. Yet, the sweet taste is the only thing stevia has in common with sugar as stevia contains neither calories nor does it encourage caries. There are no known health risks from stevia.*

BILD online (published 26 June 2001)

Sweet wonder herb replaces sugar

New York – sugar and sweeteners are getting some healthy competition: the little-known herb 'stevia' not only tastes as sweet as sugar, it is also incredibly healthy.

Brigitte (15/99)

Really sweet

Have you heard about stevia?

Not everybody likes sweet things, honey isn't always a good accompaniment and a lot of people don't want sugar.

Luckily, there is an alternative: health food shops are offering a new sweetener to suit all tastes.

The honey leaves of the Native American stevia, a type of chrysanthemum with sweet leaves, grows wild in Brazil and Paraguay. The Native Americans have been using the herb to cook with for centuries.



Today, it is cultivated in Asia, Israel and the USA. The sweetener can already be found in chewing gum, yoghurt, cola light and soya sauce in Japan, as well as seasoning for vegetable and fish dishes. Yet, the plant substance remains insider knowledge for us.

The reason: Stevia has not yet been approved as a sweetener. This is why the dried and grated leaves are only available as 'stevia tea'. It tastes pleasantly sweet with hints of a strong liquorice concentration.

The advice on the packaging states that the infusion (half a teaspoon of leaves in boiling water) can be used as a 'natural seasoning' for beverages and meals.

You can also cook and bake with stevia powder and extract. So why haven't the authorities given it the green light? 'Because there is a lack of proof that the product is not harmful to health', explains the German Federal Institute for Consumer Health Protection and Veterinary Medicine. German importer Helga Zeck-Weitz suspects there may be another reason. 'The sugar and sweetener industry do not want the competition'.

Natur&Heilen (published December 2000)

THE STEVIA LESSON

As with many things of late, stevia has long enjoyed a sort of 'cult' status on the health scene. Not just because the herb from the South American plant brings natural sweetness to meals and beverages without any calories.

It is also believed to have all kinds of healthy effects, albeit effects about which hardly anything has been concretely proven. This jungle medicine flight of fancy was harshly brought to a standstill when EU authorities gave it the red card in their Common Market. Some observers



were surprised that, despite the 'ban', it was still sold by numerous suppliers – an indication of the general confusion in the face of more and more legal market regulations in connection with the 'globalisation' and unification of the internal European market.

Stevia was not forbidden, rather, it was not approved as a 'novel foodstuff' and foodstuff supplement according to the 'novel food provision' of the EC or as a supplement or sweetener. There are certain prerequisites for this (for example, the proof of non-toxicity), which were not considered fulfilled in this case.

The issue as to what extent stevia is affected by the EU prohibition on its sale as a foodstuff ('living stevia plant') or component of tea is still contentious.

A lance was broken for the central American sweet plant with the association 'Stevia für Alle' ('Stevia for All') (Margit Holly, Scharnhorst Str. 1, 65195 Wiesbaden, Fax 0611/9406839). Here, reference is made to the fact that recent publications regarding stevia have caused more harm than good as the plant is extolled as a 'wonder plant' – a claim which cannot be honoured.

Nonetheless, this is a valuable sugar alternative and sugar substitute and it is completely overblown when the press report statements in big letters like: 'Consumer headquarters warn about consumption.'



Raum&Zeit (105/2000, page 46)

European Union stops sales

It all sounded so good: a new type of sweetener, sweeter than sugar but completely healthy and even suitable for people with excess weight and diabetics (see raum&zeit No. 103 'Stevia – süßer als Zucker und so gesund' ('Stevia - sweeter than sugar and super-healthy').

Too good to be true?

It seems the European Union at least holds that opinion, as it has not recommended the dried leaves of Stevia rebaudiana as a novel food. The provision was issued on 22 February 2000. The EU food commission has rejected the approval of Stevia rebaudiana with the reason that there is insufficient information to guarantee that it is harmless.

Thus, the fact that, over the past centuries, many scientific investigations have been carried out internationally regarding the harmlessness of stevia, has been ignored. In Japan, for example, stevia has been approved since 1976, in Canada and the USA, Stevia rebaudiana is available as a nutritional supplement.



Strophanthin – a suppressed

'blessing for cardiology'

Strophanthin, which was known and rightly celebrated just a few years ago as 'insulin for cardiac patients', is now in dire straits and has nearly been forgotten. The specialist is astonished and the layman wonders – this could be the title of this very unique 'strophanthin case'...

Yet it refers to one of the greatest scandals in the history of German medicine, when a natural and side-effect-free herbal substance named 'strophanthin' enjoyed a glorious ascent only to reach a precipitous end a short time later, despite clearly proven and quite sensational positive effects on heart diseases and cardiac insufficiency (No.1 cause of death in developed countries!) the likes of which the medical field had never seen.

Let's start from the beginning

We're writing in the year 1859. A certain Dr. Kirk is travelling through Africa and the seed of the strophanthus plant, of all things, contaminates his toothbrush, whereupon his heart problems quickly improve, to his amazement (it is bizarre that it should be this substance, as the natives still use it for their poison-tipped arrows!). The swift improvement of his condition prompted Dr. Kirk to take strophanthin to Europe. This is how strophanthin reached the European continent and was made available for scientific research.



However, it would be another 26 years before, in 1885, a British doctor named Thomas Fraser researched the therapeutic value of g-strophanthin, a herbal substance, in the seed of the native African climbing shrub with the botanical name of 'Strophanthus gratus', and introduced it to clinics in the form of a tincture by the name of "Tinctura Strophanthi'. In 1893 the 'Tinctura Strophanthi' was officially recorded in the German Pharmacopoeia.

Strophanthin is systematically used for the first time by Professor Albert Fraenkel in Germany, who verified extremely successful healing cases with this natural substance.

Because some people were not as tolerant of the oral form of strophanthin (also often referred to as 'ouabain') at the time, but studies were very promising, it was decided that strophanthin would simply be administered intravenously.

Between 1905-1950, the intravenous form of strophanthin was a leading medication in German cardiology (heart medicine), the prophylactic and therapeutic effects of it on heart symptoms, especially in the treatment of angina pectoris and prevention of heart attack, were in fact incomparable with anything else – it was quite affordable and without notable side effects or interactions at that! The cardiac glycoside g-strophanthin was a standard treatment in every German clinic that treated cardiac insufficiency until the early 1970s. Could the increasing rate of deaths due to circulatory diseases in recent decades be explained by the fact that the popularity of strophanthin was killed off?

The statistics from Dr. Berthold Kern, who analysed strophanthin treatment



in around 15,000 patients over 40 years, with the result that, after consistent administration of strophanthin (ouabain), there was not one single death from heart attack, are especially promising and representative; yet, without strophanthin, there would have been, rounded up, 130 cases of death!

The number of reinfarctions sank from 530 to a tremendous 20 cases less severe in nature, and none of these reinfarctions were fatal.[887]

Resistance of 'Big Pharma' and academic medicine

Things came to their inevitable end in the same way many other potentially highly effective natural treatments have: strophanthin had become its own worst enemy because of its incredible effectiveness! Loudly praised by academic medicine just a few years ago, 'Big Pharma' recognised its own goal very quickly: strophanthin was doing what patients wanted and what cured them, or at least alleviated symptoms and prevented infarctions!

Yet in doing so, it was replacing countless heart medications that were lucrative for the pharmaceutical industry, and made the many operations in which academic medicine had a significant share practically redundant!

In a poll of 3,650 doctors in the year 1984, 98 % of them reported that strophanthin (ouabain) is extremely effective. The remaining 2 % attested limited effectiveness to strophanthin. None of the 3,650 doctors, i.e. 0 %, questioned the effectiveness in the poll![888]

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[887] www.strophantus.de/mediapool/59/596780/data/Dr._KernErfolgsstatistik.pdf

[888] http://www.strophantus.de/was-ist-strophantin.html



Another characteristic that spoke against strophanthin is its low price. 1 vial in the 1990s cost 1.00 deutschmark! And only about 10-15 injections are needed to achieve a satisfactory result. The commonly administered ACE inhibitors, beta blockers and calcium antagonists are far more expensive in comparison. Yet because their effects are more pronounced in their side effects rather than actually helping the patient, it simply made no sense to the influential 'Big Pharma' to replace these profitable medications with one single, less profitable medication that actually helped!

'Big Pharma', which was fearing for its survival, backpedalled and revised its positive remarks about strophanthin in countless former studies only to release new, questionable 'studies' that disparage the exact same medication that they had praised most highly just a few years prior!

This resistance was in the interests of academic medicine as well, because strophanthin ultimately threatened its own existence, as a doctor makes their living from diseases, not treatments!

Furthermore, the assumed effect mechanism of strophanthin (destabilising the metabolism in the left heart muscle) contradicted the applied heart attack hypothesis in which the heart attack is caused by arterial construction (arterial clogging of the coronary vessels).[889] Other very interesting details can be found at:

www.melhorn.de/Tribunal/index.htm

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Because the immense effectiveness has been seen (experienced) in thousands of patients but not understood, science – as evidenced by its origins in the Latin word for 'knowledge', not 'experience' – would not deign to tolerate that it has not understood anything. The vain and corrupt medical profession, among them leading professors, hoisted the flag of 'Big Pharma' and became emphatically involved in the enormous smear campaigns against strophanthin. In the modern medical profession, it is downright taboo to even utter the word 'strophanthin', as it has long been frowned upon!

The unending fight over strophanthin stretched across decades. Members of the *International Society for Fighting Infarction*, supporters of strophanthin engaged in actual fights with obstinate representatives of the conservative medical establishment, even in front of television cameras during an airing of 'Report' in 1976. The enemies' strategy was always the same: Either they were silent on the positive effects of strophanthin, or according to Prof. Schettler, they obligated influential representatives of academic medicine to aggressively blow the battle horn – both were very efficient, but the resistance would not yield.

Thankfully there is still a score of doctors who earn their title and have sworn the Hippocratic oath out of their deepest conviction for humanity, and not for their own wallet or the pharmaceutical industry. These doctors continue to fight, albeit less organised than in the 1970s, to make strophanthin accessible to every cardiac patient. For example in Germany alone, 2,000-3,000 doctors



still administer oral g-strophanthin, particularly to prevent and treat angina pectoris and heart attack.[890]

Contradictory treatment

Absurdly, one side maintains the mistaken claim that oral g-strophanthin is virtually ineffective because of insufficient resorption, while the other side calls for approval of the medication, and in order to secure the monopoly on the 'oh so ineffective medication' and to control it (so it does not fall into the hands of homoeopaths and natural practitioners), g-strophanthin was promptly subjected to prescription requirements by the other side.

Make of that what you will!

The doctor's dilemma

A doctor must be highly conversant in the things that go on behind the scenes in order to prescribe a medication that, according to the current ('adjusted') textbooks, allegedly does not work. It is all the more difficult to find a loyal and responsible doctor who will prescribe strophanthin to you. In the 'Strophanthin doctors' section, you will see a precise list of these doctors who know better than established academic medicine...

Furthermore, the decision to make strophanthin a prescription medication was

[890] gesund-im-net.de/strophanthin.htm



justified by 'fluctuations in resorption' (absorption by the body), which was in turn based on one single study. Specifically, the resorption distribution came about through scientifically unreasonable studies in which the strophanthin was administered once before and once after eating, which would of course result in different resorption curves.

For an example of some aspects of this topical issue of strophanthin, refer to this quote from Prof. Udo Köhler:

'By taking 1 capsule of Strodival mr® twice a day [editor's note: oral, stomach-resistant form of strophanthin], I have been able to rid myself of the pain of a treatment-resistant case of the most severe coronary sclerosis with angina pectoris, post-heart attack, which was given up on by a renowned heart clinic and not without reason, and have been enjoying this pain-free condition for months.

Yet this solves one of the most urgent problems of modern practical medicine, the connection between old medical knowledge with usage of the latest fundamental research and technology, and every doctor has finally been given an effective weapon in the fight against coronary heart death.

To point out the national significance of these circulatory diseases would be like carrying coals to Newcastle. But maybe those responsible will think about how many millions of deutsch-marks could be saved every year if the emphasis in the fight against heart attack was placed in the hands of practical doctors and internists'.[891]

True words! The case described ultimately reflects just one of many examples

[891] Prof. Udo Köhler: Schach dem Herzinfarkt (Checkmate for heart attack), published in: Zeitschrift für Allgemeinmedizin (Journal of General Medicine), 1976, 52, p. 1103 f.



of various cures for so-called 'hopeless cases'. The last section, unfortunately, clashes with the mindset and function of lobbying within politics.

On top of that, there are the specialist journalists who are not afraid to report the successes of strophanthin to this day.

For example, the renowned British publication International Journal of Clinical Practice published a review article in November 2010 with the title 'Ouabain – the insulin for the heart' about the remarkable treatment successes. You can find a short preview of this article at:

http://onlinelibrary.wiley.com/doi/10.1111/j.1742-1241.2010.02395.x/abstract

The section 'Strophanthin studies' highlights this statement with representative studies of thousands of patients for the unmatched effectiveness of strophanthin with as good as no notable side effects.

Interestingly, there are even newer studies on this topic, e.g. one from March 2010. Is there hope that strophanthin will get the appreciation it deserves, albeit belatedly? This remains to be seen, because the opposition is strong and strophanthin is simply an obstacle to billions in profits!

Current approval or ban situation

The producer of strophanthin, the company MEDA, has since been ordered to submit a double-blind study on the medication 'Strodival' that must fulfil



the current complex and extremely costly requirements. These modern standards are only financially feasible for the giant pharmaceutical corporations, but MEDA is not a giant pharmaceutical corporation.

Because MEDA also holds no patent right for the production of strophanthin (all patent rights expired decades ago, which is why strophanthin is so cheap to sell!), this raises the justifiable question of whether they would like to, or are even able to, take on these massive costs.

In order to prevent the impending, abrupt END of strophanthin, a group of scientists got together in 2005, wrote to members of the German parliament and presented convincing statistics, facts, and countless positive patient stories. Many of the politicians who received their letters turned to the German Federal Institute for Drugs and Medical Devices (BfArM). In response, there was an extension for the post-approval of Strodival in 2006, but the large-scale study is still being requested. One major problem was postponed, if not resolved, and it could be a scandal of the highest order, a downright tragedy, if we should one day lose this medication...

Statements from leading physicians about strophanthin and their experiences in practice

According to a representative poll of 3,650 doctors in the year 1984, 98 % of the doctors polled attested to the extreme effectiveness of strophanthin. The remaining 2 % reported limited effectiveness of strophanthin, and none of the



doctors polled denied its effectiveness![892]

Prof. Udo Köhler:

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Professor Ernst Edens, Medical University Clinic Düsseldorf

'To not administer strophanthin is tantamount to medical malpractice'.

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[892] http://www.strophantus.de/was-ist-strophantin.html

[893] Prof. Udo Köhler: Schach dem Herzinfarkt (Checkmate for heart attack), published in: Zeitschrift für Allgemeinmedizin (Journal of General Medicine), 1976, 52, p. 1103-1104



Professor Dr. Sarre, director of the Medical University Policlinic Freiburg, Breisgau:

'One may want to assume that strophanthin should only be administered in cases in which angina pectoris is linked with cardiac insufficiency. To which the following must be said:

every case of angina pectoris with existing or the onset of coronary sclerosis will, sooner or later, lead to myocardial damage, to myodegeneratio cordis [...]

[...] On the other hand, we know that the digitalis bodies in every affected myocardium, especially with all degenerative myocardial damage, are effective in that they discretely manipulate the metabolic conditions of cardiac insufficiency, especially by improving oxidative recovery processes while saving oxygen.

These processes counteract the malign effects of oxygen shortage, as in the case of coronary sclerosis, in every case. Digitalis bodies and strophanthin would thus be appropriate with every ischaemia of the myocardium, with every coronary insufficiency'.

Prof. Hallhuber, prominent cardiologist and founder of the Deutsche Herzsportgruppen:

'It is also worth noting that the optimum treatment success in 10 out of 30 coronary patients was achieved after the end of the strophoral shock, so after just 3 days'.



Dr. Bergener/Dr. Neller:

'Clinical experience shows time and again that the physiological failures in older patients develop in connection with asymptomatic heart weakness or concurrently with infections or other somatic states of illness.

In most cases, the early administration of a strophanthin treatment achieves both cardiac re-compensation and at the same time compensation of the central failures without additional therapeutic measures, apart from antibiotics which are necessary in individual cases.

Dr. W.-D. Heiss, Laboratory for Brain Circulation at the Department of Neurology in the Medical University of Vienna:

'The clinical experience that strophanthin has a therapeutic benefit for stroke patients is supported by the results reported here.

Regardless of the underlying illness, and equally in insufficiently and sufficiently supplied brain tissue, the circulation was significantly improved with ouabain, even with an absence of manifest cardiac de-compensation; the effect is clear just 15 minutes after ouabain is administered, however it is still clearly evident after 90 minutes.

The results of Solti and colleagues who observed increased brain circulation after strophanthin with a nitrous oxide method are thereby confirmed and extended'.



Dr. Stoerger, Nuremberg:

The use of strophanthin, which is the 'milk of old age' is recommended by other authors. Astonishingly, delirious states, apathy, drowsiness and even loss of memory performance are combatted effectively with this.

Prof Dr. G. Hofmann:

'A great deal of importance is placed on reinvigorating the circulation and the cardiac situation. We always use strophanthin or a heart-supporting preparation, regardless of the proven cardiac insufficiency.

The direct circulation-promoting effect of strophanthin on the brain's metabolism has been proven'.

Further advocates and tireless campaigners for strophanthin include Manfred von Ardenne, Prof. Glatzel and Prof. Girogio Baroldi.

Strophanthin and its unbelievable effect in heart failure and heart diseases and also in other diseases.



If you examine the topic of 'strophanthin' more closely and objectively analyse more impartial studies, practice cases and doctors' statements, it becomes clear that strophanthin, despite the negative, partial statements, remains, to this day, by far the best known heart medicine with the fewest side effects. The famous 'Stuttgart Study', which documented the treatment success of 15,000 heart patients over 40 years, observed a reduction in the number of deaths from 130 (patients previously treated with conventional heart medication) to 0 (patients treated with strophanthin) and reinfarction was reduced from 530 (with conventional medicine) to 20 minor reinfarctions when treated with strophanthin.

The hardened critic may argue that studies can be influenced and falsified. However, the survey of 3,650 doctors from 1984 who used strophanthin in treatments should silence all the critics – 98 % of the 3650 doctors questioned attested to the extreme effectiveness of strophanthin, the remaining 2 % still attributed a limited effectiveness to strophanthin and none (0 %) of the doctors questioned in the survey doubted or denied the effectiveness of strophanthin![894]

Strophanthin - one of the body's own hormones

Prof. Schoner from the University of Giessen succeeded, between 1999–2003, in proving that strophanthin, or more precisely, g-strophanthin, concerned an

[894] http://www.strophantus.de/was-ist-strophantin.html



endogenous hormone in our circulatory system which is released during physiological stress in the appropriate required dose, similarly to insulin.[895] Therefore, strophanthin is produced by the body if the heart requires increased oxygen, for example, during sport.

Apparently, g-strophanthin stimulates the sodium-potassium pump which supports the heart's metabolic process and protects it from overexertion.

In addition to its heart-strengthening effect, strophanthin demonstrates a further important function, namely deacidification of the heart muscle. Many scientists across the world consider acidification g of our entire organism due to incorrect nutrition, stress and other factors – and consequently also the acidification of the cardiac muscles – to be the actual reason for heart attacks and strokes.

The left inner layer of our heart, which is at particular risk, has a pH value of 7.2 in a healthy person. In a person suffering from a heart condition it shows a value of 6.8 – and the threshold for an attack is a pH value of 6.8.

Stimulation of the cellular sodium-potassium ATPase by strophanthin, which helps to pump the sodium out of the cells while simultaneously supplying them with potassium, is of significant importance for many basic heart cell functions

[895] Schoner, W. et al.: Ouabain as a Mammalian Hormone, Ann. N. Y. Acad.Sci. 2003, 986, pp. 678–684



and precipitates in cell deacidification which can decisively prevent a heart attack. Here, too, the deacidification of the organism is clearly a fundamental component of effective heart therapy!

The red blood cells (erythrocytes), solidified by acids can reform again and enter the heart (and brain) through the smallest capillaries in order to supply them with oxygen (= prevent heart attacks and strokes).

Professor Dr. Sarre, Director of the Freiburg Medical University Clinic (Breisgau), furthermore, considers oxygen supply to the heart as decisive for the success of strophanthin.[896]

The effect of strophanthin can be summarised as follows:

Strophanthin supports the heart's metabolism, normalises its metabolic state and thereby protects the heart muscles during overexertion. The concentration of g-strophanthin found in a healthy human body at these times is comparable to the amount of active strophanthin which is successfully administered during intravenous treatment.

Strophanthin has been proven to have an effect on several components in the organism:

- the heart muscle (myocardium),

[896] http://www.strophantus.de/mediapool/59/596780/data/Sarre.pdf



- the arteries,
- the red blood cells (erythrocytes)
  and
- the nervous system.

Extensive research has not yet been carried out as to why the body of a person suffering from a heart condition loses the capacity to create strophanthin itself. The fact is that most people suffering from a heart condition are treated with standard, conventional medicines such as beta-blockers and ACE inhibitors.

It is also true that animal studies have shown that precisely these medicines block the body's own distribution of strophanthin![897]

Strophanthin – 'insulin for the heart'?

Strophanthin is a natural, endogenous hormone which regulates the heart's metabolism and thereby protects against heart attacks like no other substance, yet it is produced in insufficient amounts in people suffering from heart conditions?

The inevitable comparison with insulin in cases of the pancreas and diabetes comes to the fore, as continually reinforced in specialist literature.

Can a heart attack be prevented with the help of strophanthin (Ouabain) similarly to hyperglycaemia and its serious effects in the case of diabetes? Perhaps

[897] Schoner, W. et al.: Ouabain as a Mammalian Hormone, Ann. N. Y. Acad.Sci. 2003, 986, pp. 678–684



the pharmaceutical industry has too much to lose if this natural substance replaces countless, unnecessary yet expensive medicines which are partially accompanied by extremely serious side-effects while perhaps even relieving a patient of his or her problems?

Is oral strophanthin effective or does it need to be taken intravenously?

If we want to spiritedly add weight to a lie regarding oral medicines in order to advise against their ingestion, nothing is easier than to simply deny the effect with the classic reasoning that the active ingredient will not survive the gastric juices.

Opponents to strophanthin try to maintain this lie to this day.

Dr. Heyde maintains that the negative results presented for the alleged inefficacy of strophanthin are due in part to insufficient dosing or the attempt to make edematous, tachycardic legal insufficiency of oral treatment accessible.

However, observations from practice give a clear message:

Sensational effect in 99 % of angina pectoris patients after just two weeks

During twelve years of treatment with stomach resistant strophanthin capsules, Prof. Dohrmann from the Berlin Clinic achieved complete relief of symptoms in a sensational 99 % of all patients with serious angina pectoris!



In the meantime, studies by researchers such as Hildegard, Marquardt and Lendle[898], among others, have proven that g-strophanthin is reabsorbed into the gastrointestinal tract, survives the stomach and intestine unharmed and... works! (See also the diagram regarding the effect of oral strophanthin under the point 'Strophanthin Studies').

A summary about this position by Prof. Dr. Sarre, Director of the Freiburg Medical University Clinic in Breisgau:

'Accordingly, there can be no doubt that the combination of 90 % g-strophanthin and a reduced strophanthin present in Strophoral is effective.'

Further, animal trials with radioactively marked g-strophanthin demonstrated a strong capacity to reabsorb strophanthin from oral administration:

- in guinea pigs, 45 % of the administered strophanthin was proven after six hours,
- in rats it was 20 % after twelve hours and
- in guinea pigs after seven days a notable 67 %.

Of course, intravenous administration of Strophoral is much more effective; according to a study, the oral consumption of 3 mg of Stophoral is comparable to the effect triggered by 0.25 mg of intravenously administered strophanthin,

[898] www.strophantus.de/mediapool/59/596780/data/Sarre.pdf



extrapolated to an impact ration of 1:36 (thus, the intravenous effect in comparable amounts to the oral effect is 36 x stronger than the oral effect!).

Extremely successful application of strophanthin for acute heart attacks

Both the oral and intravenous administration of strophanthin have proven to be extremely successful and life-saving in the prevention of heart attacks, even in cases of acute heart attacks.

Prof. Dohrmann achieved '*the world's best survival rates*' for acute heart attacks using strophanthin at a clinic in west Berlin; over 1000 attacks were analysed to give this result.

Similar successes were confirmed by Prof. Agostoni in Milan.

You can find further conclusive facts regarding the effect of strophanthin in studies under the section 'Strophanthin studies'.

Strophanthin normalises blood pressure

Numerous studies (see also the section 'Strophanthin studies') and doctors' statements confirm the normalising effect of strophanthin on blood pressure. However, it should be emphasised here that this effect occurs over weeks and months and is sustainable while the symptoms from angina pectoris often disappear after just a few days of consuming strophanthin.



The effect of strophanthin against strokes

Although there are extensive studies in regard to the prevention and treatment of heart diseases there are sufficient expert opinions which also consider strophanthin extremely effective in the event of a stroke. These expert statements which reinforce the efficacy of strophanthin against strokes are presented below:

Dr. Bergener/Dr. Neller:

'Clinical experience shows again and again that the physiological failures in older patients develop in connection with poor symptoms of heart weakness or concurrent with infections or other somatic states of illness.

In most cases, the early administration of a strophanthin treatment achieves both cardiac recompensation and at the same time an offset of the central failures without additional therapeutic measures, apart from antibiotics which are necessary in individual cases.

Dr. W.-D. Heiss, Laboratory for Brain Circulation at the Department of Neurology in the Medical University of Vienna:

'The clinical experience that strophanthin has a therapeutic benefit for stroke patients is supported by the results reported here.

Regardless of the underlying illness and in equal measure, whether the brain tissue was sufficiently or insufficiently supplied, the circulation was significantly improved with Ouabain, even with an absence of manifest cardiac de-compensation; the effect is clear just 15 minutes after Ouabain is administered, however it can still be proven after 90 minutes.



The results of Solti and colleagues who observed increased brain circulation after strophanthin with a nitrous oxide method are thereby confirmed and extended.'

Prof. Udo Köhler: *'Check-mate, heart attack'*

Dr. Stoerger, Nuremberg:

The use of strophanthin, which is the 'milk of old age' is recommended with other authors. Astonishingly, delirious states, apathy, drowsiness and even loss of memory performance are combatted effectively with this.

Prof Dr. G. Hofmann:

'A great deal of importance is placed on reinvigorating the circulation and the cardiac situation. We always use strophanthin or a heart supporting preparation, regardless of the proven cardiac insufficiency.

The direct circulation-promoting effect of strophanthin on the brain's metabolism has been proven.'

Effect on other diseases

The stimulating effect of g-strophanthin on sodium-potassium pumps includes a demonstrably positive effect not only in people with heart disease and strokes but also on those suffering from dementia, endogenous depression, bronchial asthma, sepsis and glaucoma.

Furthermore, experts estimate that the effect on the sodium-potassium pumps is equally important as the positive effect on countless other symptoms for



which there are to date no empirical values or studies with strophanthin.

In summary, strophanthin:

- has a preventative effect against heart attacks,
- minimises the effects of a heart attack,
- prevents strokes,
- minimises the effects of strokes ,
- in the event of angina pectoris,
- in the event of heart failure,
- combats high blood pressure (not just a one off reduction but it normalises it when it is too high!),
- has an effect on occlusive artery diseases,
- has an effect on bronchial asthma,
- Glaucoma,
- Sepsis
- Dementia,
- endogenous depression.



Strophanthin studies

The 'Stuttgart study' on 15,000 heart patients[899]

During observations made over many years on 15,000 heart patients, Dr. Kern attested that strophanthin had an impressive therapeutic success rate in the 'Stuttgart study'.

In comparison to conventional medical therapy, the number of deaths sank from 130 to 0 when strophanthin was administered! Furthermore, the number of 530 reinfarctions fell to 20 reinfarctions of a lesser degree with the administration of strophanthin!

Report from the Gelsenkirchen mine

According to a report from the Gelsenkirchen mine following a year where three people had died from heart attacks, during an observation period of ten years after the preventative administration of strophanthin not a single further death was recorded.[900]

[899] www.melhorn.de/Strophanthin

[900] www.strophantus.de/was-ist-strophantin.html



Change in heart performance half an hour after the administration of strophanthin perlingually (6 drips of Strophinos) in patients with coronary sclerosis and angina pectoris[901]

	Stroke volume in ccm		Frequency		Minute volume in litres	
	before	**after**	**before**	**after**	**before**	**after**
F.K. 54 years	60.9	109.6	79	71	4.81	7.72
F.K. 64 years	150.6	184.7	52	49	7.83	9.05
A.W. 49 years	97.0	119.0	73	63	7.81	7.49
P.H. 74	130.6	141.9	69	62	9.01	8.80

[901] http://www.strophantus.de/mediapool/59/596780/data/Sarre.pdf



years						
M.M. 59 years	87.1	108.2	67	64	5.84	6.92
A.B. 56 years	76.8	83.9	80	78	6.15	6.53
L.S. 54 years	85.0	104.0	81	77	6.88	8.00
O.S. 49 years	69.5	91.9	74	58	5.14	5.33
F.S. 50 years	56.5	57.5	95	83	5.36	4.77
K.L. 75 years	65.7	89.6	80	75	5.25	6.72
B. T. 64 years	93.9	116.6	78	73	7.32	8.51
H.L. 46 years	95.6	104.9	63	61	6.02	6.39



According to observations over twelve years of treatment, strophanthin effective for 99 %

Prof. Dohrmann treated his patients with strophanthin capsules for twelve years at a clinic in Berlin.

85 % of patients who suffered from serious angina pectoris experienced total relief of symptoms after one week of taking the stomach resistant strophanthin capsules, after two weeks it reached 99 %.



Strophanthin normalises ECG values in double-blind study

Researchers Reisner and Kubicek reported on 22 heart patients (KHK) to whom they administered strophanthin and then exposed them to ECG stress.

The ECG values improved in 19 cases (ST-segment); in 7 of these 22 cases values were even completely normalised! Only 4 patients experienced some kind of discomfort.

Conversely, in the placebo group only four test subjects did not feel these symptoms, furthermore there was no positive effect. Incidentally, Digitalis, the medicine which is most often incorrectly confused with strophanthin, actually leads to deterioration and partially to ECG termination.[902]

Oxygen savings and reduced oxygen consumption with strophanthin

Researcher Gremels observed oxygen savings and reduced oxygen consumption in animal trials even with the smallest doses of strophanthin.[903]

[902] Kubicek and Reisner: Hypoxia tolerance in coronary heart disease under the effect of Digoxin, Beta-Methyl-Digoxin and g-strophanthin, Therapie der Gegenwart 1972, 112, pp. 747–768

[903] www.strophantus.de/mediapool/59/596780/data/Sarre.pdf



Provoked heart attack clearly smaller if strophanthin has been administered in advance.

Researchers at the University of Toledo were able to prove in animal trials that the number of heart attacks triggered by suppressed circulation is significantly lower if strophanthin is administered in advance.[904]

Impressive effect of oral strophanthin confirmed in double-blind test

In a double-blind study carried out by researchers Schneider and Salz on a total of 30 patients in seven practices attested to the highly significant positive effect of oral g-strophanthin after just two weeks.

While every single patient benefited from strophanthin, there was deterioration in almost all participants in the control group (placebo).[905]

In studies, strophanthin strengthens heart performance and reduces blood pressure

In a comparative study between dioxin and strophanthin, dioxin increased heart performance by 25 %, strophanthin by an incredible 41 %. Blood pressure reduction was only achieved with strophanthin.

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[904] www.ncbi.nlm.nih.gov/pubmed/20010435

[905] H. Salz und B. Schneider: Perlingual g-strophanthin in stable angina pectoris. Zeitschrift f. Allgemeinmedizin 1985, 61, pp. 1223–1228



Studies show strophanthin strengthens the heart and reduces blood pressure and the noradrenaline hormone content

Both when relaxing and on the bicycle ergometer, strophanthin led to an improvement in the overall state. Diastolic blood pressure could be reduced due to the diminishing peripheral vascular resistance, the noradrenaline plasma hormone content was reduced.[906]

Application of strophanthin

Strophanthin can be taken orally (tablets/tincture) or intravenously.

Strophanthin in tablet/capsule form

Generally, you should follow the advice of an experienced strophanthin doctor; you can find addresses under the section 'Strophanthin doctors'. Here, you will find a list of every doctor who can prescribe you strophanthin capsules (prescription obligatory).

For your information: These are generally prescribed as 3-6 mg 1-4 times a day. 100 capsules of strophanthin cost approx. 30 EUR. If possible, capsules should be taken on an empty stomach, at the latest half an hour before meal times, accompanied by plenty of water.

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[906] Agostoni et al. 1994



Strophanthin as a tincture/drops

As with tablets, strophanthin drops (tincture) require a prescription.

Strophanthin from seeds (Strophanthus gratus)

As an alternative to capsules or tinctures you can also source strophanthin seeds (Strophanthus gratus) – comparatively, however, the effect of tablets and tinctures is much more predictable.

The following preparations are available from chemists:

- allopathic g-strophanthin drops (prescription required)
- allopathic k-strophanthin drops and iv ampoules (prescription required)
- Strodival mr® stomach resistant capsules (prescription required)
- Kombetin® ampoules for intravenous administration (prescription required)
- Oleum Strophanthi forte® soft capsules (prescription required)

In addition, there are many homeopathic remedies available without a prescription.



Strophanthin is always ready as a life-saving emergency medicine

Strophanthin experts recommend that people suffering from heart conditions always carry an emergency dose of 3 mr strophanthin tablets (the stomach resistant version) with them. In an emergency (stroke, signs of a heart attack), bite two in your mouth. Others have already been helped in this way; for this reason, squeeze out the entire capsule and the wipe the contents onto the inner cheeks of the victim (in order to enable absorption via the oral mucosa.

Side-effects of strophanthin?

Despite the alleged side-effects of strophanthin, after 150 years of use there are no records of notable side effects or drug interaction in connection with real strophanthin. Side effects or interactions are reported much more in connection with the medicine 'Digitalis' (incorrectly equated to strophanthin!). Digitalis has a very similar chemical structure but has a much weaker effect and, unlike strophanthin, it does not promote deacidification.

The tablets can trigger irritation of the mucosa in the mouth or gastrointestinal tract in around 10 % of all users. The drops can represent a real alternative here. You can obtain them from the Schloss-Apotheke Koblenz, with a prescription, under the designation 'Tinctura Strophanthi'.

It is known that even water has a poisonous threshold. However, as strophanthin mainly has a stimulating effect on sodium-potassium pumps, even very low concentrations of g-strophanthin are extremely effective with few or no side effects.



However, incorrect consumption of excessively high amount may lead to possible side effects!

g-strophanthin is compatible with all (heart) medicines, so you should not assume adverse drug interactions. As strophanthin achieves far better results than typically prescribed cardiac remedies, strophanthin can reduce their use or render them superfluous. However, you should never make this decision by yourself, rather always seek clear advice from a doctor who is well versed in the use of 'strophanthin'.

Strophanthin doctors

Which doctors prescribe strophanthin?

If you do not currently have the ineffable luck of knowing a doctor who either remembers the success of the standard therapy in the 1960s or who has spent sufficient time and commitment and has the necessary specialist knowledge to research the facts about strophanthin in specialist literature and on the internet in a completely impartial manner themselves, experience has shown that you may find it difficult to convince a doctor to prescribe strophanthin. Unfortunately, younger doctors accept the mediated, misleading scientific understanding of 'strophanthin' without questioning any part of it.

A list of doctors who prescribe strophanthin



The following list comes from the fabulous and highly recommended, extensive website concerning the topic of strophanthin: www.strophanthin.de

All chemists are in the position to supply strophanthin upon presentation of a prescription. 100 capsules cost approx. 35 Dollar (or 30 EUR) with a private prescription, some costs are borne by health insurance providers.

England:

Dr. med. Jochen Philipp Handel,

Email: jochen.handel@gmx.de

USA:

94131 CA, San Francisco: ***Thomas S. Cowan****, M.D.* 661 Chenery Street, Fax : 001 415- 334-1014, Front Desk: 001 415-334-1010 http://fourfoldhealing.com/, there especially about Strophanthin to be found menuepoint in the top "articles", and there "about the medicines", and there "Strodival" (not more available, today it´s Strophanthus).

The latest writing of Dr. Cowan http://fourfoldhealing.com/wp-content/uploads/2014/05/Cowan-reprint.pdf There is a close cooperation with dr. Knut Sroka, Hamburg, Germany http://heartattacknew.com/ Here the link to a video on you tube: Cause and Prevention of Heart Attacks. A



speech from Thomas Cowan, given at the Freedom Law School in California 2009.

Dr. Cowan has written an new book on heart disease treatement, especially by Ouabain (Strophanthine). He was intrviewt by Dr. Mercola and an article postet on mercola.com on December 18, 2016.

Germany:

Dr. Debusmann, an experienced expert in strophanthin, recommends the chemist Dr. Eichele. According to his statement, this is the chemist with the longest experience in the manufacture and effects of strophanthin and manufactures his own stomach resistant capsules completely altruistically himself:

Schlossapotheke in 56068 Koblenz, Schlossstraße 17, Phone. 0261–18439, Fax. 0261–12449.

The following german doctors and therapists, listed according to postcode, are prepared to prescribe strophanthin, which requires a prescription. This concerns (almost without exception) extremely experienced doctors and therapists who have already used strophanthin in treatments for a long time and correctly prescribe this as a result of their own conviction. Moreover, in Austria you



should be able to get Strodival in any chemists without a prescription!

04109 Leipzig: Dr. med. Matthias Freutsmiedl, specialist GP, emergency medicine, homeopathy. Praxis für Ganzheitsmedizin & Prävention. Käthe-Kollwitz-Str. 69, Phone.: 0341–2 53 58 67. E-mail: info@ganzmed.eu. Homepage: www.ganzmed.eu. Dr. Freutsmiedl

14109 Berlin, Department for Natural Medicine at the Immanuel Hospital, Hochschulambulanz, Am Kleinen Wannsee 5, house 6, Phone.: 030–80505 306.

20255 Hamburg: Dr. Knut Sroka, GP, acupuncture. Stellinger Weg 47, Phone.: 040–4918398.

24582 Wattenbek: Dr. med. Helmut Völkner, Tulpenweg 11, Phone.: 04322–1808.

31542 Bad Nenndorf: Dr. med. Bärbel Schick, Hauptstraße 59, Klinik Niedersachsen. Phone.: 05723 707165.

e-mail: baerbel.schick@online.de

34471 Volkmarsen-Külte: **Dr. med. Ingeborg Debes**. Auf'm Hakenberg 11a. Phone. 05691–7740.

36129 Gersfeld/Röhn: Dr. med. Jürgen Freiherr von Rosen, Fritz-Stamer-Straße 11. Phone.: 06654–160, e-mail: info@schloss-klinik.de



39319 Jerichow: Mr Frank Buff. Psychiatrist and alternative medicine practitioner: frankbuff@web.de

42899 Remscheid: Mr Walter Steege. Specialist GP, psychotherapist, natural medicine, Eisernsteinstraße 16. Phone.: 02191/569898, Fax: 02191–55628. E-mail: walter.steege@web.de.

51556 Windeck: Mr Hans Kaegelmann, internist, PO box 1168. Phone.: 02292–7906. Fax: 02292–67069.

56170 Bendorf: Dr. med. Arnold Weidel. Merowingerweg 1, Phone.: 02622–156 22. E-mail: dr.a.weidel@web.de.

61231 Bad Nauheim: Dr. Peter Hain. Ludwigstr. 41. Dr. Hain is the head of the department for holistic cardiology and natural medicine at the Kerckhoff Rehabilitation Centre. Phone.: 06032–999–5820, Fax: 06032–999–5827, e-mail: p.hain@reha.kerckhoff-klinik.de

64385 Reichelsheim: Dr. med. Anke Persson. Am Schafacker 9b, Phone.: 06164–503366. Website: http://www.dr-anke-persson.de , e-mail: anke.persson@t-online.de.

65812 Bad Soden am Taunus: Dr. Marion Abeling, specialist for anaesthesiology with a specialisation in pain management, kinesiology. Waldstr. 9. Phone.: 06196–651610. E-mail: marion-abeling@t-online.de

66879 Reichenbach-Steegen: Dr. Eicke Heinicke, GP, anaesthesiology,



natural medicine, manual medicine/chirotherapy, Hauptstr. 83. Phone.: 06385–99066. E-mail: heinicke@im-puls.info

70178 Stuttgart: Mrs Waltraud Kern-Benz. Daughter of the creator of per-lingual strophanthin, Reinsburgstr. 35a, Phone.: 0711–616495 Fax: 0711–610013.

71540 Murrhardt: Mr Rainer Soeder, GP, Höschbachstr. 51, Phone.: 07192–20329, Fax: 07192–934345. E-mail: heinle_soeder@web.de.

73087 Bad Boll: Dr. Johannes Freiherr von Redwitz. Erlengarten 3, Phone.: 07164–130311, Fax: 07164–130312.

79341 Kenzingen: Dr. med. Dipl.-Ing. Klaus-Dieter Beller. Specialist in pharmacology and toxicology. Schulstraße 18, Phone.: 07644–930660. E-mail: med-tec-beller@t-online.de, www.med-tec-beller.de

80801 Munich: Dr. Norbert Kriegisch, Hohenstauferstr. 1, Phone.: 089–335337

82467 Garmisch-Partenkirchen: Mr Anton Gräupner, doctor for natural medicine, Bahnhofstr. 36, www.arztpraxis-graeupner.de/, Phone.: 08821–57646

88138 Hergensweiler. Dr. Hans Thiessen, Sennereiweg 3. Phone.: 08388–204. Specialist GP and chiropractor.

88212 Ravensburg: **Mr Rainer Wyslich**, Schussenstraße 2, Phone.: 0751–



3524663, Fax: 0751–3524664.

88239 Wangen im Allgäu: Dr. Andreas Thum. Herrenstraße 31, Phone.: 07522–912708. The specialist for orthopaedics.

94405 Landau/Isar: Dr. Günter Werner, Theresienhöhe 45, Phone.: 09951–601275.

96047 Bamberg: Dr. Berndt Rieger, Markusstraße 5, Phone.: 0951–91 799 44. E-mail: zentrumTEM@gmx.de.

96450 Coburg: Dr. med. Thomas Scheller, Heimatring 56. Phone.: 09561–30711, Fax: 09561–30003. E-mail: dr.scheller@t-online.de.

97450 Arnstein: Dr. Leonhard Wecker, doctor for outpatient operations, doctor for homeopathy and practice doctor. Thüringer Str. 13, Phone.: 09363–5051. E-mail: L.Wecker@gmx.de.

97517 Rannungen: Dr. Waldemar Weber. Ringstraße 19, Phone.: 09738–219. E-mail: post@dr-w-weber.de.

99518 Rannstedt, Thüringen: Dr. Lutz Riedel. Dorfstr. 21, Phone.: 036463–40318.

Austria:



1230 Wien: *Dr. Thomas Kroiss*, Speisingerstraße 18. Phone: 0043 1 982 5767, Email: kroiss@dr-kroiss.at

2500 Baden: *Dr. Bärbel Kullik.*

Lambrechtgasse 7, Phone: 0043 2252 42 7 42, eMail: office@bewusst-ge-sund-sein.at , Homepage: http://www.dr-kullik.com/.

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Foreword

Medicinal mushrooms are one of the oldest, most traditional natural remedies that exist and have been used in Asia for thousands of years prophylactically and therapeutically with great success.

The term 'edible mushroom' may be a little confusing here, however, in principle it is a synonym for 'medicinal mushrooms' and which resulted not least from senseless legislation within the EU despite vast amounts of representative studies which have not only proven vitalisation but even healing in a number of still very serious diseases which have been classified as 'incurable' by conventional medicine (you can read more about this under 'Studies' for the respective sub-points of the individual mushrooms).

The most well-known representatives of edible and medicinal mushrooms include, without a doubt, Reishi, Shiitake and Maitake. Shiitake in particular is extremely well-known and popular thanks to its properties as a delicious delicacy.

Reishi, on the other hand, is rarely seen on a gourmet cook's menu; it has a tougher, harder consistency. The Reishi Ling-Zhi on the other hand has really had to earn its fame and renown solely due to its excellent vitalising and healing properties.

Rightly idolised in Asia and honoured as a 'divine mushroom of immortality', 'holy mushroom', 'fountain of youth', 'herb with spiritual power', 'phantom



plant' or 'luck mushroom', it has been hinted at in traditional Asian medicine for more than 4000 years for its great merits. Thus, the Reishi mushroom is ahead of Ginseng in herbal books, in 1st place among the 120 most popular medicinal herbs.

However, it would be unfair and contrary to the objective to simply give a brief nod to other medicinal mushrooms – quite the opposite, the traditional and extremely successful therapy with medicinal mushrooms thrives on the diversity of health benefits offered by different medicinal mushrooms.

Yet, what makes these medicinal and edible mushrooms so unique and at the same time valuable? It is the perfect combination of highly nutritionally valuable biological ingredients such as glucans, polysaccharides, vitamins, minerals and secondary plant substances which supply the body with energy, boost its self-healing powers and have even been proven in studies to have a positive effect on serious diseases such as cancer, AIDS, diabetes, arteriosclerosis (see respective sub-points under 'Studies'). The following section concerns the properties and health benefits as well as the use of probably the six most important medicinal/edible mushrooms, and will introduce you in more detail to the highly interesting and optimistic topic of medicinal mushroom therapy in an understandable manner. Furthermore, diseases will be referred to where medicinal mushrooms have demonstrated an explicitly positive effect in studies.

Active agents and effects of medicinal and edible mushrooms:



In addition to vitamins, minerals and trace elements, medicinal mushrooms specifically contain the following active agents:

Medically active medicinal mushroom substances

- Polysaccharide (beta-glucan)
- Glycoprotein
- Ergosterol
- Di- and triterpene
- Eritadenin
- Phenolic derivate
- Fatty acids
- Adenosin
- Lectins
- Organic germanium
- Vanadium and other directly active antibiotic substances.

The general medically significant effect of medicinal mushrooms is described as

- anti-inflammatory
- an antioxidant
- anti-hypertensive



- vasodilatory
- diuretic
- platelet aggregation inhibiting
- thrombin inhibiting
- anti-diabetic
- lipid-lowering
- arteriosclerosis inhibiting
- liver protective
- immunomodulatory
- antiviral
- antibacterial
- antifungal
- re-differentiating
- antitumoural
- antiangiogenic
- anti-metastatic
- anticholinergic



- and adaptogenic.[907]

The use and consumption of edible and medicinal mushrooms

As you will find out in the following points regarding individual edible and medicinal mushrooms, all of the six medicinal mushrooms has its own focus where the prevention or treatment of diseases and medical conditions are concerned. Therefore, it is recommended in the event of disease that you select the mushroom which has proven itself where the respective disease is concerned (you can find the relevant studies on the following pages). For prophylaxis and disease prevention, a combination of the six mushrooms is ideal, unless they prevent a disease you have already overcome and which you wish to prevent from recurring with medicinal mushrooms. In this case you should use the medicinal mushroom proven in studies to have an effect on the respective disease.

Mushroom powder or mushroom extract?

As mushrooms are not only available in their whole form but also as powders and extracts, it seems pertinent to clarify this question next.

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[907] www.vitalpilze.de/lang/de/downloads/informationsschreiben_fuer_aerzte.pdf



Mushroom powder:

Whether loose or in a capsule, mushroom powder contains the entire dried mushroom in powder form. All the components and active agents are in effect here, just as with the entire mushroom. Many providers also mix several mushrooms together into a powder.

Mushroom extract:

Mushroom extract is manufactured using expensive extraction techniques; all the non-water soluble components are washed out during this process in order to retain the effective polysaccharides in a highly concentrated form. Approximately 20 times the concentration of these active substances can be obtained in comparison to the entire mushroom or the powder. Accordingly, these extracts are more expensive but generally more effective.

In general, we can say that powder can be taken for preventative purposes, however, in order to combat a disease or a malicious disease it makes a lot of sense to choose mushroom extract, possibly in combination with mushroom powder.

Medicinal mushroom treatments

Regular treatments with medical mushrooms can strengthen the immune system, prevent diseases, detoxify and promote energy and well-being. All of the medicinal or edible mushrooms discussed hereafter are extremely well suited



to being combined for this purpose!

Dr. Jürgen Weihofen, author of the book 'Heilpilze – Ling Zhi, Shiitake & Co schützen das Immunsystem' ('Medicinal Mushrooms – Lingzhi, Shiitake & Co Protect the Immune System') recommends, for example, starting every day with a level teaspoon of Reishi mushroom meal, regularly seasoning meals with Shiitake or adding them to the meal plan and ending the day with a capsule of Maitake and/or bearded tooth mushrooms. In addition to this, a one to six week intensive treatment is ideal during spring and autumn.

Reishi-Lingzhi, Ganoderma lucidum, Lingzhi mushroom

Name, origin, tradition

Reishi-Lingzhi, traditionally shortened to 'Reishi', is not one of the most popular edible mushrooms in traditional Chinese medicine (TCM), yet it is also one of the most important medicinal mushrooms! In old herbal books, Reishi-Lingzhi is the uncontested number 1 among the 120 most popular medicinal herbs, even ahead of Ginseng.

It is not without reason that Reishi-Lingzhi is called the 'God of medicinal mushrooms' in China.

The word 'Lingzhi' translated means 'divine mushroom of immortality', 'holy mushroom', 'herb with spiritual power', 'spiritual plant'. This alone indicates the high esteem Asians place on this medicinal mushroom. It concerns a very rare mushroom in nature which was even more expensive than gold until it



was cultivated in laboratories. Thus, a Reishi mushroom in a Chinese pharmacy costs approx. 10 Yuan, while a Chinese citizen earns just 60-80 Yuan a month![908]

Reishi enjoys a very long tradition in Chinese medicine and Japanese medicine and has been successfully cultivated there for more than 4000 years.

Honoured as 'mushroom of immortality', 'fountain of youth' and 'lucky mushroom', Reishi was to travel beyond Asia in the past decades, conquer the world and make a name for itself on our latitude.

With its unusual property of resisting decay and retaining its shape even when dried, Reishi does justice to its designation as 'mushroom of immortality', and it transfers its vitalising and healing properties to those who regularly consume its extract.

Appearance and taste

From above, Reishi is reminiscent of a kidney; it is dark red and very shiny. Its stem reaches a length of approx. 15 cm. Reishi is rarely eaten in a meal due to its tough, hard consistency.

Occurrence and cultivation

Very few people know that Reishi-Lingzhi is not exclusively limited to Asia, rather it also grows on our latitude, if very rarely. Thus, Reishi can occasionally

[908] Dr. Jürgen Weihofen: Heilpilze Ling Zhi, Shiitake & Co. schützen das Immunsystem, 2001 ('Medicinal Mushrooms – Lingzhi, Shiitake & Co Protect the Immune System'), p. 26



be found on beech, oak and alder as well as other native trees.

Its high demands on external conditions make germination difficult, even in Asia, and therefore Reishi extract was still one of the exquisite delicacies of the elite population of China in the 70s. Yet, Reishi is less suited as an edible mushroom due to its hard and tough consistency. Since then, Reishi has been cultivated under the best conditions in laboratories and is available today in practically every form: extract, tablet, capsule or powder.

Active agent and effect

Reishi is characterised by an astounding number of vital ingredients and nutrients such as vitamins, minerals, trace elements and secondary plant substances.

The active ingredient groups

- Vitamins
- Minerals
- Trace elements
- Secondary plant substances
- Unsaturated fatty acids
- Alkaloids
- Glycoproteins
- Sterine



- Lactone
- Amino acids
- Carbohydrates
- Fats
- Fibre
- Polysaccharides
- Triterpenes
- Nucleotides
- Nucleosides
- Cycloocta sulphur
- Steroids

These are further subdivided into:

- Vitamins: A, B2, B3, B6, C, Biotin, folic acid
- Minerals: Magnesium, calcium, iron, zinc, copper, manganese, germanium
- Polysaccharides: Beta-D glucan, Beta-D glucan D6, FA, FI, Fi-1a, Ganoderans A, B, C,
- Nucleotides Adenosin
- Triterpenes A, B, C, D, F, H, K, R, S, Y, ganodermic acids B, Mf,



Ganodermadiol

The effect of Reishi-Lingzhi active ingredients

Polysaccharides

Specific effects of Reishi-Lingzhi include the stimulation of the immune system as well as tumour inhibiting activities which can be attributed to the many polysaccharides. Beta-D glucan has an effect against sarcomere (soft-tissue tumours) which are stimulated by macrophages to produce tumour necrosis factors (TNF), and it speeds up cell metabolism and promotes protein synthesis.

The GL-1 has an anti-tumour effect and strengthens the immune system. Ganoderans A, B and C have a regulatory effect on blood pressure. Polysaccharides also have the extraordinary capacity to increase DNA and RNA synthesis.

Triterpenes

Triterpenes possess the property of reducing high blood pressure and combatting allergies. They have an anti-inflammatory and antiviral effect, reduce the cholesterol level and protect the liver.

Triterpenes can reduce the risk of thrombosis and prevent cytotoxic cancer (as a natural chemotherapy) or support healing and anti-angiogenetically inhibit the formation of new vascular structures in the tumour.



Sterols

Sterols are the precursor for many hormones.

Alkaloids

The alkaloids in Reishi have a strong effect on our cardiovascular system.

Ganoderic acids

The prolific ganoderic acids in Reishi reduce blood pressure, are significantly anti-allergenic and have an anti-inflammatory effect by inhibiting the release of histamines.

Unsaturated fatty acids

The unsaturated fatty acids in Reishi mushrooms support the inhibition of histamine production and therefore are antiallergic.

Nucleotides

Adenosin has a relaxing effect on our muscle structure and prevents thrombosis by fighting blood platelet clotting.

Proteins

Ling Zhi-8 regulates the immune system and has an antiallergic effect.



General effects of Reishi-Lingzhi

The general effects of the Reishi mushroom can be sub-divided into categories:

- antiallergic
- analgesic
- an antioxidant
- antibacterial
- immune system strengthening
- anti-inflammatory
- cardiovascular system strengthening
- heart and brain blood circulation promoting
- blood pressure regulating,
- fatigue inhibiting
- antiviral
- anti-tumorous (anti-cancerous)
- effective against rheumatism and joint inflammation
- relaxing
- calming
- ageing preventative (anti-ageing)
- detoxifying



- liver-protecting
- liver-strengthening
- radiation protective (x-rays, UV rays)
- anti-hypertension (combats high blood pressure)
- potency enhancing
- male and female aphrodisiac
- expectorant
- fights insomnia
- fights anxiety
- fights exhaustion
- fights auto-aggression diseases
- increases performance (for example, in sport)
- improves wound healing
- inhibits pain
- reduces cholesterol and triglyceride
- anti-aggregative (fights formation of thrombosis)



Specific effects of Reishi on diseases

Reishi is traditionally used for the following diseases and medical conditions:

- Cardiovascular diseases
- Arrhythmia
- Cancer/malignant tumours (liver, lungs, stomach, skin, kidneys, brain)
- Rheumatism
- High blood pressure
- High cholesterol
- High triglyceride
- Infections
- Influenza (type A)
- HIV
- Hepatitis
- Herpes simplex
- Diabetes
- Bronchitis



- Headaches
- Insomnia
- Nervousness
- Chronic exhaustion
- Neurasthenia
- Migraines
- Constipation
- Menstrual disorders
- Mental illnesses
- Alzheimer's
- Depression
- Rhinitis
- Butterfly Rash
- Eczema
- Duodenalulcera
- Hepatodynia



- Dizziness
- Stomach and duodenal ulcers
- Atrophic myotonia
- Osteogenic hyperplasia
- Joint inflammation
- Asthma
- Joint problems and arthritis
- Ulcers
- Side-effects after radiation treatment
- Reduction of toxicity following chemotherapy
- Complaints during menopause
- Acne and ulcers
- Liver inflammations and fatty liver
- Bronchial asthma
- Chronic obstructive pulmonary disease (COPD)
- Hepatodynia



- Inflammation of the pancreas
- Tinnitus
- Alzheimer's
- Liver disease
- Food intolerances
- Nervousness
- Stomach disease
- Diabetes
- Vasospasms
- Hyperlipidaemia
- Skin diseases
- Altitude sickness
- Improved and sustained physical and physiological performance
- Prostate growth
- Bladder problems



Effect of Reishi on cancer/tumours

Reishi-Lingzhi has demonstrated an anti-tumour effect in the following types of cancer:[909]

- Breast cancer (mammary carcinoma)
- Leukaemia
- Liver tumours/liver cancer
- Lung cancer
- Prostate cancer
- Melanoma
- Sarcoma

In industrialised countries, one in two people will now contract cancer and one in four will die from it. Prevention is therefore of the utmost importance and, in this context, it is worth referring to the statement from oncologist and surgeon Dr. Morishige:

'As a surgeon, one is constantly confronted with cancer. The key to controlling cancer is early recognition. Naturally, it is even better to take preventative measures, although no completely sure method has been found here.

Some try healthy eating, yet here, too, there is no prescribed nutrition which can offer certain protection. In my opinion, the best preventative method currently available is the consumption of Reishi-Lingzhi.'[910]

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[909] www.vitalpilze.de/lang/de/downloads/informationsschreiben_fuer_aerzte.pdf

[910] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 146



Scientific study regarding the effects of Reishi-Lingzhi

Study regarding the strengthening of the immune system with the polysaccharides found in Reishi

The prophylactic and therapeutic effects of Reishi-Lingzhi have been well proven in many studies.[911]

Study regarding the effect of Reishi-Lingzhi against cancer

Ganopoly, one of the many polysaccharides in Reishi, has a cytotoxic effect on cancer cells (poisonous in the sense of a natural chemotherapy which is not harmful to humans). Furthermore, it improves macrophage proliferation and activates macrophages which take up the fight against tumour cells.[912] The ganodermic acids in Reishi increase the distribution of interleukin and interferon and lead to the programmed cell death of cancer cells by acting within the mitochondrial functions. [913]

The genodermic acids restrict the reproduction of tumorous cells by inhibiting

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[911] Zhang J. et al.: Activation of B lymphocytes by GLIS, a bioactive proteoglycan from Ganoderma lucidum. Life Sci. 2002 Jun 28, 71 (6), pp. 623-638.

Ji Z. et al.: Immunomodulation of RAW264.7 macrophages by GLIS, a proteopolysaccharide from Ganoderma lucidum. J Ethnopharmacol. 2007, 112 (3), pp. 445-450.

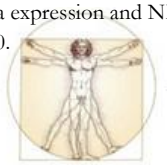
Bao X. F. et al.: Structural features of immunologically active polysaccharides from Ganoderma lucidum. Phytochemistry. 2002 Jan, 59 (2), pp. 175-81

Hua K. F. et al.: Ganoderma lucidum polysaccharides enhance CD14 endocytosis of LPS and promote TLR4 signal transduction of cytokine expression. J Cell Physiol. 2007, 212 (2), pp. 537-550.

Kuo M. C. et al.: Ganoderma lucidum mycelia enhance innate immunity by activating NF-kappaB. J Ethnopharmacol. 2006 Jan 16, 103 (2), pp. 217-222.

[912] Gao Y. et al.: Antitumor activity and underlying mechanisms of ganopoly, the refined polysaccharides extracted from Ganoderma lucidum, in mice. Immunol Invest. 2005, 34 (2), pp. 171-198.

[913] Wang G. et al.: Enhancement of IL-2 and IFN-gamma expression and NK cells activity involved in the anti-tumor effect of ganoderic acid Me in vivo. Int Immunopharmacol. 2007 Jun, 7 (6), pp. 864-870.



the formation of DNA and RNA.[914]

The ingredient ganderol B could offer an explanation for the successful use of Reishi in prostate cancer and Benigner Prostata Hyperplasie.[915]

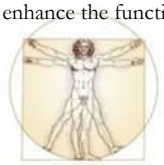
Immune functions could be improved in cancer patients

The immunological parameters of tumour patients could be significantly improved during a twelve week treatment with the polysaccharide ganopoly from Reishi mushrooms.[916]

[914] Li J. J. et al.: Effect of Ganoderma lucidum polysaccharides on tumor cell nucleotide content and cell cycle in S180 ascitic tumor-bearing mice: Nan Fang Yi Ke Da Xue Xue Bao. 2007 Jul, 27 (7), pp. 1003-1005

[915] Liu J. et al.: The anti-androgen effect of ganoderol B isolated from the fruiting body of Ganoderma lucidum Bioorg Med Chem. 2007 Jul 15, 15 (14), pp. 4966-4972.

[916] Zhu X. L. et al.: Ganoderma lucidum polysaccharides enhance the function of immunological effector cells in immunosuppressed mice. J Ethnopharmacol. 2007 May 4, 111 (2), pp. 219-26.



Beta-glucane decreases frequency of infections in studies.

In a study in Sao Paulo/Brazil, patients with serious injuries (burns, head injuries) were treated with beta-glucane from Reishi. The occurrences of pneumonia and suppuration were reduced from 65 % to 14.3 %. The number of cases of pneumonia fell from 55 % to 9.5 % and suppuration from 35 % to 9.5 %.

The mortality rate was reducing from 30 % to just 4.8 %, the hospitalisation period was also significantly shortened. There were no side effects.[917]

A further study on diabetics who had undergone operations making them particularly susceptible to infections, showed that the consumption of beta-glucane reduced the infection rate from 80 % to 25 %.[918]

Immune system strengthening effect in cancer patients undergoing chemotherapy and radiotherapy

The immune system is particularly oppressed during chemotherapy and radiotherapy. Studies have shown that Reishi can successfully counteract this and strengthen the immune system.[919]

Study regarding the effect of Reishi-Lingzhi in heart disease

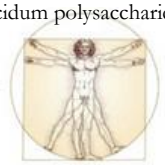
Studies in China have successfully proven that the use of Reishi-Lingzhi combats heart disease and the symptoms associated with it. Heart pains, palpitations, shortness of breath and oedema as well as cardiac arrhythmia and brain

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[917] Fuchs et al. 1998, p. 15

[918] Fuchs as cited, p. 19

[919] Gao Y. et al.: Effects of water-soluble Ganoderma lucidum polysaccharides on the immune functions of patients with advanced lung cancer. J Med Food. 2005 Summer, 8 (2), pp. 159-68



and heart circulation could all be improved.[920]

Schmaus et al. were able to prove that the Reishi extract contains an abundance of the biological ingredients which are required by the heart, such as vitamins and enzymes.[921]

Studies regarding the reduction of lipids and cholesterol

The oxygenosterols in Reishi inhibit interaction with mevalonic acids which represent the preliminary stages of cholesterol, the body's own cholesterol formation.[922]

The polysaccharides in Reishi prevent lipid peroxidation of the blood lipids and in this way can regulate the lipometabolism.[923]

In a large study in 1988 at the Cardiological Research Centre and the Nutritional Institute of the Academy of Medical Science in Moscow, different mushrooms were intensively investigated for their effect on the cardiovascular system. Reishi-Lingzhi returned by far the best results, reducing the tendency of cholesterol clot formation, which is harmful to the heart, by 41 % after just five hours.[924]

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[920] Hobbs 1995, p. 101 ff.

[921] Schmaus et al., n.d.

[922] Hajjaj H. et al.: Effect of 26-oxygenosterols from Ganoderma lucidum and their activity as cholesterol synthesis inhibitors. Appl Environ Microbiol. 2005 Jul, 71 (7), pp. 3653-3658.

[923] Chen W. Q. et al.: Effects of ganoderma lucidum polysaccharides on serum lipids and lipoperoxidation in trialal hyperlipidemic rats. Zhongguo Zhong Yao Za Zhi. 2005 Sep, 30 (17), pp. 1358-1360.

[924] Jones 1995, p. 25 ff.



Reishi studies regarding the prevention of cardiovascular disease.

The parameters for cardiovascular risk and the antioxidative status was improved in a study of healthy volunteers.[925]

Studies using Reishi for the prevention of atherosclerosis

Atherosclerosis is still considered the main reason for heart attacks and strokes, which account for 50 % of the death statistics in industrial countries. Medicinal mushrooms such as Reishi demonstrated a positive effect against atherosclerosis in studies.[926]

Study regarding the effect of Reishi-Lingzhi in liver damage caused by harmful substances

In a series of tests conducted in China, Reishi-Lingzhi achieved a healing rate of 90 % in cases of liver inflammation caused by toxic substances.[927]

Study regarding successful detoxification with Reishi-Lingzhi

Liver function tests reduce significantly after successful administration of Reishi-Lingzhi.[928]

Study regarding successful detoxification and liver therapy with Reishi-Lingzhi

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[925] Wachtel-Galor S. et al.: Ganoderma lucidum ('Lingzhi'), a Chinese medicinal mushroom: biomarker responses in a controlled human supplementation study. Br J Nutr. 2004 Feb, 91 (2) , pp. 263-269.

[926] Li Khva Ren et al.: Anti-atherosclerotic properties of higher mushrooms (a clinico-experimental investigation) Vopr Pitan. 1989 Jan-Feb, (1), pp. 16-19.

[927] Hobbs 1995, p. 103

[928] Schulten 1999, p. 63



A clinical report from China attested to a success rate of 90 % in the use of Reishi-Lingzhi for toxic hepatitis in a study of 70,000 patients.[929]

Study into the use of Reishi in hepatitis B

355 patients with chronic hepatitis were treated with Reishi in China. There was a positive reaction in 92.4 % of patients after just a short period.[930]

Studies into the use of Reishi for arthritis

In studies of arthritis patients, the inflammatory markers could be significantly reduced in comparison to the control group.[931]

Damage caused by smoking lowered by 25 % in studies.

Studies showed the Reishi mushroom could reduce symptoms of disease caused by nicotine by up to 25 %.[932]

Reishi-Lingzhi tested as safe and free from side effects in studies on humans

Clinical studies on humans were able to prove that the ingestion of Reishi is harmless to health and free from side effects.[933]

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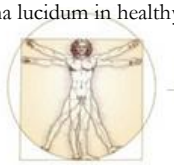
[929] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 145

[930] Gesellschaft für Vitalpilzkunde e.V.

[931] Xi Bao Y. et al.: Immunomodulatory effects of lingzhi and san-miao-san supplementation on patients with rheumatoid arthritis. Immunopharmacol Immunotoxicol. 2006, 28 (2), pp. 197-200.

[932] Schmaus et al. n.d.

[933] Wicks S. M. et al.: Safety and tolerability of Ganoderma lucidum in healthy subjects: a double-blind randomized placebo-controlled trial. Am J Chin Med. 2007, 35 (3), pp. 407-414



Application and ingestion of Reishi-Lingzhi

As previously mentioned, Reishi is rarely used as a mushroom in cooking due to its tough or hard consistency; this is why Reishi is largely administered as a Reishi powder (made from dried Reishi mushroom) and as Reishi extracts.

Both have their advantages and disadvantages: While the powder provides the complete, natural 'composition' which Reishi also provides in the correct proportions with all its components, extracts are able to provide certain important ingredients with greater intensity. Reishi powder and capsules with Reishi powder are extremely suitable for prophylaxis (prevention of disease), however in the event of disease, a combination of both makes much more sense!



Shiitake, Shii-take mushroom, Lentinula edodes

Whereas Reishi mushrooms are used almost exclusively in the form of concentrations, Shiitake has always been used as both an edible and medicinal mushroom.

Thus, medicinal mushroom researcher Dr. Jürgen Weihofen describes Shiitake as the Reishi mushroom's 'little brother'[934], not because of the close botanical relationship, but because of the equally impressive effects on our well-being and health.

While Shiitake cannot replace Reishi in terms of its health properties, its culinary qualities have ensured that Reishi cannot hold a candle to the popularity of this mushroom.

As an edible mushroom, Shiitake takes second place among the most popular mushrooms and its global campaign is unfaltering to date.

One might think it is also a good thing that Shiitake has similar disease preventing and healing effects to Reishi and that humans increasingly have scourges to fight which the pharmaceutical industry has no idea how to control.

Therefore, the Shiitake mushroom is not only a culinary experience, rather it is an à la carte health source.

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[934] Dr. Jürgen Weihofen: Heilpilze Ling Zhi, Shiitake & Co. schützen das Immunsystem ('Medicinal Mushrooms Lingzhi, Shiitake & Co Protect the Immune System'), 2001, p. 50



Name, origin, tradition

The Shiitake mushroom has been honoured in Asia (Japan, China) as an edible and medicinal mushroom for thousands of years; the earliest medical records can be found between 1368 and 1644.

The name 'Shiitake' is composed of the two words 'Shii', which is a designation of a Japanese sweet chestnut and 'Take' which simply means mushroom. Thus, Shiitake is the mushroom which grows on the trunk of the Japanese sweet chestnut; not infrequently bestowed the name 'chestnut mushroom'.

Appearance and taste

Shiitake has a classic mushroom shape, similar to button mushrooms. It is slightly brownish, has a stem and a light to dark brown cap with a diameter of 5-12 cm. The skin of the cap is usually covered with white flecks, and the stem is central or to the side of the cap.

It tastes spicy or similar to a leek, and the Shiitake flesh is somewhat firmer than that of button mushrooms.

There are two types of Shiitake: the Koshin, which has a wide opened mushroom cap and thin flesh, and the Donko, which has thicker flesh but a barely opened cap.



Occurrence and cultivation

The Shiitake is native to Japan and China; this mushroom cannot grow at our latitude. Shiitake has been specifically cultivated in Asia for around one thousand years. In addition to chestnuts, oak trees, beech, walnut trees and acorn trees are also used.

Today, cultivation takes place in huge, professional nurseries which makes Shiitake much less expensive than has been the case in the past.

The ingredients and active agents in Shiitake

Shiitake is a mushroom extremely rich in vital nutrients which contains a particularly large amount of minerals and vitamins, in particular from the vitamin B group.

However, it is the pharmaceutically effective components which are of the greatest interest for medicine, the lentinan, LEM, thioproline and eritadenine, which can even successfully take on diseases such as cancer and diabetes and make advances to the objectives of intensive research.

Shiitake – the active ingredients

- Vitamin B (thiamine, niacine, riboflavin)
- Pro-vitamin D
- Minerals (calcium, iron, calcium, zinc)
- Trace elements



- Amino acids
- Polysaccharides
- Fibre
- Lentinan
- LEM
- Thioproline
- Eritadenin

Effect of Shiitake active ingredients

Polysaccharides

Glucan

Just like Reishi, Shiitake also has polysaccharides from the glucan family, which have immune stimulating and tumour inhibiting properties.

Lentinan

The highly effective nature of this ingredient from the beta-glucan family has been reinforced since it has been officially approved as a cancer medication in Japan, China and, more recently, the USA. As it is largely destroyed by the digestive juices, lentinan is injected for this purpose.

Furthermore, lentinan stimulates the distribution of the body's own interferons which can destroy both cancer cells and viruses.



LEM

Lentinula edodes mycelium, or 'LEM', contains heteroglycans and nucleic acid derivatives such as ergosterol and eritadenin, which are particularly effective against cholesterol values and even have a positive effect against hepatitis and liver tumours (in animal studies).

Thioprolin TCA

Thioprolin is an amino acid which takes on the task of capturing nitrite in the body. Nitrite is a substance which forms cancer-inducing nitrosamine, largely in smoked meat goods but also in the body. Thioprolin can successfully intercept this production.

Eritadenine and other nucleic acids

Eritadenine promotes the reduction of cholesterol through conversion and thereby breaks the cholesterol down. Eritadenine and other nucleic acid components combat blood clotting and are therefore superbly suited to fight thrombosis.

Further, this fact has proven very helpful in the prevention of heart attacks and strokes.

Vitamin B2, riboflavin

Riboflavin takes on a further detoxification role; it can help to deconstruct



chemical toxins and environmental pollutants.

Essential amino acids

Shiitake contains a wide spectrum of amino acids. These protein components regulate our metabolism and the growth processes in our bodies. Essential amino acids are necessary for life and must be continually supplied to the body.

General effect of Shiitake (Lentinula Edodes)

The general effect of Shiitake can be described as:

- antiviral
- antibacterial
- antifungal
- expectorant
- immune system stimulating
- cholesterol reducing
- blood pressure regulating,
- anti-tumorous (anti-cancerous)
- detoxifying
- deacidifying
- anti-aggregative (fights formation of thrombosis)



Specific effect of the Shiitake mushroom on diseases

Shiitake is traditionally used for the following diseases and medical conditions:

- Cardiovascular diseases
- Cancer/malignant tumours
- Rheumatism
- High blood pressure
- High cholesterol
- High triglyceride
- Dyslipidemia
- Infections
- Osteoporosis
- Gout
- Bronchitis
- Chronic fatigue syndrome
- Allergies, general rheumatism
- Fibromyalgia
- Diabetes
- Migraines/headaches
- Arthritis



- Hepatitis B
- Tinnitus
- Migraines
- HIV
- Measles
- Chickenpox
- Inflammation of the pancreas
- Intestinal flora build-up

Effect on cancer/tumours

Shiitake have demonstrated an anti-tumour effect in the following types of cancer:[935]

- Liver cancer
- Stomach cancer
- Pancreatic cancer
- Breast cancer
- Melanoma

[935] www.vitalpilze.de/lang/de/downloads/informationsschreiben_fuer_aerzte.pdf + Gesellschaft für Vitalpilzkunde e.V.: Vitalpilze, 2007, p. 61



- Prostate cancer
- Lung cancer
- Ovarian cancer
- Leukaemia

Scientific study on the effects of Shiitake

Beta-glucane decreases frequency of infections in studies.

As mentioned before, in a study in Sao Paulo/Brazil, patients with serious injuries (burns, head injuries) were treated with beta-glucan also found in Shiitake. The instances of pneumonia and suppuration were reduced from 65 % to 14.3 %. The number of cases of pneumonia fell from 55 % to 9.5 % and suppuration from 35 % to 9.5 %. The mortality rate was reducing from 30 % to just 4.8 %, the hospitalisation period was also significantly shortened. There were no side effects.[936] A further study on diabetics who had undergone operations making them particularly susceptible to infections, showed the consumption of beta-glucans reduced the infection rate from 80 % to 25 %[937]

[936] Fuchs et al. 1998, p. 15

[937] Fuchs as cited, p. 19



Strengthening the immune system with the help of ingredients from Shiitake

The bioactive ingredient 'lentinan' from the beta-glucan fraction, increases the production of monocyte T-cells, immunoglobulin igA and intensifies the effect of macrophages against viruses and bacteria.[938]

Shiitake leads to an increased formation of anti-bodies IgF2 and IgM which also strengthen the immune system.[939]

Study regarding the reduction of cholesterol with the substances found in Shiitake

Eritadenine, a substance found in Shiitake, inhibits the influence of the linoleic acid metabolism in liver cells and thus leads to a reduction in cholesterol.[940]

Studies show Shiitake combats arteriosclerosis

An anti-atherogenic effect could be proven in Shiitake mushrooms.[941]

Furthermore, the cholesterol-lowering effect of eritadenine is connected to the relationship of phosphatidylcholine to phosphatidylethanolamine in the liver.[942]

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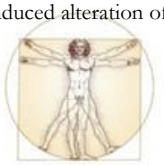
[938] Kupfahl C. et al.: Lentinan has a stimulatory effect on innate and adaptive immunity against murine Listeria monocytogenes infection. Int. Immuno-pharmacol. 2006 Apr; 6 (4), pp. 686-696.

[939] Jennemann R. et al.: Human heterophile antibodies recognizing distinct carbohydrate epitopes on basidiolipids from different mushrooms. Immunol Invest. 2001 May, 30 (2), pp. 115-129.

[940] Sugiyama K. et al.: Correlation of suppressed linoleic acid metabolism with the hypocholesterolemic action of eritadenine in rats. Lipids. 1997 Aug, 32 (8), pp. 859-866.

[941] Yamada T. et al.: Effects of Lentinus edodes mycelia on dietary-induced atherosclerotic involvement in rabbit aorta. J Atheroscler Thromb. 2002, 9 (3), pp. 149-156

[942] Sugiyama K. und Yamakawa A.: Dietary eritadenine-induced alteration of molecular species composition of phospholipids in rats. Lipids. 1996 Apr, 31 (4) pp. 399-404



Studies on the antibacterial and antifungal effect of Shiitake

A heavily reduced amount of stomach bacteria was observed after feeding with lentinan in animal trials which could be traced back to the effect of antibacterial ingredients such as lenthionine, polyphenols and terpenoids.[943] Trials on humans also showed the significant antibacterial effect of the Shiitake mushroom against harmful bacteria in the intestine, while at the same time leaving the good, pro-biotic bacteria untouched.[944]

Studies regarding the effect of Shiitake on cancer

In studies, the polysaccharide 'lentinan' present in Shiitake, reduced the growth of colonic carcinoma and other tumours.[945, 946] Furthermore, the Japanese scientist Tetsuro Ikewara from the *National Cancer Research Institute* in Tokyo was successful in fully healing six out of nine mice using lentinan.[947]

In another study, lentinan in combination with chemotherapy was able to increase the survival rate of patients with stomach cancer by 19.5 %.[948] Shiitake powder was able to effect a reversal in 40 % of mice with a sarcoma-180 tumour.[949] The increased immune activity was able to strengthen the body's own

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[943] van Nevel C. J. et al.: The influence of Lentinus edodes (Shiitake mushroom) preparations on bacteriological and morphological aspects of the small intestine in piglets. Arch Tierernahr. 2003 Dec, 57 (6), pp. 399-412

[944] Kuznetsov O. et al.: Antimicrobial action of Lentinus edodes juice on human microflora. Zh Mikrobiol Epidemiol Immunobiol. 2005 Jan-Feb, (1), p. 80 ff.

[945] Ng M. L. und Yap A. T.: Inhibition of human colon carcinoma development by lentinan from shiitake mushrooms (Lentinus edodes). J Altern Complement Med. 2002 Oct, 8 (5), pp. 581-589

[946] Maruyama S. et al.: Antitumor activities of lentinan and micellapist in tumor-bearing mice. Gan To Kagaku Ryoho. 2006 Nov, 33, (12), pp. 1726-1729

[947] Jones 1995, p. 35 ff.

[948] Chang et al. 1993, p. 264

[949] Hobbs 1995, p. 128



tumour resistance in animal trials while at the same time proving it could contain tumour formation.[950]

Studies show that Shiitake reduces high blood pressure[951]

Studies on the effect of Shiitake on HIV/AIDS

Studies showed that substances in Shiitake mushrooms were able to effect both a reduction in the production of leukaemia cells as well as an inhibitory effect on the activity of the HI virus.[952] Furthermore, the immunological parameters in HIV patients were improved in a study.[953]

Side-effects of Shiitake mushrooms and mushroom extracts

The consumption of Shiitake mushrooms and Shiitake powder and extracts can occasionally lead to allergic reactions. These mostly take the form of skin irritations, also known as 'Shiitake dermatitis'. However, to the scarceness of this occurrence, the German Federal Office for Risk Assessment has classified Shiitake as equivalent to natural food components.[954]

Application and consumption of Shiitake

Shiitake is an excellent edible mushroom which it is best to regularly include in healthy meal plans. Even when dried, Shiitake does not lose its taste and active

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[950] Zheng R. et al.: Characterization and immunomodulating activities of polysaccharide from Lentinus edodes. Int Immunopharmacol. 2005 May, 5 (5), pp. 811-820.

[951] Kabir Y. et al.: Effect of shiitake (Lentinus edodes) and maitake (Grifola frondosa) mushrooms on blood pressure and plasma lipids of spontaneously hypertensive rats. J Nutr Sci Vitaminol (Tokyo). 1987 Oct, 33 (5), pp. 341-346

[952] Ngai P. H. und Ng T. B.: Lentin, a novel and potent antifungal protein from shitake mushroom with inhibitory effects on activity of human immunodeficiency virus-1 reverse transcriptase and proliferation of leukemia cells. Life Sci. 2003 Nov 14, 73 (26), pp. 3363-3374

[953] Gordon M. et al.: A placebo-controlled trial of the immune modulator, lentinan, in HIV-positive patients: a phase I/II trial. J Med. 1998; 29 (5-6), pp. 305-330.

[954] Position of the German Federal Office for Risk Assessment from 23rd June 2004: Health risks from Shiitake mushrooms.



ingredients, meaning you can regularly garnish meals with Shiitake without having to consume a Shiitake-heavy meal every day.

If you do not like mushrooms or dread preparing them, you can get Shiitake extract in capsules from good health food shops or on the internet, which represent a good and fully functional alternative to the consumption of mushrooms.

Maitake

Maitake, Grifola frondosa, hen of the woods, hen-of-the-woods, ram's head, sheep's head

Name, origin, tradition

The translation of Maitake from Japanese equates to 'dancing mushroom'; the Latin term is 'Grifola Frondosa'. Maitake is among the most popular medicinal and edible mushrooms. According to folk lore, the Maitake should retain the name 'dancing mushroom' as mushroom pickers really danced for joy when they found the rare mushroom which, at that time, was worth more than its weight in silver. Locations were then kept secret and this knowledge was inherited through family generations. In medieval times, Maitake was reportedly even weighed against gold. The English designation of Maitake as 'hen-of-the-woods' or 'ram's head' can probably be traced back to its shape.

Appearance and taste



Maitake is grey-brown with a nut-like colour, it has a somewhat rugged shape. Its colour and shape give it an almost unbeatable camouflage which makes discovering this mushroom, which grows at the foot of beeches, oak trees and sweet chestnuts, very difficult, even given its impressive size and weight of up to 15 kg. The taste of Maitake is exquisite and aromatic meaning it is hardly surprising that Maitake is one of the most popular edible mushrooms in Japan.

Occurrence and cultivation

Today, Maitake is largely cultivated in laboratories making it very affordable and accessible to the wider masses.

Japan is the main producer of Maitake; annual production in the year 1986 grew from 2.2 to 7.9 tonnes in 1991 and to an imposing 9.6 tonnes in 1993.[955]

Maitake active ingredients

Maitake contains a series of highly-efficient active ingredients such as vitamins, minerals, trace elements and secondary plant substances, as well as immuno-modulators.

The astounding effect of Maitake, even in diseases such as cancer, is largely due to the polysaccharides; in particular grifolin and grifolan.

However, its nucleotides, guanylic acids, proteins and lectins and ergosterol as

[955] Jong, S. C. and J. M. Birmingham, Der medizinische Wert des Pilzes Grifola. Microbiol. der Welt J. und Biotech. 1990, 6, pp. 227–235



a precursor of vitamin D upgrade this medicinal mushroom to such an extent that it can even take on AIDS. You can read more about this further down under 'Studies'.

Maitake – the active ingredient groups

- Vitamins
- Minerals
- Trace elements
- Secondary plant substances
- Unsaturated fatty acids
- Polysaccharides
- Nucleotides
- D-fraction
- MD-fraction
- SX-fraction
- Guanylic acids
- Lectins
- Ergosterol
- Amino acids



- Carbohydrates
- Fats
-

-General effect of Maitake mushrooms

The general effects of Maitake can be described as:

- an antioxidant
- antibacterial
- immune system strengthening
- cardiovascular system strengthening
- blood pressure regulating,
- blood-sugar level lowering
- antiviral
- anti-tumorous (anti-cancerous)
- detoxifying
- liver-protecting
- liver-strengthening
- reduces cholesterol and triglyceride



Areas of application for Maitake in diseases

Maitake is used for the following diseases:

- Cardiovascular diseases
- Arrhythmia
- High blood pressure
- Cancer/malignant tumours
- Type II diabetes
- Osteoporosis
- HIV/AIDS
- Liver diseases such as hepatitis
- Irritable colon
- Infections
- Weak immune system
- Excess weight



Effect of Maitake against cancer/tumours

Maitake has demonstrated an anti-tumour effect in the following types of cancer:[956]

- Breast cancer (mammary carcinoma)
- Pancreatic cancer
- Colon cancer
- Liver tumours/liver cancer
- Lung cancer
- Prostate cancer
- Leukaemia
- Stomach cancer
- Ovarian cancer
- Skin cancer

[956] www.vitalpilze.de/lang/de/downloads/informationsschreiben_fuer_aerzte.pdf + Gesellschaft für Vitalpilzkunde e.V., Vitalpilze, 2007, p. 73



Maitake helps with weight loss

Maitake reduces fat storage in tissues and is therefore a very good diet partner.

Scientific studies regarding the effects of Maitake

There are also many representative studies on Maitake in regard to its prophylactic and therapeutic effect:

General studies regarding the therapeutic effect of Maitake extracts

A study was able to generally prove the therapeutic effectiveness of Maitake extracts.[957]

Studies regarding the blood-sugar reducing effect in diabetes

The water-soluble Maitake extract demonstrated a sugar-reducing effect in a study.[958]

The SX fraction, a component of the Maitake mushroom, increased glucose tolerance in animal trials without having an influence on insulin distribution.[959]

Maitake helps fight metabolic syndrome, particularly in those suffering from diabetes

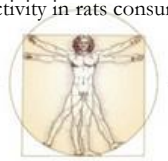
It appears Maitake can have a positive influence on metabolic syndrome, in particular in the case of Diabetes mellitus Type 2. Insulin sensitivity and the concentration of glycolised proteins could be reduced and thereby also combat

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[957] Mayell M.: Maitake extracts and their therapeutic potential. Altern Med Rev. 2001 Feb 6 (1), pp. 48-60

[958] Manohar V. et al.: Effects of a water-soluble extract of maitake mushroom on circulating glucose/insulin concentrations in KK mice. Diabetes Obes Metab. 2002 Jan, 4 (1), pp. 43-48.

[959] Preuss H. G. et al.: Enhanced insulin-hypoglycemic activity in rats consuming a specific glycoprotein extracted from maitake mushroom. Mol Cell Biochem. 2007 Aug 1, Epub ahead of print



concerning macroangiopathy.[960]

Studies regarding the reduction of high blood pressure with Maitake

Consumption of whole Maitake (instead of in extract form) has shown a blood-pressure lowering effect in studies via the effect of the renin-angiotensin mechanism.[961]

Maitake prevents the formation and propagation of cancer cells

The polysaccharide GFPS1b in Maitake is extremely efficient in preventing the formation and propagation of tumours.[962]

Maitake activates cancer-killing cells and improves the immune response

The D-fraction present in Maitake activates the macrophages and T-cells and improves the body's own defence against cancer.[963]

Maitake leads to a regression of cancer in advanced years

A clinical study of 165 patients between the ages of 26-65 with various forms of cancer in advanced stages proved that Maitake D-fraction led to a regression

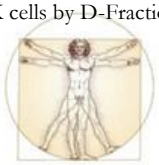
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[960] Hong L. et al.: Anti-diabetic effect of an alpha-glucan from fruit body of maitake (Grifola frondosa) on KK-Ay mice. J Pharm Pharmacol. 2007 Apr; 59 (4), pp. 575-582

[961] Talpur N. A. et al.: Antihypertensive and metabolic effects of whole Maitake mushroom powder and its fractions in two rat strains. Mol Cell Biochem. 2002 Aug, 237 (1-2), pp. 129-136.

[962] Cui F. J. et al.: Structural analysis of anti-tumor heteropolysaccharide GFPS1b from the cultured mycelia of Grifola frondosa GF9801. Bioresour Technol. 2007 Jan, 98 (2), pp. 395-401

[963] Kodama N. et all: Enhancement of cytotoxicity of NK cells by D-Fraction, a polysaccharide from Grifola frondosa. Oncol Rep. 2005 Mar; 13 (3), pp. 497-502



of tumours or significant improvements in 73 % of breast cancer patients, 67 % of lung cancer patients and 47 % of liver cancer patients. The Maitake D-fraction demonstrates a significant effect in particular in breast cancer, prostate cancer, liver cancer and lung cancer.[964]

Maitake as a natural chemotherapy against cancer

The O-orsellinaldehyde in Maitake has a cytotoxic effect on tumour cells and triggers their immediate death.[965]

Studies show Maitake normalises blood pressure and blood lipid levels.[966]

The US National Cancer Institute confirms the effectiveness of Maitake against HIV/AIDS

The U.S. National Cancer Institute has confirmed the effectiveness of Maitake against the HIV virus.[967]

Maitake is highly effective against HIV

In vitro studies in Japan have proven that Maitake D-fraction can prevent the destruction of T-helper cells by the HIV virus by up to 97 %.[968]

Maitake inhibits the activity of the herpes virus

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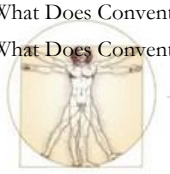
[964] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 148

[965] Lin J. T. und Liu W. H.: o-Orsellinaldehyde from the submerged culture of the edible mushroom Grifola frondosa exhibits selective cytotoxic effect against Hep 3B cells through apoptosis. J Agric Food Chem. 2006 Oct 4, 54 (20), pp. 7564-7569

[966] Talpur N. et al.: Effects of Maitake mushroom fractions on blood pressure of Zucker fatty rats. Res Commun Mol Pathol Pharmacol. 2002, 112 (1-4), pp. 68-82

[967] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 148

[968] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 148



A protein in Maitake can deactivate the herpes virus.[969]

Maitake inhibits the propagation of the hepatitis B virus

The D-fraction in Maitake in combination with interferon was able to reduce the propagation of the hepatitis B virus in infected patients.[970]

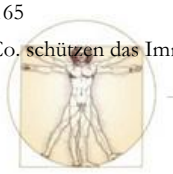
Application and ingestion of Maitake

Japanese researchers recommend three portions of 3-7 g with beverages or soups throughout the day. Treatment should last for no less than three months, although permanent consumption is possible.[971]

[969] Gu C. Q. et al.: Isolation, identification and function of a novel anti-HSV-1 protein from Grifola frondosa. Antiviral Res. 2007 Sep; 75 (3), pp. 250-257.

[970] Gu C. Q. et al.: Inhibition of hepatitis B virus by D-fraction from Grifola frondosa: synergistic effect of combination with interferon-alpha in HepG2 2.2.15. Antiviral Res. 2006 Nov; 72 (2), pp. 162-165

[971] Dr. Jürgen Weihofen: Heilpilze Ling Zhi, Shiitake & Co. schützen das Immunsystem, 2001, p. 74



Hericium/Pom-Pom

Hericium, Pom-Pom, monkey head, bearded tooth mushroom

A further medicinal mushroom we would like to introduce here is Hericium erinaceus, also known as 'monkey head' or 'bearded tooth' mushroom.

Monkey head mushrooms are wide-spread in both China and Japan and extremely popular due to their health attributes. One more reason to also put this mushroom under the microscope.

Appearance and taste

The somewhat strange sounding name 'monkey head' already reveals something about the appearance of this mushroom. The Hericium erinaceus really does resemble a Chinese monkey with thick head hair right over the face.

The Hericium basically resembles a bulb with white spikes on it. This is what lends it its name 'bearded tooth' mushroom.

Initially, Hericium is white but it changes colour with age and turns yellow-brown to reddish. It grows up to 30 cm.

Hericium is an edible mushroom with a citrus-coconut like aroma. Moreover, it has an impressive 32 aromatic substances.



Occurrence and cultivation

The Hericium was originally native to Japan and China, however, with a little due care it can also be cultivated in gardens or on balconies at our latitude.

Monkey head mushroom active ingredients

Hericium has an imposing amount of highly valuable vital substances for our health. These include polysaccharides, polypeptides and phenols, however, a great healing effect is ascribed to hericenones and hericenes.

Furthermore, the bearded tooth contains all the essential amino acids, trace elements such as iron, zinc, selenium and, in particular, the highly promising germanium, which combats tumours.

Active ingredients

- Polysaccharides
- Polypeptides
- Amino acids
- Minerals (iron, zinc, potassium, selenium, phosphorus, germanium)
- Vitamin D (biotin, ergosterol, niacin, riboflavin)
- Erinacine
- Trace elements



Its effects

Hericium is largely effective in the gastro-intestinal tract. According to TCM (traditional Chinese medicine), monkey head is particularly good for five organs:

- Liver
- Kidneys
- Spleen
- Stomach
- Heart

Monkey head also has antimicrobial ingredients which inhibit helicobacter pylori, for example, which triggers medical conditions such as stomach ulcers and diseases like stomach cancer.

Specific effects of Hericum in diseases

Hericum is often applied in the following diseases and medical conditions:

- Stomach ulcers
- Inflammation of the stomach lining
- Inflammation of the oesophagus mucosa
- Inflammation of the pancreas
- Reflux
- Heartburn



- Indigestion
- Acidification
- Crohn's disease
- Cancer
- Reduces the side-effects of chemotherapy
- Menopausal complaints
- Colitis ulcerosa
- Eczema
- Haemorrhoids
- Immunodeficiency
- Depressive states
- Depression
- Neurological diseases
- Alzheimer's
- Polyneuropathy
- Excess weight
- Intestinal flora disruption

Effect of Hericium on cancer/tumours

The monkey head demonstrated an anti-tumour effect in the following types of cancer:



- Stomach cancer
- Pancreatic cancer
- Oesophagus cancer
- Colon cancer
- Skin cancer
- Sarcoma (malignant tumour sarcoma-180)
- Malignant ascites carcinoma

Scientific studies regarding the effects of Hericium

Monkey head reduces cholesterol and triglyceride levels

In a study, the consumption of monkey head significantly reduced the cholesterol and triglyceride levels.[972]

Study regarding the immune system-strengthening effect of bearded tooth

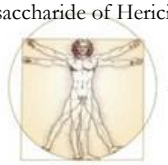
The immune system is strengthened and the body's own defence is increased due to the increase in the proliferation of T and B lymphocytes.[973]

Anti-mutagenic effect of bearded tooth prevents cancer

In studies, bearded tooth extracts demonstrated an anti-mutagenic effect

[972] Yang B. K. et al.: Hypolipidemic effect of an Exo-biopolymer produced from a submerged mycelial culture of Hericium erinaceus. Biosci Biotechnol Biochem. 2003 Jun; 67 (6), pp. 1292-1298

[973] Xu H. M. et al.: Immunomodulatory function of polysaccharide of Hericium erinaceus. Zhongguo Zhong Xi Yi Jie He Za Zhi. 1994 Jul; 14 (7), p. 427 f.



which prevents cancer formation.[974]

Anti-tumorous and anti-metastatic effects

The polysaccharides contained in monkey head mushrooms increase macrophage activity and other immune cell activity against tumour cells and had an anti-carcinogenic (anti-tumourous) and anti-metastatic effect in studies.[975]

Monkey head has a positive effect on gastritis

In clinical studies of 140 patients suffering from gastritis an improvement was achieved with the administration of Hericium in combination with conventional medicines.[976]

The efficiency of monkey head mushrooms in chronic gastritis was also determined in a double-blind study.[977]

In a further study of gastritis patients, 82 % experienced a significant improvement in symptoms, while in 58 % of cases the typical inflammation disappeared completely and the stomach lining could be sustainable rebuilt.[978]

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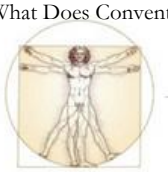
[974] Wang J. C. et al.: Antimutagenicity of extracts of Hericium erinaceus. Kaohsiung J Med Sci. 2001 May; 17 (5), pp. 230-238

[975] Wang J. C. et al.: Antitumor and immunoenhancing activities of polysaccharide from culture broth of Hericium spp. Kaohsiung J Med Sci. 2001 Sep; 17 (9), pp. 461-467

[976] Chen T. Q.: Combined traditional Chinese and western medicine for the treatment of atrophic gastritis: report of 140 cases. Zhong Xi Yi Jie He Za Zhi. 1983 Jul; 3 (4), p. 221 f.

[977] Xu C. P. et al.: A double-blind study of effectiveness of hericium erinaceus pers therapy on chronic atrophic gastritis. A preliminary report. Chin Med J (Engl). 1985 Jun; 98 (6), p. 455 f.

[978] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 138



Hericium/monkey head/bearded tooth – application

Monkey head or bearded tooth is mostly taken in powder or capsule form. However, you can also find entire ready-made cultures for cultivation on your own balcony or in your cellar.

Polyporus umbellatus/lumpy bracket

Polyporus, lumpy bracket, Zhu Ling

The Zhu Ling, Polyporus umbellatus or in English, 'lumpy bracket', can look back on a proud 2000-year tradition as a medicinal mushrooms used in Chinese medicine. The medicinal mushroom which also occurs rarely in our forests has a 2-5 cm wide, round cap and grows in clusters on the forest floor directly on beech and oak trees.

Polyporus active ingredients

Polyporus has a large amount of polysaccharides as well as ergosterol, biotin and alpha hydroxy tetracosan acid, iron, calcium, potassium, manganese, copper and zinc.

Effect of Polyporus

Current studies are still revealing positive properties of Polyporus for our health which makes them ever more popular in TCM use.

According to this medical tradition, Polyporus has an effect on the following organs:

- Spleen
- Kidneys
- Bladder

Specific effects of Polyporus in diseases

The effect of Polyporus on driving urine flow and therefore on draining, which is more successful than conventional medicines, is almost legendary. However, unlike conventional medicine, it does not result in the excretion of valuable potassium. Polyporus is extremely successful in preventing oedemas and joint swelling in a way conventional medicine cannot match, by regulating the lymphatic system and with its detoxifying effect. Polyporus has shown itself to strengthen the heart by facilitating drainage without the excretion of valuable potassium. Polyporus also demonstrated astounding ability in the event of hair loss; hair loss could be avoided and, even better, some test subjects even regrew hair in previously bald areas. Users also reported the return of their natural hair colour in previously greying hair.

Polyporus has proven itself extremely useful in the following diseases and medical conditions:

- Bladder disfunction



- Diarrhoea
- Oedema
- Fluor albus
- Nephritis
- Liver problems
- Skin problems (acne)
- Hay fever
- Hair loss
- Grey hair
- Cancer

Polyporus also demonstrates a distinct effect against Staphylococcus aureus and E. coli bacteria.

Effect of Polyporus on cancer

Polyporus has demonstrated an anti-tumourous effect in the following types of cancer:

- Liver cancer[979]
- Lung cancer

[979] Am J Chin Med. 1994; 22 (1), pp. 19–28



- Bladder cancer[980]
- Leukaemia[981]

The Polyporus mechanism can be traced back to the prevention of DNA synthesis in cancer cells which leads to an inhibition of tumour growth of 70 %.

Polyporus also alleviates the side-effects of chemotherapy. A Chinese study showed that the feared results of chemotherapy could be alleviated by consuming Polyporus (lumpy bracket); among other things, hair roots were protected and hair loss thereby minimised.

Coriolus/turkey tail

The Coriolus versicolor, also known as 'turkey tail' in English, has been used for all kinds of ailments within TCM (traditional Chinese medicine). Coriolus grows all year round in stacks on the tree trunks and stumps. It has an exceptionally strong anti-viral effect and is a shining example of a treatment for herpes, shingles and influenza , as well as HIV. Its ingredient PSK (Krestin) combats tumour growth and strengthens our immune system.

Active ingredients of Coriolus, turkey tail

Two active ingredients in particular stand out above the rest and are more than worth a mention. We refer here to PSP and PSK, two highly-efficient polysaccharides which have proven effective in numerous types of cancer.

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[980] Am J Chin Med. 2011; 39 (1), pp. 135–144

[981] Zhongguo Zhong Xi Yi Jie He Za Zhi. 1996 Apr; 16 (4), pp. 224–226



Effect of Coriolus, turkey tail

Coriolus versicolor has an antiviral, antibacterial, antifungal, detoxifying and tumour inhibiting effect while also stimulating the immune system.

Coriolus has a positive influence on the following organs:

- Heart
- Spleen
- Liver

Coriolus versicolor has more than proven itself in the following syndromes and complaints:

- Cardiovascular diseases
- Atherosclerosis
- High blood pressure
- High cholesterol
- Rheumatism (arthritis)
- Liver disease
- Kidney inflammation
- expectorant
- Chronic fatigue syndrome
- Infections



- Influenza
- Shingles
- Cytomegaly
- Herpes
- Candida
- Hepatitis
- Cancer
- HIV

Effect of Coriolus on cardiovascular diseases

Coriolus versicolor has a positive effect on the heart by strengthening the heart, regulating high blood pressure and cholesterol levels[982] and inhibiting arterio-sclerosis[983].

Effect of Coriolus on cancer

Coriolus has proven itself to be anti-cancerous and have a regressive effect on the following types of cancer:

- Prostate cancer
- Lung cancer

[982] Am J Chin Med. 2000; 28(2), pp. 239–249.

[983] Am J Chin Med. 2000; 28(2), pp. 239–249.



- Bladder cancer
- Oesophagus carcinoma
- Brain cancer
- Breast cancer
- Stomach cancer
- Lymphoma
- Colon cancer

The effect of Coriolus on cancer can be traced back to its immune-strengthening effect and the two polysaccharides PSP and PSK[984]. Coriolus stimulates the immune system by activating bone marrow cells, lymphocytes, leucocytes, macrophages and monocytes as well as other killer cells, which directly attack cancer cells.

Coriolus extends the life expectancy of cancer patients

Patients suffering from breast cancer, stomach cancer and colorectal cancer who were treated with chemotherapy together with Coriolus had a significantly increased survival rate in comparison to those patients who only received chemotherapy.[985]

Coriolus alleviates the side-effects of chemotherapy and radiotherapy

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[984] Anticancer Res. 2012 Jul; 32(7), pp. 2631–2637.

[985] 2012 Jan; 6 (1), pp. 78–87



Studies have shown that Coriolus reduces the damage from radiotherapy to healthy tissues and lessens the feared side-effects of chemotherapy.[986]

VITAMIN C

'*A man who does*n't *know the truth is just an idiot. But a man who knows the truth and calls it a lie, is a crook.'*
(Galileo Galilei)

You may well wonder at this point why on earth we came up with the idea of covering such a thing as vitamin C in a book such as the '*Codex Humanus*'. After all: what's so exciting about vitamin C – don't we already know all the facts? Most people know that vitamin C or ascorbic acid is not particularly spectacular, a dusty 'utensil' from the late 70s... We know that most of it is excreted in urine, and weren't there also some studies which proved that vitamin C not only demonstrates very little effect but may even be harmful and can cause kidney stones, among other unpleasant problems...?

[986] PLoS One. 2011;6(5):e19804. Epub 2011 May 16



Yet what if the case is different...?

What if there is more to the supposedly stale vitamin than we are aware – much, much more...?

What if this ultimately concerned an (until now very successful) attempt by a money-oriented, powerful industry to publicly disparage the most important vitamin in existence, even the basis of our very lives, right behind oxygen and water, to such an extent that the population do what is expected of them:

forego supplementary vitamin C, age more quickly, become ill and therefore bestow doctors – and with them the largest industry in the world, the pharmaceutical industry – with billions and billions of euros for medicine and hospitalisation...?!

and finally:

what if humans could fully exploit their genetic potential and reach 120 years old in the best of health – if only we finally completely understood and recognised how important vitamin C really is for us...?!

You will be astonished at the unbelievable spectrum of activity of vitamin C and the undeniably well-founded scientific facts which we can draw on today – and this is precisely what we do in this Codex Humanus. After just a few minutes reading you will see vitamin C – and consciously consume it – in a new light, we promise!



First we need to look at the basis and, in order to gain a better understanding of this, the question:

what actually are vitamins?

Most people only have a vague, sometimes very abstract impression of vitamins. People largely underestimate the effect of vitamins entirely; ultimately, we do not learn a lot about them if we visit the doctor when we are sick.

However, did you know that the course of study to become a doctor does not include nutritional science? According to a survey of 593 young German doctors, 74.5 % of those surveyed felt insufficiently trained in the field of nutrition.[987] A doctor will hold lectures on pharmacology for hours, yet when it comes to substances which really matter (if you don't just want to treat but really cure), macro and micronutrients, vitamins, trace elements, enzymes, bioflavinoids etc. you won't learn a lot from the lecturer – because that doctor was also not exposed to these topics in his or her own course of study! Before we comprehensively shine a light on the 'uber-vitamin' vitamin C, here is a short explanation as to what vitamins actually are and what role they play in our bodies:

Vitamins – your body's biochemical tools

Imagine you hammer a nail into a wall or saw a piece of wood – you need tools for these jobs, in this case a hammer and saw.

[987] http://www.aerzteblatt.de/archiv/73243



Our body also has to perform thousands of very important tasks simultaneously every day. Whether muscular activity, neutralisation of poisons or maintaining blood vessels – the body needs special tools for these activities. These tools are vitamins and enzymes. Thus, vitamins are nothing less than your organism's biochemical tools.

The body can only complete these tasks unsatisfactorily, if at all, without vitamins and both alternatives lead to serious diseases in the medium term.

Vitamins, in particular vitamin C, have an influence on our entire existence; they largely decide how long we stay young and healthy and to what extent we are afflicted or untouched by things from the harmless cold to dangerous diseases.

Vitamin C – the most important substance for humans after oxygen and water!

Due to its multifaceted spectrum of activity on our lives and bodies, vitamin C is THE most important substance for our bodies after water and oxygen. Vitamin C is THE embodiment of vitamins and rightly a synonym for them.

If you consider that vitamin C has an influence on 95 % of our entire metabolism (that is, our existence), from preventing or even healing the smallest cold to allergies and life-threatening heart disease or even cancer (see the full list including evidence from studies in table 1 further down in the text) you can become truly aware of how important this 'uber-vitamin' really is! This becomes much clearer if you envisage:



humans without vitamin C would merely be a melting pot of cell broth!

We would like to quote Dr. Rath, an expert in orthomolecular medicine, in regard to this important aspect:

'Did you know that around a third of all proteins in our bodies are collagen molecules? Collagen is the main component of connective tissue. Among other things, it helps to build blood vessels, cartilage, bones, teeth and our skin. Connective tissue forms a biological network which strengthens our bodies and gives them stability.

Collagen fibres have a similar stabilising function as reinforced concrete beams do for a sky-scraper. Millions of stabilising molecules form the connective tissue in our bodies, bones, skin and blood vessel walls. Vitamin C is necessary for the cells in our bodies to ensure they can produce a sufficient amount of functioning collagen fibres.'

It has been proven that vitamin C ensures that our entire connective tissue including our skin, bones, teeth, organs and blood vessels are made from firm material.

OR TO PUT IT IN A NUTSHELL:

without vitamin C we would be a melting pot of cell broth, without support or stability!



When reading the following points, pause after each one for three to five seconds, internalise and briefly think what this means for you, your health and your life:

Did you know that...

- Vitamin C influences a total of 95 % of our metabolism and that therefore, there is hardly any disease on which vitamin C cannot have a significant and positive influence?
- Our connective tissue is composed of up to 30 % collagen and ensures the firmness of our bones, teeth, organs and skin – yet vitamin C indispensable for the production of collagen?
- Vitamin C is therefore THE most important substance for humans after oxygen and water?
- humans can only survive up to seven to eight weeks without any or with very little vitamin C (<10 mg/day)? Afterwards, there is internal bleeding (symptom of d: 'scurvy').
- Humans would age very slowly and hardly ever get ill if they had sufficient vitamin C?
- In the opinion of the 'vitamin king' and two-time Nobel prize winner Prof. Dr. Linus Pauling, vitamin C can increase your life expectancy by 20 years?
- You would need to eat 40 oranges or 7 kg of pickled cabbage per day in order



to consume the amount of vitamin C through food according to natural doctors and molecular biologists?

- The requirement for vitamin C increases multiple times in the event of a disease as the body quickly depletes its store of vitamin C in order to fight the disease with this highly potent weapon?

- That you can test your perfect, personal vitamin C requirement yourself? (The test description is further on in the book!)

- That humans, primates, guinea pigs, domestic pigs and field mice do not have the ability to create vitamin C themselves?

- However, a dog can create up to **5000 mg**, a cat up to **1000 mg** and a goat up to **12,000 mg per day?**

- That nature never creates an excess of anything and that none of the animals mentioned die from heart disease (or cancer) in the wild, while 50 % of all humans die from these things?

- In stressful situations, animals increase their vitamin C synthesis (production) by up to 4-5 times?

- That the majority of molecular researchers and vitamin experts around the world agree that humans require 30-50mg of vitamin C per kg of their body weight? For an adult weighing 75 kg this means approx. **2000-3500 mg** of vitamin C each day?

- Yet, the official recommendation for adult humans according to the World



Health Organisation (WHO) and the *Deutschen Gesellschaft für Ernährung* (DGE) is INSTEAD a scandalous **60-100 mg per day**? (in comparison, the official recommendation for guinea pigs with a body weight of 0.5 kg - 1.5 kg is 10-30 mg!)[988]

In the following chapter you can find out about:

- The difference between artificially created vitamin C and the real, natural vitamin C, which can be found in large amounts in the camu camu fruit or the Acerola, for example, what vitamin C actually is and why it is invaluable for humans.
- The diseases and prerequisites where vitamin C can have an indirect positive influence – supported by solid, representative studies.
- How you can protect yourself, how you can prevent diseases with the appropriate dose of vitamin C and even reverse the course of a serious disease.
- How you can prevent a cold from starting naturally with vitamin C.
- How you can significantly delay the physiological ageing process and even set the rejuvenation process in motion.
- Which groups of people have increased vitamin C requirements.
- Whether vitamin C can have side effects and if so, what they are.

[988] https://en.wikipedia.org/wiki/Vitamin_C



• How you can easily test your personal, individual vitamin requirement when healthy and also during an illness in order to extract the greatest possible benefit from your vitamin C.

• What you need to watch out for when buying foodstuffs and how you can prevent significant loss of vitamin C in your meal preparation.

• Why vitamin C is rarely complete vitamin C and where you can acquire complete vitamin C (for example, from camu camu or Acerola fruit).

Vitamin C functions

Vitamin C takes on so many different functions in our body that covering the topic completely would fill an entire library. In summary, vitamin C can be designated as an *activator, regulator, stimulator* and *organiser* for our health.

Here is a detailed look at how vitamin C satisfies the following functions in our organism

• Immune system activator and stimulator

• Nervous system stimulator

• An organiser of vital processes such as hormone formation, biosynthesis of proteins, lowering histamine formation, deconstructing cyclic amino acids, introducing detoxification processes, iron absorption and the reduction of protein glycosylation.

• The most important water-soluble antioxidant (free-radical catcher)



The role of vitamin C as an antioxidant

Vitamin C is not only essential for our collagen, nervous system and immune system – it is also the most important water-soluble anti-oxidant!

What exactly is an antioxidant?

Around 80 % of all diseases, including premature ageing, are attributed to cell destruction by free radicals.
Every day, our approximately 37,2 trillion cells are exposed to about 10-80,000 free radical attacks.

What are free radicals?

Free radicals are aggressive molecules which are constantly looking for an electron they are missing for pairing and which they brutally snatch from our cells. Free radicals are produced by ozone, UV radiation, nicotine, drugs and stress, but they are also produced naturally by various metabolic processes in our body. The car rusts, the apple rots and skin becomes flaccid – all these things can be attributed to free radicals and human cells are no exception here.

What does free radical oxidation mean for the human body?

To put Prof. Kulkinsky's words simply:



'They swim like great white sharks in the biochemical sea of our small organic farms, they enter lightning-fast irreversible compounds, attack sensitive amino acids, fats, cell membranes and do not stop at the genetic material.

They provoke chain reactions and form intermediate and degradation products as well as 'molecular mixtures' that have no biological benefit. At the end of such reactions, substances remain which the body does not know what to do with, or even completely destroyed cells. Gradually they fill the landfills in our body and hinder its functions until, one day, nothing works'.

Free radicals – why do our cells 'rust'?

There is hardly anything so paradoxical as the situation with required oxygen and free radicals. As, on one hand we need air to live and on the other, oxygen in the air causes our body cells and therefore organs to 'rust'.

Similarly to unprotected iron or an apple which turns brown in the air when cut, the cells 'oxidise' if they come into contact with certain types of oxygen. These aggressive oxygen particles which cause the skin to sag and humans to age are called free radicals or oxidants.



Protection against free radicals using the antioxidant vitamin C – our experiment

While conventional medicine continues to propagate the long-outdated dogma that disease ages us, a less corrupted gerontology (ageing science) has often proven over the last years that it is not the disease which ages; quite the opposite:

biological ageing leads to reduced cell functionality (caused by ageing) and it is precisely this which leads to numerous diseases! If you think about this for a moment it seems a very logical approach!

Our small experiment below (which we also enthusiastically recommend ourselves) shows what vitamin C can do to prevent ageing and therefore numerous diseases, simply due to its antioxidative effect (protection against free radicals). For this, we cut a very normal apple into two halves. We then sprinkled one half with a thin layer of vitamin C powder (ascorbic acid) and left the other half untouched:





Above: after 1 week - apple with vitamin C (left) and the same apple untouched (right)



Above: after 3 weeks - apple with vitamin C (left) and the same apple untouched (right)

<u>The good news:</u>

as with the left half of the apple in the pictures above, which was visibly protected by vitamin C from the greedy free radicals, we can also preserve ourselves from

the inside out by consuming sufficient antioxidants such as vitamin C, OPC, Q10, selenium or vitamin E and efficiently protect ourselves against ageing and disease!

HOWEVER: this can in no way be ensured by the insufficient recommendations of the official state authorities or conventional medicine – you can find out what humans actually require for this protective effect in the corresponding chapter regarding the substances referenced in this book... For now, let's return to the protective effect of vitamin C against free radicals. If you consider that it is precisely the free radicals which modern, uncorrupted science attributes with being the largest cause of bodily ageing and numerous diseases, it is more than scandalous that people know so little about them and that even doctors generally have no idea.

Insufficient knowledge and explanation to the population regarding the connections between the cell-destroying effect of free radicals and the occurrence of numerous diseases of civilisation (as well as ageing) moved scientists from different medical specialisations to go public with a declaration as far back as 1992. Since then, many more than 200 renowned experts have signed this document – yet it has changed little within the public consciousness!

You can read the original *Saas Fee Declaration* mentioned here*:*

1. Intensive worldwide research into the topic of 'free radicals' over the last 15 years has enabled us to determine, now in the year 1992, that antioxidative micronutrients can be attributed



significant importance in the prevention various diseases. These diseases include serious conditions such as cardiovascular diseases, cerebrovascular defects, different types of cancer and other diseases which are more common with advanced years.

2. There is a general concurrence today that more research is required both at a fundamental research level and in large-scale epidemiological studies as well in clinical medicine in order to make more comprehensive information available.

3. A significant aim of these efforts is the prevention of diseases. The aim can be achieved with the use of antioxidants which occur in nature and have physiological importance. It should be the guiding principle of the preventative medical approach to ensure an optimal supply of these antioxidative micronutrients.

4. Air pollutants such as smog, ozone, dust etc. as well as sunlight and other sources of radiation are known to be environmental toxins. ***An optimum supply of nutritive antioxidants*** makes an important contribution to preventative protection against their harmful effects.

5. The preventative benefits of consuming antioxidative micronutrients should be more rigidly anchored in the public consciousness. There are irrefutable confirmations of the safe use of antioxidative micronutrients such as vitamin E, vitamin C, carotinoide, alpha-lipoic acid and others, even when administered in very high doses.

6. There is now a deep consensus that government bodies, those associated with the medical profession and the media should play an active role in spreading the concept of prevention to the wider public, in particular given the background of the great health benefits and the dramatic cost explosion in the healthcare sector.



Saas Fee (Switzerland), 15th June 1992

signed, among others, by these renowned doctors and scientists:

Prof. Dr. I. Afanas (Moscow)
Prof. Dr. J. E. Buring (Harvard)
Prof. Dr. Dr. A. T. Diplock (London)
Prof. Dr. Dr. C. H. Hennekens (Harvard)
PD Dr. B. Kuklinski (Rostock)
Dr. M. Maiorino (Padua)
Prof. Dr. L. Packer (Berkeley)
Prof. Dr. M. S. Patel (Cleveland)
Prof. Dr. Dr. K. H. Schmidt (Tübingen)

The genetic defect of modern humans

While plants and most animals (with the exception of primates, guinea pigs, domestic pigs and bats) can create vitamin C themselves, humans carry a genetic defect which, in contrast to most other living beings, manifests itself as an inability of our organism to create vitamin C itself. This ability to develop vitamin C from blood sugar was lost in us over 25 million years ago. Scientists assume that our body would create between 2000 and 20,000 mg of vitamin C each day if it still could.



What does this vitamin C deficiency mean? What advantages do the provision of sufficient vitamin C offer?

Vitamin C is involved as a co-factor in almost all life-sustaining processes, functional processes and chemical reactions. It protects us from free radicals and activates and regulates the body's own defence.

If we take too little vitamin C, we can develop stomach symptoms which impair cell function, weaken the immune system and give free radicals the upper hand, which leads to more and more diseases in a kind of chain reaction which can lead to a life of suffering, culminating in death.

The advantages of the appropriate dose of vitamin C result from the elimination of the disadvantages of having too little vitamin C. Below is a table with an overview of the most important health advantages of vitamin C.



I. Table with an overview of the preventative and therapeutic effect of vitamin C:

Symptoms of a vitamin C deficit:	Advantages and effects of sufficient vitamin C:
<10 mg/day bio-logical death	30-50 mg/kg/day/body weight long, energetic life
Allergies	Regulation of histamine and histidine production leads to fewer allergies and improves or prevents allergic symptoms.[989]
Asthma	Vitamin C has an anti-inflammatory and anti-asthmatic effect which significantly improves the progression of a disease or prevents disease.
Inflammation	As highly-effective antioxidants, vitamin C and OPC successfully prevent the inflammation process.
Colds, influenza,	Vitamin C activates the body's own defence system

[989] Clemetson C. A. B.: Histamine and ascorbic acid in human blood. Journal of Nutrition 1980; 110, pp. 662–668

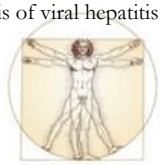


head colds, tuberculosis	and reliably prevents and treats the symptoms mentioned on the left. Vitamin C helps in the deactivation of many bacteria and viruses.[990]
Depression	Depression recedes or does not emerge at all due to the crossing of the blood-brain barrier and the optimisation of calcium conversion.[991]
Hepatitis	Studies showed hepatitis could be prevented by up to 93 %.[992]
Stress	Stress is mastered and nerves calmed by neurotransmitter synthesis and adrenaline and noradrenaline synthesis. The formation of adrenal gland hormones combats stress.
Liver cirrhosis and other liver diseases	Toxic substances are neutralised, the liver is protected from viruses and bacteria.
Energy deficiency	More energy is obtained largely from fats through optimised carnitine synthesis.

[990] Ritzel G.: Kritische Beurteilung des Vitamin C als Prophylaktikum und Therapeutikum der Erkältungskrankheiten. Helv. Med. Acta 1961; 28, pp. 63–68

[991] Advanced impairment of mental abilities as a result of changes caused by disease in brain arteries in the case of long-term high blood pressure.

[992] Morishige F. and Murata A.: Vitamin C for prophylaxis of viral hepatitis B in transfused patients. Journal of the International Academy of Preventive Medicine 1978, 5, pp. 54–58



Lack of concentration/ intelligence	Concentration and intelligence increase as the blood-brain barrier is overcome, as well as through the introduction of antioxidative processes and the improved circulation resulting from these.
Dementia	In a study, vitamin C in connection with vitamin E reduced the likelihood of dementia by 88 %.[993]
Burns all types	Accelerated collagen and elastin development as well as the regeneration of skin cells heal burns more quickly.
Excess weight	Regulation of the fat metabolism (mainly through carnitine synthesis) normalises body weight or there is no undesired weight gain.[994]
Diabetes mellitus	Vitamin C significantly reduces the plasma insulin level resulting in a positive influence on the glucose level. Vitamin C inhibits protein saccharification in arteries and protects against vascular deterioration.

[993] Dr. Kamal, H. Masaki

[994] Levine, 1996



Impotence	A lack of vitamin C leads to male impotence.
Fever	Vitamin C can reduce fever, inflammatory processes and pain through the synthesis of PGE 1 (prostaglandin) because of its influence on the regulation of the immune system.[995]
Menstrual cycle disorder	A lack of vitamin C leads to disorder and failure of the menstrual cycle in women.
Smoker's leg	As a reliable antioxidant, vitamin C protects blood vessels, improves blood circulation and prevents smoker's leg.
Migraines	Migraines are prevented through antioxidative processes and improved circulation in the brain.
Daytime fatigue	According to studies, just 400 mg of vitamin C daily could halve levels of daytime fatigue.
All diseases which end in '-itis' (neu-	As vitamin C is one of the most efficient free radical catchers (antioxidants) and concurrently protects joint

[995] Horrobin D. F. et al.: The regulation of prostaglandin E1 formation: A candidate for one of the fundamental mechanisms involved in the actions of vitamin C. Medical Hypotheses 1979; 5, pp. 849–858



rodermatitis, gastritis, meningitis, bronchitis, arthritis, rhinitis etc.)	cartilage through collagen synthesis, it successfully prevents inflammatory processes and protects the cartilage. It also prevents pain.
Arthritis/arthrosis	As vitamin C and OPC belong to the most efficient free radical catchers (antioxidants), they successfully prevent inflammatory diseases while concurrently protecting hyaline cartilage through collagen synthesis.[996]
Gout	As vitamin C and OPC belong to the most efficient free radical catchers (antioxidants), they successfully prevent inflammatory diseases while concurrently protecting hyaline cartilage from gout through collagen synthesis.
Infertility	Mitochondria and sperm are protected against antioxidants by vitamin C, significantly increasing fertility.
Infections (influenza, colds etc.)	Active defence against viruses and bacteria through enrichment in leucocytes and activation of T-helper

[996] Lunec Blake, J.: The determination of dehydroascorbic acid and ascorbic acid in the serum and synovial fluid of patients with rheumatoid arthritis. 1985, Free Radical Research communications, Vol 1, No. 1, pp. 31–39



	cells.[997]
Gum bleeding	Active collagen and elastin development make gums strong and elastic; the antiviral effects of vitamin C protect against periodontitis etc.
Loose teeth/tooth loss	Gum tissue is strengthened by collagen and elastin development – teeth sit firm.
Hair loss	Vitamin C reliably protects against heavy-metal contamination which can also lead to hair loss.[998]
Periodontitis	Vitamin C deficit leads to the demise of capillaries in gums, disturbing the blood supply. Gum tissue is strengthened by collagen and elastin development – teeth sit firm.
Lung and respiratory disease	The antioxidative effects of vitamin C protect the lungs and have an influence on lung function (particularly in athletes)

[997] Stone I.: The healing factor: Vitamin C against disease. 1972, Grosset and Dunlap, New York

[998] Ziemann B. and Enzmann F.: Vitamin C Ascorbinsäure, Ein lebensnotwendiger Schutzfaktor, 'Vitamin C Ascorbic Acid, A Vital Protective Factor', 1998, MSE Pharmaceutics



Slipped disc, Disc degeneration	The painful symptoms which result from the musculature with slipped discs can be alleviated with high doses of vitamin C. Most slipped disc operations would be unnecessary with a supply of vitamin C.
Osteoporosis	The formation of procollagen and collagen synthesis supports the bone matrix and can have a reliable counter-effect on osteoporosis.
Bone fractures	As a co-factor for hydroxylation, vitamin C supports collagen development and elastin synthesis which supports the healing of bone fractures.
Miscarriages/infectious abortions	Vaginal pH undergoes a positive change which means the end of the line for viruses and bacteria which trigger miscarriages. [999]
Varicose veins	Repair processes on vascular walls, improved elasticity and the simultaneous reduction of deposits prevent the development of varicose veins and make existing ones disappear.

[999] Professor Eiko Petersen from Freiburg, Gießener Gynäkologische Fortbildung 1999



Spider veins	Repair processes on vascular walls, improved elasticity and the simultaneous reduction of deposits prevent the development of spider veins and make existing ones disappear.
Poor wound healing	As a co-factor for hydroxylation, vitamin C supports collagen development and elastin synthesis – both immensely accelerate wound healing. Collagen generation increases 8-fold with vitamin C.
Pressure sores	Even with just 1 g of vitamin C a day, in one study the reduction of pressure sores doubled (from 43 % to 84 %), which can be attributed to increased collagen development.[1000]
Stomach ulcers, intestinal ulcers	The inhibition of nitrosamine formation and urease activity, control of ascorbic radicals, reduction of the gastrin level and the regulation of the prostaglandin home prevent stomach ulcers and intestinal ulcers.

[1000] Taylor A. et al.: Relations among aging, antioxidant status, and cataract. Am. J. Clin. Nutr. 1995; 62, 6 (Suppl), pp. 1439–1447



Haemorrhoids	Improved elasticity and prevention of deposits in the vascular system prevent haemorrhoids.
High cholesterol, high triglyceride levels	Vitamin C is involved as a co-factor in the formation of HDL cholesterol (the 'good cholesterol') and, as an antioxidant, protects against LDL cholesterol ('bad cholesterol'). Vitamin C keeps blood vessels sealed through collagen and elastin synthesis and the brain does not report damage to the liver – as a result, no cholesterol is created to patch up damage (incidentally, nutritional cholesterol only makes up 5 % of overall cholesterol).[1001]
Arteriosclerosis (blood vessel calcification), the resulting high blood pressure, to heart attack and cerebral apoplexy	The intima (inner vascular wall) remains smooth and silky due to active collagen development, calcium and fat deposits find attachment points, atherosclerosis is prevented and existing atherosclerosis is broken down. Furthermore, smooth muscle cell tumours are prevented, vitamin C protects against fatty acids and develops fat deposits and represents an antioxidative protection against LDL cholesterol.[1002]

[1001] Ginter E. et al.: Effect of ascorbic acid on plasma cholesterol in humans in a long-term experiment. Int. J. Vit. Nutr. Res. 1977; 47, pp. 123–134

[1002] M. R. et al.: Prevention of atherosclerosis. The potential role of antioxidants. Postgrad. Med. 1995; 98, 1, p. 175 f.



Eyes: macular degeneration	Active collagen development prevents macular degeneration.
Eyes: Cataracts	As a reliable antioxidant, vitamin C prevents damage by free radicals (especially from light and oxygen) which can lead to cataracts.[1003]
Eyes: Glaucoma	Vitamin C effectively combats destructive, increased intraocular pressure in the eyes.
Conjunctivitis	An eye solution consisting partly of vitamin C can heal conjunctivitis.
Inner eye bleeding	Eye vessels are strengthened and remain elastic through collagen and elastin development.
Heavy legs (calves)	Blood can flow more easily with antioxidative processes and improved circulation, thereby preventing heavy legs.
Dry skin	Collagen and elastin development and regeneration

[1003] Heseker H.: Antioxidative vitamins and cataracts in old age. Zeitschrift für Ernährungswissenschaft 1995; 34, 3, pp. 167–176



	prevents dry skin and makes it smooth again.
Acne/spots	Hormonal influences and accelerated collagen and elastin development prevents acne and spots and eliminates existing ones.
Stretch marks	Accelerated collagen and elastin development prevents stretch marks and counteracts existing ones.
Skin eczema	Accelerated collagen and elastin development prevents eczema and counteracts existing conditions.
Wrinkles	Collagen and elastin development as well as the regeneration of skin cells prevents wrinkles and minimises existing wrinkles. The antioxidative effect protects cells from destruction (ageing).
Cold feet and hands	The antioxidative process and improved circulation mean blood can reach the extremities more easily, preventing cold feet and hands.



Weather sensitivity	The antioxidative process and improved circulation mean blood can reach the extremities more easily, easing weather sensitivity.
Arthrosis (joint wear)	The hyaline cartilage is regenerated thanks to improved collagen and elastin synthesis.
Poisoning from heavy metals, pesticides and other sources	As a catalyser, vitamin C deconstructs heavy metals and other poisonous substances in our bodies.
Sleep disorders	The influence on the endocrine system (including melatonin) improves the day and night rhythm and prevents sleep disorders.
Stroke/cerebral apoplexy	The intima (inner vascular wall) remains smooth and supple due to active collagen development, calcium and fat deposits cannot attach, atherosclerosis, the main cause of strokes, is prevented and existing ather-



	osclerosis is broken down. Smooth muscle cell tumours are also prevented. Vitamin C protects against fatty acids and deconstructs fatty deposits and therefore represents an antioxidative protection for LDL cholesterol.
Heart attack	Through active collagen construction, the intima (inner vessel wall) is kept smooth and supple, calcium and fat deposits cannot attach, atherosclerosis, the main cause of heart attacks, is prevented and existing atherosclerosis is reduced. Smooth muscle cell tumours are also prevented. Vitamin C protects against fatty acids and deconstructs fatty deposits and therefore represents an antioxidative protection for LDL cholesterol.[1004]
Thrombosis	Collagen development protects the inner vessel wall from damage and keeps it smooth and supple. Calcium and fat deposits cannot attach, atherosclerosis, the main cause of thrombosis, is prevented and existing atherosclerosis is reduced. Furthermore, smooth muscle tumours are prevented, vitamin C protects

[1004] Gale L. R. et al.: Vitamin C and risk of death from stroke and coronary heart disease in cohort of elderly people. Br. J. Med. 1995; 310, pp. 1563–1566



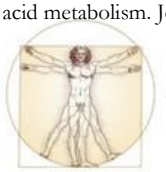
	against fatty acids, deconstructs fatty deposits and represents an antioxidative protection for LDL cholesterol.
High blood pressure	Vitamin C deficit has a direct correlation with high blood pressure. Vitamin C supply significantly reduces high blood pressure due, among other things, to improved collagen and elastin synthesis and thereby effects regeneration and increased elasticity in blood vessels.
Connective tissue: sagging skin and cellulite	The active construction and renewal of collagen and elastin prevent sagging skin and cellulite.
Post-traumatic dystrophy (Sudeck syndrome)	The consumption of just 500 mg of vitamin C a day can protect against Sudeck syndrome.
Cancer	Is prevented or combatted by support of the immune system and build-up of collagen and elastin. Vitamin C inhibits the formation of nitrosamines, increases iron absorption and reduces heavy metal pollution. Epide-



	miological studies prove vitamin C is a protective factor.[1005]
Alzheimer's	The prevention of cell destruction due to oxidation and the simultaneous production of the hormones dopamine, melatonin etc. prevents Alzheimer's or improves the patient's condition.
Parkinson's	The prevention of cell destruction due to oxidation and the simultaneous production of the hormones dopamine, melatonin etc. prevents Parkinson's or improves the patient's condition.
Herpes	Vitamin C has an antiviral effect. Just 1500 mg of vitamin C could quickly dry and heal herpes blisters.
Ageing	As an important antioxidant, vitamin C successfully combats oxidation and with it the body cell destruction (ageing) while at the same time reducing cell-mediated immunity.[1006]
Detoxification	Vitamin C promotes the decrease of oxidases by up to 50 % and helps the liver break down toxins and other

[1005] Gorozhanskaia E. G. et al.: The role of ascorbic acid in the combined preoperative preparation of cancer patients. 1989, Vopr Onkol., 35 (4), pp. 436–441

[1006] Sokoloff B. et al.: Aging, atherosclerosis and ascorbic acid metabolism. Journal of the American Gerontology Society 1966; 14, pp. 1239–1260



	toxic substances.
Methaemoglobinaemia	The cause of this disease is haemoglobin oxidation. In this case, the powerful antioxidant vitamin C promises improvement at just 500-1000 mg/day.
Cysterin	Administering 5000 mg of vitamin C daily could half the cysterin content in urine.

II. Detailed explanation of the preventative and therapeutic effect of vitamin C

ARTERIOSCLEROSIS: Heart attack, stroke, pulmonary infarction, thrombosis

Atherosclerosis (popular synonym: 'calcification of veins') refers to the deposition of blood lipids and calcium on the inner wall of the blood vessels (arteries). These deposits lead to clogging in blood vessels, meaning the oxygen enriched blood cannot flow properly.

If the clogging of the artery is so large that the blood does not reach the heart sufficiently, it will not receive oxygen, leading to a heart attack.



If supply to the brain is prevented by clogging in the blood vessels, this results in cerebral apoplexy. Pulmonary infarctions are based on the same principle, thrombosis is also a result of arteriosclerosis. This is the explanation in conventional medicine...

Why is it so important to know this?

HERE'S WHY:

Because approx. 50 % of all central Europeans (including British people) die from precisely this mechanism according to current conventional medical opinion AND this mechanism can be stopped and, to some extent, even reversed!

The absolute prerequisite for blood fat deposits (cholesterol) and calcium and therefore for the development of arteriosclerosis, however, is a 'brittle' intima (inner wall of the blood vessels). It is only when there are tiny tears known as 'micro-lesions' that the blood fats and calcium in flowing blood can fix itself to the inner wall.

When the inner wall of blood vessels is smooth, blood fat and calcium slide over it as if on a mirror and do not form arteriosclerosis.

While it is still erroneously foodstuffs which are given the blame for high cholesterol (see the section 'Cholesterol lies'), it has been sufficiently researched and proven that diet only makes up 5 % of the entire cholesterol – 95 % of cholesterol is created by the liver as a 'sealant', namely when the brain reports



that there are lesions (breaks) in the vessel wall.

Statins are already the United Kingdom's most commonly prescribed medicines – roughly 6 million Brits take the drugs on a regular basis to lower the risk of a cardiovascular incident, in line with US practice.[1007] The margarine industry also profits immensely from this lie. There seem to be sufficient grounds to maintain this lie.

An eight year study in the USA on 50,000 older women of whom half (25,000 women) ate a low-fat and the other half (25,000 women) ate a high-fat diet showed that after these eight years there were NO health differences.[1008]

As the structure of our blood vessels mainly consists of the two proteins collagen and elastin and, as extensively reported, vitamin C and OPC are among the most important substances which can keep the collagen-elastin tissue new and repair it, sufficient vitamin C and OPC can prevent micro-traumas (tears) in the vessel wall – successfully inhibiting the process of arteriosclerosis.

OR, TO PUT IT ANOTHER WAY: **Arteriosclerosis is nothing more than a preliminary stage of scurvy.**

While the complete bursting of vessels (=scurvy) can be prevented with very little vitamin C (>10 mg/day), the officially recommended dose of 60-100 mg can reliably prevent scurvy, it can at the same time intentionally enable smaller bursts where deposits can collect which is the precursor to arteriosclerosis and

[1007] https://www.euractiv.com/section/health-consumers/news/uk-and-us-at-odds-with-europe-over-statin-use/

[1008] ARD W wie Wissen (German infotainment programme)



its awful consequences (heart attack/cerebral apoplexy).

Studies into the prevention of arteriosclerosis with vitamin C:

While conventional medicine puts forward all kinds of reasons for arteriosclerosis and thereby presents the public on the street with the most abstract biochemical hypotheses (which they are not meant to understand), in order distract them from the simplicity of preventing and rehabilitating cardiovascular diseases, there are ample representative studies which testify that vitamin C is a reliable protective factor for our blood vessels and therefore a protective factor against fatal arteriosclerosis.[1009]

Vitamin C from the camu camu fruit in comparison to artificial vitamin C (ascorbic acid):

A recent study was carried out at the medical university in Saga, Japan which impressively proved the effect of vitamin C from the camu camu fruit on arteriosclerosis.

Twenty male smokers were divided into two groups, ten were given 1050 mg of artificial vitamin C and the other ten were given 70 ml of pure camu camu juice, which is also equivalent to 1050 mg of vitamin C.

After just one week, the inflammation levels and oxidative stresses of the camu camu group receded significantly, while the group taking the artificial vitamin noticed no difference from the initial situation!

[1009] Study by C. H., Gaziano J. M., Manson J. E., Buring J. E., study by Gey K. F., Moser U. K., Jordan P., Staehelin H. B., Eichholzer M., Luedin E. , study by Jialal I., Fuller C. J., Mehra M. R., Lavie C. J., Ventura H. O., Milani R. V. and study by Biesalski H. K. and Frank J.



The study leaders concluded from this that camu camu has strong antioxidative and inflammation inhibiting properties, however in contrast, the artificial vitamin C did not proffer any benefits. Therefore, the assumption is that the cooperation of all the natural components of camu camu led to this positive result.

ARTERIOSCLEROSIS IS REVERSIBLE!

While conventional medicine rigorously announces that existing arteriosclerosis cannot be reversed, it scandalously hides representative studies which prove that arteriosclerosis is easily REVERSIBLE – with natural vitamin C.

Evidential studies for the reversal of arteriosclerosis with vitamin C

Thus, Canadian Dr. G. C. Willis was able to show that arteriosclerosis in leg arteries could be relieved naturally. To this end, arteriosclerotic deposits were first determined with the help of a contrast medium examination (angiography).

According to this, a test group of patients received 1.5 g of vitamin C per day and the other control group were not given any additional vitamin C.

In 30 % of the cases in the control examinations, arteriosclerotic deposits receded after one year in patients who received 1500 mg of vitamin C per day.



In contrast, patients who did not consume additional vitamin C demonstrated no reduction in arteriosclerotic deposits, in some cases they even increased.[1010]

A further study examined the therapeutic benefits of vitamin C in 12,000 people. Half (6,000 test subjects) were given the normal dose of vitamin C as we consume in our daily diet, namely 60 mg per day. The other group of 6,000 test subjects were given 300 mg of vitamin C daily. Within this study it was discovered that the consumption of these 300 mg of vitamin C had already halved the rate of heart attacks.[1011]

We are talking here about just 300 mg – imagine how this study would have turned out with 1000, 2000 or even 3000 mg!

Half of all central Europeans and Americans die from heart attacks or cerebral apoplexy – yet even with a relatively small dose of just 300 mg of vitamin C rather than the usual 60 mg we consume daily we could half this enormous death rate – an unprecedented scandal!

CANCER

Vitamin C also combats cancer (a cause of death for over 25 % of all central Europeans and US Americans) with various mechanisms,

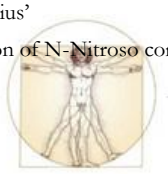
Vitamin C:

- is very reliable at detoxifying our organism from carcinogenic substances,[1012]

[1010] Dr. med. Matthias Rath, Warum kennen Tiere keinen Herzinfarkt - aber wir Menschen, 1989

[1011] Dr. Gottfried Lange in the film for 'Codex Alimentarius'

[1012] Mirvish S. S.: Letters to the editor: Vitamin C inhibition of N-Nitroso compound formation. 1993, Amer. J. Clin. Nutr. 57, pp. 598–599



- reduces heavy metal poisoning,[1013]
- increases iron absorption (protects against anaemia),[1014]
- activates the immune system and protects human tissues from greedy cancer cells through collagen synthesis.

Given the fact that every third person is afflicted by cancer (and that one in four of these people dies!), prevention is absolutely necessary.

The therapeutic benefits of vitamin C in cancer

Natural vitamin C has also proven itself highly efficient in the fight against cancer. You probably haven't heard about a study by the research team at the *National Institutes of Health* in Bethesda. Scientists were given the task of researching the effect of high doses of vitamin C in the blood on tumorous cells and healthy cells in the human body. The result: Vitamin C destroys cancer cells, while healthy cells remain completely undamaged.[1015]

FOCUSonline reported about three case studies on people with cancer which was published in the renowned Canadian Medical Association Journal and carried out at the National Institute of Health in the USA. As study director Mark Levine reported, all three of the affected people had already been diagnosed in 1996. The first patient suffered a kidney tumour which had formed metastases

[1013] Pauling L.: How to live longer and feel better. 1986

[1014] Hallberg L.: Effect of vitamin C on the bioavailability of iron from food. In: Counsell J. N. und Hornig D. H.: Vitamin C (Ascorbic Acid) 1981; Applied Science, London

[1015] H. Lange: Mit Linus Paulings Forschungsergebnissen gesund werden - gesund bleiben, p.18



in the lungs. The tumour had been cut out, but the patient declined the recommended chemotherapy against metastases. These metastases shrank during the treatment with vitamin C. The two other cancer patients suffered from an advanced bladder tumour and an aggressive blood cancer. These patients also declined the prescribed chemotherapy in favour of vitamin C. Today – ten years later – both patients are still alive and, according to the author, enjoying the best of health.

The impressive result was traced back by the author to the form of dosage. Unlike in other studies to date, patients did not swallow vitamin C, rather it was directly injected into their veins.

Thus, Levine was subsequently able to achieve 25 times the concentration in the blood. This dose is deadly for cancer cells![1016] In 1974, Ewan Cameron and Linus Pauling were able to prove that high doses of vitamin C increase the effectiveness of lymphocytes (the most important phagocytes in our defence system in the fight against cancer) to defend against cancer. Yonemoto et al. successfully proved that the amount of lymphocytes can be doubled after just a few days taking 5 g of vitamin C daily and even tripled with 10 mg on three successive days. A dose of 18 g even quadrupled this value!

Vitamin C prevents cancer in studies

[1016] www.focus.de/gesundheit/news/vitamin-c_aid_106795.html



Scientists at the University of Otago (New Zealand) succeeded in proving that tumour sizes and cancerous activity depends on vitamin C content. The transcription factors (cancer genes) HIF-1-alpha and GLUT-1, BNIP3 as well as VEGF were defined for this.

The higher the vitamin C content, the smaller the tumour and the less active its harmful factors!

Vitamin C is more efficient than 30 popular chemotherapy treatments

In 2005, Dr. Chen showed that with administration of vitamin C in an infusion fought cancer cells more efficiently than the 30 most popular chemotherapy treatments which are currently used! In contrast to the cytotoxins which conventional medicine uses (cytostatic drugs), vitamin C works very selectively and leaves healthy cells untouched while destroying cancer cells. Amazing results, don't you think?

Yet, at the same time, it is an unprecedented scandal that research has not been appropriately explored and the population only find out coincidentally, if at all, that the appropriate dose of vitamin C can preventatively protect against cancer. In the case of cancer, however, you shouldn't just rely on a single remedy – rather it is the 'composition' of natural substances cooperating together which are most effective in fighting cancer!

ALLRGIES AND VITAMIN C

Polluted environmental conditions, smog, radiation, artificially created and



processed foodstuffs and much, much more ensure that more and more people are becoming prone to allergies, starting with asthma, hay fever and bronchitis, down to rhinitis, food allergies, house dust etc. Here, too, studies prove that an increased supply of vitamin C can offer a remedy, namely through the regulation of histamine and histidine production, which play the leading role in allergies.[1017]

The answer from conventional medicine cannot mean the end of the story as medicines in the pharmaceutical industry, known as antihistamines, are associated with some unpleasant side effects, from fatigue to nausea, headaches and dizziness etc. Prof. Dr. Clemetson was able to prove in a study that histamines in the blood are always associated with a lack of vitamin C and the lower the vitamin C level drops, the greater the increase in the level of histamines.[1018] Vitamin C most probably works as a serious co-factor in the degradation and excretion of histamines, reducing the histamine level and preventing allergies or making natural healing possible.[1019]

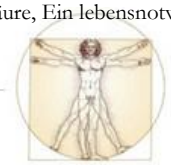
ALZHEIMER'S/PARKINSON'S AND VITAMIN C

Recent studies have proven that oxidation and destruction of cells is also responsible for these diseases. We have learnt that natural vitamin C, such as can be found in camu camu capsules of the highest quality, is an efficient antioxidant and that vitamin C also improves hormone production (including of do-

[1017] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 17

[1018] Clemetson C. A. B.: Histamine and ascorbic acid in human blood. Journal of Nutrition 1980, 110, pp. 662–668

[1019] Ziemann B. and Enzmann F.: Vitamin C Ascorbinsäure, Ein lebensnotwendiger Schutzfaktor, 'Vitamin C Ascorbic Acid, A Vital Protective Factor', 1998, MSE Pharmaceutics



pamine and melatonin) and neurotransmitters in the brain (messenger substances). The activation of neurotransmitters also improves concentration and memory performance and improves reactions.[1020] Thus, scientists at John Hopkins University were able to prove that, in 4740 people aged 65 or older, that the consumption of vitamin C (with vitamin E) can reduce Alzheimer's disease. Those participants in the study who took both vitamins were 78 % less at risk from Alzheimer's. Protection against free radicals is considered the main reason for this effect here.

VITAMIN C FIGHTS WRINKLES (skin ageing)

As the skin structure also largely consists of the two proteins collagen and elastin, collagen and elastin synthesis (reconstruction and maintenance), which vitamin C and OPC manage perfectly, play a decisive key role. OPC attaches itself directly to collagen and elastin, reconstructs and regenerates these and protects them from free radicals. In the correct dosage, the formation of wrinkles is decelerated, existing wrinkles are smoothed and as a side effect, the emergence of new wrinkles is reliably prevented.

Study of 4,000 women

Scientists at the Unilever Research Institute in Bedford, Great Britain, have succeeded in discovering the substance which keeps skin young and healthy for as long as possible. 4,000 women over 40 years old were asked about their eating habits and then observed for a further 30 years. Those who consumed increased levels of vitamin C had fewer wrinkles – and the more vitamin C they

[1020] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 17



consumed, the fewer wrinkles they had.[1021]

VITAMIN C AGAINST DEPRESSION

Due to its molecular structure, vitamin C is able to overcome the blood-brain barrier and prevent depression through optimum calcium conversion. Calcium in turn has a direct influence on neurotransmitters (messenger substances).[1022]

Conversely, even a slight vitamin C deficiency can cause chronic depression, irritability and fatigue.[1023]

VITAMIN C AGIANST INFLAMMATION (arthritis, bronchitis, neurodermitis, periodontitis, meningitis)

Oxidation (free radicals) play the decisive role in all inflammations which end in 'itis' or 'is'. As vitamin C (and OPC) are some of the most effective free radical catchers (antioxidants), it is no surprise that they are able to prevent the occurrence of inflammatory diseases in the appropriate amounts.

Vitamin C can reduce inflammation, fever and pain through the synthesis of PGE 1 (prostaglandin) which has an influence on the regulation of the immune system.[1024]

VITAMIN C FOR COLDS:

In a double-blind study of 279 participants at a ski resort, it was determined

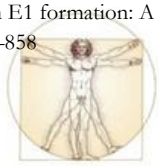
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[1021] Source: Natur&Gesund

[1022] Werner Goller: Was verschweigt die Schulmedizin? ('What Does Conventional Medicine Conceal?'), 2009, p. 18

[1023] http://focus-blog.pharmxplorer.at/2009/08/orthomolekulare-medizin-zusammenhange-zwischen-mikronahrstoffen-und-depression/

[1024] Horrobin D. F. et al.: The regulation of prostaglandin E1 formation: A candidate for one of the fundamental mechanisms involved in the actions of vitamin C. Medical Hypotheses 1979; 5, pp. 849–858



that 1 g of vitamin C per day led to 30 % fewer colds than in the control group without vitamin C.[1025] Studies have shown that the vitamin C concentration falls by up to 50 % during the first two days of a cold – a status that should be addressed as quickly as possible with a high dose of vitamins! A study of 112 soldiers showed that the number of colds fell by 68 % with the administration of 1 g of vitamin C per day.[1026] A further study proved that vitamin C in general reduced the frequency of infection by 50 %.[1027]

How can vitamin C be used to stifle an emerging cold which is already taking hold?

According to Dr. Stone, you should take 1.5 to 2 g of vitamin C orally at the first signs of a cold and repeat this dose every 20 to 30 minutes until the symptoms have disappeared, usually by the third dose.[1028]

HEALING WOUNDS WITH VITAMIN C

The prerequisites for fast wound healing are sufficient collagen and elastin synthesis. As vitamin C (and OPC) are known to be very successful; wounds heal considerably more quickly in connection with vitamin C.[1029]

DIABETES MELLITUS AND VITAMIN C

As an extremely potent free radical catcher, vitamin C protects the body cells

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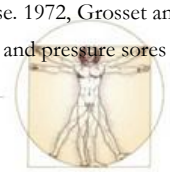
[1025] Ritzel G.: Kritische Beurteilung des Vitamin C als Prophylaktikum und Therapeutikum der Erkältungskrankheiten. Helv. Med. Acta 1961; 28, pp. 63–68

[1026] Sabiston B. H. and Radomski N. W.: Health problems and vitamin C in Canadian northern military operations. Defence and Civil Institute of Environmental Medicine Report 1974; 74, p. 1021

[1027] Sabiston B. H. and Radomski N. W.: Health problems and vitamin C in Canadian northern military operations. Defence and Civil Institute of Environmental Medicine Report 1974; 74, p. 1021

[1028] Stone I.: The healing factor: Vitamin C against disease. 1972, Grosset and Dunlap, New York

[1029] Burr R. G. and Rajan K. T.: Leukocyte ascorbic acid and pressure sores in paraplegia. 1972, British Journal of Nutrition 28, pp. 275–281



of a diabetic, which are sought out more readily by free radicals. In Diabetes mellitus, the consumption of an appropriate dose of natural vitamin C is positive in two respects: On one hand, vitamin C considerably reduces the plasma insulin level, reducing the glucose level by 2 x 500 mg a day;[1030] on the other hand, it inhibits the protein saccharification in arteries which leads to vessel destruction in diabetes.[1031] Studies show that vitamin C was also able to counteract the eye problems and skin irritation observed in advanced diabetes. The consumption of 1000 mg per day improves the condition of eyes and skin for as long as consumption continues. If patients stop taking vitamin C then the condition deteriorates again, step by step.[1032]

VITAMIN C FOR RESPIRATORY DISEASES

Clinical studies attest to the clearly positive influence of vitamin C on all lung function parameters. According to Dr. Reza Schirmohammadi, a doctor of natural medicine, vitamin C plays a very important role as one of the most important antioxidants in bronchial secretion and lung fluids. As asthmatics demonstrate a very low vitamin C plasma level (0.54 in comparison to 0.84 mg/dl in healthy people), he treats his patients with vitamin C infusions, with great success.

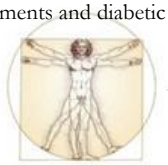
It's not hard to see that vitamin C is able to almost miraculously prevent and even heal the entire array of diseases. This is the good news. As you can see, vitamin C plays a very decisive role in whether and to what extent you remain

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[1030] Davie S. E. et al.: Effect of vitamin C glycosilation of proteins. 1992, Diabetes 41, pp. 167–173

[1031] Gembal M. et al.: The effect of ascorbic acid on protein glycation in streptozotocin-diabetic rats.

[1032] Cox B. D. and Butterfield W. J .H.: Vitamin C supplements and diabetic cutaneous capillary fragility. 1975, British Medical Journal 3:#5977, pp. 205–207



healthy, how quickly you age and when you die. This is directly associated with the biochemical processes which activate and support the natural vitamin C in our bodies.

Thus, vitamin C demonstrates its effect on several fronts: hormonal, antiviral/antibacterial, antioxidative, as a catalyst for cleaning and in the development of collagen and elastin.

As you can see in the description above of the effects on individual diseases, the antioxidative effect and influence on collagen and elastin development are of the greatest importance here!

OXIDATION = DEGENERATION-DISEASE-AGEING

While the medical profession does not have any real advice for fatal diseases such as cancer, heart conditions, cerebral apoplexy and many more, all serious scientists agree on one thing: All ageing processes and most diseases are primarily associated with the oxidation of our body cells!

Oxidation – what does it mean?

Oxidation results from 'free radicals' in connection with oxygen which attack and destroy our body cells (similarly to rust eating away at a car body). It is precisely this destruction by free radicals (oxidants) which afflict us with diseases and cause us to age.



- Free radicals damage our cell membranes, our cells, our genes, our DNA, our protein and our fats.
- Free radicals accelerate tissue deterioration or bodily ageing.
- Free radicals cause or accelerate many so-called civilisation diseases, for example:
- Atherosclerosis
- Respiratory diseases
- Blood vessel diseases
- Cancer
- Diabetes
- Cystic fibrosis
- Inflammation
- Hepatitis
- Parkinson's
- Alzheimer's
- Arthritis
- Down's syndrome

ANTIOXIDATION = REGENERATION – PRESERVING HEALTH AND YOUTH



Therefore, the inversion of the argument means that we remain untouched by most diseases and, after we have finished growing, we will NOT age biologically if the body could neutralise all free radicals (oxidants).

COLLAGEN FORMATION WITH VITAMIN C

Roughly speaking, the most important tissue forms of humans, which determine lifespan, age, youthfulness and health (skin, blood vessels, nerve tracts, joints, organs, bones, etc.) consist mainly of the two protein building blocks (amino acids) 'elastin' and 'collagen'.

As reported in detail in the previous chapters, the current recommended amount of vitamin C worldwide (between 60 and 100 mg/day) only prevents scurvy, or the final stage of vitamin C deficit which leads to death. On the other hand, it is so low that it allows most diseases in.

The reason for this is simple: if people consumed enough vitamin C and similar natural substances they would probably only rarely contract illnesses and therefore bring in much less income to 'Big Pharma' for expensive medicines – dead people, on the other hand, do not generate any income, except for the undertaker...

VITAMIN C AND SIDE EFFECTS

Does vitamin C have side effects and if so, what are they?



With all the countless benefits of vitamin C for our health and life the question quite rightly arises as to the possible side effects.

Not a single case has been recorded to date of a patient becoming seriously ill due to an overdose of natural vitamin C!

Vitamin C preparations made from pure camu camu or even Acerola powder are harmless even in the highest doses and exceptions are automatically controlled by the body.

Studies attest that no serious side effects occur even after 25 years of consumption of vitamin C in high doses of 10-20,000 mg (grammes)!

The only side effect is diarrhoea which can occur if more than 10 grammes are consumed.[1033, 1034]

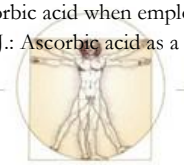
GROUPS OF PEOPLE WITH HIGHER VITAMIN C REQUIREMENTS

In the patients treated in detail above, researchers found a lower concentration of vitamin C was present in the body than in healthy individuals. This in itself is a clear indication that the body uses its vitamin C reserves to deal with getting ill.

However, as a normal diet can include 100 mg of vitamin C per day at most,

[1033] Klenner F. R.: Observations on the dose and administration of ascorbic acid when employed beyond the range of a vitamin in human pathology. J. Appl. Nutr. 1971; 23, pp. 61–88

[1034] Klenner F. R.: Virus pneumonia and its treatment with vitamin C. Journal of Southern Medicine and Surgery 1948, 110, pp. 60–63; Klenner F. R.: Observations on the dose and administration of ascorbic acid when employed beyond the range of a vitamin in human pathology. Journal of Applied Nutrition 1971, 23, pp. 61–88; McCormick W. J.: Ascorbic acid as a chemotherapeutic agent. Archives of Pediatrics 1952, 69, pp. 151–155



an additional nutritional supplement with natural vitamin C preparations is essential.

People who require increased levels of vitamin C – other than people suffering from a disease – include:

- Pregnant women and breast-feeding mothers,
- Smokers,
- People who are subject to increased environmental pollution,
- Groups of people who are exposed to increased physical and physiological stress,
- Athletes (in particular endurance athletes),
- People who drink lots of alcohol,
- People who are taking hormones (contraceptive pills,
- anabolic substances).

Self-test for determining the individual vitamin C requirement for healthy and unwell individuals

While the recommendation of 30-50 mg of vitamin C per kilo of body weight daily is a very applicable orientation point, vitamin researcher Dr. Kinadeter gives us a guide for precise, individual tests to determine vitamin C requirement.

According to Dr. Kinadeter, the body only ever retains as much vitamin C as



it requires; excess amounts are excreted via the bladder and intestine.

However, this excretion is a good thing as, according to Dr. Kinadeter, it prevents potential diseases in the bladder, prostate and intestine.

The test:

FIRST DAY: 1500 mg vitamin C

Take 0.5 g of vitamin C after breakfast, lunch and dinner respectively (if possible in the form of a camu camu capsule or camu camu powder or Acerola!).

SECOND DAY: 3000 mg vitamin C

Take 1 g of vitamin C after breakfast, lunch and dinner respectively.

etc.

In this way, you can increase your vitamin C supply stage by stage until diarrhoea occurs. If this happens, reduce the vitamin C dose by 1 g. It is important to pay attention to the stool, ensuring it remains normal and does not become too thin when taking large doses of vitamin C, for example 10 g daily over a long period of time.[1035]

American vitamin C researcher and surgeon, Dr. Cathcart, has treated 9,000

[1035] Kinadeter 2004, p. 71



patients over 10 years with large doses of vitamin C and, in the course of this, has determined that people suffering from diseases demonstrate significantly increased gastrointestinal tolerance to vitamin C than healthy individuals.

Thus, it could well be possible that a person can take up to 200 g (200,000 mg), depending on their level of illness, without this leading to a laxative effect. However, such a high dose only applies in the case of disease because as soon as the body starts to recover, this tolerance diminishes. Consumption must be reduced as follows.[1036]

Furthermore, Cathcart declared that a '100 g cold' cannot be successfully treated with a few grammes of vitamin C. Thus, he determined that the correct vitamin C dose for the successful treatment of viral infections is directly under the amount which causes loose or watery stool.

Therefore, a person should increase the dose of vitamin C step by step until a laxative (soft stool/diarrhoea) effect occurs. For people with a 'normal, good health status' this tolerance level is between 4-15 g within 24 hours.[1037]

WATCH OUT WHEN YOU ARE BUYING FOODSTUFFS WITH VITAMIN C

It is completely impossible for people in today's modernised world to obtain sufficient nutrients and vitamins from diet alone! That's all there is to it!

[1036] H. Lange: Mit Linus Pauling Forschungsergebnissen gesund werden - gesund bleiben, p. 13

[1037] Cathcart R. F.: Vitamin C, titrating do bowel tolerance, anascorbemia, and acute induced scurvy. Medical Hyphotheses 1981, 7, pp. 1359–1376



In addition to supplementing diets with high-quality, natural nutritional supplements (the best source for this are products of the camu camu fruit), people should still consume as many fruits and vegetables as possible, as the secondary substances and enzymes these contain support the process of remaining healthy. People should generally avoid frozen and tinned foods as the preservatives and flavour enhancers used not only promote allergies, they also deplete your vitamin reserves. Avoid white flour products and lemonades which contain quinine and sugar as these reduce the content of vitamin C, vitamins B, E and K and folic acid.[1038]

Vitamin juices in light-coloured bottles do not contain vitamin C – even if the labelling claims they do. This is because vitamin C oxidises and is destroyed in light.

A vitamin C-conserving preparation

Briefly simmer vegetables instead of boiling them in order to retain more nutritional value and vitamin C.

Cooking in tap water saps food of 50 % of vitamin C due to the high chlorine content in tap water.[1039]

You should only put vegetables into water when it is already boiling, then quickly cook through in order to retain as much vitamin C as possible when cooking.

[1038] H. Lange: Mit Linus Paulings Forschungsergebnissen gesund werden, gesund bleiben, p. 9

[1039] Kinadeter 2004, p.56



Avoid storing fruit and vegetables for a long time. If storage is unavoidable, ensure that they are stored in a dark place.

Vitamin C vs. vitamin C – which vitamin C is the right one?

As can easily be seen in the table under the point 'Effect of vitamin C', natural vitamin C has a decisive influence on our health and lives – it determines whether and to what extent we remain energized, how quickly we age and how long we live.

However, the fact that vitamin C decides these factors does not take the decision away from you, as you alone decide whether you take it.

Natural vitamin C before ascorbic acid?

Natural vitamin C consists of the complete vitamin C complex; not just ascorbic acid but also calcium ascorbate, ascorbyl palmitate, magnesium ascorbate, niacinamide ascorbate including secondary plant substances, bioflavinoids, hesperidin and rutin. It is this which guarantees the greatest possible absorption and utilisation on the part of our bodies including the health advantages referred to in detail in this discourse.

The more cost-effective ascorbic acid also fulfils its purpose, however there are some things to consider here:

As you may assume from the name 'ascorbic ACID', ascorbic acid in large quantities over-acidifies our organism, which is anything but healthy. The bioavailability of ascorbic acid, that is absorption into our organism, is anything



but ideal, which is no surprise as this is an artificial product, not one from mother nature!

In order to optimise the absorption of ascorbic acid on one hand and bind the acids on the other, it is recommended to combine ascorbic acid with a natural product which contains both the optimum amount of bioflavinoids required by vitamin C and also understands how to bind acids. A mixture of vitamin C (for revaluation and better absorption with grapeseed flour) and barley grass powder (for revaluation and binding acids).

Camu camu – the richest fruit in vitamin C in the world.

It goes without saying that nothing is better at supplying vitamin C as natural vitamin C!

You can obtain natural vitamin C in the shops, for example, from acerola fruit or, even better, camu camu fruit.

Camu camu (lat. Myraciaria dubia), also known as 'Bayberry Fruit', is a wide-spread fruit in the Amazon region which contains 30-60 times more vitamin C than the citrus fruits lemons, oranges or orange juice. In addition to a complete vitamin C profile, camu camu contains numerous other nutritional substances such as beta-carotin and calcium, 10 times more iron, 3 times more niacin, 2 times more riboflavin and, believe it or not, 50 % more phosphorus than an orange.

Furthermore, camu camu fruit supplies a lot of potassium, calcium, a wide



spectrum of bioflavinoids, vitamins B1, 2 and 3, 10 times more trace elements, twice as much phosphorus as an orange, riboflavin, niacin and thiamine – to name but a few.

SUMMARY

Camu camu fruit is the richest fruit in vitamin C in the world and, in its natural, perfect form, it provides humans with a perfectly tuned mixture of vitamins, minerals, secondary plant substances and many further essential substances which are yet to be researched.

The synergetic mixture of the perfectly combined ingredients of vitamins, minerals, secondary plant substances and amino acids in natural cuisine increases and maximises the ability to absorb vitamin C and therefore makes it superior to all other sources of vitamin C.

The best decision of all for a vitamin C preparation is without doubt a product made from 100 % camu camu powder, followed by acerola!



‘Acidification of the body is the root evil of all diseases.’ (Paracelsus)

A very important question to start off: When did your GP last measure the acid levels in your body, the ‘pH values’.

If the relevance of this measurement were not so massively important for our health and well-being, it could almost be considered amusing how negligently the issue of ‘acidification and toxification’ in the human body is overlooked in conventional medicine. However, the fact that acidification and toxification in our organism decide whether we are ill or healthy, biologically young or old, makes this wide-spread ignorance a tragedy which causes countless diseases and unnecessarily claims millions of human victims year after year.

Holistic doctors and healing practitioners agree that the single really important measurement for our health is the pH value – provided that a person deacidifies their body and keeps the acid-base ratio in balance – while all other measurements such as blood pressure, cholesterol, blood sugar and others are secondary as these only measure damage, which is largely caused by acidification!

The very interesting statement from doctors and so-called nutritional experts which never grows old is the phrase they are taught to repeat in their studies ‘there is no acidification or toxification in a healthy body!’

A simple pH test strip from the chemists can convince you of the opposite in a few seconds as the probability that you are one of the people in an industrialised country who suffers from acidosis (chronic acidification of the organism)



is very high at 80 %. Healing practitioners and natural medicine doctors agree that by far the most important test parameter is not blood pressure, uric acid level or even the cholesterol level – rather it is the measurement of the acid level or pH value.

What are acids and bases?

Acids and bases are two opposing factors which play an important role for a healthy organism. The acid-base balance regulates our cardiovascular system, our breathing, our digestion, our hormone production and much more. A certain pH value (acid-base value) must be guaranteed in order for these important processes to continue unimpeded.

The problems begin if one of the two factors heavily outweighs the other and the acid-base balance is permanently destroyed. In reality, it is very rare that bases outweigh acids, as there are acids everywhere in the body, for example in energy production, where carbon dioxide is continually generated, or if we ingest them in the form of nutrition or if involuntarily consumed poisons are actively absorbed. Increased stress levels these days contribute to the vast majority of people in industrial countries being permanently acidified, some to the point of illness! According to doctors and therapists who use holistic treatments, the most medical conditions by far result from a low pH value, acidification of our organism and the subsequent demineralisation and toxification – a destructive process which is designated as a DISEASE OF MODERN CIVILISATION. Therefore, there demand is to make the pH value a relevant, regular measurement criterion within medical practice as a fixed component of



every prophylaxis and treatment!

Acids themselves, as well as toxification as a metabolic process from neutralising them, make us ill, old and generally impair our functions. The demineralisation of our organism in order to bind acids and prevent burns goes one step further.

Paracelsus recognised: *'Acidification is the fundamental evil of all disease'*. Indeed, all diseases show a parallel acidification of the organism and the faster this is resolved, the faster the individual becomes healthy.

It is thanks to Hildegard von Bingen's recognition as far back as the 11th century that we know women live about ten years longer because they expel their acids every month in their period. After menopause, this situation changes drastically.

While women can partially expel their excess acids via their monthly period, men do not have this cleansing function available; for them, acids are preferentially tapped into via the minerals in the scalp, which is the cause of typical 'male baldness'.

This treatise aims to provide you with competent answers to all your questions regarding this vital topic and to give everybody an understandable guide as to how you can take deacidification, detoxification and remineralisation into your own hands. We will get closer to this aim point by point, without technical jargon, and support you along the way with valuable information and tips presented in an understandable fashion.



Did you know that...

- ... around 80 % of all people in industrialised countries suffer from chronic acidification?
- ... acids result from stress, incorrect nutrition and poisons in foodstuff and the environment?
- ... body acids are probably one of the biggest health problems of recent times and cause thousands of diseases, from allergies to cancer?
- ... acids from burns in glands and organs not only lead to diseases but also to accelerated physical ageing?
- ... wrinkles, hair loss, grey hair and cellulitis can be traced back to acidification?
- ... our body needs to constantly maintain a blood pH value of 7.35-7.45? Otherwise, the result can be acute, life-threatening processes and even a coma.
- ... our organism can only neutralise excess acids with the help of minerals in order to ensure the blood pH value and protect our lives?
- ... foodstuffs today hardly retain any minerals (or other nutrients) due to industrial processes and environmental pollution and this forces our bodies to cannibalise minerals from our skin, bones, teeth, blood vessels and organs?
- ... this process logically leads to those organs suffering damage?



- ... ageing can be precisely ascribed to this process of mineral deprivation if minerals are removed from the skin, scalp, teeth, bones, cartilage and blood vessels?
- ... however, at the same time, the neutralisation of acids by minerals leads to toxification which burns and toxifies the organism from the inside, leading to further diseases?
- ... even after just a few weeks of deacidification and remineralisation, cholesterol levels can be reduced naturally, high blood pressure normalised, joint problems alleviated, a diseased, engorged liver can be shrunk, stressors deconstructed, exhaustion reduced and the ability to concentrate can be increased? (You can read more about this under 'Studies')
- ... you can turn back your biological age by many years using appropriate deacidification and remineralisation methods?
- ... it is basically quite simple and cost-effective to permanently deacidify, detoxify and remineralise yourself and thereby to significantly improve health and quality of life, correct signs of ageing, become more attractive and even increase life expectancy?

You can find out more about this highly interesting topic and what you can do to combat or improve the situation in greater detail in the following sections!



Studies

Study regarding the influences of alkaline mineral salts on the human organism

The influence of alkaline minerals on the human body was investigated and verified under the guidance of scientists P. Gritsch, A. Witasek, R. Gogelnik and G. Trötscher from the *Institut für Regenerationsforschung Lans* (Institute for Regeneration Research) and Ch. Traweger (University of Innsbruck). The study was published in 'Erfahrungsheilkunde' volume 45, issue 8 in August 1996.

Study conduct

Study participants

60 people aged between 20-83 years took part, of which 15 were male and 45 female.

Age distribution:

Age	Proportion



groups	
< 40 years:	12 %
40–49 years:	18 %
50–59 years:	35 %
60 and older	30 %
No infor-mation	5 %

The lifestyles of all the participants, including their nutritional habits, leisure activities etc. were compared with one another and corresponded to the typical conditions of an average citizen.

Test substances

The test substances used were a combination of mineral substances which can balance out a mineral deficit caused by acidosis or nutritional deficiency.



Mineral substances used	Proportion in %
Sodium hydrogen carbonate	47.9
Calcium carbonate	10.6
Tripotassium citrate	6.0
Magnesium hydroxicarbonate	16.2
Auxiliary materials: Potato flour Talcum, Elcema P200, sicovit, indigotin, herbal oils	ad 100 %

Method

Study participants were prescribed an intensive diet under medical supervision. Test subjects were separated into two groups: One group received the minerals stated above in a dose of 3 x 5 capsules of 0.354 g daily, and the other group were given a placebo. This was a simple blind study, where both groups were composed of representative, statistically comparable study groups. The observational period was three weeks, the average and proportional values were evaluated and the test subjects' complaints were measured at the start and end of the study. The complaints were determined using case report forms, a list recording complaints and doctors notes. The following measurement scale was used for evaluation of the assessment of complaints:



- No complaint = 0
- Slight complaint = 1
- Moderate complaint = 2
- Serious complaint = 3

The evaluation showed that the administration of base mineral powders had numerous positive influences both on the subjective feelings of study participants as well as on the objective laboratory values.

The average values of complaint intensity were recorded and distributed into the following five relevant modules:

Module 1: Gastrointestinal tract

Module 2: Motor system

Module 3: Cardiovascular system

Module 4: Fatigue tendencies

Module 5: Skin

This led to the determination of improvements from the start to the end of the study on average which was compared between the group with the base mineral powder and the placebo group.

The individual symptoms of the verum group at the start and end of the study in comparison to the placebo group are shown in the following table:



Functional area	Complaint(s)	Start of treat-ment	End of treat-ment	Start of treat-ment	End of treat-ment
Module	Heart-burn/regurgitation (8/14)	2.13	0.5	1.43	0.21
	Pressure/bloatedness (23/18)	2.00	0.13	1.94	0.67
Gastrointesti-nal tract	Flatulence (25/21)	2.0	0.6	1.95	0.85
	Stomach complaints (9/8)	1.56	0.00	1.50	0.00
Module 2	Joint/limb pain (16/19)	2.13	0.32	2.0	1.05
	Neck/shoulder/back pain (26/22)	2.19	0.5	2.41	1.09
Motor system	Muscle tension (25/23)	2.04	0.20	2.04	0.74
	Headache (16/13)	1.63	0.13	0.13	0.15
Module 3	Palpita-tions/tachycardia (10/11)	1.70	0.00	1.82	0.91
	Arrhythmia (7/8)	1.57	0.0	1.63	0.75
Cardiovascular system	Pressure on the chest (9/9)	1.56	0.0	1.33	0.11
	Dizziness (13/14)	1.46	0.62	1.57	0.64
Module 4	Fatigue/exhaustion (28/22)	2.14	0.43	2.14	0.86
	Sleep disorders (13/19)	2.0	0.38	1.81	1.00
Fatigue tendencies	Difficulty concentrating (21/19)	1.67	0.38	1.58	0.84
	Reduced memory performance (16/17)	1.69	0.44	1.76	0.94
Module 5	Itchiness (10/6)	2.1	0.4	1.50	0.67
	Skin rash (12/6)	1.75	0.25	2.0	0.67
Skin	Unclear skin/acne (11/7)	1.91	0.27	2.0	0.57
	Excessive sweating (18/14)	1.89	0.17	2.07	0.57

The intensity of complaints at the end of the study minus the intensity of complaints at the start of the study (the greater the discrepancy, the greater the improvement of complaints) is shown in the following table:



Module	Complaint(s)	Difference Placebo group	Difference test group
Module	Heartburn/regurgitation (22)	1.22	1.63
	Pressure/bloatedness (41)	1.27	1.87*
Gastrointestinal tract	Flatulence (46)	1.10	1.40
	Stomach complaints (17)	1.50	1.56
Module 2	Joint/limb pain (35)	0.95	1.81**
Motor system	Neck/shoulder/back pain (48)	1.32	1.69
	Headache (29)	1.70	1.50
Module 3	Palpitations/tachycardia (21)	0.91	1.70**
	Arrhythmia (15)	0.88	1.57
Cardiovascu-	Pressure on the chest (18)	1.22	1.56

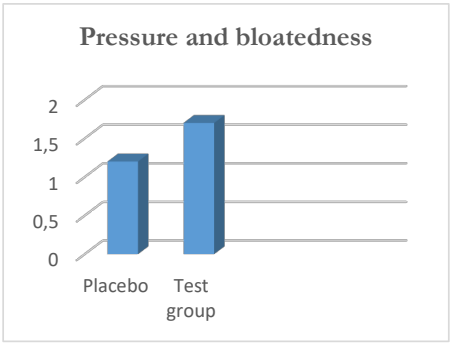


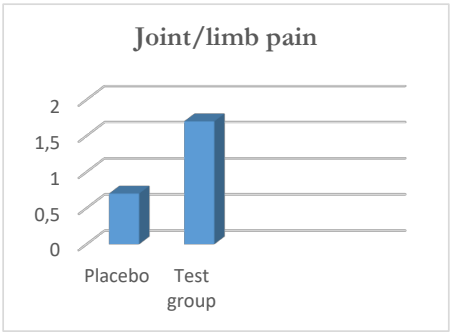
lar system			
	Dizziness (27)	0.93	0.84
Module 4	Fatigue/exhaustion (50)	1.28	1.71
	Sleep disorders (32)	0.84	1.62**
Fatigue tendencies	Difficulty concentrating (40)	0.74	1.29**
	Reduced memory performance (33)	0.82	1.25
Module 5	Itchiness (16)	0.83	1.70*
	Skin rash (18)	1.33	1.50
Skin	Unclear skin/acne (18)	1.43	1.64
	Excessive sweating (32)	1.50	1.72
	Total difference between complaint intensity	23.07	31.40

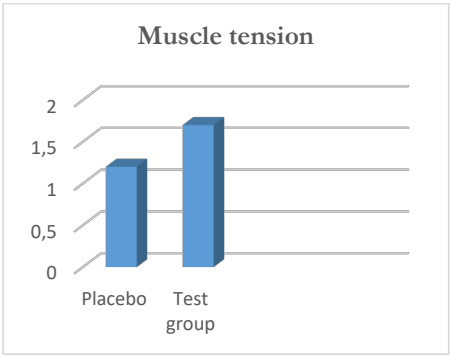
(n)= number of people analysed significance: *p<0.1 **p<0.05

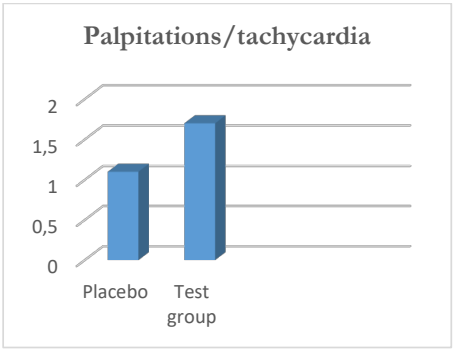


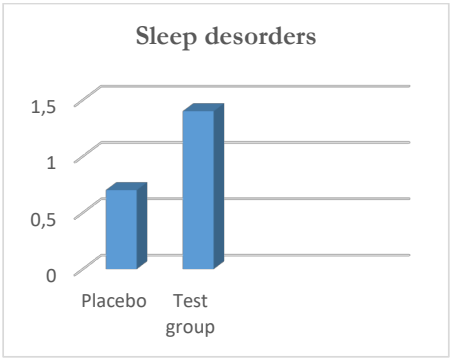
The bar chart makes clear the statistically relevant improvement in almost all the symptoms in the group which was given the mineral substance mixture:

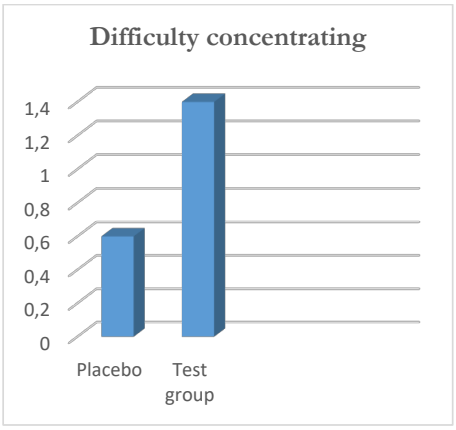


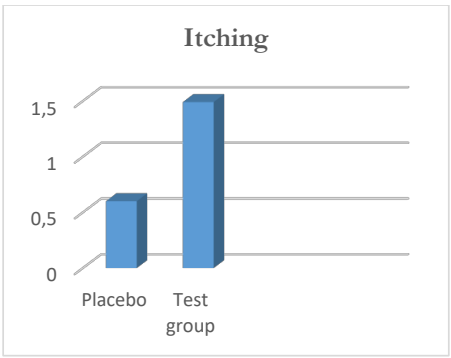


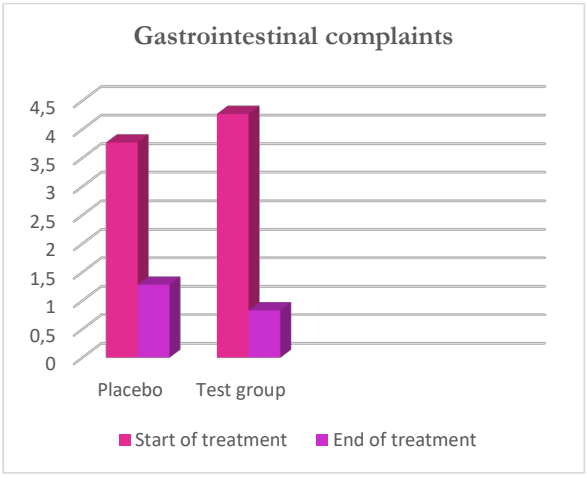

Muscle tension
2
1,5
1
0,5
0
Placebo
Test group


Palpitations/tachycardia
2
1,5
1
0,5
0
Placebo
Test group

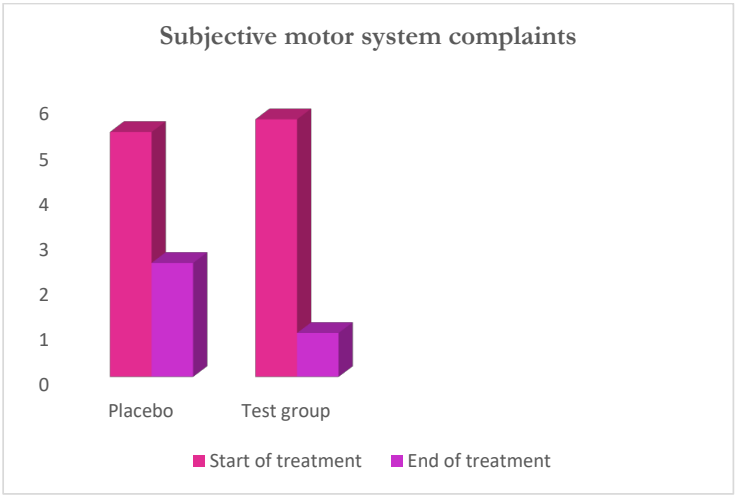

Sleep desorders
1,5
1
0,5
0
Placebo
Test group


Difficulty concentrating
1,4
1,2
1
0,8
0,6
0,4
0,2
0
Placebo
Test group

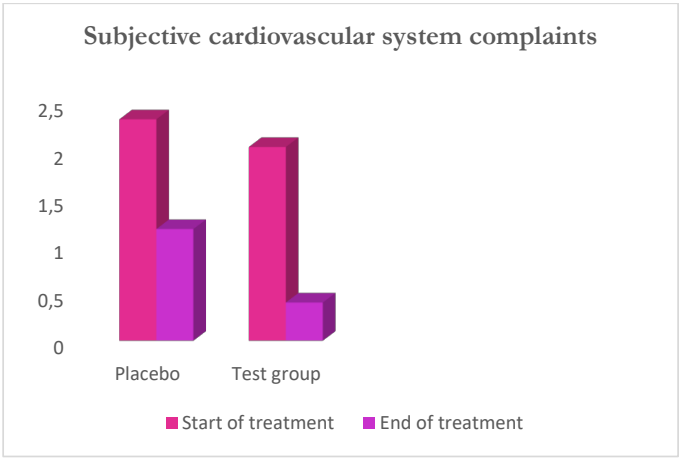

Itching
1,5
1
0,5
0
Placebo
Test group



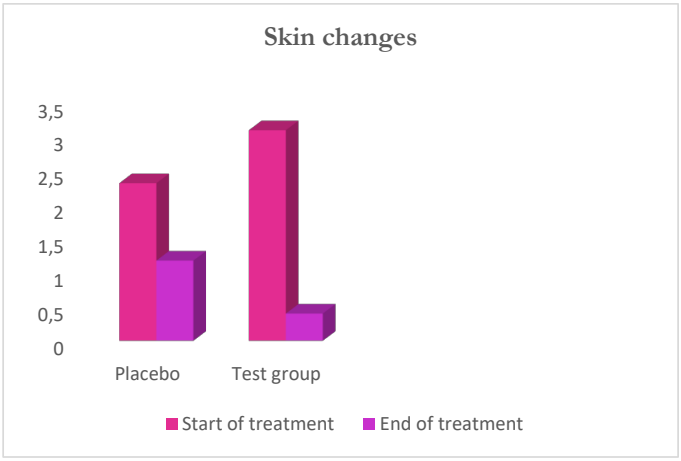
Difference: 2.49 3.44



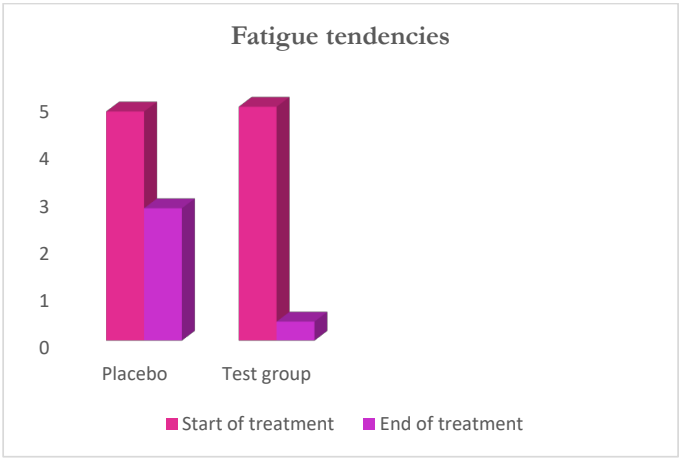
Difference: 2.89 4.72



Difference: 1.15 1.63



Difference: 1.14 2.27



Difference: 2.04 3.60

The symptom improvements felt subjectively by study participants could be proven in laboratory tests! The values were compared at the start and end of the study.

Explanation: A positive difference value (+) means that the laboratory parameters are reduced and the status has improved. A negative difference value (-) means that the status has worsened and therefore the laboratory parameters have increased:

Laboratory parameter	**Difference** **Average value** **Placebo group**	**Average difference** **Test group**
Blood sedimentation after 1 hour (mm)	0.21	1.27
Blood sedimentation after 2 hours (mm)	0.43	3.37
Erythrocytes (T/1)	0.13	0.07
Haemoglobin (g/dl)	-0.10	0.25
Haematocrit (%)	0.28	0.67
Fibrinogen (mg/dl)	-14.14	0.6
Triglyceride (mg/dl)	25.18	40.21



Cholesterol (mg/dl)	40.36	52.37
HDL (mg/dl)	5.86	12.50
Total bilirubin (mg/dl)	0.05	0.03
Gama-GT (U/l)	5.86	5.93
GOT (U/l)	-1.07	-1.10
GPT (U/l)	-0.71	-0.67
Creatinine (mg/dl)	-0.04	-0.04
Uric acid (mg/dl)	-0.10	-0.58
Sodium (mmol/l)	0.39	1.07
Potassium (mmol/l)	0.07	-0.03
Chloride (mmol/l)	0.93	1.67
Calcium (mmol/l)	0.0	0.0
Magnesium (mmol/l)	-0.06	-0.03
Total protein (mg/dl)	0.11	0.28



Conspicuous laboratory values for special demographics or at-risk groups

The change in certain laboratory results in selected groups of patients was very interesting. The sample size, average difference between the start and end of the study and the level of significance were given for the individual parameters.

Explanation: If the average difference is negative then the value has increased by the end of the study; if the difference is positive, it has reduced.

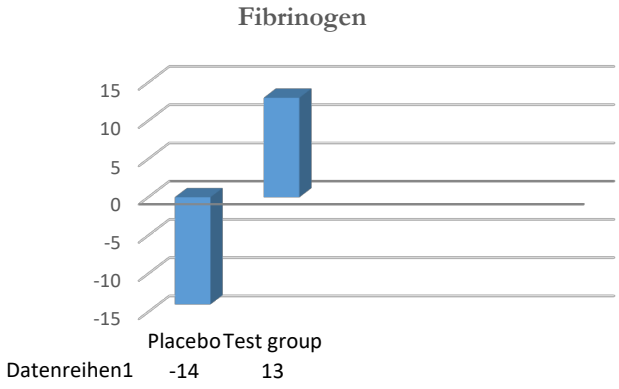
Groups of people/patients under 60 years old

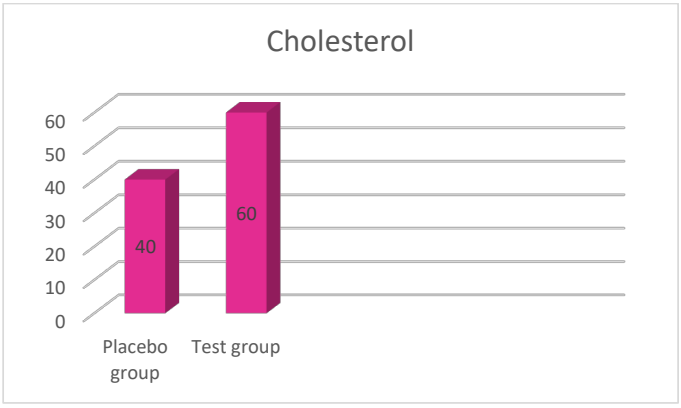
Those under 60 had a consistently increased daily stress level, poor and irregular nutrition and a greater tendency to eat fast food and move less.

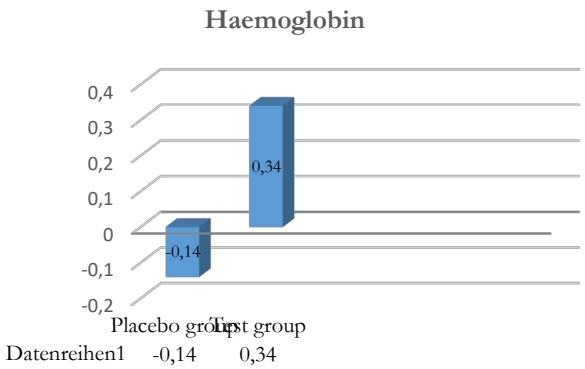
Parameter	**Number of people**		**Average difference**	
	Placebo group	Test group	Placebo group	Test group
Fibrinogen**	19	18	-14	+13
Cholesterol*	19	18	+40	+60
Haemoglobin**	19	18	-0.14	+0.34
Sodium*	7	8	-1.00	+2.3750
Total protein**	7	8	-0.43	+0.46
Level of significance: *p<0.1 **p<0.03				

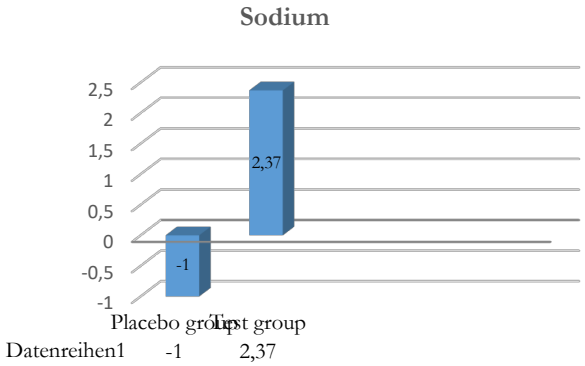


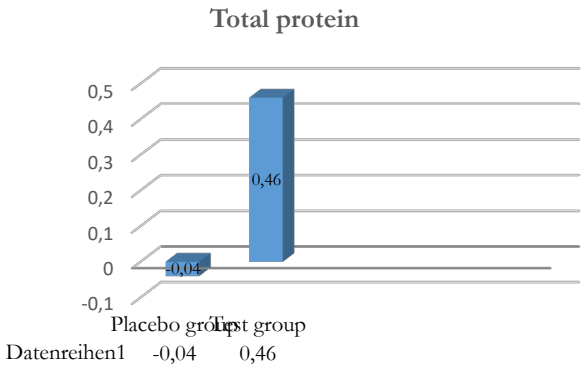
With the remarkable reduction in the cholesterol level and the improved haemorheology in the verum group (mineral substance group) compared to the placebo group, the study proves a reduction in the significant risk factors for arteriosclerosis, high blood pressure, heart attacks and strokes.




Cholesterol
60
50
40
30
20
10
0
40
60
Placebo group
Test group


Haemoglobin
0,4
0,3
0,2
0,1
0
-0,1
-0,2
0,34
-0,14
Placebo group
Test group
Datenreihen1 -0,14 0,34





The authors considered the lowering of sodium levels despite the supply of sodium bicarbonate to be a clear sign of improved kidney function.



Groups of people who do not exercise and drink too much alcohol

In people who do not exercise and drink too much alcohol, the relative reduction of the Fibrinogen ('blood clotting protein') with the administration of minerals was highlighted.

Investigative parameters Fibrinogen*

Risk group	**Number of people**		**Average difference**	
	Placebo group	Test group	Placebo group	Test group
No exercise	16	13	-21.50	+4.46
Regular al-	15	21	-25.35	+2.95



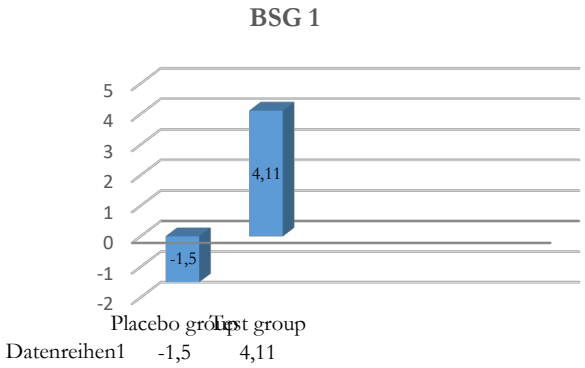
cohol consumption (2-3* times a week)				
Level of significance: *p<0.1				

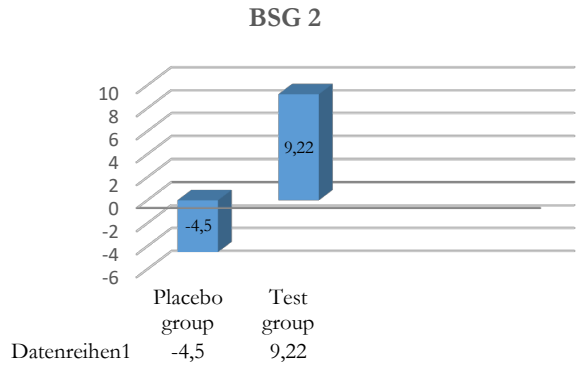
Inflammation processes in the body reduced

The significant blood sedimentation pace was particularly evident in patients under 60 years old and a clear indication for the reduction of inflammatory processes in the organism (arthritis, gout etc.)

Risk group	**Number of people**		**Average difference**	
	Placebo group	Test group	Placebo group	Test group
BSG 1*	8	9	-1.50	+4.11
BSG 2**	8	9	-4.50	+9.22
Level of significance: *p<0.1 **p<0.05				







Blood pressure significantly reduced

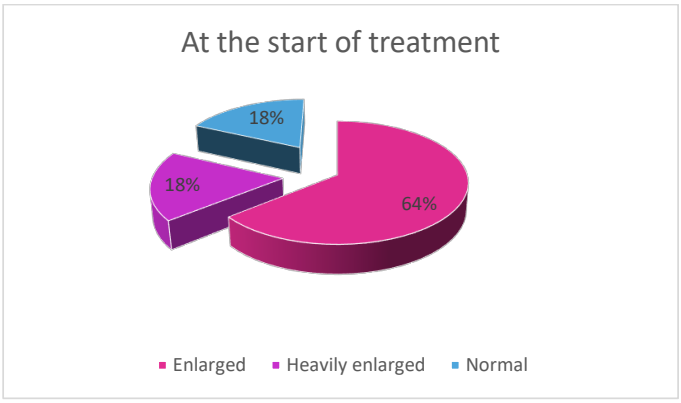
Blood pressure was measured four times during the study. Both the systolic and diastolic blood pressure could be significantly reduced in the verum group:

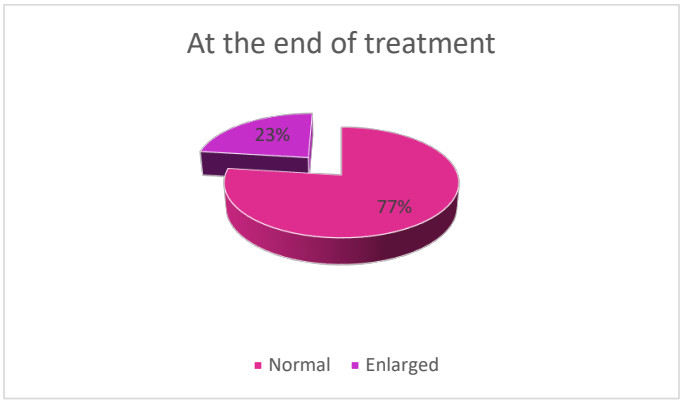
	Placebo group	Test group
Syst./Diast. 1st measure-ment	148/87	156/92
Syst./Diast. 2nd measure-ment	136/87	139/85
Syst./Diast. 3rd measure-ment	130/80	133/83
Syst./Diast. 4th measure-ment	128/80	131/79

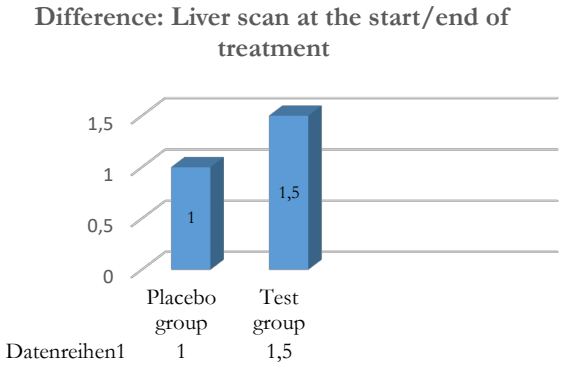
Medical findings

Two finger widths were used to measure the liver caudal of the rib cage and this was classified as either normal, enlarged (1-2 double finger widths) or heavily enlarged (3-4 double finger widths). The liver could be impressively reduced in size with the administration of mineral salts, which could be attributed to a significantly faster regeneration of the liver when taking minerals:




At the start of treatment
18%
18%
64%
Enlarged
Heavily enlarged
Normal


At the end of treatment
23%
77%
Normal
Enlarged



Study summary

1. Increased base buffer capacity

A study was successful in increasing the intracellular base buffer capacity. This means the body's capacity to neutralise the acids resulting from the metabolism or from nutrition using its own buffer system. The assistance of the base mineral mixture alone was successful in recovering acidified patients from their latent tissue acidosis.

2. Reduction of the concentration of fibrinogen in the plasma

A significant reduction in the fibrinogen concentration in the plasma was achieved. This means a real prophylaxis (prevention) against hypertonia (high blood pressure), coronary heart disease with risk of heart attack and cerebral ischaemia with a risk of apoplexy.

3. Relief of motor system complaints

Symptoms in the motor system such as joint and limb pain, back pain, muscle

tension and headaches improved significantly. This impressive relief of symptoms was traced back to the fight against acidosis pain which occurs with circulation deficiency, chronic muscle tension and chronic inflammation. This shows the necessity for an adjunctive base treatment, even for these orthopaedic symptoms.

4. Fatigue, exhaustion, sleep disorders, difficulty concentrating, memory performance

Adaptation to stress which can result in fatigue, exhaustion, sleep disorders, difficulty concentrating and reduced memory performance could be significantly improved.

5. Lowering cholesterol naturally

Cholesterol is seen as a large risk factor for heart attacks and strokes. The blood cholesterol could be heavily reduced with the mineral mixture in the study; study directors attributed this to a biochemical liver activation as the liver is a basophilic organ. Unlike chemical lipid reducers which can have serious side effects, cholesterol levels can be lowered naturally with a base mineral powder.

6. Reduced blood pressure

Consumption of the mineral mixture was able to significantly reduce blood pressure. The researchers suspect the reason for this is the improved haemorheology and the reduction of the sodium level. Despite the supply of sodium carbonate, ingestion led to a statistically consistent reduction of the



sodium content in the blood.

How are acids formed?

There are many factors which are responsible for heavy acidification of an organism today. These include increased stress, environmental pollution, pesticides and poisons in our industrialised foodstuffs as well as the incorrect combination of foodstuffs in our diets in which acidifying nutrients dominate.

Furthermore, physical stress leads to lactic acid, carbonic acid results from lack of movement, hydrochloric acid from stress, irritation or fear, sulphuric acid from impaired digestion (bloating), niacin from smoking and acetic acid from sugar consumption.

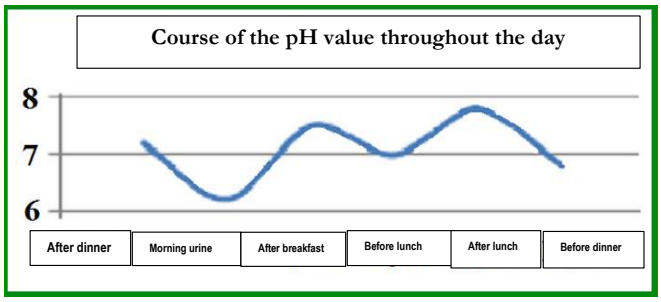
The body has natural buffers to neutralise temporary acidification; these include our lungs, kidneys, tissue and intestine. It is only when the acidification is so strong that these natural buffer systems can no longer catch the acids that acidification occurs. This is the case in 90 % of people in industrialised nations!

However, some alkaline is required by the body, this has a pH value of about 7.2.



Acid-base = ebb-flow

Biological rhythms as well as the influence of our diet causes our bodies to demonstrate different acid-base (pH) values throughout the day. Interestingly, the acid and base flows responsible for this switch in a six-hour cycle, similarly to the ebb and flow of the tide.



What is the ideal pH value?

A pH value of 7 is neutral and perfect for health. In the morning, the pH value should be between 6.2 and 6.8, in the afternoon between 7 and 7.5 and in the evening between 6.8 and 7.4. Not all acid-triggering factors are subject to our influence, but fortunately we can have a significant influence on the decisive factors for acidification: In order to maintain a healthy acid-base relationship, acidic foodstuffs should always be consumed in conjunction with base-forming foodstuffs. Caution should be taken here to ensure a relationship of 20 % (acidic foodstuffs) to 80 % alkaline foodstuffs!

Diseases from acidification



Symptoms and diseases of acidification

Acidification of the body should be considered in particular if several of the following symptoms occur:

- Allergies
- Excess weight
- Headaches
- Hair loss
- Grey hair
- Migraines
- Inflammation
- Digestion problems
- Heartburn
- Sleep disorders
- Gum inflammation
- Menstrual cramps
- Insufficient weight
- Skin impurities (acne)
- Diabetes
- Cellulitis
- Concentration problems
- Infections
- Muscle cramps



- Joint pain
- High blood pressure

Am I acidic? – The objective pH test can tell you:

Symptoms may well be felt subjectively. In order to determine acid-base states fully objectively, obtain a package of pH test strips from your chemist.

Use the test strips to measure your values on three consecutive days in the morning, afternoon and evening (place the strip in a cup of urine for a few seconds) and make a note of these. Then take the average value from these three days (add them together and divide by 9) and you will have a fairly precise evaluation of your acid-base balance!

The aim should be to permanently keep your average pH value in the base region (>7)

Diseases from acidification

There are different mechanisms, such as acidification and toxification, which lead directly and indirectly to various disease symptom and even life-threatening illnesses in our organism. Certain illnesses prefer developing in the acidic region; conversely, these diseases acidify our bodies even more – a vicious cycle!

Diseases from acidification



Permanent acidification of the body is called acidosis. The following diseases are considered by experts to be a result of organism acidification.

Immune deficiency

In an acidified state, the entire balance of our body ('homeostasis') begins to sway. An acidified body can no longer properly fulfil its complete immune function and it reacts with slower performance, permanent tiredness, digestive problems and headaches.

AIDS (HIV)

AIDS patients always have an acidified organism. It is fundamentally important here to deacidify the body in order to give the immune system (see 'Immune deficiency' above') any chance at all of fighting against the HIV virus. Acids weaken our immune system, yet in diseases such as AIDS, it must be strengthened as much as possible.

Allergies

The hormone 'histamine' is distributed to de-acidify the organism. This hormone is distributed in all allergies and is considered the trigger for allergic reactions. Therefore, in order to get allergies under control, it is clear that the acid levels in the body (pH value) need to first be brought into order before other measures can be introduced in order to prevent the distribution of the hormone 'histamine'.



Ageing

While we cannot do anything about chronological ageing, we can certainly do a lot about our biological ageing. According to many researchers, the main cause of ageing is acids and toxins which leave behind neutralised acids and which then accumulate inside the body. Furthermore, the neutralisation of acids requires the demineralisation of our organism, meaning the skin, hair, nails, bones, teeth, joint cartilage, blood vessels and organs; both these in conjunction lead to typical signs of ageing and premature wear and tear to the body = ageing.

Lack of drive

Acidification of the organism leads to premature tiredness and an increased need for relaxation. The vegetative nerve system runs at full pace until it tires. Lack of drive is a typical symptom of an acidified body. Deacidification of the body can bring about a completely new, energised attitude towards life in two to three days.

Arteriosclerosis

Atreriosclerosis is considered the main cause of cardiovascular diseases. This in turn represents 50 % of all deaths in industrialised countries! The organism requires minerals for deacidification. As the calcium required for this is more readily available in blood vessels than the calcium in bones, the blood vessel calcium stores, which are immediately available, must be tapped into.



Thus, the body taps calcium from the mineral-rich intima (inner layer of blood vessels), thereby destroying them. This results in the tiniest micro-lesions.

In order to avert further damage, the body produces increased levels of cholesterol in reaction to this, which are intended to patch up the lesions. Instead of restoring calcium in the blood vessels, acidic cholesterol is drawn in. Unfortunately, this clogs the arteries bit by bit – arteriosclerosis, calcification and clotting begins in the blood vessels. If the blood flow to the heart is hindered by this calcification and clotting, a heart attack occurs – in the case of inhibited blood flow to the brain, the person suffers a stroke .

Arthritis

Many researchers believe the reason for arthritis is acidification of the organism. According to these researchers, rheumatoid arthritis results if the synovial membrane is drawn upon to neutralise acids, because the body does not receive sufficient minerals from foodstuffs. The synovial membrane structure changes and is no longer recognised by the body as its own – from this point, the immune system directs its defences against the foreign synovial membrane and a destructive inflammation process begins: arthritis. The basis for a treatment should be the deacidification of the body which enables a base pH value (approx. 7.5). In addition to alkaline-rich foodstuffs and the intake of minerals, it is also recommended to take regular alkaline baths of >2 hours, a pH value of >7.5 (7.5-8.5) and a water temperature of 35–38 °C.



Arthrosis

Whether a slipped disc or arthrosis – the mechanisms are always the same: In order to neutralise acids, the body taps minerals from the joint cartilage (in the case of a slipped disc, from the disc) required for neutralisation. The synovial fluid changes its consistency through alkaline absorption and becomes more viscous, toxic crystal deposits and the viscous synovia form an 'abrasive' mass which initially leads to loss of function in the course of the process towards the demise of the joint cartilage (or the disc in the case of a slipped disc) known as arthrosis.

The aim of the treatment here must be to de-acidify the body, then re-mineralise the cartilage with collagen-constructing vitamins and supply nutrients such as vitamin C, glucosamine and chondroitin.

Asthma

Due to acidification, the allergy asthma releases the hormone 'histamine' and leads to paralysis of the lung capillaries. Both lead to the typical allergic reaction in asthma, bronchial spasms and the resulting shortness of breath.

Non-allergic asthma also results from acidification; here, the breathing musculature spasms due to the excess acids in the body, which provokes the asthma attack.

Respiratory tracts

Dry coughs, a runny nose and enlarged tonsils are often a sign of acidification



in the organism, as the body reacts to the acids. The mechanisms here are similar to those in asthma (see above).

Eye problems

Acids parallelise eye musculature to some extent and dull the eye lenses, which can lead to blurred vision which is falsely attributed to the ageing process. The same mechanisms can lead to cataracts, conjunctivitis and light sensitivity.

Slipped discs

The body taps calcium from the bones and discs in order to neutralise excess acid and ensure our survival. Discs become flatter and flatter and worse and worse at fulfilling their buffer function – this frequently results in a slipped disc!

The aim of treatment here is also to: de-acidify the body and then re-mineralise! As discs are also made from collagen, the body must be supplied with collagen-building nutrients, as with all joint problems, such as natural vitamin C, OPC, glucosamine and chondroitin.

Connective tissue weakness

Permanent acidification of the body also leads to connective tissue weakness. From appearing older to dangerous function loss which puts our organs at risk, the spectrum of consequences of acidification on our connective tissue has a



wide range. Deacidification of the body with bases as well as the supply of high doses of natural vitamin C (ideally in the form of camu camu powder), approx 2-4 grammes per day, has proven highly efficient!

Conjunctivitis

Conjunctivitis can be caused by a multitude of factors. One factor which also needs to be taken into consideration is acidification of the organism. See the section above 'Eye problems'.

Bladder stones

Bladder stones are the storage of acids which must urgently be counteracted with the deacidification of the body.

High blood pressure/hypertonia

High blood pressure (hypertonia) is a big risk factor for strokes and heart attacks and more often than not caused by many factors. One significant factor which increases high blood pressure is acidification of the organism.

The red blood cells which have become rigid and enlarged due to the acid must now be transported as oxygen and nutrient transporters with greater pressure through the fine capillaries to their destination. A subsequent deacidification of the body quickly has a positive effect on normalising the blood pressure!

Bronchitis

Acidification of the body draws in infection. Infectious diseases in the lung



area accumulate and this leads to bronchitis.

Burn-out/chronic fatigue syndrome

The body taps into bases in order to neutralise acids until these are depleted and there are none left. This results in chronic fatigue syndrome or burn-out syndrome. Furthermore, the sympathetic nervous system as part of our vegetative system is overwrought, which additionally leads to exhaustion.

Cellulitis

Cellulite is considered to be caused by multiple factors, but one important factor is acidification. The body requires interim storage for acids, which it prefers to collect in women in the form of cellulite on the thighs and bottom. This interim storage is anticipated as the time until of the next period, whose function is, among other things, to expel acid from the body.

Incidentally, it is no surprise that exercise does not reduce cellulite in women, rather it appears all the more prominent. Muscle activity creates lactic acid, another acid, which joins with existing acids and often makes cellulite worse, rather than fighting it!

High cholesterol level

As already portrayed under 'Arteriosclerosis', the body taps into minerals in the blood vessels in order to bind acids. Magnesium, potassium and calcium are affected by this. However, it destroys blood vessels in the process while at the same time producing increased levels of cholesterol in order to patch this



damage up. This cholesterol is then deposited in greater and greater amounts in the vessel walls, restricting blood vessels which can ultimately lead to a heart attack or stroke. Therefore, deacidification is the most important treatment against high cholesterol.

Intestine

A large part of the processing and absorption of our nutrients takes place in the intestine. Acids which the body tries to neutralise are turned into toxins; these deposit sludges in our intestines and thereby inhibit the efficient absorption of minerals in our vascular system!

Acidification of the intestine often leads to a viral infection which puts stress on the entire body. In order to relieve this, you should consume as much water as possible with bases early in the morning, even before breakfast (for example, 1 teaspoon of sodium bicarbonate in 1 litre of warm water).

Intestinal ulcers

Intestinal ulcers are also often a result of excess acid in our organism. Acids damage the intestinal wall and lead to ulcers.

Depression

Conventional medicine tries to counteract depression with anti-depressants. This are often not just useless, they also frequently increase the depression itself. A medicine from a well-known pharmaceutical company drew attention to itself a few years ago as it led to dozens of suicides. Yet the solution is often



very simple: De-acidify the body and keep it in an alkaline range – just one teaspoon of sodium bicarbonate dissolved in a glass of warm water can have a positive effect after just 20 mins and after a few days bring about a complete change in our well-being! (Hot tip: sodium bicarbonate (500 g) can be found in Russian specialist trade shops for 85 cents as a baking agent.)

Diabetes

The pancreas is dependent on bases. However, these are fully contorted by the acids in the organism. This consistently damages the pancreas, releases ketones and leads to diabetes with all its long-term effects. Deacidification as a fundamental therapy with the aim of achieving an alkaline state (pH 7.5) should accompany all treatments. The effect of insulin is increased by deacidification, which is why diabetics used to be prescribed up to 30 g of sodium bicarbonate a day, before insulin injections became available.[1040]

Circulatory disorders

Excess acid makes red blood cells solidify; they can only pass through the smallest capillaries with difficulty and clog up our blood vessels.

This leads to circulatory disorders and the subsequent diseases associated with these, starting with thrombosis, right down to heart attacks. Deacidification

[1040] Kurt Tepperwein: Jungbrunnen Entsäuerung, May 2001, p. 126



and efforts to keep an acid-base balance is the method of choice here to ensure quick relief.

Diarrhoea

The body has several mechanisms to flush out acids. In addition to sweat and urine, vomiting also contributes to deacidification and detoxification. Diarrhoea is a further bodily function to urgently remove acids from the body. A balance of acids and bases can therefore help with diarrhoea.

Purulent tonsils

Purulent tonsils are also frequently a symptom of acidification. The body tries to excrete sludge.

Eczema

Eczema may be the result of an overreaction of the lymphatic and immune systems due to excess acid. Acid specialist and healing practitioner Kurt Tepperwein recommends an alkaline bath of at least two hours in his book 'Jungbrunnen Entsäuerung' ('Deacidification: The Fountain of Youth') in order to also de-acidify the body externally.

Fever

In addition to the function of warding off infections, a fever also has the task of getting rid of the neutralised acid sludge or 'burning off' the sludge. Previously, people intuitively and wisely used throat and leg compresses in order to



burn off sludge, today we use acidic antibiotics and pain killers.

Deacidification of the body can bring about tangible relief here. Despite a restricted appetite which occurs naturally with fever you should consume as many alkaline drinks as possible.

Gallstones

The gall bladder is dependent on bases which form in the stomach. If these are exhausted, the cholesterol released in the gall bladder solidifies in reaction with other materials, which we call 'gallstones'.

Gastritis

Excess production of acids within the parietal cells of the stomach leads to gastritis. Acids attack the stomach mucous which can often cause stomach ulcers.

Genitalia and diseases

Itching, inflammation and redness of genitalia may very well be a symptom of acidification. Deacidification and the reinstatement of an acid-base balance can help here.

Gout

Acidification of our organism leads to an increase in uric acid in the blood. It is known that this can lead to gout. If there are sufficient bases present in the body the organism can neutralise the crystals before they form. An alkaline



level between pH 7.5 and 8 is ideal. Alkaline baths lasting at least two hours and a pH value of approx. 8.5 quickly relieves symptoms.

Cataracts

Cataracts can be triggered or encouraged by excess acids in our organism. See the section 'Eye problems' above.



Grey hair

Grey hair is a result of a demineralised scalp. In order to neutralise the many acids, the body first and foremost draws its minerals from the scalp, which initially leads to greying hair. In later stages, this can lead to hair loss. De-acidifying the body and remineralisation reinstates the natural colour.

Hair loss

Hair loss in the first instance is a symptom of deacidification of the scalp! The body tries to neutralise the many acids with minerals, it can access the minerals required for this most quickly from the scalp. However, in this process it draws a vital mineral from the hair, which leads to hair loss.

While women de-acidify heavily during their period, male scalps are extremely exposed to demineralisation if they are acidified. This is the reason for the vulnerability of men in regards to 'male balding'.

This hair is therefore an infallible measure of our body's 'mineral account'. Here, too, deacidification and remineralisation of the body can save a head of hair and even partially restore it.



Haemorrhoids

Haemorrhoids are a clear sign that the extent of acidification in a body is dangerously high and that the body does not know how else to help itself than to create new openings and excrete its acids via these.

In the opinion of many natural healing practitioners, ablation or removal is the wrong treatment approach as then the opened, new valves for deacidification are taken away from the organism. After the organism is de-acidified, haemorrhoids generally disappear by themselves and, if you maintain an alkaline state, hardly ever return.

Skin diseases

The skin is the largest organ of the human body and is described as the 'extra kidney' for a good reason. Thus, it plays an important role in the deacidification and detoxification of the organism. Many skin diseases disappear by themselves if you focus on alkaline nutrition, de-acidify and re-mineralise the body!

Skin ulcers

Skin ulcers often represent an additionally created valve in the body in order to remove critical acidification from the organism. Closing the ulcers, whatever the method, is the wrong choice as we rob the body of the valves. Rather, in this case too, urgent deacidification is necessary.

Heart attack



Cardiovascular diseases make up the largest cause of death in industrialised nations. The body taps minerals from the inner vessel walls for deacidification purposes resulting in the tiniest micro-lesions. In order to avert further damage, the body produces increased levels of cholesterol in reaction to this, which are intended to patch up the lesions. Unfortunately, these also clog the arteries in the process and arteriosclerosis begins. Furthermore, extreme acid levels in the body lead to solidified blood cells. The result of inhibited blood flow to the heart due to these two reactions is a heart attack.

Hay fever

Hay fever relief is frequently observed if deacidification takes place appropriately using sodium bicarbonate (5 g in a glass with warm water) or other suitable bases. From relief to healing with consistent deacidification; everything is possible!

Cerebral apoplexy/stroke

The mechanism here is similar to that of a heart attack! The body taps minerals from the inner vessel walls for deacidification purposes resulting in the tiniest micro-lesions. In order to prevent something bad happening, the body forms cholesterol which is intended to patch up lesions. Unfortunately, this process is not controlled and bit by bit blood vessels become clogged. Furthermore, these multiple acids lead to rigidity in blood cells. The result of inhibited blood flow to the brain due to these two reactions is a stroke.

Hot flushes during the menopause



Hot flushes during the menopause are a natural physical reaction to deacidification. They are caused by the absence of the de-acidifying effect of the monthly period. Instead of supressing this important reaction with medicines, many experts recommend consistent deacidification of the organism!

Acute hearing loss/tinnitus

The causes of acute hearing loss or tinnitus can be manifold and stretch from viral infection, stress and noise impact to excess body acidification.

Rigidity of the red blood cells caused by acidification clogs the small blood vessels in the inner ear and the blood can no longer flow.

Immune system

The immune system in an acidified body is extensively impaired; you can find out more about this under 'Immune deficiency'.

Cold hands and feet

Cold hands and feet are a result of circulatory disorders. Connective tissue loses elasticity due to increased acidic stress which inhibits the blood supply to the extremities. Deacidification and alkaline baths (pH value 8.5) can help here!

Caries



After the scalp, teeth are one of the most popular sources of minerals for our organism to tap into for neutralisation purposes. Over time, this damages the tooth enamel and leads to caries. This damaging process is particularly clear in children's milk teeth which often consist these days of decayed stumps. Clearly the body prefers to sacrifice human teeth for acid neutralisation in the knowledge that more teeth will come

Childlessness

Childlessness is often an indication of a heavily over-acidified female organism. Ideally, amniotic fluid has an alkaline pH value of 8.5; if the body has excess acid, pregnancy is not possible, no matter what you try!

Lack of concentration

Rigidity of red blood cells caused by acids impairs circulation to the brain which is reflected in a lack of concentration, fatigue and other symptoms.



Headaches/migraines

Headaches and full-on migraines can often be traced back to acidification. In many cases, this problem can be combatted by consuming alkaline substances such as sodium bicarbonate.

Body odour

Unpleasant body odour is not always a sign of poor external hygiene – but very often a sign of poor internal hygiene. The body uses sweat glands to remove accumulated acids and sludge from the body and these can sometimes smell very strong.

Regular internal deacidification and deacidification baths (pH value 8.5) can help here.

Cancer

Tumour growth is only possible in acidic body regions. Cancer cannot form in alkaline regions. This recognition was made by Prof. Otto Warburg who designated cancer as the 'Number 1 acid disease'.

If acids are neutralised, *'the breeding ground for cancer cells is also removed as they require this for accelerated growth.*' (natural healer Rudolf Darmstädter).

According to Gottfried Segger, an acid researcher, alkaline (acid-free) nutrition is the only effective cancer prophylaxis.

Liver disease



As the liver forms the headquarters for the acid-base balance and it requires a large amount of bases for bile production, it is overstrained if it tries to maintain its production despite the acidified organism. This leads to all kinds of liver disease.

Light sensitivity

Sensitivity of the eyes to light can also be traced back to heavy acidification in the body. You can find out more about this under 'Eye problems'.

Stomach problems

We all know about heartburn and acid reflux. Despite the fact that the stomach produces acid itself, it is damaged by acidification of our bodies. The consequences are gastritis, stomach ulcers and mycoses, among other things.

Gastritis

Excess acid in the organism leads to gastritis (see 'Gastritis').

Fatigue

See: 'Burn-out syndrome!'



Multiple sclerosis

Heavy acidification of the organism can initially lead to impairment, then degeneration and finally complete death of nerve endings which are responsible for transferring impulses from the brain to the muscles. Attacks of the extremely aggressive candida fungus are also encouraged by acidification. This fungus attacks the body's own immune system which is favourable for multiple sclerosis. Incidentally, you can directly combat the candida fungus with grapefruit seed extract, as an alkaline environment makes their survival harder – the combination of deacidification and grapefruit seed extract can be very helpful here!

Mouth and throat area

Gum inflammation, aphthae, tonsillitis and other unpleasant symptoms can often be traced back to acidification of the organism.

Halitosis

Halitosis is often also a symptom of acidification. As soon as the acid-base balance is under control this generally disappears by itself.

Muscles

Soft-tissue rheumatism, cramps, spasticity, stiff neck and lumbago are often caused by extreme acidification in the body.



Nails

After hair, the nails are a very popular and, from external optical signs, a clear mineral deposit which is tapped into in order to bind excess acids in the body.

Nervous system

Acidification leads to continual irritation of the vegetative nervous system; this is demonstrated in sleep disorders, increased irritability and lack of drive down to rapid fatigue.

Kidney disease

Kidneys work like no other organ in expelling acids and poisons from our bodies. It is taken as read that their work increases to an unreasonable level if there is no end to the acid flood in the body. Sooner or later this leads to serious kidney disease and even kidney failure! Deacidification and lots of fluids (at least 2-3 litres a day) help.

Kidney stones

Kidney stones occur as a result of acidification in the body; this is associated with sediment. In addition to deacidification and regular alkaline saturation of the organism, you should also take increased levels of magnesium.



Ulcerated leg

As with haemorrhoids an ulcerated leg or leg ulcers are a method the body uses to expel acids and poisons. The body creates a hole where there is none in order to make a valve for the acidification.

Conventional medicine dictates that the hole should be closed, yet this has proven the wrong approach in the case of haemorrhoids. It is preferable to introduce deacidification immediately in order to bring about relief from such complaints as quickly as possible.

Osteoporosis

As with skin, teeth, blood vessels, nails, cartilage, scalp, blood and organs, our bones are also mineral deposits our bodies have to draw on in order to neutralise excess acid! Of these, bones are the greatest calcium storage, so it is no surprise that the body appropriates this storage, as the ultimate aim is to create a constant pH value in the blood to ensure survival!

Oedema

In order to dissolve the most acid, the body retains the natural water expulsion, which can lead to water accumulation (and weight gain) and oedema.

Periodontitis

A lack of vitamin C and acidification are the two main reasons for periodonti-



tis. Supply the body with 2-3 g of natural vitamin C; this will rebuild your collagen and therefore gums. De-acidify your body with bases and maintain your acid-alkaline balance.

Spots, acne

The assumption that spots or acne are a skin disease is incorrect. Spots are simply valves the body has created in order to expel heavy acidification from the body.

Fungal infections

Acids in the body encourage all kinds of parasites and, primarily, fungus; candida in particular is extremely dangerous. This aggressive fungus excretes poisons and thereby exacerbates acidification. Alternative, natural substances such as grapefruit seed extract can tackle this fungus!

Polyarthritis

Natural remedy practitioners consider polyarthritis from the point of view that the body temporarily stores excess acids in the tissues in order to neutralise them as soon as it has sufficient base supplies. In the case of polyarthritis, acids are temporarily stored in joints and initially transformed into salts. Natural remedies assume that it is these salts which cause inflammation in polyarthritis.

Erectile dysfunction

Erectile dysfunction is caused by gland impairment which can result from acid



burns, among other things. A subsequent deacidification delivers amazing help in the shortest time!

Premenstrual syndrome

Monthly periods in women allow the organism to expel acids very efficiently. In order to make the acids available for expulsion at the time of a period, they are 'temporarily parked' in the body. Acidic nutrition, pain killers and other things exacerbate the problem which leads to migraines, depression and other symptoms of premenstrual syndrome.

The body is forced to accumulate water in order to neutralise the acids; this leads to waterlogging. As soon as the period begins, the acids are flooded out of the body, the waterlog is released and all the unpleasant symptoms recede. Directly after a period, the acid level in the woman is at its lowest and almost the same in all women. The difference between typical symptoms of premenstrual syndrome are that some women may demonstrate a particularly high level of acids due to poor lifestyle (acid-forming nutrition, stress etc.); these women suffer more and their period lasts longer!

Premenstrual syndrome and all its unpleasant symptoms can be avoided by caring for the acid base balance and keeping it in check all month.

Irritability

Irritability is a biochemical process in the organism in reaction to acidification.



Our vegetative system, in particular the sympathetic nervous system, is continually irritated and the body distributes vast amounts of thyroxine and adrenaline, which leads to aggression, lack of self-control and irritability. Consistent deacidification can relieve this state in a few days and bring about permanent relaxation.

Rheumatism

Rheumatism is largely brought about by acidification. Unfavourable, acid-forming food (lots of protein, coffee, alcohol etc.) on the one hand and insufficient bases to neutralise acids on the other lead to acid storage in our tissues and joints which triggers painful movement and inflammation. Consistent deacidification, detoxification and remineralisation also form part of an important treatment here.

Back problems

Back pain is based on muscle tension to a certain extent. Acidification of the organism leads to regular spasms within muscle fibres. A sufficient supply of bases relieves these tensions within a short space of time and can relieve back problems.

Hyperthyroidism

The gland secretion which is altered by acidification can also lead to an overactive thyroid.

Sleep disorders



Excess acids constantly stimulate our vegetative system, in particular the sympathetic nervous system. It is therefore understandable that people with excess acid complain about sleep disorders.

Stroke

See 'Cerebral apoplexy'

Sweaty feet

As with armpits, feet are also an area where acid is expelled from the body. Extremely sweaty feet are therefore always an indication of heavy acidification. Even worse – they could be an indication of restricted kidney function or kidney stones, namely if the kidneys can no longer perform their deacidification function and the body must increasingly draw on other deacidification areas.

Visual disorders/visual impairment

Visual impairment can also be a result of acids. Acids parallelise eye musculature to some extent and dull the eye lenses, which can lead to blurred vision which is falsely attributed to the ageing process.

Heartburn

Heartburn is a direct result of acidification. In order to form the stomach acids required for digestion, carbon dioxide, sodium chloride and water are transformed into hydrochloric acid and sodium bicarbonate. Sodium bicarbonate also serves as a base for the body to neutralise acids.



Therefore, if the body has excess acid it needs to create more sodium bicarbonate – and it can only do this by producing more hydrochloric acid. It is precisely this excess production of hydrochloric acid which leads to heartburn! Simply consuming half a litre of warm water in the morning with one teaspoon of sodium bicarbonate can provide permanent support.

Mood swings

Traditional sayings such as 'I feel bitter' have an actual, physiological background. Acidification really can lead to mood swings and aggression. Consistent deacidification provides support in just a few days.

Susceptibility to stress

Excess acid in the organism leads to permanent irritation of our vegetative nervous system and in particular the sympathetic nervous system. This results in us feeling continually hyper and pepped up.

Tennis elbow

Tennis elbow is based on the principles of soft-tissue rheumatism. As there are a lot of bases in synovial sheaths, the body prefers to store acids here and in the muscle insertions. The bases here are tapped leaving the synovial sheaths raw, which is quickly followed by painful movement.

Excess weight



A lot of complementary medicine considers body fat as the organism's protection against acids in order to protect our body's organs. According to this, a person is not fat, merely acidified and it doesn't make sense to lose weight if the body is not deacidified. Quite the opposite, more and more body cells are created. Trying to lose weight in this state is not only hopeless but also dangerous as you remove this important protection against acids from the body instead of first de-acidifying and then striving for effective weight loss. If you have de-acidified and ensured an alkaline state the pounds will fall off by themselves.

Digestive disorders

Digestive disorders can generally be attributed to incompletely digested food. If the body has used up the bases it requires for neutralisation of chyme by the gall bladder and pancreas due to acidification, the partially digested food which reaches our intestine impedes its work. This results in digestive disorders!

Premature ageing

Biological ageing manifests itself in the form of many degenerative processes: Skin becomes wrinkled, eyes start to fail, bone density drops, hair becomes grey and falls out...

All these negative signs of ageing are primarily really due to demineralisation and toxification (as a result of neutralised, non-expelled acids) of our organism.

The acid burns our glands and organs and leads to restricted functionality; our



scalp, skin, bones, teeth, blood vessels and nails are demineralised – something conventional medicine likes to refer to as '*irreversible ageing*'. However, it is really a degenerative process due to acidification, toxification and demineralisation – a process on which we can have a proportional influence!

Menopausal complaints

Every woman knows the unpleasant effects of menopause: Weight gain, varicose veins, hair loss, osteoporosis (bone loss), rheumatism and others.

However, very few make the connection between this and acidification of the organism! What has happened?

The monthly period in women represents an extremely efficient deacidification mechanism; when periods suddenly stop during the menopause, the body must remove acids in a different way. It taps into its own minerals for neutralisation. It now stores an increased level of acids in the tissues, which leads to rheumatism, it draws on the scalp, leading to hair loss, it takes minerals from the bones, causing osteoporosis, it sucks minerals from the blood vessels leading to cramps , it tries to neutralise acids with fats, which results in weight gain.

Soft-tissue rheumatism

Soft-tissue rheumatism is a further disease which can generally be attributed to acidification. Acids are increasingly stored in the connective tissues and initially transformed into salts. It is these salts which trigger inflammation within the soft tissues.



Teeth

While we only use teeth to grind up food, the organism sees a further emergency function, just as it does with bones: that is a preferential mineral substance deposit which can be tapped into if there are insufficient minerals in the diet in order to neutralise the harmful excess body acids.

Caries, periodontitis and bleeding gums are the results of this demineralisation. Furthermore, the acidic saliva continually damages our teeth, playing its part in their destruction.

Acids alone can make the body very ill. If the body is not supplied with sufficient minerals from food to bind these acids, it is forced to turn to the body's own minerals. You can read about the diseases this leads to in the next section.

Demineralisation diseases

External symptoms based on the mineral substance degradation according to Dr. hc. Jentschura and Lohkämper.[1041]

The following external symptoms give rise to an assumption of mineral substance degradation:

- Hair loss

[1041] Dr. h.c. Peter Jentschura and Josef Lohkämper: Gesundheit durch Entschlackung, May 2010



- Acne
- Pale, wrinkled skin
- Bags under the eyes
- Deformed nails
- Oedema
- Liver spots

Comparatively speaking not so bad, some, who are not vain or do not place a great importance on their external appearance, might think if there were no serious diseases which were also directly connected to the demineralisation of our bodies!

Thus, mineral substance degradation caused by acids not only gnaws away at our BEAUTY, it also grates on our HEALTH.

Both are reflected in the demineralisation of the following organs and tissues:

- Hair and scalp (brittle hair, hair loss, grey hair)
- Nails (brittle finger and toe nails)
- Skin (pale, wrinkled skin)
- Bones (brittle bones = osteoporosis)
- Joint cartilage, tendons, joint capsules (arthrosis, arthritis, injuries)
- Blood vessels (arteriosclerosis, heart attack, stroke)



Below we will learn about the best possible BEAUTY and HEALTH through the following factors:

- cells, glands, tissues and organs not burnt by acids,
- organs, tissues, glands and cells without toxins,
- full mineral substance storage.

Diseases from mineral substance degradation caused by acids

As already described in detail, our organism requires minerals in order to neutralise a high acid level in our organism. This can be traced back to the fact that our blood must have a constant pH value of 7.35 to 7.45. If it does not, the result is acute, life-threatening processes right down to a coma (*'Too much acid causes death.'* Prof. Metschnikoff).

Unfortunately, we also face the modern-day problem that, on the one hand, increased stress, environmental poisons and poisons in our diet mean that we are permanently suffering from excess acid, but on the other hand, changed environmental factors, industrially manufactured foodstuffs, pesticides and long storage times lead to our foods containing fewer and fewer minerals.

Our biochemical processes require the absorption of at least 75 % of base-forming and mineral-rich foodstuffs and 25 % acid-forming foodstuffs; foodstuffs today unfortunately reverse this relationship.

A study by the Swiss pharmaceutical concern Geigy and the renowned food-



stuffs laboratory in Karlsruhe demonstrated a shocking development concerning a loss in vitamin and mineral substances from our fruit and vegetables during the period from 1985 to 1996.

According to this, broccoli (for example) lost 68 % of its calcium, beans 15 %, potatoes around 70 % and carrots 57 % of their magnesium; spinach lost 68 % of its magnesium and bananas had 84 % less folic acid over a period of just eleven years. Just take a look for yourself.

Source:

Welt am Sonntag und Westfälische Nachrichten, Untersuchungen: 1985: Pharmakonzern Geigy, 1996: Lebensmittellabor Karlsruhe/Sanatorium Oberthal

As the last comparative measurement was already 15 years ago and in addition, the loss of mineral and vital substances has done anything but improve under the prevailing conditions, it can be assumed that our foodstuffs today have even fewer vitamins and minerals than at that point in time!

Thus, we are standing on the precipice of an unfavourable modern phenomenon; on the one hand we are more and more acidified and on the other there are fewer minerals available in our foodstuffs to neutralise these acids!

However, in order for our blood to maintain the constant pH value of 7.35-7.45 it needs for life, the body has to come up with something new if it cannot



get the minerals it requires for acid neutralisation from food. It can draw on different buffer systems for this up to a certain level of acidity, such as the lungs, tissue, intestine and kidneys.

However, if acidification exceeds the level these natural buffers can neutralise, the body is forced to be on the look out for further mineral substance deposits, if it cannot get these from food. In this case, our organism takes the body's own minerals from our skin, bones, teeth and organises, thereby cannibalising itself!

According to acid experts Dr. Jentschura and Lohkämper, this mineral substance degradation leads to the following diseases:

Diseases due to mineral substance degradation:[1042]

Diseases caused by acids include:

- Caries
- High blood pressure
- Periodontitis
- Osteoporosis
- Atherosclerosis (vascular calcification)

[1042] Dr. h. c. Peter Jentschura and Josef Lohkämper: Gesundheit durch Entschlackung, May 2010



- Varicose veins
- Slipped discs
- Hernias
- Sweaty feet
- Dental plaque
- Purulent tonsils
- Eczema
- Boils
- Carbuncles
- Eczema
- Allergies
- Psoriasis
- Ulcerated leg
- Itchy skin
- Haemorrhoids
- Gallstones
- Kidney stones
- Bladder stones
- Rheumatism



- Gout
- Arthrosis
- Stroke
- Tartar
- Lipoma
- Fibroma
- Dyslexia
- Diabetes mellitus
- Gastritis
- Colitis ulcerosa
- Parkinson's
- Alzheimer's
- Arthritis
- Crohn's disease
- Bekhterev's disease

CONCLUSION:

It is not the acid itself which makes people ill, rather the demineralisation process which cannot be separated from acidification as the body de-mineralises itself in order to effectively bind the dangerous acids as quickly as possible!



According to Leisen and Lohkämper, different minerals are used up depending on the type of disease; see table:

Energetically used or acid connected elements (according to Leisen/Lohkämper)	
AIDS	Au, Ca, Cd, CI, Co, Cu, Fe, Ge, Hf, Hg, Ir, K, La, Mg, N, Na, Ni, O, Os, P, Rb, Se, Si, Sr, Te, Ti, Zn
Amalgam poisoning	As, Bi, Br, Ca, CI, Co, F, Hg, Ni, O, Pb, Sn, V
Diabetes mellitus	Au, Cr, Hf, J, La, Pt, S, Zn
Cancer	As, Fe, Ge, Pb, Sm, Sn, Sr, Ti, Zn
Rheumatism	Br, Ce, Cr, Cs, Hg, Li, Mg, Sn, Sr



The table clearly shows that different diseases require different minerals, so when re-mineralising, you should choose a mineral-rich product from mother nature which has the full spectrum of the required minerals. As if this terror scenario with acids and demineralisation wasn't bad enough, there is a further destructive factor with this duo, namely in the form of metabolic products of such an acid neutralisation – known as sludge which is now deposited in our bodies!

Formation of sludge

What is toxification?

Sludge is the product of metabolic degradation, that is neutralised acids and poisons in our modern food (flavourings, preservatives, colourants and the like) which accumulate in our organism and are deposited in cells, tissues and our organs. Furthermore, the end products of protein, carbohydrate and the lipid metabolism as well as age and dead cells form sludge which is also stored in tissue. An unhealthy lifestyle and acidification lead to this sludge which is normally removed by our excretion organs in the excretion areas.

External toxification symptoms

A possible toxification of the organism can be recognised by the following symptoms, among other things:

- Pale, wrinkled skin
- Hair loss



- Loose teeth
- Gum bleeding
- Bags under the eyes
- Circulatory disorders in hands and feet
- Oedema
- Liver spots

How is sludge formed?

Imagine you are driving in your car and suddenly the oil tank breaks. Your car loses huge amounts of oil which flows onto the street! If you are technically minded, you know what to do: Throw sand or sawdust over it to bind the oil before it leaks into the ground and causes considerable damage to the drinking water. (If you do not, this precise job is undertaken by the street cleaners at your expense!) Afterwards, the resulting slimy mass of oil and sand is swept away to prevent it from causing further damage.

The motor oil in this example represents the acids in our body and the sawdust or sand represents the role of minerals in our bodies. And the resulting slimy mass of oil and sand is the SLUDGE in our bodies. Just as the slimy mass of oil and sand still represents a danger to the water (the oil is only bound in this form and not yet removed from the streets) and needs to be removed, the sludge (the acids are only bound and not yet removed from the organism) is a danger for our entire organism and must also be washed out of the body!



Disease due to toxification

What is body sludge?

The body draws on its own mineral deposits as it cannot find enough minerals in modern food to bind acids. This process leaves sludge.

If you do not ensure this sludge is regularly rinsed out of the body, it clogs our organs, glands and cell bonds. This initially manifests itself through many functional restrictions down to countless serious diseases!

'Toxification is a physical-chemical process. Toxification is also the transformation of acid to salt with the help of mineral substances.' (Dr. Peter Jentschura)

Sludge is therefore salt resulting from acids and poisons which the body forms with the help of mineral substances from organic and non-organic acids in order to prevent being burned and poisoned by these acids.

As our modern life acidifies in every way it can (stress, incorrect nutrition, environmental factors and -poisons), it is no wonder that many people consist of 50 % sludge![1043]

Detoxification occurs as follows:

Step 1: Acids (as well as other poisons in the body) lead to mineral degradation in the organism.

[1043] Dr. h.c. Peter Jentschura and Josef Lohkämper: Gesundheit durch Entschlackung, May 2010, p. 51



Step 2: The acids are transformed into a salt in order to neutralise them. Sludge results from this process.

Step 3: Sludge accumulates in organs, glands and cell bonds.

Step 4: Sludge accumulation leads to functional impairment such as gland blockage, inflammation etc.

Step 5: The initial functional impairments cause serious mid to long-term diseases. If the body taps minerals from the hair, scalp, teeth, bones and cartilage, this overexploitation is visible in what we generally refer to as 'ageing'.

However, there is only a danger from sludge if it can accumulate in our body - insufficient fluids increase the salt concentration which is favourable for the accumulation of sludge.

Differences in the process of disease and ageing in women and men

Due to the different anatomies and the function of the monthly period as well as excretion via the uterus, women experience regular 'cleaning' and deacidification during their younger years. This is also the reason why women live to be around ten years older than men and are described as the 'fairer sex'.

Indeed, the deacidification and decontamination via the gender-typical function of women protects them from premature demise and the degradation of minerals from the organs responsible for beauty, such as the skin, hair, teeth etc.



However, it is the exception that proves the rule, as with increased wealth and polluting environmental factors, more and more women are suffering from acidification at a younger age with mineral substance degradation and toxification, as deacidification through the monthly period is no longer sufficient.

Greater mineral losses also threaten all women during menopause and beyond. Even worse: While the male body is trained to metabolise acids to some extent, women find this much harder during this dramatic section of their lives. This results in the deficits in men and women evening out during the subsequent years. Therefore, women must live in a particularly health conscious manner after menopause in order to retain their health and beauty beyond this.

Cellulite vs. hair loss – women vs. men

'Hair loss and cellulite occur in athletes not despite, but because they do too much exercise'.[1044]

We casually accept optical deficits typical to genders but rarely question the reason for these. Why do women get cellulite but not men? Why do men suffer from hair loss while this is extremely rare in women? If we look at the respective problems more precisely we can find the answer and then determine that apparently harmless 'optical problems' are actually symptoms of acidification and toxification which we should take seriously!

[1044] Dr. h.c. Peter Jentschura and Josef Lohkämper: Gesundheit durch Entschlackung, May 2010



What is cellulitis?

As we have already read above, women experience a different acid metabolism to men and have an advantage over men in that they expel acids monthly during menstruation in their younger years. While men must metabolise acids every day, these are initially 'deposited' in three locations in women's bodies until the next period. The first 'depository' is the blood and lymphatic fluid, the second 'depository' for acids is the placenta and the third and last 'depository' is:

the area around the hips, buttocks and upper thighs

It is according to this hierarchy that the body chooses its 'acid depositories' in women (1. blood/lymphatic, 2. placenta and 3. hips, bottom and thighs). After 'depository 1' is full, 'depository 2' is next and when only when the acids represent such a burden that this is no longer sufficient and all depositories are overflowing with acids that the hips, bottom and thighs are used as a temporary deposit for acids – and it is this which appears externally as cellulitis!

Treating cellulitis

Accordingly, the first line of treatment for cellulite should include the consistent and permanent deacidification and detoxification of the body. Incidentally, intensive sport is counter-productive as this is precisely what creates lactic acid in the body, neutralises and then temporarily stores cellulitis in the tissues.



A summary of a successful treatment for cellulitis could look like this:

1. Remove acid-causing factors (acid-forming food, stress, excessive sport regime)
2. Consume base-rich foodstuffs (see the corresponding chapter in this paper)
3. Support mineral absorption with mineral supplements
4. Loosen sludge with 1 litre of herbal tea/day
5. Expel sludge with 2 litres of still mineral water/day.
6. Take a full bath of at least 90 minutes to three hours (the longer, the more efficient) at least every two days with ...
7. ... a pH value of 8.5. *MeineBase*® bath salts by Dr. Jentschura are particularly suitable here (3 tablespoons in a bath). The water temperature should be just above body temperature at approx. 40 °C.
8. An alkaline foot bath is recommended on other days (1 teaspoon of *MeineBase*® bath salts by Dr. Jentschura) as well as alkaline tights.
9. Brush with massaging strokes in the direction of excretion
10. Regular gymnastics without straining (too intensive = acid-forming!)
11. Massages and lymphatic drainage



What is hair loss?

'Hair growth shows the account balance of body chemicals with a neutralisation potential still remaining.' (Dr. h. c. Peter Jentschura)

While women temporarily store their neutralised acids in the form of sludge around the hips and bottom in order to expel them during their monthly period, the male organism does not have this 'store and decontaminate mechanism' and has to neutralise resulting acids every day. Once more as a reminder: Our organism has its own buffer system (blood, lungs, tissues, intestine, kidneys) in order to buffer acidification to a certain extent. If the acid level exceeds this, our bodies are forced to take substances to help neutralise these excess acids, i.e. minerals!

Therefore, if our organism exceeds a certain acid level, it expects natural minerals from our diet, as it is accustomed to through evolution. As these are often lacking in today's industrialised nutrition, yet there are increasing amounts of acids (stress, acid forming food, environmental poisons), our body is forced to tap into its own mineral reserves. As this needs to happen quickly, the body accesses the mineral reserves which are most quickly available: the ones on our scalp! Thus, our body cannibalises itself and draws its vital nutrients from the hair, which gradually leads to hair loss.

Treating hair loss

Permanent deacidification, detoxification and remineralisation of the body are also the method of choice for hair loss.



Is sport really healthy?

There are loud voices from the 1970s to the 1990s that want to tell us that sport can only be healthy. Yet in the face of new, interesting observations these are becoming increasingly silenced. While it is not so long ago that we were forced to do sport, often even competitive sport, new scientific observations give rise to significant qualifications in regard to this recommendation.

When is sport healthy?

It goes without saying that regular exercise is very healthy and, in addition to nutrition, relaxation and regeneration aspects, should represent a significant area of our lives. However, this certainly does not mean competitive sport which, as we know today, is associated with some pitfalls!

Cell destruction due to competitive sport

We know that we absorb more oxygen during exercise and in particular during endurance sport. However, oxygen is not only a blessing for our lives, it also has a destructive side.

Therefore, competitive athletes not only require oxygen to supply their muscles, rather it is also unfortunately favourable for oxidation and therefore the destruction of body cells by free radicals!

Regular consumption of antioxidants such as OPC, vitamin C, vitamin E, alpha lipoic acid, beta-carotene and coenzyme Q10 are necessary in order to protect competitive athletes' body cells against attack from free radicals!



Sportosis: diseases from competitive sport due to acidification

A further trap is diseases from competitive sport due to permanent acidification from lactic acid and other acids which are created in the body in particular during anaerobic, forceful types of sport.

The colloidal connective tissue absorbs lactic acid because otherwise the blood pH value would sink below 7, which would mean certain death.

This 'sportosis' (an amalgamation of 'sport' and 'acidosis', or chronic acidification) occurs if athletes do not take extra care. Things take their course, as previously described: The body requires minerals in order to neutralise acids; however, if it does not receive these in nutritional form or through nutritional supplements, it is forced to cannibalise itself by ruthlessly drawing on mineral stores in our skin, scalp, teeth, bones, cartilage and blood vessels.

This leads to the diseases described under 'Diseases caused by acidification' which often lead to heart attacks in competitive athletes.



How can sportosis be avoided?

Acid and sludge expert Dr. Jentschura recommends the preventative consumption of bases (minerals) before exercising; after exercising you should take an alkaline bath in order to remove any acids accumulated via the skin ('the extra kidney'). A water pH value of 8.5 is recommended here with a water temperature of 35–38 °C (3 table spoons of *MeineBase®).*

How can sore muscles be avoided and optimally regenerated after exercise?

According to Dr. Jentschura, sore muscles can be avoided and regeneration achieved with the aid of minerals before exercising and the use of alkaline baths after exercise. According to the hypothesis from Jentschura und Lohkämper[1045] it takes:

- six hours until the pH value increases from 4.4 to pH 6.9 without minerals and alkaline baths;
- three hours after sport without minerals but with alkaline baths;
- two hours until the pH value increases from 5.5 to 6.9 with minerals before exercise but no alkaline baths after exercising;
- just one hour for the body to recover from a pH value of 5.5 to 6.9 with

[1045] Dr. h. c. Peter Jentschura and Josef Lohkämper: Gesundheit durch Entschlackung, May 2010, p. 141



mineral consumption and alkaline baths: the fastest recovery time for the body.

The acidification measures to accelerate regeneration and prevent sore muscles are highly efficient. They are considered insider tips but are already used successfully by national teams and even European champions. Furthermore, the dangerous sportosis described above is successfully prevented.

Actual treatment

Deacidification – toxification – remineralisation

As complex and often impossible for symptom-curative (instead of cause-curative) conventional medicine to solve as the subsequent diseases from acidification, toxification and demineralisation seem, their treatment is often simple if we devote ourselves to the actual cause of the respective syndrome (see section: 'Diseases caused by acidification').

Consistent deacidification, detoxification and remineralisation of the organism can heal many of the diseases mentioned above or at least frequently provide relief.

As simple as this procedure may sound (and it really is not difficult), one must also avoid lurking stumbling blocks!



Organs and regions which expel acids and sludge:

Our acid and sludge as well as metabolic process are expelled from the following list of body regions, as observed from top to bottom. The following excretion regions are to be supported during their expulsion work within deacidification and detoxification treatments:

- Scalp, hair
- All skin
- Forehead
- Eyes (tears)
- All mucosa
- Inner and outer nose
- Mouth and throat area
- Armpits
- Fingernails
- Hands
- Urogenital tract
- Anus
- Lower thigh
- Feet



- Toenails

Better safe than sorry

Depending on the acid and sludge status of the respective person, it may well be important to enter into the process of deacidification and detoxification very slowly. For heavily toxified people (see 'Symptoms' above), abrupt loosening of sludge can lead to reactivated acids overflowing the organism, leading to acid shock and toxicity attacks and even heart attacks!

Therefore, if a person is, or is suspected to be, heavily toxified, they should not begin directly with detoxification using the tried and trusted herbal tea intake, rather in the first two weeks they should try to detoxify externally with gentle measures via the body regions mentioned above.

In order to represent deacidification and detoxification depending on the case, we differentiate between CASE 1 (pathologically toxified) and CASE 2 (moderately toxified) within the further approach

CASE 1 The treatment of heavily toxified people

You should begin the first two weeks by changing your diet to include alkaline foods and take bases/minerals in the form of nutritional supplements. An alkaline diet ensures that we do not continue to unnecessarily acidify our bodies. You should also drink 1-2 litres of still mineral water ('Saatl. Fachinger' and 'St. Gero' mineral waters are tried and tested) as well as vegetable juice (beetroot



juice).

Bread drink and sauerkraut juice have also proven to be supportive. These minerals in turn de-acidify you from the inside while also re-mineralising the heavily demineralised body. The whole process should be accompanied from the start by external deacidification and detoxification in the form of alkaline body care such as alkaline baths, foot baths, body wraps etc.

Intensive detoxification in the form of herbal teas, which are initially 'snuck in' slowly, begins after two weeks. It is precisely herbal tea which helps massively in releasing sludge from our tissues and cells! It is recommended to begin with 0.5 l of herbal tea per day; increase the level of consumption to 0.75 l per day a week later and a further week later to 1 litre of herbal tea a day. If you absolutely must add a sweetener, go for Stevia as a healthy sugar replacement (no sugar, sugar has an acidifying effect).

CASE 2 Treatment of a person with average toxification

People with average toxification (where there are no symptoms of toxification, see above) can start using herbal tea straight away to release sludge; nonetheless, herbal tea should also be introduced slowly, step by step, as in case 1. Alkaline baths are also recommended for target groups of moderately toxified people. All of the following points apply to everyone, both in Case 1 (heavily toxified) and Case 2 (moderately toxified):

Alkaline diet



An alkaline diet requires a change from acid-forming foodstuffs to the most alkaline-forming foodstuffs. Such a change is recommended in both Case 1 and Case 2, but in heavily toxified and diseased people it is essential as all further acids put the body at great risk.

Furthermore, you should try to avoid the mistake of supplying the body with mineral substance preparations or base powders for deacidification on the one hand, while simultaneously polluting it with lots of acids (from incorrect nutrition) on the other. Remember that sludge is nothing more than already neutralised acids and poisons stored in the body. Therefore, we would heavily toxify the body if we supplied it with large amounts of acid while still excessively neutralising it with mineral substances!

This would backfire, as the body would develop problems excreting the large amounts of resulting sludge and become even more toxified. Permanent alkaline nutrition therefore plays an important role!

In order to control our acid-base balance it is therefore logically essential to know what the acid-forming and alkaline nutritional substances are. You can find out more about this in the following sections, 'acidic foodstuffs' and 'alkaline nutrition'.

Acid-forming/acidic foodstuffs

The following foodstuffs are considered acid-forming and should be avoided or consumed in moderation in order to maintain an acid-base balance.

- Meat of all kinds (ham, sausage, meat stock)



- Poultry and poultry products
- Fish and seafood
- Milk and milk products
- Eggs
- Yeast products
- Nuts (all kinds of nuts except for almonds)
- White flour products
- Whole-grain products
- Cereal products of any type (bread, pizza, rice, pasta)
- Beverages containing carbon dioxide of any kind (sparkling water, cola, lemonade etc.)
- Husked, polished rice
- Refined, hardened fats and oils
- Margarine
- Pulses
- Asparagus
- Artichokes
- Brussel sprouts
- Sweets
- Ice cream
- Tofu



- Lemonade
- Ice tea
- Sugar
- Honey
- Sweetener
- Vinegar
- Mustard
- Ketchup
- Pickled products
- Coffee
- Alcohol
- Black tea
- Fruit tea

Don't panic! Of course nobody would expect you to strictly avoid all of these foodstuffs and only consume alkaline nutrition from now on. After all, some of the acid-forming foodstuffs listed supply important nutritional substances such as proteins or vitamins, minerals and bioactive substances, and let's not forget, the body can easily cope with a certain level of acid and effectively buffer acids to a certain point. However, you can find out about the foodstuffs upon which you should place particular emphasis in the next section 'alkaline nutrition'.



Base-forming, alkaline food stuffs:

In the 'acid foodstuffs' section above we discovered which foodstuffs you should avoid in order to de-acidify and maintain an acid-base balance. In the following list of foodstuffs you can find out which ones have an alkaline effect on our body regions and how you can increasingly incorporate these into your diet.

Base-forming, alkaline fruit

Apples, pineapples, apricots, avocados, bananas, pears, clementines, fresh dates, strawberries, figs, grapefruits, blueberries, raspberries, honeydew melons, red currants, cherries, kiwis, limes, mandarins, mangos, mirabelle plums, nectarines, olives, oranges, papayas, peaches, plums, cranberries, quinces, greengages, gooseberries, star fruit, water melons, red grapes, lemons.

Base-forming, alkaline vegetables/fungi

Aubergines, okra, oyster mushrooms, celery, parsnips, cauliflower, parsley root, green beans, chanterelles, puffball mushrooms, radicchio, broccoli, radishes, mushrooms, Chinese cabbage, radish, alfalfa, lentils, amaranth, mung beans, buckwheat, rosabi, fennel seeds, red clover, sesame, coriander seeds, sunflower seeds, cress, millet, wheat germs, linseed, beetroot, red cabbage, peas, shallots, black salsify, fennel, spring onions, green cabbage, Shiitake mushrooms, cucumbers, carrots, porcini, potatoes, kohlrabi, pointed cabbage, pumpkin, truffles, leeks, white cabbage, Swiss chard, savoy cabbage, courgette, morels, Mu-Err mushrooms, onions.



Base-forming, alkaline salads and herbs

Basil, marjoram, savoury, Batavia salad, horseradish, nettles, watercress, muscat nut, Melissa, Chinese cabbage, cloves, chickaree, oregano, chilli shoots, parsley, dill, pepper, oak leaf lettuce, peppermint, iceberg lettuce, pimento, radicchio, fennel seeds, Romana lettuce, chicory, garden cress, rocket, ginger, rosemary, saffron, capers, sage, cardamom, sorrel, chervil, coriander, black cumin, lettuce, celery leaves, cumin seed, spinach, cumin, thyme, turmeric, chives, vanilla, Ysop, lovage, cinnamon, lemon balm, Lollo-Rosso lettuce, dandelions, courgette flowers.

Base-forming, alkaline nuts and seeds

Pumpkin seeds, almonds, poppy seeds

80:20 – the right ratio is crucial!

If we do not need to completely avoid acid-forming foodstuffs but should still favour alkaline foodstuffs, the obvious question is: what should the ratio of one to the other be? As briefly discussed above, experts recommend that a ratio of 80 % alkaline to 20 % acid-forming foodstuffs and beverages should make up our diet. In practice, this means that you should have a maximum proportion of 20 % of the acid-forming foodstuffs listed above in your diet and the remaining 80 % should be made up by alkaline foodstuffs and beverages.



HINT: If you find yourself in a gourmet situation due to an invitation or even self-prescribed and you reach for acid-forming foodstuffs and luxury foods such as grilled sausage, beer or sweets (Case 1 should avoid this situation at all costs!), you should try to consume more alkaline foodstuff afterwards in order to balance out the acids in the body! Proper flooding with bases is even more efficient, for example by dissolving a teaspoon of sodium bicarbonate in a large glass of warm water and drinking it all at once.

Precise evaluation of the acid-base values of our foodstuffs: the PRAL table

The statements 'acid' or 'alkaline' have offered guidance up to now. The PRAL table from scientists Remer and Manz, on the other hand, enables a really precise prediction of the acid pollution respective foodstuffs bring about.

The PRAL table according to Remer and Manz:

The following table illustrates the renal acid pollution (PRAL) of 114 frequently consumed foodstuffs and beverages per 100 g or 100 ml for beverages.

Minus value = base-forming

Plus value = acid-forming



Beverages	
Beer, draft	-0.2
Beer, light	0.9
Beer, dark in bottles	-0.1
Coca-Cola	0.4
Cocoa, made from skimmed milk (3.5 %)	-0.4
Coffee, infusion, 5 minutes	-1.4
Mineral water (Apollinaris)	-1.8
Mineral water (Volvic)	-0.1
Red wine	-2.4
Tea, Indian, infusion	-0.3
White wine, dry	-1.2
Fats and oils:	
Butter	0.6
Margarine	-0.5
Olive oil	0.0
Sunflower oil	0.0
Fish:	
Cod fillet	7.1
Haddock	6.8
Herring	7.0
Forelle, brown, steamed	10.8



Fruit, nuts and fruit juice	
Apple juice, unsweetened	-2.2
Apple, 15 types, with peel, average	-2.2
Apricots	-4.8
Bananas	-5.5
Black currents	-6.5
Cherries	-3.6
Grapefruit juice, unsweetened	-1.0
Hazelnuts	-2.8
Kiwi	-4.1
Lemon juice	-2.5
Orange juice, unsweetened	-2.9
Orange	-2.7
Peach	-2.4
Peanuts, untreated	8.3
Pears, 3 types, with peel, average	-2.9
Pineapple	-2.7
Raisins	-21.0
Strawberries	-2.2
Walnuts	6.8
Watermelon	-1.9
Cereal products:	



Rye-wheat bread	4.0
Rye bread	4.1
Mixed wheat bread	3.8
Wheat bread	1.8
White bread	3.7
Cornflakes	6.0
Rye crispbread	3.3
Egg noodles	6.4
Oat flakes	10.7
Rice, whole grain	12.5
Rice, white	4.6
Par-boiled rice	1.7
Wholemeal rye flour	5.9
Spaghetti	6.5
Wholemeal spaghetti	7.3
Wheat flour	6.9
Wholemeal wheat flour	8.2
Pulses:	
Beans, green	-3.1
Lentils, green and brown, dried	3.5
Peas	1.2



Meat and sausages:	
Beef, lean	7.8
Chicken	8.7
Corned beef, in tins	13.2
Frankfurter	6.7
Liver sausage	10.6
Breakfast meat, in tins	10.2
Port, lean	7.9
Rump steak, lean and fat	8.8
Salami	11.6
Tuna meat	9.9
Veal	9.0
Milk, milk products and eggs:	
Buttermilk	0.5
Camembert	14.6
Cheddar, low fat	26.4
Gouda	18.6
Cottage cheese, full fat	8.7
Cream, fresh, sour	1.2
Chicken eggs	8.2
Egg white	1.1
Egg yolk	23.4
Quark	11.1



Soft cheese, full fat	4.3
Hard cheese, average of 4 types	19.2
Dairy ice cream, vanilla	0.6
Condensed milk	1.1
Full milk, pasteurised and steri-lised	0.7
Parmesan	34.2
Soft cheese, natural	28.7
Full milk fruit yoghurt	1.2
Full milk natural yoghurt	1.5
Sugar, preserves and sweets:	
Milk chocolate	2.4
Honey	-0.3
Madeira cake	3.7
Marmalade	-1.5
Sugar, white	-0.1
Vegetables:	
Asparagus	-0.4
Broccoli	-1.2
Carrots, baby	-4.9
Cauliflower	-4.0
Celery	-5.2
Chicory	-2.0



Cucumber	-0.8
Aubergine	-3.4
Leek	-1.8
Lettuce, average of 4 types	-2.5
Iceberg lettuce	-1.6
Mushrooms	-1.4
Onions	-1.5
Pepper	-1.4
Potato	-4.0
Radish	-3.7
Spinach	-14.0
Tomato juice	-2.8
Tomato	-3.1
Courgette	-4.6

Fluid supply/drinking

Still mineral water and vegetable juices

In these times when we are increasingly burdened with poisons and acids, the quality and quantity of our fluid supply plays a decisive role!

The quality of the fluids we ingest is primarily reflected in the purity of the beverage. Thus, the quality of our tap water sometimes leaves a lot to be desired. Zinc and copper deposits as well as germs from dirty pipes are anything but good and the same applies to the calcium and chlorine in our water.



Therefore, tap water should not form the basis of our deacidification and detoxification. Still mineral water is most suitable here. However, be careful: not all mineral waters are alkaline! St. Gero and Staatl. Fachinger have both been tested and are recommended.

The quantity (amount) of the beverage determines

- how heavily acids are diluted in our body and therefore rendered harmless,
- how heavily sludge is deposited in our organism
- and how effectively sludge is dissolved and transported out of the organism.

Therefore, you should try to drink approx. 1-2 litres a day and reach for supplementary bio-vegetable juices as well as bread juice and sauerkraut juice.

Herbal tea

Herbal tea takes on the actual detoxification function. Before still water can remove the sludge from the body, it is herbal tea which must initially dissolve sludge stuck to our cells and organs. The ratio of water to tea should be approx. 2:1. As stated, it is recommended to start slowly with 0.5 l of herbal tea per day, increasing consumption to 0.75 l per day a week later and then to the desired litre of herbal tea per day a week after that. If you have to have a sweetener, use stevia as a healthy sugar replacement as sugar makes acid and artificial sweeteners are not very healthy (key word: aspartame). The 7 x 7 herbal tea by



Dr. Jentschura is highly recommended.

Guidelines for alkaline nutrition

For those who do not want to research the individual foodstuffs so explicitly, here are some simple guidelines for alkaline nutrition:

1) Make vegetables, in particular green leafy vegetables, the focus of your nutrition, either steamed or briefly heated. Digestion of heavily cooked foodstuffs releases more acids and valuable nutrition is destroyed by heat. Thus, a tomato is alkaline, however if it is heated to create tomato sauce, it becomes acidic!
2) Fewer sweet fruits have a less acidic effect than sour foodstuffs, even if this seems like a contradiction.
3) Drink lots of still mineral water (at least 2 litres/day); avoid sparkling mineral water.
4) Forego sugar and artificial sweeteners entirely and instead, add sweetness with the healthy, natural sugar replacement 'stevia'.
5) Eat less meat, sausage and fish and replace these more frequently with nuts and seeds.
6) Avoid luxury foods and stimulants such as sweets, alcohol, coffee and cigarettes.



De-acidify and re-mineralise

- While alkaline nutrition has the purpose of forming as few acids as possible, the supply of mineral preparations is intended to de-acidify and re-mineralise from this inside.
- As today's nutrition is not sufficient for this, re-mineralisation requires the assistance of minerals in the form of nutritional supplements.
-

Deacidification from inside – with minerals

- There are mineral substance preparations which effectively bind acids. There is no all-encompassing advice here as each organism reacts individually, regardless of the product.
- The best option is carrying out urine pH test repeatedly in order to check if you are on the right path!
- Basosyx tablets by *Syxyl*, for example, contain minerals (calcium, magnesium, zinc); asparagus and spirulina powder are most suited to transforming an acidic state into an alkaline in a short period of time in the vast majority of people.
- Take 2-3 Basosyx tablets in the morning on an empty stomach, then 2-3 between breakfast and lunch and another 2-3 before going to sleep. Continue to measure your pH value when taking the tablets and adjust your dosage. Healing clay (3x1 teaspoon per day) or Sango sea coral (according to the manufacturer's recommendation) are suitable for this.



Over-mineralisation with minerals

In order to repair defects resulting from mineral degradation in the scalp, skin, bones, cartilage, discs, nails, blood vessels etc. you should 'over-mineralise' the body as much as possible for approx. 18 months in order to enable the heavy flood of minerals to build up in the organs and tissues which have been de-mineralised over the years and decades. From a biological stand point this not only corresponds to the treatment of a number of diseases and their prevention but also to biological rejuvenation!

Suitable mineral substance preparations

As mentioned above, Basosyx tablets (company *Syxyl*) and clay or healing clay (for example, by the company *Terra Natura*) are most suitable for deacidification and remineralisation. Sango sea coral and the product *Bullrich Vital* are equally recommended. All preparations can be obtained from your chemist, health food shop or on the internet.

External deacidification and detoxification

Alkaline baths

An extremely clever way of gently de-acidifying and detoxifying the body from the outside is with the use of alkaline baths and foot baths. The acids and sludge are expelled from the skin, which acts like an extra liver, leading to much fewer pollutants than if you begin with intensive sludge-dissolving teas.

Preparing an alkaline bath: Prepare the bath with 3 tablespoons of sodium



bicarbonate, or even better *MeineBase*® bath salts, which should leave the water with a pH value of approx. 8.5. The water should be approx. 40 °C and the bath should last no less than 45 minutes, as the deacidification effect only begins after half an hour.

After this kind of bath you should neither dry yourself nor apply lotion – this will minimise the desired effect. Just slip into your bathrobe!

You should enjoy this kind of alkaline bath at least twice a week if you are heavily toxified!

You can see how effective an alkaline bath is by measuring the pH value in the bath again after you have used it for 45 minutes. This should now be somewhat short of 8.5 and is an undeniable indication that you have left many body acids in the bath water!

Alkaline foot baths

In the days between alkaline baths, it is recommended to take additional foot baths which increase the expulsion of acids and sludge from the feet and lower legs. For this, take 1 tablespoon of the alkaline preparation as stated (see: bath).

Alkaline body wrap

Alkaline body wraps are a further clever way to externally accelerate the deacidification and detoxification of the body.

You can find guidelines for wraps under this link: http://www.p-



jentschura.com/de/produkte/alkawear-funktionswaesche/alkawear-basischer-leibwickel/anwendung

Alkaline body care (soap, lotions, shampoo etc.)

One of the biggest misnomers regarding 'acids and bases' today is the scientifically invented myth of the skin's 'protective acid mantle'. Such a thing does definitively exist, but not to protect our skin, rather to protect against fungi and bacteria which only feel happy in acidic regions and can flourish there!

Acids which are found on the skin and unceremoniously declared as the skin's 'protective acid mantle' are nothing more than acids expelled from the skin fulfilling its function as an 'extra kidney'. However, using products which are acidic themselves here drives additional acids into our body instead of expelling them!

Soaps, lotions, shampoos and other body care products with a proven pH value of 5.8, for example, should therefore be avoided where possible, the value reversed and replaced with natural products from the health food shop with pH value of 8.5 or higher!

Detoxify with fasting cures

For those people who wish to detoxify and de-acidify their bodies with even greater consistency, fasting cures are a good option. Temporarily foregoing the consumption of solid nutrition supports the detoxifying organs in their work.



The benefits of fasting cures

Fasting cures concern the most efficient method of detoxifying and de-acidifying the organism in the shortest period of time – providing you with the best possibility of gliding unburdened into a new, poison-and-sludge-free life. Even if you do not want to introduce regular fasting cures, it is still a perfect start, for example in your hair loss treatment! Fasting cures should be done regularly, at least once or twice a year. The duration of the fasting cure lasts from seven to a maximum of ten days.

Fasting cure contraindications

You should consult your GP first if:

- you suffer from metabolic diseases such as diabetes, gout etc.
- you suffer from a serious psychological disorder
- you are either over 70 or under 20
- you are pregnant
- you are breastfeeding
- you suffer from a chronic disease
- you have to take regular medicine
- you suffer from an eating disorder
- you have a very sensitive stomach
- you suffer from a vascular disorder



- you have or have had cancer.

Guidelines for fasting cures

A few basic principles for fasting cures:

- A fasting cure should last approx. seven to ten days and should be carried out twice a year (ideally in the spring and autumn).
- A fasting cure consists of three easing-in days, six full fasting days and then three building-up days.
- During the three easing-in days, the organism already becomes deacidified (with alkaline nutrition, fasting tea, Basosyx tablets and green clay) and becomes accustomed to the low nutritional absorption and the increased fluid absorption.
- The following six days include little to no consumption of solid food but instead, absorption of vegetable juices, some vegetable broth, bread juice, psyllium, a lot of mineral water and fasting tea (herbal tea).
- Detoxification is stimulated by some important homeopathic substances (the Phoenix detoxification programme is recommended here). This concerns a concept which is based on four spagyric homeopathic substances which activate the excretion organs liver, kidneys, skin and mucosa as well as the lymphatic system to transport sludge and thereby support the fasting cure process immensely.



- Algae capsules have the task of preventing heavy muscle-mass degradation.
- Milk thistle capsules activate the liver.
- The following three building-up days (also called 'fast-breaking') are intended to get the digestive organs used to solid food again and thereby prevent bilious attacks. Furthermore, this should facilitate a fluid transfer to a conscious, alkaline nutritional lifestyle.

It is also highly recommended to cleanse the intestine which should be carried out in the form of enemas every two days with herbal teas and a trace of *Meine-Base*®. The importance of regular intestinal cleansing is above all clear if you bear in mind that our foodstuffs are fragmented in our intestine and only then can then be transferred to the blood.

In most people, the intestinal villi where this fragmentation takes place are heavily congested. The intestine cannot complete its work to the best of its ability and expels a large amount of the supplied nutrition still unexploited.

Further, the largest poison deposits imaginable in the body are in our intestine. These poisons, residual medicines and deposits accumulate in our intestinal villi and often remain there for many years and even decades, with an increasingly negative effect on our organism.

When correctly discharged (with Glauber's salt and Epsom salts), intestinal cleansing is neither disgusting nor unpleasant, let alone painful – and in addition to deacidification, detoxification and re-mineralisation it is also one of the



best ways to treat your body!



Reference sources

You can find all of the substances mentioned on the internet. Unfortunately, due to certain provisions and laws, it is forbidden for us to name direct buying sources!

If you have problems sourcing organic germanium, you can obtain this fully legally as an accompanying substance in Spirulina platensis and the Reishi mushroom, which may be purchased freely.



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