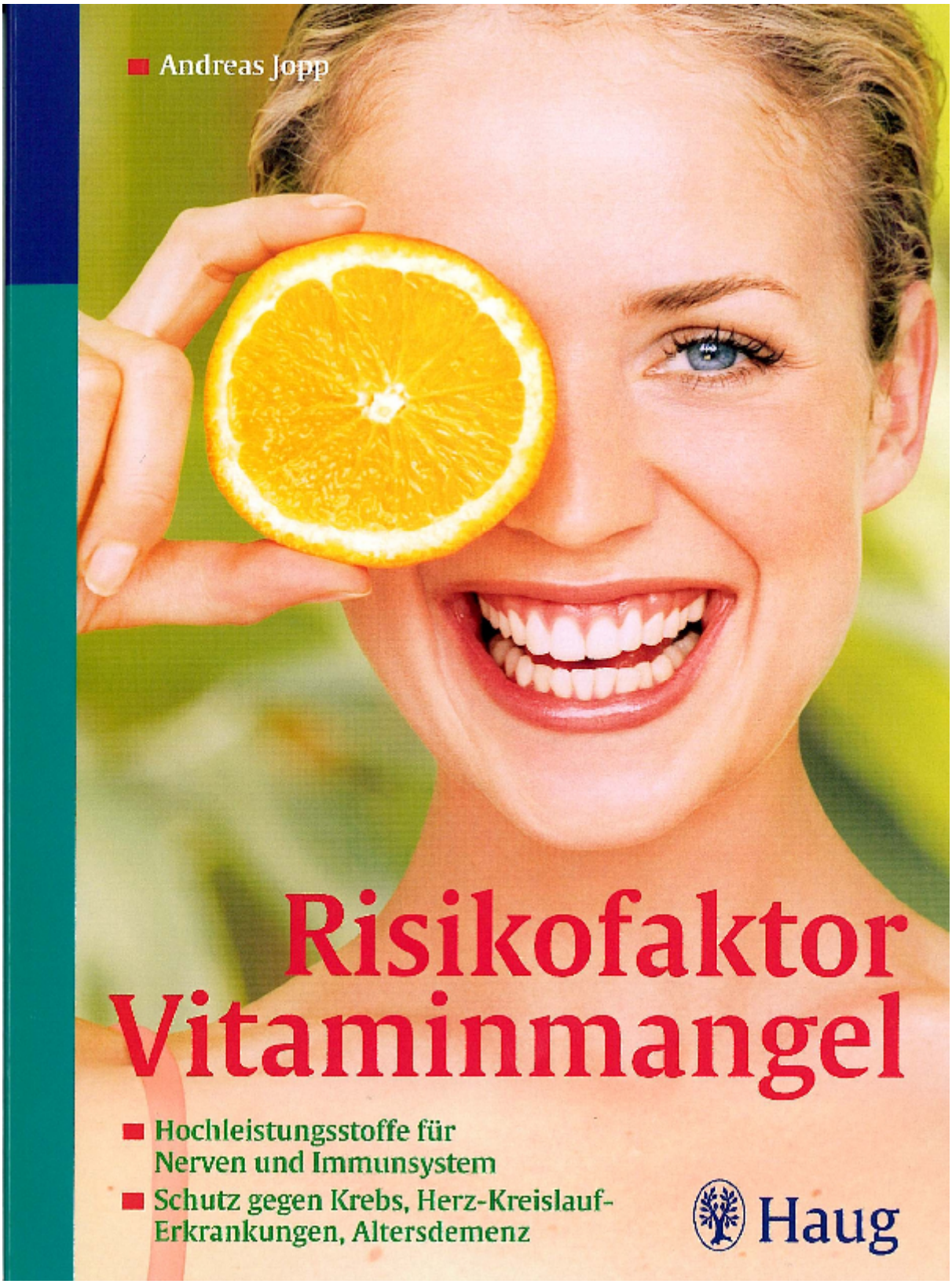

Andreas Jopp
Risikofaktor Vitaminmangel
Hochleistungsstoffe für Nerven und Immunsystem
Schutz gegen Krebs, Herz-Kreislauf-Erkrankungen, Altersdemenz
Haug

Back cover of the book:

Risk factor
Vitamin deficiency

new research caused a vitamin revolution
vitamins influence every aspect of your health
vitamin deficiency is one of the greatest health risk

Change your life: the nerve vitamins of the B-group modulate your response to stress and influence brain function

Hard facts: vitamins lower the risk of cancer dramatically

New research: vitamin E lowers the risk for heart attacks by 35%

Better cell protection: vitamins neutralize free radicals that cause cancer, cardiovascular disease, alzheimer and cataract

New Test: measure oxidative stress and optimize vitamin dosage. What are optimal vitamin blood values?

15 years of research: B-vitamins lower the risk of heart attack by 30%

Better Health: vitamins booster your immune system and fight infection

Service: buying vitamins – how to save money and buy quality

Good to know: how to avoid overdosing vitamins

Table of content

Introduction **9**



How Vitamins & Minerals function

Your body as a biochemical factory **16**
A fit metabolism with micronutrients 16
Minerals and trace elements- building blocks of an active metabolism 18
Effective cell protection by antioxidative vitamins 19
Trace element protection - the bodies own antioxidative enzymes 20
Which damages are caused by free radicals? 23
Micronutrients - the real long-term insurance policy 25
Special: Get enough vitamins? Measuring not guessing. The blood tests 28



Vitamins – the insurance policy

Cardio-vascular-disease
first most common cause of death **32**
Deficiency of antioxidants and cardio-vascular-disease 33
Studies: Vitamin E 37
Vitamin C lowers cardio-vascular disease 38
Studies: Vitamin C 38
Folate reduces homocysteine 40
Studies: Folic acid 42
Potassium & magnesium against high blood pressure 43
Fruit & vegetable against cardio-vascular-disease 44
Studies: fruit &vegetable 45

Cancer – second most common cause of death **46**
Antoxidants lower cancer frequency 46
Vitamins lower cancer frequency 47
Studies: Vitamin D 48
Studies: Folic acid and vitamin B 50
Selenium reduces the cancer risk 52
Studies: Selenium 53

Care trap no. 1 - Dementia **54**
Young and old are affected 54
Can you lower the risk for dementia? 55
Studies: Dementia and Alzheimer risk 57
Depression and lack of vitamins 58
Vitamins C and E protect nerves and vascular system 59
Studies: Vitamin C and E 59

Care trap no. 2 - Osteoporosis **60**
The vitamins for healthy bones 62
Studies: vitamin D and bones 63
Vitamin K directs calcium to the bones 63
Studies: Vitamin K 64

Long-term protection of the eyes with antioxidants **65**
Protection of the macula with antioxidants 65
Protection against grey star with antioxidants 66
Studies: Antioxidants 67
Long-term protection 67



Vitamins for a strong immune system & a fit metabolism

A strong immune system
A better working immune system with vitamins 71
Special: Infections - the vitamin emergency treatment 74

An optimized metabolism
Psychological stability and intellectual efficiency 77
Studies: Depressions 78
Premenstrual syndrome and B-vitamins 79
Hyperactive children - nutrients for the nervous system 81
A better working brain 82
Special Interview: Prof. Klaus Pietrzik 83



Deficiency in affluent societies

Micronutrient deficiency - higher than expected 92
High micronutrient deficiency in the population 93
Why nutrition experts are taking micronutrients 94
Vitamin deficiency and deficiency symptoms 96
Therapy of symptoms - we all pay for the costs 98
Eating right is you own responsibility 99
Reasons for the micronutrient deficiency 100
Deficiency a consequence of changed food composition 101
Studies: Nuts 105
Micronutrient deficiency caused by exhausted grounds and usage of chemicals 106
Storage and transportation destroy micronutrients 108
Processing of foods 109

Loss of micronutrient and changed eating habits 111
Micronutrient 10.000 years ago and today 112
Daily allowance - How reliable are these recommendations 114
The Jo-Jo-game - how politics relate to daily allowance recommendations 115
Outdated ideas about vitamin deficiency 118

The six stages of the micronutrient deficiency 120
Stage 1 and 2: Less storage in tissue and bones 120
Stage 3 and 4: Deficiency symptoms - slowed metabolism and accumulation of damages 121
Stage 5: Functional troubles - symptoms that need treatement 123
Stage 6: Pathological troubles - irreversible damage 124



Who needs more vitamins?

Tune your blood values
The blood values of the champions 128
Preventing of deficiency is not the optimum 130

Risk groups - who needs more micronutrients? 134
Smoking 135
Alcohol 136
Anti-baby-pill 138
Sun worshipers 138
Fit and active when you get older 138
The oprtimal nutrient program when you get older 141
10 million diabetics need more micronutrients 142
Sports and micronutrients 144
On diet: vitamin deficiency is normal 144
Genetic factors - your biochemical individuality 145
People with high blood fat values 146
Medicines influence the uptake of micronutrients 147
Specific case: Chemotherapy 148
Amalgam - micronutrients get pollutants out of the body 149
Pollution that stress your body 151
Summary: 80 % of the population belong to several risk groups 155



Your personal vitamin programme

How do you dose vitamins properly? 158
Fat-soluble vitamins and water soluble vitamins 158
Minerals and trace elements - tight upper limits 159
Upper and lower limits for micronutrient intake 160
The frame for a safe intake 162

Taking micronutrients but which ones? 164
Product quality 166
Multi Vitamins & Minerals or single supplements? 167
Safety of micronutrients 168

Addresses 169
Specialized Labs 169
References 170
Overview of Vitamins and Minerals / Trace Elements 179
Impressum 184

Introduction

Vitamin and mineral deficiency? Does this still exist today? A deficiency in the midst of incredible abundance? Food of all kinds, including fruits and vegetables are offered in abundance in supermarkets in the developed world. Are we in affluent societies deficient in front of full plates due to our bad eating habits? In fact between 40% and 80% of the population are not even getting the absolute minimum of vitamins and minerals that is necessary for good health. This is the sad result of large surveys that have been conducted with more than 80 000 people in Germany, France and the United States. Some of these so called micro-nutrients are deficient in 90% of the population. Among them are especially vitamin D, folate, iodine and selenium.

Nevertheless, the vast majority of the population is convinced to cover at least their minimum requirement of micronutrients with their normal diet. This misconception leads to serious health consequences: 70% of today's illnesses are classified as “dietary related”. This is not necessary. It is in your hands to supply micronutrients so that your metabolism and immune system work optimally.
But watch out: The intake of the *low* minimum requirement *is not* synonymous with an *optimal* intake, that would be necessary for cell protection and for a well-functioning immune system. An analysis of today's foods shows how big the loss of micro-nutrients is and how this loss is caused by storage and processing. An optimal intake can barely be achieved with these foods. The micro-nutrient intake that has existed over thousands of years was much higher.

Long-term observations show that the risk for cardiovascular disease and common cancers can be reduced by half if additional antioxidants (vitamin C, vitamin E and selenium) and B vitamins - especially folate are supplied. Solving the vitamin D deficiency also reduces certain cancers and osteoporosis. Extra folate and vitamin B12 reduce the risk of developing dementia. So everyone can use antioxidants and vitamins as a *long-term* insurance policy for their own health!

But even in the *short term* an optimal supply of micronutrients influences the metabolism and the immune system. How you feel (nerve metabolism), how energetic you are (energy metabolism) and how well your defence system works against infections (immune function) - all depend on the optimal supply of micronutrients that is involved in every metabolic and every immune functions. With a deficiency these systems simply work less effective. Except for high performance athletes and some top executives, only a few experts use the enormous potential of these biocatalysts. Even though your performance and health is your personal capital and competitive advantage in daily lives. Health, fitness and performance are directly dependent on an effective functioning metabolism.
So it is in your hands if you want to optimize your metabolism and your immune system with micro-nutrients. To do so, however, requires knowledge and facts. In recent years, this knowledge exploded in the fields of immune-, genetic- and metabolic- research and by developing sophisticated analytical methods, that can penetrate into the remotest areas of the metabolism. Within a few years we have been catapulted out of the Stone Age, into a new era of research on metabolism and immune function.

Your doctor´s advise can be misleading. The reason is that diet and vitamins are not studied in depth when you study to become a doctor. Often the knowledge of doctors is minimal and completely outdated in this field. However they are continuously asked for advice in a field that they know next to nothing about. In addition, this kind of nutritional advice is generally not covered by the health insurance. Thus advising patients in this topic steels valuable time while a doctor could make money. Often the given opinion about vitamins is a quick answer like :"It can not hurt to take them" or “just eat well that is enough”. Usually to short cut any time consuming discussion with patients, doctors claim that there are no significant studies in this field. Unfortunately, many patients rely on these views. There are however tons of scientific studies. Doctors simply cannot keep up with this important research. They do not even have time to keep up with the research in their own field. Just the medical knowledge doubles

every three years. Lack of knowledge, time and budget constraints are most often the reason why doctors short cut talks about vitamins and health.

INFO
Here are some numbers so you can get an idea about the importance of micronutrients:
- *Antioxidants have lowered the risk of cancer in 129 trials for 13 different types of cancer by 50%.*
- *Extra vitamin D and folate reduce the most commonly diagnosed cancers, which account for over 40% of newly diagnosed cancers.*
- *Vitamin E and C may reduce the risk of cardiovascular disease by 30-40%.*
- *Extra folic acid could prevent 15 000 fatal cardio-vascular events in Germany.*
- *High blood levels of folate reduce the risk for the development of dementia significantly.*
- *Senile cataracts can by reduced with antioxidants by 80%.*
- *The incidence of infection during the winter can be reduced by 50% with vitamins.*

Thus if you want to actively pursue the prevention of diseases with an improved diet and the additional benefits of micronutrients, you will have to get the information by yourself. That is not an easy task. A lot of incorrect and badly researched information is spread in the media. This is exactly why I have specialized for my books on the research in large databases like the National Library of Medicine in Washington. Here I get all major studies in the original version. And it is worth looking at these studies and not copy just what some fellow journalist has written! I have chosen a vivid language, because science does not need to be boring and should mainly be applicable to day to day life. It should lead to more health and a better performance. Study telegrams give you a quick overview of current research that has direct consequences on how you can use nutrition to prevent cancer and other diseases. I also have inserted footnotes so the scientific source can always be traced. Interviews with world leading experts show what their perspective is on the topic. Many authors write about nutrition in a kind of religious way. You have to “believe” them. But there is no research, footnotes or interviews with leading experts in their books. You often read speculation, individual opinions and generalisations of individual cases. You all know this from the new diets that are promoted every year. Most of them do not work in the long term. Also with vitamins you may know the badly researched articles that are nothing but confusing. I prefer to present to you the facts, the studies, the sources and the direct views of the researchers. You can build your own opinion based on the facts and develop strategies to pursue optimal health with these natural biocatalysts.

INFO
Health begins at the molecular level of your 70 billion body cells. It is up to you to provide optimal amounts of micro-nutrients so that your metabolism and immune functions work effectively and you avoid long term illnesses.

The U.S. government already uses this knowledge for cost savings in health care. They require that vitamins are added to certain basic foods that are highly consumed by the population . Folic acid is added to cereals, milk is required to have extra vitamin D, salt has added iodine and fertilizers are enriched with selenium so that selenium finds it way into the crops that we consume.

INFO
Our immune system and metabolism was developed on the basis of 47 vital and irreplaceable nutrients during evolution. Among them are 33 micro-nutrients - 13 vitamins, 6 minerals, 14 trace elements. In addition, there are 2 fats (Omega 6 and Omega 3) and 8 amino acids for the construction of all protein structures. Our body can not work without these essential substances. Everything else the body can produce like a big biochemical factory. Here you can asses already, the importance of micronutrients intake.

Nutrients are the basis of all life. They have proven themselves over millions of years as the best medicine, because the animals could not rely during the course of evolution on a medical system and medications. Therefore a system "was devised" which repairs and regulated pathological changes of cells and changes in the genes. All these processes are dependent on an optimal supply with micronutrients.

No drug test could ever compare to the billions of survival and metabolic tests (selection) during the course of evolution, with these 47 micronutrients. These tests were carried out “in the real life" not in laboratories or with a couple of thousand patients. These nutrients function together as an alphabet – if one nutrient-letter is missing, then many metabolic words can only be put together fragmentarily. Micro-nutrients can penetrate into the nucleus of cells, where they have direct influence on the reading of gene sequences, and they activate and modulate the immune system. A lack of these biocatalysts therefore has a direct effect on the metabolism and immune function.

The creature with the best own repair processes and the best functioning immune system has the most powerful survival advantage. This basic law of nature applies to humans as well. Even high-tech medicine does not change this basic law that the body´s own repair system is the basis for good health.
The short time that you need to read this book may pay off in better performance in day to day life and a longer healthy life span. And for this you need the important facts.

Andreas Jopp

Sample of a chapter pg 46-51

Cancer - second most common cause of death

Alarming: More than 400 000 new cancer diagnosis are made each year in Germany. Looking at the age-distribution of deaths due to cancer, one finds two interesting things: people get cancer at increasingly younger ages and an increasing cancer incidence overall. But is it really fate to get cancer? Or do we pay for a missing prevention? What would you spend if you could reduce this risk by 50%? You might consider this question as superfluous. Study results, however, speak a clear language.

INFO
The National Cancer Institute in the U.S. (NCI) recommends a minimum of 225 mg vitamin C per day, if there are special stress situations, such as smoking or diabetes. This is nearly 3-fold the amount the RDA-recommendations have.

Antioxidants reduce cancer incidence

In a pooled analysis by Berkeley University, Prof. Block evaluated 164 medical studies of 13 different cancers. 129 studies have demonstrated that the average cancer rate is lower by 50% when a high daily antioxidant intake (vitamin C, vitamin E and herbal antioxidants from food) is reached.
The preventive role of extra antioxidant vitamins and antioxidant substances from plants, fruits and vegetables for certain types of cancer is undisputed in the scientific world nowadays.

The National Cancer Research Institute in the U.S. evaluated 47 clinical trials to find out the effect of vitamin C. (42) Thirty four of these studies showed that participants with the highest measured vitamin C levels in the blood reduced their risk of cancer by 50%.
The found mechanism turns up again and again: anti-oxidants prevent that cells and genetic material get damaged and degenerate. Certain antioxidants can also bind heavy metals and other pollutants, and facilitate their excretion.
Many studies show a direct correlation between increased vitamin C levels in the blood and the reduction of cancer risk:

Many studies show a direct correlation between increased vitamin C levels in the blood and the reduction in cancer risk

Cancer of	Number of studies	Direct positive association (statically significant)
Esophagus, mouth, trachea	8	8
Stomac	6	6
Lung	9	5
Pancreas	6	4
Intestinal	8	4
Uterus	5	4
Rectum	5	3
Total	47	34

Vitamins reduce cancer incidence

Hundreds of metabolic functions are catalysed or stimulated by vitamins. Still today only a few of these vitamin pathways are decrypted. It is striking, however, that exactly the vitamins for which we have the greatest deficiency - folate, vitamin B6 and vitamin D - are also particularly effective in preventing certain cancers. Simply solving the deficiency problem often results in a drastic reduction in cancer incidence.

INFO
Vitamins are not alternative medicine. Micronutrients function in a scientifically verifiable manner and should thus be part of conventional medicine.

Vitamin D deficiency

90% of northern Europeans have vitamin D deficiency. Vitamin D is synthesized with the help sunlight in the skin. Is there such a thing as a geographical distribution of cancer cases? Scientists noticed that the incidence of cancer in the northern U.S. states that have little sun, was higher than in the southern states.(43) Skin cancer was of course excluded in this evaluation. Man was not created in evolution to live under artificial light. But many of us stay mainly inside. The entire human metabolism depends on a high and continuous self-production of vitamin D. Vitamin D regulates many hormone functions that can influence the immune system, which in turn removes cancer cells, reduces the cell division of cancer cells and promotes the suicide program of cancer cells. No wonder why Vitamin D deficiency plays such an important role in developing a cancer. It pays to solve this deficiency problem.



Breast cancer is the most common cancer in women. Vitamin D and folate reduce this risk. Less weight also reduces the risk

Vitamin D reduces the most common cancers

Vitamins do not act preventively against all types of cancer. It is interesting, however, that vitamin D acts against the most common cancers. Prostate and colon cancer in men account for 39% of all newly diagnosed cancer patients. Breast and colon cancer account for 44% of all newly diagnosed cancers among women.

Studies of vitamin D against most common cancers

Study participants	Time of study	Result
47 800 men	14 years	↓ 29% lower risk of death from cancer with high vitamin D blood levels ↓ 45% lower risk for cancers of the digestive system (44)
14916 men	18 years	↑ twice as high prostate cancer risk with low vitamin D blood levels (45)
46 771 men and 75 427 women	14 years 16 years	↓ 41% less risk of pancreatic cancer with high vitamin D blood levels compared to the low blood levels (46)
Overview analysis of 5 studies		↓ 49% less risk for colorectal cancer, with high vitamin D intake (47)
19000 men	13 years	↑ three times as high risk of prostate cancer in men with low vitamin D blood values (48)
88 691 women	16 years	↓ 28% less risk of breast cancer with high vitamin D intake (49)

B-vitamin deficiency and the most common cancers

Other deficient vitamins and their influence on cancer: 90% of the population in developed countries do not get enough folate and 60-70% have a lack of vitamin B6. The B vitamins are particularly involved in the repair of damaged DNA - the genetic material of cells. Is it really surprising that the compensation of this deficiency reduces the risk of several cancers drastically? With the following diagram I like to cure you from the idea that extra vitamins are worthless. Folate and vitamin B6 reduce breast cancer, ovarian cancer and colon cancer, which together account for 50% of new cancer diagnosis in women. In men, these vitamins reduce colon, prostate and possibly lung cancer, which together account for 53% of new cancer diagnosis in men.

How important B vitamins really are, you can see with men and women who regularly drink alcohol. In the studies already small amounts of alcohol increase the cancer risk. For example 15 g per day – this is 1-2 glasses of wine. Alcohol uses up a lot of vitamin B6 and folate. The resulting deficiency is associated with an increase in the risk of cancer. Simply by having more B-vitamin in the blood causes a risk reduction of cancer. An example: The highest blood folate blood values reduce the risk of breast cancer in women by 27%. For women who drink alcohol but take additional B-Vitamins daily you see an even bigger reduction in breast cancer risk of 90%.(51) Similarly in ovarian cancer: A high supply of folate reduces the risk by 33%. For women who drink alcohol every day, extra folate even reduces the risk by 74% (50)

Multivitamin protection

Lets be honest: Did you eat 5 times fruit and vegetables today? This would be necessary to get the minimum of vitamine B6 and part of the folate. In our stressful modern society in which job and apartment are far apart we often just do not eat optimally. We have to eat quickly during the lunch break in the restaurant around the corner. And we can´t be picky. We usually just have an hour for the lunch break. Most often it is just calories but no vitamins. We also store and cook food. Something unknown in evolution. And as you have seen in a previous chapter almost 90% of folate is lost by storing and cooking. You already know from the last chapter how effective folate works against cardiovascular disease. But to prevent cancer you should have great intake of these B-vitamins. You should also be in the upper level for blood values of these vitamins. With the significant vitamin losses during storage and processing of food you can no longer solely rely on a bit of lettuce during the lunch break. You should add some vitamins with a multivitamin supplement to be sure. Is it worth the money? Just compare how much you spend each month on health insurance! Vitamins are probably the cheapest of all added health insurances.

Folic acid and vitamin B6 against breast and ovarian cancer

Study participants	Time of study	Result
32 826 women	13 years	↓ 27% less risk of breast cancer in women with the highest blood folate values ↓ 90% less risk of breast cancer in women who drink alcohol daily, but have the highest blood folate values (51)
32 826 women	13 years	↓ 30% less risk of breast cancer in women with the highest vitamin B6 blood values (52)
62 739 women after the menopause	9 years	↓ 22% less risk of breast cancer for women with the highest intake of folate (53)
88 818 women	16 years	↓ 45% lower risk of breast cancer for women with the highest intake of folate (54)
34 387 women after the menopause	12 years	↑ 21% higher risk of breast cancer in women with low intake of folate (55)
2 703 women case-control study:		Women with breast cancer compared with women without breast cancer ↓ 27% less risk of breast cancer in women with the highest intake of folate (56)
61 084 women	13 years	↓ 27% lower risk of ovarian cancer in women with the highest intake of folate ↓ 74% less risk for ovarian cancer in women who drink alcohol every day with the highest intake of folate (57)

Folic acid in prostate cancer and lung cancer

Study participants	Time of study	Result
65 836 men	9 years	↓ 22% lower risk for prostate cancer in men with high folate intake (58)
2 745 men case-control study:		Men with prostate cancer compared with men without prostate cancer. ↓ 34% lower risk for prostate cancer in men with high folate intake ↓ 4% lower risk for prostate cancer in men with the lowest alcohol consumption and the highest folate intake(59)
58 279 men	6 years	↓ 37% less risk of lung cancer in smokers with the highest folate intake (60)

Folic acid and vitamin B6 against colon cancer

Study participants	Time of study	Result
88 758 females	16 years	↓ 20% lower risk of colorectal cancer in women with an additional 400 mcg folic acid ↓ 51% lower risk of colorectal cancer in women with hereditary high risk of 400 mcg of additional folic acid (61)
61 433 women	14 years	↓ 40% lower risk of colon cancer in women with the highest folate intake (62)
56 837 women	12 years	↓ 40% lower risk of colon cancer in women with the highest folate intake (63)
61 433 women	15 years	↓ 34% lower risk of cancer in women with the highest intake of vitamin B6 ↓ 72% lower risk of cancer in women who drink alcohol, with the highest vitamin-B6 intake (64, 65)
Overview analysis of 7 studies		↓ 25% lower risk of colorectal cancer in the average of all trials with high folate intake (66)

Sample of a chapter pg 77-79

An optimized metabolism

How happy are you at this very moment? How fast does your brain work? How much energy do you have? How well do you resist stress?

All of this depends on whether your body has all the necessary micronutrients for an effective metabolism. B vitamins for example are also called the “psychogenic” vitamins. They have a direct impact on mental performance, learning ability, memory, mood and stress resistance. Agitation, aggressiveness, sleep disturbances, lack of concentration or a low stress tolerance are frequently due to a lack of B vitamins.

Emotional stability and mental alertness

There are many good examples of the effect of B-vitamins in the nervous system. Vitamin B1, for example, is involved in the transmission of nerve impulses in the brain. In addition, it helps in the production of the neurotransmitter acetylcholine and ensures that this important transmission substance in the nervous system is not broken down too quickly. Only with acetylcholine information can be stored into the memory of the brain. With a lack of these two substances the memory and learning ability decreases, as the damp, oily layer of the nerve gets too dry.
Another example is vitamin B3. If you have a vitamin B3 deficiency a very rare protein building block - tryptophan – will be converted into the important vitamin B3. But tryptophan is the essential building block for the neurotransmitter of happiness called Serotonin. With a vitamin B3 deficiency you just won´t get enough serotonin build up for happiness. In animal experiments you can easily see this: Withdraw rodents of B3 and tryptophan, and they will get hyper aggressive in a very short time, because they lack serotonin. Even a slight vitamin deficiency will influence your brain chemistry and psyche.

The biochemistry of emotions

Above all, the B vitamins are important in the production of nerve messengers molecules - the so called neurotransmitters. Serotonin, dopamine and noradrenaline are such neurotransmitters. Vitamin B6 helps to build all protein structures, including the neurotransmitters. These substances have an amazing power on emotions. It may be new to you, but emotions have to do with biochemistry and you can influence this.

Noradrenalin- the neurotransmitter of the champions.

This neurotransmitter makes you confident, you resist stress better, you are more concentrated. It activates us with enthusiasm to approach problems. The U.S. Army is using the positive effects of B vitamins and certain amino acids (the building blocks for protein) in order to keep soldiers under stress more concentrated on surveillance monitors. Also, many top executives use protein and B vitamins to increase concentration.

Dopamine - euphoric happiness.

All drugs - whether it is ecstasy, cocaine, cigarettes or alcohol- act on the dopamine system.
These drugs prolong the presence of dopamine at the docking sites (receptors) of the nerves in the brain. Dopamine stimulates euphoria, enthusiasm, makes a good mood. But you can influence this also without drugs. You need above all protein and B-Vitamins for dopamine.

.

Serotonin - a balanced nervous system

Serotonin is a calming neurotransmitter that makes you happy. It acts in our brain and nervous system. Memory performance, good sleep, emotional balanced all depend on serotonin.
An example: How do you feel under stress? You have a bad mood, sleep restlessly and with mega stress the memory more often fails. You just forget and do not remember things. Under stress you have an increased turn over of B-vitamins and protein building blocks for neurotransmitters.

Depression and vitamin deficiency

A low serotonin production due to a lack of B- vitamins can affect the mind and the emotional well being. Depressions not necessarily only depend on circumstances that make you depressed. Very often they are of biochemical nature. In depressive patients you can often measure too low B-vitamin levels and low tryptophan, the protein building block for serotonin. Also too high homocysteine levels are measured. This is a consequence of too low B-vitamin, that would otherwise break down homocysteine. Thus B-vitamin deficiency can really be the bottleneck for the production of serotonin and your calm emotions.



Good mood. The production neurotransmitters that make you happy like serotonin dependent on micronutrients.

Antidepressants like Prozac prolong the presence of serotonin in the brain. But one could also start from the other side and ensure a better production of serotonin. Just as it is done in our perfectly designed metabolism since millions of years. Neurologists are starting to treat depressive moods with highly dosed vitamins B1, B3, B6, B12, folic acid (115, 116) and specific protein components (amino acids) to influence the biochemistry of the brain.

Studies on depression, low folate and high homocysteine

Study participants	Time of study	Result
924 men		↑ double the risk for depression in men with the highest homocystein blood values (113). (Info: Homocystein is broken down by the vitamin folate. If there is to little folate you homocysteine accumulates.)
Analysis of 11 studies with 15 315 men and women		↑ 55% higher risk of depression with low folate blood values (114)