

Those who criticise taking vitamins would change their minds if they read this.

Copyright© 1990 GrazingInfo Ltd, but acknowledged copying is allowed.

Introduction

Compiled and edited by Helen Bond.

The information in this Vitamins chapter is known by some, but seldom prescribed completely. For example -

Large doses of B vitamins can halve the rate of brain shrinkage in the elderly who are suffering memory problems, and is claimed to slow the old age problem of increasing dementia.

Water-soluble vitamins in the B and C groups are easily absorbed, but, being water-soluble, they leach. A surplus of these vitamins is easily expelled through the kidneys, so overdosing is rare.

The fat-soluble vitamins A, D, E and K, don't leach, however, they are not as well absorbed, so deficiencies can occur even with an adequate diet. Those with dry skin and difficulty gaining weight, can have fat-malabsorption.

Genetic factors and some deficiencies to function effectively, require some individuals to need up to one hundred times the usual amounts.

A common absorption problem is caused by gluten-damaged villi collapsing, thickening and hardening the intestine wall, which prevents some nutrients from entering through the organs. Increasing the supply of some vitamins can help increase absorption by the body.

If needed, you can rub vitamin A and/or E oils from opened capsules onto your skin, and keep a halibut liver oil capsule under the tongue at bedtime for absorption overnight. Decades ago it was common practice to give cod liver oil rubs to babies that were not thriving. This is also excellent for adults needing it. For increased vitamin D absorption, expose your skin to mild sunlight.

These 12 vitamins - A, D, E, C, B1, B2, B3, B5, B6, B12, folic acid and biotin, plus the 7 minerals in bones - calcium, boron, magnesium, zinc, chromium, selenium, and copper, and the essential fatty acids and any other supplements you need to take in order to correct deficiencies found, can help improve fertility. Three miscarriages, each at five weeks, stopped after her husband took selenium and vitamin E.

In the following compilation, 'RDA' means 'recommended daily allowance' as determined by the Food and Nutrition Board of the National Research Council (US). The second RDA value listed is for women. 'IU' means International Units. 1,000 mcg = 1 mg, 1,000 mg = 1 g .

Caution

If you are pregnant, nursing, taking medication, or have a medical condition, consult your physician before taking vitamins. Supplements should not be necessary for younger people, and less so for those who eat fresh, organic food, so don't give them to those under the age of 18 without medical advice.

Vitamin A

Also known as retinol or carotene, vitamin A is a fat-soluble vitamin, essential in the formation, maintenance and repair of skin, hair, and mucous membranes. It is important for the maintenance of a healthy immune system, bone growth and tooth development, reproduction, and for vision, as it helps us to see in dim light.

Natural therapies to relieve hay fever could include vitamin A for maintenance of healthy mucous membranes of the nose, throat and eyes. Horse radish, garlic and fenugreek also help to dry up discharge. After having a cold, fluid sometimes builds up behind the ear. Vitamin A capsules three times a day drained mine out in 2006. I recommend using Thompson's Vitamin A 10,000 IU as a dietary supplement. It has no heavy metals.

Vitamin A deficiency symptoms include -

cancer

ear problems, deafness, hearing strange noises

eyes dry, infected and sensitive to bright light, night blindness, poor dark adjustment, colour

blindness, and glaucoma
hair dry, falling or dull
nails longitudinal ridges, peeling or brittle
respiratory infections and lung problems
skin dry, rough, scaly; pimples, acne, psoriasis
smell and taste poor
thyroid overactive
underweight.

Symptoms of vitamin A toxicity are similar to those of vitamin A deficiency. Do not take very high doses without professional supervision, as it can be toxic in high doses over long periods. Long-term oversupply can lead to bone erosion due to a relative deficiency of vitamin D. Therefore supply vitamins A and D together, preferably as cod liver oil otherwise halibut liver oil.

The best sources of vitamin A are fish-liver oils, liver, butter and egg yolk. Yellow-orange vegetables and green juice are high in beta-carotene, which some individuals can efficiently convert into vitamin A, but others cannot.

The average intake of vitamin A (and carotenes), the RDA for vitamin A, is 5000/4000 IU; therapeutic 25,000-100,000 IU, especially in cancer treatment and for eye diseases. One halibut-oil capsule provides 4000 to 5000 IU.

B vitamins

All B vitamins help the body to convert food (carbohydrates) into fuel (glucose), which is "burned" to produce energy. These B vitamins, often referred to as B complex vitamins, also help the body metabolise fats and protein. B complex vitamins are necessary for healthy skin, hair, eyes and liver. They also help the nervous system function properly.

Thompsons Ultra B High Potency B complex is has tested no mercury and has 82 compatibility.

Vitamin B1

Vitamin B1 is known as thiamine in New Zealand and the US, or aneurin in Europe and the UK.

B1 is used in many different bodily functions, such as the proper conversion of fats and carbohydrates to energy.

As B1 is a water-soluble vitamin, very little is stored in the body and depletion of it can happen within 14 days. The highest concentrations are found in our skeletal muscles, heart, liver, kidneys and brain. Daily supplementing (between 2~3 mg) is recommended for maintenance of a healthy heart and nervous system, stabilising the appetite, promoting growth and good muscle tone, and improving mental attitude. Stress increases our need for all the B vitamins - especially B1.

Experts believe that some people, especially older adults, are somewhat deficient in vitamin B1, and this deficiency may cause negative health consequences such as -

an increase in lactic acid in the blood which, if not picked up immediately by the liver, can cause symptoms that mimic a panic/anxiety attack and a heart attack combined

- constipation
- decreased reflexes and poor coordination
- fatigue and depression, nervous irritability
- fluid build-up in the lungs and laboured breathing
- gastrointestinal disturbances and loss of appetite
- heartburn, heart changes, fast heart rates, heart failure
- insomnia or feeling tired
- learning difficulties and forgetfulness
- muscle cramps and vague aches and pains
- oedema and an enlarged liver
- over-sensitive to pain and noise
- poor circulation
- paralysis, tingling sensations, numbness, warmth and redness of the hands and feet
- severe weight loss
- thyroid under-active

- tongue furrowed
- weak and sore muscles and a general weakness
- in its extreme form - beriberi, which affects the nerves, brain and heart. Its symptoms range from tingling and burning in the legs, to incoordination, mental disturbance, palpitation (and even heart failure), seizures, deterioration of the central nervous system, and vomiting.

It is important to note that drinking tea, coffee or beverages containing sulphites at the same time you take B1 may inactivate this important vitamin. Heavy coffee and tea drinkers, whether decaffeinated or regular, may need to increase their B1 intake, because these beverages can actually deplete B1 from the body. Alcohol and large intakes of raw fish and shellfish also inhibit B1 absorption. A diet containing excessive amounts of sugar can also cause a B1 deficiency.

Digestive diseases such as colitis, diverticulosis, Crohn's disease, celiac disease and chronic diarrhoea reduce B1 absorption, as do kidney problems, anorexia and folate deficiencies.

Vitamin B1 has shown promise in treating depression, anxiety, stress, arthritis, cataracts and infertility. It is also great for the brain, may assist with memory development and learning, and is required for growth in children. It is thought that B1 can be useful for motion sickness in air and sea travel, and that this vitamin also repels insects when excreted through the skin.

It is soluble in water, so B1 toxicity is uncommon, as excesses are readily excreted. However, long-term supplementation of amounts larger than 3 grams have been known to cause toxicity.

Because it works synergistically with other B vitamins, it's best to get B1 as part of a B-complex supplement, rather than on its own. The richest food sources of B1 are Brewer's and nutritional yeast. Other sources include rice bran, sunflower and sesame seeds, peanuts, millet and grain. If you choose to eat whole wheat bread for its high amounts of B1, do not toast it, or you'll lose some of this vitamin. RDA: 1.5/1 mg; therapeutic 50-3000 mg.

Vitamin B2

Vitamin B2, also commonly called riboflavin, gets its name from its colour. The root of this word is the Latin word "flavus" meaning "yellow." When a person's urine becomes bright yellow following high level supplementation with B-complex vitamins, excess riboflavin excreted in the urine is often responsible for this change in colour.

Interestingly, the highest concentrations of riboflavin in the body occur in the liver, kidneys, and heart. These high liver and kidney concentrations reflect the prominent role of vitamin B2 in metabolic activity, with the liver serving as a central metabolic processing point, and the kidneys providing for elimination of unneeded molecules. The high concentration of vitamin B2 in the heart results from the heart's high dependence on aerobic (oxygen-based) energy production, and the key role of vitamin B2 is in allowing that energy production to occur.

Riboflavin is frequently used in combination with other B vitamins in vitamin B complex products. Low levels of riboflavin are seen in cervical cancer, and migraine headaches, acne, muscle cramps, burning feet syndrome, carpal tunnel syndrome, and blood disorders such as red blood cell aplasia.

Some people use riboflavin for eye conditions including eye fatigue, cataracts, and glaucoma. Other uses include increasing energy levels; boosting immune system function; maintaining healthy hair, skin, mucous membranes, and nails; slowing ageing; boosting athletic performance; promoting healthy reproductive function; canker sores; memory loss, including Alzheimer's disease; ulcers; burns; alcoholism; liver disease; sickle cell anemia; and treating lactic acidosis brought on by treatment with a class of AIDS medications called NRTI drugs.

Deficiency symptoms include -

- allergies
- anaemia
- arthritis
- cancer
- cracks on lips and corners of mouth
- diabetes
- eczema, especially around nose, forehead, ears, scrotum and vagina
- eyes sensitive, burning, bloodshot, blurred vision, and cataracts
- hair dull, oily or with dandruff

- nails split
- redness of part of face (rosacea), acne, bedsores, purplish skin parts
- skin oily and itching
- tongue sore, burning and magenta purplish
-

The best sources of vitamin B2 are food yeast, liver, kidney, almonds and sprouted seeds and foods such as milk, meat, eggs, nuts (safe ones fresh & kept in the fridge), enriched flour, and green vegetables.

Vitamin B3

Vitamin B3 is also known as niacin, which has different chemical structures including niacin-amide, nicotinic acid and inositol hexaniacinate. Some forms are recommended for certain conditions but not for others. Niacin-amide, for instance, is used to treat osteoarthritis and rheumatoid arthritis. Other forms may be selectively prescribed in large doses to treat high cholesterol and Raynaud's disease, a circulatory problem that causes cold hands and feet.

Niacin is used to treat a number of diseases and conditions such as high cholesterol, circulation problems, migraines, schizophrenia, Alzheimer's chronic brain syndrome, depression, alcohol dependence and fluid collection (oedema). Some people use niacin or niacin-amide for acne and other skin conditions, leprosy, attention deficit-hyperactivity disorder, memory loss, arthritis, preventing premenstrual headache, improving digestion, protecting against toxins and pollutants, reducing the effects of ageing, lowering blood pressure, promoting relaxation, improving orgasm and preventing cataracts. Because niacin expands blood vessels, it not only promotes a satisfied feeling after eating, but it can help people with Raynaud's disease which clamps down on the blood vessels, cutting off blood supply.

Like most other B vitamins, niacin assists enzymes, the catalysts that help spark chemical reactions, to do their jobs properly. Niacin also helps the body make various sex and stress-related hormones in the adrenal glands and other parts of the body. Niacin and niacin-amide are required for the proper function of fats and sugars in the body, to maintain healthy cells and can assist in neurological recovery if you have experienced a stroke.

Deficiency symptoms include -

- anxiety and/or depression
- backaches
- burning in the mouth and a bright red swollen tongue
- canker sores
- fatigue
- headaches
- hyperthyroidism
- indigestion
- insomnia
- irritability and confusion
- loss of weight and appetite
- nausea, vomiting and diarrhoea
- neurological symptoms - memory loss, disorientation, depression, apathy, fatigue, headaches
- protruding eyes
- schizophrenia
- skin rash - thick, scaly and dark on areas that are regularly exposed to sunlight
- tongue bright red
- vomiting and diarrhoea.

Severe deficiency can cause a condition known as pellagra, which is characterised by cracked, scaly skin, dementia and diarrhoea. It is generally treated with a nutritionally balanced diet and niacin supplements. If left untreated, pellagra may lead to death. However, as most people nowadays get sufficient niacin from the foods listed below, pellagra is now generally uncommon.

People with poor diet, alcoholism, and some types of slow-growing tumours called carcinoid tumours might be at risk for niacin deficiency.

When excess doses (over 3 grams per day) of niacin or niacin-amide are taken, serious side effect can include liver problems, gout, ulcers of the digestive tract, loss of vision, high blood sugar, and an irregular heartbeat. Minor side effects can include stomach upset, intestinal gas, dizziness, pain in the mouth. A common minor side effect is a flushing reaction, which might cause burning, tingling, itching, and redness of the face, arms, and chest, as well as headaches. Usually, this reaction goes away as the body gets used to the medication. Alcohol can make the flushing reaction worse, so avoid large amounts of alcohol while taking niacin.

Niacin is generally not recommended for sufferers of allergies, heart disease or unstable angina, gallbladder disease, gout, low blood pressure, liver or kidney disease, and stomach or intestinal ulcers. Please consult your doctor before using niacin, especially people who suffer from any of the above, or those who have diabetes, are about to have surgery, or are pregnant or breast feeding.

You can meet all of your body's needs for B3 through diet - it is rare for anyone in the developed world to have a B3 deficiency. The best dietary sources of vitamin B3 are found in beets, Brewer's yeast, beef liver, beef kidney, fish, rice bran, salmon, swordfish, tuna, green vegetables and sunflower seeds. Bread and cereals are sometimes fortified with niacin. In addition, foods that contain tryptophan, an amino acid the body converts into niacin, include organic poultry meat, red meat, eggs, and dairy products. Coffee and tea also contain appreciable amounts. Niacin and niacin-amide are also found in many vitamin B complex supplements. All the B vitamins are water-soluble, meaning that the body does not store them. This is shown when too much is taken, causing urine to go yellow.

RDA: 19/15 mg; therapeutic up to 30 mg.

Vitamin B5

Also known as pantothenic acid or the "anti-stress vitamin", B5 plays an important role in supporting the adrenal gland with the secretion of hormones, such as cortisone. These hormones assist the metabolism, help to fight allergies and are beneficial in the maintenance of healthy skin, muscles and nerves. Vitamin B5 is used in the release of energy, the metabolism of fat, protein and carbohydrates, and the creation of lipids, neurotransmitters, steroid hormones and haemoglobin. Some are of the opinion that B5 is helpful to fight wrinkles and grey hair, and others claim that it helps the brain; three on-and-off trials proved that it helped me.

Vitamin B5 deficiency is exceptionally rare and has not been thoroughly studied. In the few cases where deficiency has been seen (victims of starvation), nearly all symptoms can be reversed with the return of pantothenic acid. Deficiency symptoms are similar to other B vitamins and can include:

- abdominal pains
- adrenal (kidney) weakness
- arthritis
- asthma
- cancer
- cardiac instability
- cataracts
- depression and personality changes
- digestive and nervous system diseases
- epilepsy
- fatigue
- frequent infection
- greying hair
- headaches
- insomnia
- irritability
- muscle weakness and cramps
- nausea
- neurological disorders
- paresthesia (abnormal sensation such as "burning feet" syndrome)
- psoriasis
- sleep disturbances
- stress

tingling in the hands
tongue beefy, enlarged and furrowed.

Toxicity of B5 is unlikely. In fact, no “tolerable upper level intake” has been established for the vitamin. Large doses have no reported side effects and massive doses (10 g/day) may only yield mild intestinal distress and diarrhoea at worst. It has been suggested, however, that high doses might worsen panic attacks in those with panic disorder by prolonging the duration until adrenal exhaustion.

The best sources of B5 are Brewers’ yeast, rice bran and liver.

RDA: 4/7 mg; therapeutic 50-1500 mg.

Vitamin B6

Also known as pyridoxine, pyridoxal and pyridoxamine, vitamin B6 is an important member of the B family and is thought to be involved in more body processes than any other vitamin or mineral. It works as a chemical transmitter - a building block for neurotransmitters (serotonin) in the brain - forming red blood cells and maintaining a hormonal balance. It is critical for the proper functioning of the immune and nervous systems, essential in protein metabolism, and facilitates the release of glycogen from the liver and the metabolism of fat and nucleic acids. It helps to maintain the proper balance of sodium and potassium, which regulate body fluids, and plays a vital role in the multiplication of cells, which is of critical importance to a healthy pregnancy.

Numerous clinical studies demonstrate the importance of B6 in a number of health conditions including premenstrual syndrome, despondency/depression, morning sickness and kidney stones. Alleviation in the symptoms of premenstrual syndrome may be due to pyridoxine’s help in reducing excess oestrogen in the body.

A deficiency of B6 is characterised by -

- blood sugar fluctuations
- cracking of the lips and tongue
- depression
- digestive and nervous system diseases
- eczema
- oedema (fluid retention)
- impaired nerve function
- insomnia
- irritability
- inability to recall dreams
- kidney stones
- migraines
- muscle weakness
- pain, stiffness and swelling of joints
- schizophrenia
- skin oily with eczema and hives
- stress
- tremors and convulsions.

A deficiency in adults principally affects the peripheral nerves, skin, mucous membranes, and the hematopoietic system. In children, the central nervous system is also affected.

Deficiency can occur in people with uraemia, causing a reduced flow of urine from an enlarged prostate, damaged kidneys, alcoholism, cirrhosis (damaged liver), hyperthyroidism (overactive thyroid which can be from excess iodine, which can come from even small amounts of kelp or other sea plants*), malabsorption syndromes, congestive heart failure, and taking conflicting medications.

Vitamin B6 deficiency is a common finding in sufferers of carpal tunnel syndrome - a painful disorder caused by suppression of the median nerve as it passes between the bones and ligaments of the wrist. Studies at Texas University have treated hundreds of carpal tunnel sufferers with B6 supplements. Treatments for carpal tunnel syndrome should begin as early as possible. However, underlying causes, such as diabetes or arthritis from low boron and/or low magnesium, should be corrected first.

A USA study showed that a lack of B6 can cause stress, anxiety and a reduction in enjoyment of

life. Researchers concluded that effective treatment for depression might begin with vitamin B6. It has also been suggested that B6 may reduce the ill effects of a bad reaction to monosodium glutamate (MSG).

Certain substances are known to reduce B6 levels, including food colourings, drugs like dopamine and penicillamine, oral contraceptives, alcohol and excessive protein intake.

Nutritional sources of B6 are legumes, carrots, beans, spinach, peas, potatoes, milk, cheese, eggs, fish, liver, meat, rice, whole grains, nuts, molasses, bran, sunflower seeds and bananas.

As with many supplements, some B6's contain heavy metals. Thompson's B6 has 82 compatibility and no mercury, 10 cadmium, 0 manganese.

RDA: 2/1.6 mg; therapeutic 50-3000 mg.

I avoid kelp and all sea plants grown in the world's sewer because of their high levels of heavy metals and pollutants.

Vitamin B9

Folate or folic acid gets its name from the Latin word "folium" for leaf, so is found in leafy and cruciferous vegetables which are the brassicas and cabbage families. Folate occurs naturally in food; whereas folic acid is the synthetic form that is found in supplements and fortified foods.

Folate is necessary for the production and maintenance of new cells, so is especially important during periods of rapid cell division and growth, such as pregnancy and infancy. The USA Public Health Service recommends that all women who could possibly become pregnant get 400 micrograms of folic acid per day. If women have enough of it in their bodies before pregnancy, the risk of birth or spine defects can be decreased. It is important to note that levels of folic acid need to be up before the pregnancy occurs. Both adults and children need folate to make DNA, RNA and normal red blood cells to prevent anaemia.

As folate plays a key role in the synthesis and repair of DNA, it is not surprising that a B9 deficiency has been implicated in Alzheimer's disease, atherosclerosis, heart attack, dementia, stroke, osteoporosis, depression, cleft lip and palate, and hearing loss. Crohn's disease patients also need folic acid supplementation.

There is a chemical in the body called homocysteine, which is linked to heart disease and strokes. Research shows that supplementing with folic acid can reduce the levels of homocysteine and therefore prevent or reduce the risks of heart disease. This reduction is also assisted by supplementing with B6 and B12, and increasing the amount of exercise you do.

A study showed that an increase in dietary intake of folic acid significantly reduces the risk of developing adenomas (tumours) of the colon and rectum. A low intake of folate, combined with heavy alcohol consumption, triples the risk of colon cancer, according to one study.

Other vitamins work synergistically with B9 to produce positive effects in the body. Taking vitamin C supplements has been found to increase folate and vitamin E stores in elderly people. Folic acid works best when combined with vitamin B12 and vitamin C.

Folic acid deficiency may be caused by inadequate consumption of fresh fruits and vegetables, consumption of only cooked vegetables, which destroys folic acid, and malabsorption problems.

Deficiency symptoms of B9 include -

- anaemia
- apathy
- birth defects
- circulation problems
- corners of mouth cracked
- depression
- digestive disturbances
- fatigue and forgetfulness
- gout
- greying hair or hair loss
- growth impairment
- headaches
- hypoglycaemia
- increased infections

- insomnia
- laboured breathing
- memory problems and lack of concentration
- muscle weakness and numbness in the legs
- nausea
- paranoia
- sore red tongue.

The USA is so concerned about B9 deficiencies that they are adding it to some foods, and some research indicating that this has contributed to a decrease in stroke-associated mortality. New Zealand is planning to do the same, simply because people don't eat enough greens.

A diet rich in folate is important. However, the average American diet does not supply enough folate, and our bodies actually absorb the synthetic form of folic acid more easily than the natural form.

Folic acid is non-toxic and no cases of overdosing have ever been reported. RDA: 0.2/0.18 mg; at least 0.8 mg in pregnancy; therapeutic 5-20 mg.

Sources of folate or folic acid include - barley, beef, berries, bran, brewer's yeast, brown rice, cheese, chicken, dates, fruit, green leafy vegetables, lamb, legumes, lentils, liver, milk, mushrooms, nuts, oranges, split peas, pork, root vegetables, salmon*, tuna, wheat germ, whole grains, and whole wheat.

* Don't eat anything made from artificially reared salmon because they are fed concentrates made from maize, which could have been grown after Roundup spraying and meat from abattoirs processing sick and dead animals.

Vitamin B12

Vitamin B12, also called cobalamin or cyanocobalamin, is known as the 'energy vitamin'. This is essential for many critical functions in your body, including playing a key role in the normal functioning of the brain, nervous system, circulation and hormone production; helping to regulate the formation of red blood cells; assisting in digestion and food absorption; and the metabolism of every cell in the body, especially affecting DNA synthesis and regulation, but also energy production and fatty acid synthesis. B12 can also support your immune system, female reproductive health and your mental well-being.

The older you get the more likely you are to have a B12 deficiency, either by not getting enough in your diet or losing the ability to absorb it. Vitamin B12 deficiency is fairly common among older people and can cause anaemia, pain and depression.

As you age, your digestive system breaks down and your stomach gradually loses its ability to produce hydrochloric acid, which is what releases B12 from your food. The use of antacids or anti ulcer drugs will also lower your stomach acid secretion and decrease your ability to absorb B12.

Low levels of B12 and folate have been found in Alzheimer's sufferers, and the serum and red blood cells of patients with depressive disorders. Studies have shown that people with reduced levels of B12 are at increased risk of Alzheimer's. B12 deficiency in itself often causes disorientation and confusion and thus mimics some of the prominent symptoms of Alzheimer's disease.

Vitamin B12 can improve memory problems that some people suffer after operations and with age, and generally poor memory can actually be caused by a B12 deficiency. If an individual has memory problems and decreased blood levels of B12, supplementing with B12 may improve these problems. No evidence suggests that B12 enhances memory in people with normal memory.

Recent studies from the US Framingham trial show that one in four adults in the US are deficient in this important nutrient and nearly half of the population has suboptimal blood levels.

Deficiency symptoms include -

- cancer
- chronic fatigue
- debility
- digestive issues
- emotional disturbances
- loss of appetite
- liver and nervous system diseases

mental illness
nerve inflammation
numbness and stiffness
paralysis
poor circulation and memory
sore red tongue.

Deficiency can result in less than optimal nervous system function, a tendency toward nervousness, and even less-than-optimal eye health. High folic acid (B9) levels can mask a B12 deficiency symptom that may lead to permanent nerve damage if left untreated.

Vitamin B12 has been found to assist in a good night's sleep, as it plays a vital role in melatonin production, which has been called the "sleep hormone". As you age, your body becomes less efficient at producing this hormone, so sleep becomes more of an issue.

Vitamin B12 is present only in animal sources of food; plant sources have virtually no B12. So those who avoid meat (red meat in particular) are at high risk for developing B12 deficiency. The best sources of B12 are liver, kidney, fish and egg yolk.

Some people believe that oral B12 tablets do not work well as very little is absorbed into your blood stream, and recommend injections or sprays in the mouth. However, tablets are better than no supplementation at all, particularly if aged over 50 when your body has limited ability to absorb B12 from food.

Vitamin B15

Also known as pangamic acid, vitamin B15 protects against oxygen deficiencies (similar to vitamin E). It has been successfully used in the treatment of alcoholism, allergies, arthritis, autism, breathing problems, diabetes, cardiovascular diseases, and premature ageing.

It is found in seeds, grains and nuts. The usual therapeutic dose is 50-100 mg two or three times daily.

Vitamin B17

Also known as amygdalin or nitrilosides, vitamin B17 contains a cyanide ingredient that is harmful to cancer cells. It is most effective for preventing cancer if taken regularly by eating a few bitter seeds of stone fruits or pip fruits (for example, apricot, bitter almond or apple). Other good sources are sprouted seeds, alfalfa, mung beans, millet and lentils. Professionally, a purified product known as laetrile, is used orally or as injections for cancer treatment (this is now illegal in the USA). To be effective, laetrile must be used in conjunction with cleansing, supplements and correct diet.

Vitamin C

Vitamin C is actually ascorbic acid and not a vitamin in the true sense. It is one of the most versatile "vitamins" with a broad range of health benefits. Most people are aware of its ability to support the immune system and defend against the common cold, but it has also been known to reduce bone density loss, keep blood vessels flexible, reduce the reoccurrence of gallstones, manage diabetes and prevent early miscarriages. It is a highly effective antihistamine, antiviral and antitoxin, plus it reduces inflammation and lowers fever. It also plays an important role in maintaining healthy skin because of its role in collagen production and by providing protection as an antioxidant. It has also been shown to enhance your mood and have a mild antidepressant effect.

The first signs of vitamin C deficiency include -

- irritability
- joint and muscle pain
- lassitude
- weakness

Later signs of vitamin C deficiency include -

- acute and chronic infections
- allergies
- arthritis

- backaches
- bedsores
- bleeding gums and skin
- cancer
- diabetes
- eye issues
- fatigue
- liver and kidney problems
- multiple sclerosis
- poor wound healing.

Vitamin C is a major antioxidant, which neutralises free radicals, helps kill viruses and strengthens the body's immune system.

Using vitamin C to combat infectious diseases is a growing method around the world. Research has shown vitamin C to cure influenza, encephalitis and measles.

When a King Country dairy farmer, Allan Smith, contracted swine flu, intensive care specialists said there was no hope and were about to pull him off life support. But his family refused to give up and insisted the doctors try high doses of intravenous vitamin C. Unfortunately, it took legal action from the family to persuade the doctors to give this method a chance, illustrating just how difficult it can be to get a conventional hospital to concede to measures that fall outside the scope of conventional medical practice, even when the proposed treatment is far safer than any drug alternative. Fortunately, this man's family was both resourceful and insistent, and he walked away from the brink of certain death. What makes this story even more remarkable is that the man was also diagnosed with leukaemia upon admission to hospital, which dramatically worsened his chances of recovery.

Dr Bill Reader (see Human Health Specialists) prescribed intravenous vitamin C for my shingles and the results were wonderful. It took all the pain away within hours, and I felt better from the first injection, and better still after the second one on the next day.

There have been other examples of the amazing potential of vitamin C, including a woman who had breast cancer tissue removed and elected, successfully, to have vitamin C treatment as a follow up, rather than the torture of chemotherapy.

Nicola Grace, spokeswoman in the Allan Smith case, states that the science behind therapeutic supplement therapy, namely orthomolecular medicine, does exist, and highlights the fact that Linus Pauling, the only scientist to have won two Nobel prizes in separate categories, has conducted studies on the efficacy of vitamin C in the treatment of many diseases.

Dr Levy has written extensively on topics such as uses of vitamin C for infectious diseases. He gave a presentation called "Vitamin C: The Facts, the Fiction, and the Law". This presentation is available on his website www.peakenergy.com along with more information about vitamin C use. According to Dr Levy, adequately dosed vitamin C, to his knowledge, has never failed to cure an acute viral syndrome, and the Allan Smith case couldn't be a better demonstration of the curative power of vitamin C. Not only did the vitamin C cure Allan Smith's swine flu infection, but after spending nine weeks in an induced coma, he walked out of physical rehab after 13 days, as opposed to the predicted three months.

It is important to remember that every nutrient you ingest raises or lowers up to nine other nutrients in your body. Every nutrient needs certain synergistic nutrients, and if you are already low in those synergistic nutrients, taking more of another nutrient will further deplete your levels. For example, taking high doses of vitamin C on a regular basis lowers your levels of copper, so if you are already deficient in copper, taking high doses of vitamin C can compromise your immune system. If you intend taking vitamin C long term, it may be better to eat a diet high in organic fruits and vegetables.

Vitamin C is not toxic at high doses, being water soluble it is excreted; the only effect will be increased urination or diarrhoea. RDA: 60 mg; therapeutic up to 100 mg.

Vitamin D

It is estimated that at least 50 percent of adults worldwide have low vitamin D levels, which may result from spending less time outdoors, air pollution and a decline in your skin's ability to produce vitamin D from the sun as you age.

A lot of research is now saying that you cannot meet vitamin D requirements from the food you eat; you have to take supplements and/or be exposed to more sunlight. Be aware, of course, that excessive exposure to sunlight may increase the risk for skin cancer. However, some believe that many more people die from heart attacks caused by lack of sunlight, than from skin cancer caused by too much sunlight.

Dr Mirkin promotes the use of sunlight rather than the use of supplements, stating that too much vitamin D in supplement form may increase blood calcium levels and reduce blood parathyroid hormone levels, both of which are associated with an increase in bad cholesterol and therefore risk of a heart attack. To be safer, he recommends that you get your sun exposure on your lower legs, as opposed to you face, ears, scalp, forearms and hands, for short periods of time.

Vitamin D3, in particular, has been called the “sunshine vitamin”, as it supports many systems and functions in your body, such as heart and immune health, weight management, strong and healthy bones, and cell division and growth. It also helps maintain a healthy reproductive system and blood sugar levels, plus helps to improve mood and contribute to a sense of well-being. D3 is longer lasting and more effective at raising vitamin D levels in the blood than D2.

Vitamin D3 is best known for its ability to stimulate the absorption of calcium and phosphate from the small intestine and decrease the urinary excretion of calcium, thus improving bone density and strength.

Either vitamin D supplementation or prudent sun exposure is crucial for significantly reducing the risk of many illnesses, including heart disease, 17 types of cancer, type 1 and 2 diabetes, hypertension, osteoporosis, osteoarthritis, rheumatoid arthritis, inflammatory bowel disease, chronic pain, multiple sclerosis and other autoimmune diseases.

One 2012 study showed that vitamin D deficiency is associated with an 80 percent increased risk of heart attacks and premature death. This is because a lack of vitamin D raises your blood sugar levels. Therefore, diabetics are also at risk with a vitamin D deficiency. A 2010 research has shown that adults aged in their mid-70s with high vitamin D levels had better physical function and muscle strength than those with low levels.

- Deficiency symptoms include -
- eye problems
- multiple sclerosis
- muscular weakness
- nervous instability
- overweight
- rickets
- teeth and gum problems
- thyroid under-active
- weak, deformed and porous bones.

Research from 2007 shows that vitamin D is crucial for pregnant women and new born babies. The study showed that high doses of vitamin D lead to a 30 percent reduction in the “core morbidities of pregnancy”, including diabetes, high blood pressure and pre-eclampsia - a potentially deadly increase in blood pressure and fluid. It also showed that babies who received the highest amounts of vitamin D after birth had fewer colds and eczema.

Another study in 2009 confirmed a strong correlation between a vitamin D deficiency in new borns with acute lower respiratory infection, and their mother’s vitamin D levels.

Apart from sun exposure and supplements, you can get vitamin D from fish-liver oils/cod liver oils, eggs, milk, liver, lamb, and fortified foods such as margarine and soy milk.

RDA: 5 mg of D3; therapeutic 100 mg.

Vitamin E

Vitamin E, or tocoopherol, is a powerful antioxidant that is summoned from the body's fatty tissue where it's stored. As a key antioxidant, vitamin E appears to play a useful role in protecting the body from many disorders. It protects cells by deactivating or destroying the potentially damaging oxidized molecules called free radicals. It may even slow the ageing process and guard against damage from secondhand smoke and other pollutants. Vitamin E and selenium work together to have complementary

effects to maintain our immune function.

Sources of vitamin E include olive oil, which is rich in vitamin E, and high quality fish oil, which also helps to rebuild omega 3 fat levels, which are deficient in many people in USA and a major cause of inflammation and disease. It is possible that heat destroys the cell walls of cooked vegetables, helping the body to absorb more vitamin E. Animals grazing green growing pastures tend to get more than enough.

Vitamin G

A deficiency in vitamin G has been known to cause skin lesions in areas affected by spinal cord degeneration, which has usually been caused by a deficiency in vitamin A. It has also been known to be the specific cause of cataracts in the eyes of test animals. A deficiency can also lead to anaemia, and vitamin G has been found to be of benefit to people who respond poorly to other treatments for anaemic conditions, but not necessarily in the case of a low blood cell count.

Apparently, vitamin G is found only in jams.

Vitamin H

Also known as biotin, it is necessary for protein and fat metabolism as well as for healthy hair.

Deficiency symptoms include digestive issues, skin and hair problems, fatigue, depression, hallucinations, nervousness and anaemia.

The best sources of biotin are food yeast and rice bran. RDA: 0.3 mg.

Vitamin K

Vitamin K is sometimes referred to as “the forgotten vitamin”. It is essential for building strong bones and helps promote heart and immune health. It is thought that this little-known vitamin may be one of the keys to fighting the signs of ageing and enhancing your memory.

Vitamin K is an extremely important vitamin to have in your diet. According to Dr Mercola, it may very well be the next vitamin D in terms of the numerous health benefits it may provide. But nearly everyone is deficient in vitamin K, just like most are deficient in vitamin D.

Most people get enough vitamin K from their diets to maintain adequate blood clotting, but not enough to offer protection against health problems like arterial calcification and cardiovascular disease. Yet, as studies have shown, adequate amounts of the right type of vitamin K may offer immense benefits to your heart health, including reducing coronary calcification and thereby decreasing your risk of heart disease. It is also thought that vitamin K protects and supports your skin, provides powerful antioxidant benefits and protects your cells against oxidative damage.

A deficiency in vitamin K causes frequent, prolonged or severe bleeding, easy bruising and menstrual clots, as well as nausea and vomiting during pregnancy.

Vitamin K is unique because it has multiple effects in the body but doesn't demonstrate any known toxicity. However, it is important to understand that the two natural forms, K1 and K2, are the beneficial K vitamins; whereas K3, the synthetic form, is not and could be risky to your health.

Vitamin K1

Also known as phyloquinone, K1 goes directly to your liver and helps you maintain a healthy blood clotting system. Infants are often given this at birth to help prevent a serious bleeding disorder. Vitamin K1 also keeps your blood vessels from calcifying, and helps your bones retain calcium and develop the correct crystalline structure. It is found in leafy green vegetables including broccoli, kale, spinach and lettuce, and makes up about 90 percent of the vitamin K in the Western-style diet.

Vitamin K2

Also known as menaquinone, K2 is natural, non-toxic and made in the body. It is present in high quantities in your gut, but unfortunately is not absorbed from there and passes out in your stool. It goes straight to vessel walls, bones and tissues, other than your liver.

Emerging research shows that it is K2, not K1, may be especially important in the body. For example, atherosclerosis research published found that a high dietary intake of K2 is associated with reduced coronary calcification (hardening of the arteries), a result that should also lessen your risk of heart disease. Unlike many vitamin K studies, this study compared K1 and K2 and found that K1 was

not associated with beneficial reduction of coronary calcification.

Another study, out of Rotterdam, also concluded that K2 has superior health benefits, with researchers finding that each additional 10 mcg of K2 in people's diet resulted in 9% fewer cardiac events, whereas K1 did not offer a significant heart benefit. It has been beneficial in fighting various forms of cancer, including liver, colon, stomach, prostate, nasopharynx and oral cancers.

While other nutrients are important for promoting bone health (vitamin D3, calcium and magnesium), evidence continues to grow indicating a vital role vitamin K plays in bone metabolism and healthy bone growth. The fact that K2 directs calcium to your skeleton means that it prevents it from being deposited where you don't want it, i.e. on your arteries, organs and in your joint spaces. It is this role of K2 that makes it so beneficial for your heart. Without the help of K2, the calcium that your vitamin D so effectively lets in might actually be working against you by building up in your coronary arteries, rather than in your bones. So, if you are taking calcium and vitamin D, but are deficient in K2, you could be worse off than if you were not taking those supplements at all.

Healthy bacteria, such as lactococci and propionic acid produce K2, and it is also found in fermented foods, particularly curd cheese, and the Japanese food natto - a fermented soybean, which is one of the best natural sources you can find. Natto has been shown to have about 10 times the K1 concentration than spinach. However, if you take a high-quality K2 supplement instead, remember you must always take your vitamin K supplement with fat since it is fat-soluble and won't be absorbed without it.

The exact dosing (RDA) is yet to be determined, but Dr. Vermeer recommends between 45 mcg and 185 mcg daily for adults. You must use caution on the higher doses if you take anticoagulants, but if you are generally healthy and not on these types of medications, Dr Mercola suggests 150 mcg daily and believes it is safe to assume that anyone reading this will need to increase their K2 intake by either modifying their diet or taking a high-quality supplement.

Some people recommend Spirulina as a good option for vitamin K in the diet and Clinicians Pregavit as a multi vitamin supplement containing vitamin K.

Vitamin K3

Also known as menadione, K3 is a synthetic or man-made vitamin which could be risky to your health and, according to Dr Mercola, should be avoided at all costs.

Vitamin-like Substances:

These are necessary biochemical substances which have not yet been awarded full vitamin status by government agencies, partly because some can be synthesised within the body, and partly because their usefulness is still disputed.

Bioflavonoids

Bioflavonoids are part of the naturally occurring vitamin-C complex and are necessary for the proper functioning of vitamin C. Deficiency causes capillary fragility with purplish or blue skin marks, inflammation, gum bleeding and inner ear pain.

Best sources are flower petals, sprouted seeds and fresh vegetables, fresh fruits and the residue of juiced citrus fruits. The best known members of this group are quercetin and rutin. Rutin is found in concentrated form in dried buckwheat leaves and flowers.

Choline and Inositol

Important for the absorption and metabolism of fats and cholesterol, for the synthesis of lecithin, for liver and gall bladder function and for the formation and function of brain and nerves. They are helpful in the treatment of arteriosclerosis and atherosclerosis, asthma, diabetes (inositol), glaucoma, hair problems and baldness, high blood pressure, insomnia (inositol), liver diseases, multiple sclerosis, and muscular dystrophy.

Choline is best supplied by lecithin, while other good sources are egg yolk, liver, brain and food yeast. Inositol is best supplied by sprouted seeds. Other good sources are heart, brain, liver, food yeast, cabbage and citrus fruits.

PABA (Para-amine-benzoic Acid)

A growth-promoting factor. Deficiency contributes to white skin patches, eczema, greying hair and fatigue. As a lotion, it is excellent for protecting the skin against ultraviolet radiation. It is obtained from food yeast, liver, egg yolk, and is also synthesised by intestinal bacteria. As a supplement, the soluble potassium salt of PABA is preferable to the almost insoluble acid itself.