



A Healthy Diet versus Food Supplements

by Karin Ritter, Naturopath



Recent years have seen an enormous increase in the turnover in food supplements in Germany. Because everybody wants to be healthy and full of vitality, our ears and wallets open all too wide on hearing the slogan: “But you owe it to yourself to get some ...“. Sadly, people are less enthusiastic when it comes to a change of lifestyle or diet, which is why we are only too happy to believe the advertisers’ promises of benefits to our health.

But it isn’t only a question of money. As it has become almost standard practice to add minerals and vitamins to everyday foods, consumers are no longer in a position to calculate their intake of them. If, on top of that, food supplements are taken with no check on the quantity, it is possible that, instead of the good health we hoped for, we are actually taking the first steps towards illness.

The Federal Institute for Risk Assessment (BfR) in Germany has already carried out investigations into food supplements and enhanced foods, in order to protect consumers from possible ill-effects on their health. The level of consumption can no longer be overlooked, as more and more foodstuffs contain additives. Unfortunately, the practice of food enrichment fails to match physiological and nutritional requirements in most cases. Rather, it seems that the addition of vitamins and minerals is led by the current “image“ and the price of available foodstuff mixtures.

Is the soil low in nutrients?

The assertion that our foods are generally lower in nutrients than they were 50 years ago, on account of depleted soil in agriculture does not stand up to scrutiny. Measurements have tended to point to the contrary; because of the application of fertilisers, generally the level of nutrients is higher. However, the type of agriculture is an important factor in the nutritional content.

Recently, a very comprehensive study of the literature has been carried out, in order to evaluate foods issuing from various production methods. This showed that fruit and vegetables produced using organic farming methods tended to contain a greater dry quantity and larger amounts of secondary vegetable substances than did those from conventional agriculture. Organic products were found in some cases to contain a higher concentration of Vitamin C and slightly more minerals, particularly iron.

Refined foods

It is a fact that the food we eat, when “refined“ by the food industry, often no longer deserves to be called “food“, and that meals which are kept warm for long periods or heated in a microwave have lost their best attributes. Far too frequently meals placed on the table are ready-prepared meals, or meals with a large ready-made element, and we are simply unable to meet the requirement for “5 servings of fruit and vegetables a day“. If we, in our welfare state, are

incapable of observing this precept, who on Earth can?

When the industry invented fine flour, which benefitted only the producers (longer shelf-life, freedom from germs, easier to sift, more pleasing appearance), the advantages were greeted with acclamation; only later did people realise that the missing minerals were responsible for the appearance of so-called lifestyle illnesses (i.e. deficiency diseases). The same is true, of course, of other foods issuing from the food industry.

Now refined foodstuffs are to be enriched by synthetic vitamins and minerals, and this is supposed to make good the deficiencies.

Changes in eating habits

At first sight, the figures shown in Table 1 do not look particularly impressive, but if we take another look we see, since our food consists on average of 45% refined carbohydrates, that 45% of our energy requirement is met by foods that are low in vitamins and minerals. White flour is a polymerised sugar, which only provides empty calories.

Sugar	from	2 kg	to	34 kg
Meat	from	37 kg	to	100 kg
Fruit	from	51 kg	to	126 kg
Vegetables	from	50 kg	to	82 kg
Potatoes	from	186 kg	to	72 kg
Cereals	from	99 kg	to	74 kg
Milk	from	1221	to	991

Table 1: Changes in per capita consumption over 50 years.

From: Körber, Männle, Leitzmann; *Wholefood nutrition*, Haug-Verlag 1993



The answer to poor nutrition lies in Orthomolecular Medicine (OM) - healing through removal of nutritional deficiencies.

It's the dosage that matters

Everything that is consumed to excess, whether minerals or vitamins, also has side-effects. In the case of vitamins that is particularly the case if they are prescribed in isolation. In OM, if megadoses e.g. of a vitamin are given, good therapists will be careful to ensure that additional substances are also taken to act as a buffer for side-effects, so as to protect the patient.

Beta-carotene

â-Carotene was a good example of how controversial the use of plant-derived substances is in isolation. A sizeable study of consumers showed that regular consumption of fruit and vegetables rich in carotinoids resulted in a significant reduction in the occurrence of cancers of the digestive tract - oral cavity, stomach, large intestine, salivary glands - but also liver, breast and larynx. A higher level of beta-carotene was found in these people than in the rest of the population. A large study was to be carried out in the USA with the aim of giving substance to the hope that â-carotene protects from cancer.

18,000 smokers or people exposed to asbestos were given a daily dose of either 30mg â-carotene or a placebo. (30mg â-carotene is the equivalent of 5mg Vitamin A.) This study was discontinued after four years, as the

occurrence of lung cancer in the â-carotene group was 28% higher than in the placebo group. In Finland too, a study of 29,000 smokers was carried out, in which they were given a daily dose of 20mg â-carotene and/or â-tocopherol (Vitamin E). After a period of 5-8 years, this produced an increase of 18% in the occurrence of lung cancer, as compared with the control group. This confirmed the findings of Werner Kollath's experiments in the 1940's, feeding isolated â-carotenes to rats. He showed that isolated doses of anti-oxidants result in degenerative manifestations. This means that taking high doses of anti-oxidants in isolation can involve very serious dangers to one's health.

The results of the above mentioned studies have now resulted in the Federal Institute for Risk Assessment (BfR) giving "heavy smoking" as a contra-indication for the consumption of high doses of â-carotene, and a compulsory health warning on packaging is under consideration. â-Carotene is added to a large number of foodstuffs, e.g. sweets, fruit juices, butter, muesli, etc. Particularly for children who use A-C-E drinks as thirst-quenchers, and who eat yoghurts or confectionery fortified with vitamins, there is a danger of exceeding the recommended daily dosage.

Critical survey of vitamins

For a long time, high doses of Vitamins A, C and E were considered to be particularly health-

promoting. As anti-oxidants, they were supposed to protect us from cardiovascular disease and especially from certain types of cancer. Unfortunately, these expectations were not substantiated by studies carried out in Europe and the USA. A few results raised the suspicion of damage rather than healing, with the summary advising against the use of high doses of anti-oxidative vitamins.

Vitamin E is added to fats, oils and other foodstuffs to prevent oxidation. Analyses carried out at the university of Hohenheim showed considerable deviations from the amounts declared by manufacturers. There were discrepancies of up to 22% below, and also up to 70% above the declared amount.

Consumption of anti-oxidants is not necessarily an aid to good health. It all depends on the balance between free radicals and anti-oxidants, because free radicals support the body in its fight against microbes (viruses, bacteria, etc.), thus fulfilling an important function. As for the anti-oxidants, in order for these not to become free radicals themselves, they require a partner for regeneration. When anti-oxidants capture the oxygen radicals, they are oxidised in the course of their work. In each vegetable organism there is a regenerative molecule, so that the vitamins' positive action is maintained intact:

- Vitamin E is regenerated by Coenzyme Q10
- Coenzyme Q10 is regenerated by Vitamin C



- Vitamin C is regenerated by flavonoids (vegetable dyes). It is thanks to flavonoids that our apples in store or our stock of sauerkraut retains a considerable Vitamin C content right through to the Spring.

Name	Abbreviation	Signs of Deficiency in Humans	Significance	Occurrence	Overdosage	Daily requirement
Fat soluble vitamins						
Retinol	A	Night blindness, damage to eyes/mucosa, xerophthalmia, corneal ulcers[1]	Ability to see; keeping skin, mucosa & teeth healthy; protection & regeneration of epithelial tissue	Codliver oil, liver, dairy products. As a precursor of β -carotene in vegetables (carrots, red peppers, tomatoes)	Growth disorders, amenorrhœa, damage to red blood cells, skin eruptions, nausea, vertigo, risk of bone fractures; β -carotene: reduced cell protection, increased risk of lung cancer, problems of pregnancy	0.8 mg
Cholecalciferol	D	Rickets, osteomalacia (softening of bones)	Bone formation, storage of Calcium and Phosphorus	Codliver oil, fish, milk, butter, fungi, vegetable oil, chicken & pork, saltwater fish; formed in skin by exposure to sunlight	Vertigo, nausea, vomiting/diarrhœa, lethargy, calcification of internal organs (hypercalcæmia), dysrhythmias, renal calculi	5 μ g
Tocopherol	E	Degeneration of nerve and muscle, allergies, digestive disorders[2]	Formation of red blood cells, building up of tissues, anti-oxidative effect	Seed oils, nuts, butter, margarine, whole-grain cereals, sunflower oil	Only with very high doses: tiredness, digestive disorders, increased hæmorrhagic tendency & weakened immune system.	12 mg
Phylloquinone	K1	Bleeding, coagulatory disorders[3]	Blood coagulation	Green vegetables (chives, spinach, mangelwurz, cabbage)	With very high doses (after injections); changes in blood composition and allergic reactions	65 μ g
Menaquinone, Farnokinone	K2					
Water soluble vitamins						
Thiamine	B1	Appetite loss, digestive disorders, tiredness, weak memory, depression, functional disorders of CNS and heart muscle[4,5]	Regulation of carbohydrate metabolism	Yeast, wheat-germ, nuts, berries, legumes, sunflower seeds, potatoes, brown rice, green peas, fish	Headaches, cramps, allergies, dysrhythmias (only very high doses, not from oral consumption)	1 mg



Name	Abbreviation	Signs of Deficiency in Humans	Significance	Occurrence	Overdosage	Daily requirement
Water soluble vitamins						
Riboflavin	B2	Diseases of skin & mucosa, inflamed lips, skin rough & cracked, tiredness	Metabolism, health of mucosa; regulates respiratory processes	Yeast, offal, milk & dairy products, fish, wholegrain products	No known consequences	1.2 mg
Niacin, Nicotinic acid, Vitamin PP	B3	Disordered nerves & musculature, skin defects, increased susceptibility to infections, gastro-intestinal complaints	Transport of acid residues in metabolism, hydrogen transport, building block of coenzymes NAD and NADP	Coffee, liver, meat, potatoes	Headaches, nausea, pruritus, gout	15 mg
Pantothenic acid	B5	Insomnia, depression, loss of appetite, weight loss, skin inflamed, diarrhoea, vomiting and neurological complaints[6]	Metabolism	Liver, wild rice, water melons, beans	No known consequences	6 mg
Pyridoxine	B6	Skin diseases, intestinal problems, performance weakness, increased susceptibility to infections, shaking cramps, vertigo, nausea, anæmia, renal calculi	Transport of amino groups in amino-acid metabolism, protein formation	Yeast, seeds of vegetables, bananas, soya beans, green vegetables, carrots, potatoes, walnuts, fish, meat, whole-grain products	Neuropathies in form of loss of sensation in extremities and paralytic manifestations	1.2 mg
Folic acid	B9	Anæmia	Formation of protein and hæmoglobin, transport of single carbon bodies (C1) in metabolism	Yeast, offal, beetroot	Allergies, disorders of sleep and emotions	150 µg
Cobalamine	B12	Anæmia, burning of tongue, damaged mucosa, functional disorders of spinal cord[7]	Nervous system, protein formation, red blood cells	Only in animal products: liver, kidney, beef, fish, egg yolk	No known consequences	3 µg
Ascorbic acid	C	Scurvy, sleep disturbances, bouts of depression, development of varicose veins and hæmorrhoids	Formation of collagen, bone and teeth, supports absorption of iron.	Fruit and vegetables, incl. citrus fruits, rosehips, blackcurrants	Diarrhoea; in a certain proportion of the population (c.10%) high doses of Vitamin C can cause renal calculi, because urine is too acidic.	100 mg



Name	Abbreviation	Signs of Deficiency in Humans	Significance	Occurrence	Overdosage	Daily requirement
Water soluble vitamins						
Biotin	H	Skin changes, hair loss, nervousness, exhaustion, muscle pain	Coenzyme for enzymes involved in carboxylation reactions	Calf's liver, yeast, peanuts, almonds, egg-yolk, banana	No known consequences	50 µg

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(With grateful thanks to Science at home for their kind permission to include the above table.)

- [1] However, these problems occur primarily in undernourished children in a few developing countries.
- [2] Vitamin E deficiency is scarcely ever seen because of this vitamin's frequent occurrence in many foodstuffs and owing to the large amount stored in the liver.
- [3] Vitamin K2 is synthesized by intestinal bacteria.
- [4] Classic form of Thiamine deficiency: beriberi (restricted functions and paralysis of legs). Now only found occasionally in developing countries.
- [5] Glucose, i.e. sugar, increases the need for Thiamine, since the use of Thiamine is increased during glucose processing. This is one reason why the consumption of sweets must be restricted in children.
- [6] Pantothenic acid deficiency symptoms practically never occur, since Pantothenic acid is present in almost all foods.
- [7] Deficiency symptoms are quite rare, since Cobalamine remains in the body for a very long time. At risk are children of mothers who are strict vegetarians.

Supplement nephropathy

Clinical reports from Japan and the USA are available regarding kidney damage arising from Vitamin C preparations, already described as supplement nephropathy. In all cases the damage occurred following regular consumption of Vitamin C tablets in a dosage which was many times higher than the recommended daily dosage. It is indisputably the case that Vitamin C from fruit and vegetables, where it occurs as part of a biological compound, is better tolerated by the organism than in an isolated form.

A research team headed up by David R. Jacobs of the University of Minnesota has demonstrated that, in female diabetics, high doses of synthetic Vitamin

C almost double the risks of cardiovascular disease and cardiac infarction. The testees had taken more than 300mg of synthetic vitamin C. It is suspected that the reason for this is the fact that Ascorbic acid not only has an anti-oxidative action but, in certain circumstances, can also promote oxidation. It is assumed that its oxidative property is neutralised if Vitamin C is absorbed by the body as a natural constituent of fruit and vegetables. Clearly, synthetic Vitamin C promotes the formation of LDL-Cholesterol. In healthy subjects the same dosage produced no significant change.

On the basis of the latest research results, the German Nutritional Society (Deutsche Gesellschaft für Ernährung e.V.) assessed the

situation in its 2006 Nutritional Report as follows:

“Food supplements derived from secondary vegetable material, or extracts of vegetables and fruit, are often advocated as an alternative to consuming secondary vegetable material with fruit, vegetables and whole-meal products. As a general rule, there is a lack of any scientific proof of healthy action and harmlessness to health. Vegetable or fruit concentrates or extracts absolutely do not constitute an alternative to the consumption of five portions a day of fruit and vegetables, cooked or uncooked.“

Natural Vitamin C therapy

The requirement of Vitamin C should be satisfied by fruit and vegetables at any time of the year.



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Functional Food

Something which is becoming a problem that needs to be taken seriously is the so-called "Functional Foods" (foods enriched with food supplements) which are flooding into our supermarkets; it is frequently difficult for consumers to judge what these contain.

In order to protect consumers the BfR is considering limiting the quantities of some vitamins and minerals in food supplements, since the possibility of overdosage through consumption of fruit juices, breakfast cereals and convenience dishes cannot be ruled out.

Of course there are exceptions

The populace's vitamin consumption is certainly not uniformly good. In every age-group there are groups who are particularly at risk from an unfortunate or poor choice of food or vitamin consumption. These include, for instance, people with a low level of food consumption, whether voluntary or involuntary, with one-sided eating habits, a high level of social drug or medication consumption (including oral contraceptives), or with disordered digestion or malabsorption. It is questionable whether this group's health is improved by food supplementation, since the maintaining

Rose-hips	1250	Blackcurrants	190	Lemons	53
Sea buckthorn	266	Kiwi fruit	80	Kale	47
Green peppers	140	Pears	4	Kohlrabi	64
Yellow peppers	294	Parsley	160	Lamb's lettuce	30
Red peppers	150	Acerola cherries	1500	Brussels sprouts	115
Chives	25	Gooseberries	35	Sauerkraut	40
Cauliflower	75	Oranges	50	White cabbage	45
Cranberries	15-30	Broccoli	115		

Table 2: Vitamin C content in mg per 100g of fresh substance. The RDA is 100 mg.

cause of the deficiency is not removed. However, even given a good diet, there are always groups at risk of nutritional deficiency. These are expectant and breastfeeding mothers, young people who are growing, competitive sportsmen and -women, and vegans. In such cases, of course, any undersupply of vitamins and minerals must be made good, and very specifically.

Good health begins in the gut

We need a healthy gut in order to assimilate nutrients from our food or our supplements. For this to happen, the inner lining (mucosa) of the intestinal wall must be intact, on the one hand so as to assimilate nutrients and, on the other hand, in order to ward off alien substances and infective agents. These processes are substantially supported by a physiological flora in the intestines. This means that a cleansing of the gut is of prime importance.

The first step towards this is a de-acidification and detoxification using ALKALA N and OKOUBASAN, followed by a building up of the mucosa using FORTAKEHL; for cleans-

ing the intestinal flora, I also recommend Symbioflor (from Symbiopharm).

Rather than food supplements we need a diet which keeps our bodies healthy. This cannot be achieved by ready-prepared dishes and fast food.

We need plenty of fruit, vegetables, whole cereals, fresh herbs and vegetable fats high in nutrients. This is the best form of preventive healthcare. Wherever possible, fruit and vegetables should be sourced primarily from indigenous crops and be in season. Consumption of animal protein, hardened fats and empty carbohydrates (sugar, white flour, luxury foods) should be strictly limited.

It is my view that substitution of vitamins, trace elements and minerals should only be carried out in a very specific way, in the context of treatment.

A gut which is fit for purpose and nutritious food are what undergirds our good health.

The quotation from Galileo Galilei is still very apt now:



“I do not believe that the same God who gave us our senses, our common sense and our reason would forbid us to make use of them.“

Make use of all your possibilities; think critically.

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