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Common nutritional deficiencies and how to remedy them

There can be times no matter how well you are eating you may find yourself coming up short in important nutrients. I recommend getting regular comprehensive blood tests (once or twice a year) so you can make informed choices with your food, superfoods and supplements. While I always try to balance nutritional deficiencies with whole foods and super foods there are times I will use supplements if need be.

Mineral deficiencies

The body needs various minerals for health. Inadequate diet and poor soils can lead to mineral deficiency, or at least to insufficient minerals in both humans and plants.

Iron - Iron is another mineral needed by our bodies. It is a part of all cells and does many things in our bodies. For example, iron (as part of the protein hemoglobin) carries oxygen from our lungs throughout our bodies. Having too little hemoglobin is called anaemia. Iron also helps our muscles store and use oxygen.

Iron is a part of many enzymes and is used in many cell functions. Enzymes help our bodies digest foods and also help with many other important reactions that occur within our bodies. When our bodies don't have enough iron, many parts of our bodies are affected.

Iron deficiency is the most common nutritional deficiency and the leading cause of anaemia in the United States. This dispels the myth that anaemia is caused by a lack of animal protein as the USA is one of the top 6 meat eating (per capita) nations in the world.

While the iron in red meat in particular is more readily absorbed by the human body than the iron in plants you can still get a good dose of iron by supplementing with **spirulina, AFA algae**, leafy greens, and prunes to name a few high iron non-animal sources.

Zinc - The mineral zinc is present in every part of the body and has a wide range of functions. It helps with the healing of wounds and is a vital component of many enzyme reactions. Zinc is vital for the healthy working of many of the body's systems. It is particularly important for healthy skin and is essential for a healthy immune system and resistance to infection. At least 1/3 of the world's population is at risk of Zinc deficiency. This varies from country to country.

Signs of zinc deficiency include hair loss, skin lesions, diarrhoea, and wasting of body tissues. It is rarely recognised that lack of zinc can contribute to acne. Eyesight, taste, smell and memory are also connected with zinc. A deficiency in zinc can cause malfunctions of these organs and functions.

One easily recognized sign which may be caused by zinc deficiency is white spots, bands, or lines on fingernails (leukonychia). One of the highest non-animal sources of zinc are pepita's (pumpkin seeds).

Iodine is needed by the thyroid gland for healthy functioning. Lack of iodine can lead to goitre, a swollen neck due to a swollen thyroid gland. However, iodine deficiency is much less common in industrialized nations due to the addition of iodine to table salt which is something we do not

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recommend ingesting due to toxic aluminium anti-caking agents which are also routinely added to table salt. Instead we recommend eating plenty of **sea vegetables** which are high in very iodine and a whole host of other important mineral and trace minerals.

Magnesium is a trace mineral needed by the body for such things as enzyme activity. Magnesium deficiency can cause nervous system irritability, widening of blood vessels (vasodilation), convulsions, tremor, depression and psychotic behaviour. Green vegetables, nuts, grains and cacao are good sources of magnesium.

Calcium is one of the most abundant minerals in the human body, calcium accounts for approximately 1.5% of total body weight. Bones and teeth house 99% of the calcium in the body, while the remaining 1% is distributed in other areas. In recent years, consumers have been bombarded with public health messages encouraging the consumption of foods rich in calcium. These messages are supposedly aimed at preventing osteoporosis, a disease characterized by brittle and porous bones that now affects more than 20 million individuals in the United States, however, they too often are promoted by powerful dairy industry lobby groups who have their own agendas.

While osteoporosis can be caused by too little dietary calcium there are possibly other causes which include: an acidic processed diet with will leach calcium from the bones to balance blood ph.

Hypochlorhydria, a condition characterized by insufficient secretion of stomach acid, affects many people and is especially common in the elderly. Lack of stomach acid impairs the absorption of calcium and may lead to poor calcium status.

Adequate intake of **vitamin D** is necessary for the absorption and utilization of calcium. As a result, vitamin D deficiency may also be implicated in a calcium deficiency.

High intakes of sodium, caffeine, or protein cause an increase in the urinary excretion of calcium. **Chromium** deficiency is generally caused by an impaired glucose tolerance, elevated serum cholesterol, or triglyceride levels.

Deficiency of this nutrient have been estimated as high as 35 to 40 percent in the American population, more than any other country, because of the low levels of chromium in the soil and the loss of this nutrient from refined foods; specifically sugar and flour.

Chromium is only needed by the human body in small amounts, but it is very difficult to obtain. Impaired glucose tolerance appears to be an immediate stage in both the history and the development of diabetes.

However, a deficiency of this nutrient can go undetected for years, primarily because there have not been any widespread records kept.

The amount chromium found in foods will vary, and has been measured accurately in relatively few foods. Presently, there is no large database for chromium content of foods.

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Foods high in simple sugars, however, such as sucrose and fructose, are not only low in chromium but have been found to actually cause a loss of this nutrient. Foods that have shown signs of adding chromium include:

Broccoli, green beans, potatoes, grape juice, orange juice, beef, turkey breast, ham (processed), waffle, bagel, English muffins, apple w/peel, and bananas. (I personally don't subscribe to eating muffins, waffles and bagels!)

Common Vitamin Deficiencies

B12 is a vitamin many people are deficient in and this is something that vegans need to pay particular attention to. B12 is produced by bacteria and since we have become germ phobic and wash all our food, this vitamin is in short supply in plant foods. Some of the plant foods that are relatively high in B12 such as spirulina also contain a B12 analogues which are substances that inhibit B12 metabolism. According to Dr Gabriel Cousens, if you are on a long term vegan diet you should closely monitor your B12 levels and probably supplement as well. This is especially important for vegan pregnant and breast feeding mothers and young children. Also many people including meat eaters have lost the ability to properly process and absorb B12 in their guts so it is a good idea to get your levels checked at least once a year

Symptoms of vitamin B12 deficiency include very pale skin, shortness of breath, fatigue, dizziness, headache cold hands and feet, heart palpitations, and chest pain. These symptoms are due to a decreased production of red blood cells that are necessary to carry vital oxygen to the body's cells and tissues. A serious complication that can occur due to decreased red blood cell production is pernicious anemia, also called vitamin B12 deficiency anemia.

Symptoms can also occur in the nervous system. If left untreated, vitamin B12 deficiency can result in permanent nerve damage. Symptoms can include numbness and tingling in the hands and feet, unsteadiness, difficulty walking, confusion, depression, memory loss, and dementia

Vitamin D is found in many animal dietary sources such as fish, eggs, and cod liver oil. The sun also contributes significantly to the daily production of vitamin D, and as little as 10 minutes of exposure is thought to be enough to prevent deficiencies. The term "vitamin D" refers to several different forms of this vitamin. Two forms are important in humans: ergocalciferol (vitamin D2) and cholecalciferol (vitamin D3). Vitamin D2 is synthesized by plants. Vitamin D3 is synthesized by humans in the skin when it is exposed to ultraviolet-B (UVB) rays from sunlight.

The major biologic function of vitamin D is to maintain normal blood levels of calcium and phosphorus. As I mentioned earlier Vitamin D aids in the absorption of calcium, helping to form and maintain strong bones. Recently, research also suggests vitamin D may provide protection from osteoporosis, hypertension (high blood pressure), cancer, and several autoimmune diseases.

Risk factors for Vitamin D deficiency include:

- Exclusively breast-fed infants: Infants who are exclusively breast-fed and do not receive vitamin D supplementation are at high risk of vitamin D deficiency, particularly if they have dark skin and/or receive little sun
- Dark skin: People with dark-colored skin synthesize less vitamin D on exposure to sunlight than those with light-colored skin. The risk of vitamin D deficiency is particularly high in dark-skinned people who live far from the equator.

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- One U.S. study reported that 42% of African American women between 15 and 49 years of age were vitamin D deficient compared to 4% of White women (25).
- Aging: The elderly have reduced capacity to synthesize vitamin D in skin when exposed to UVB radiation, and the elderly are more likely to stay indoors or use sunscreen, which blocks vitamin D synthesis
- Covering all exposed skin or using sunscreen whenever outside: The application of sunscreen with an SPF factor of 8 reduces production of vitamin D by 95% - Ironically overprotecting ourselves from sunlight can increase our chances of getting certain forms of cancer including breast and bowel cancer.
- Inflammatory bowel disease: People with inflammatory bowel disease like Crohn's disease appear to be at increased risk of vitamin D deficiency, especially those who have had small bowel resections
- Obesity: Obesity increases the risk of vitamin D deficiency. Once vitamin D is synthesized in the skin or ingested, it is deposited in body fat stores, making it less bioavailable to people with large stores of body fat.

It is possible to become deficient in other Vitamins including vitamin E and C however, this is very rare if you are eating a balanced high raw whole food diet.

Essential fatty acids are those fats that the body cannot produce on its own. your body gets these fatty acids directly from food. There are only two EFAs: alpha-linolenic acid, an omega-3 fatty acid, and linoleic acid, an omega-6 fatty acid.

Almost all the polyunsaturated fat in the human diet is from EFA. Some of the food sources of ω -3 and ω -6 fatty acids are fish and shellfish, flaxseed (linseed), hemp oil, hemp nuts, soya oil, canola (rapeseed) oil, chia seeds, pumpkin seeds, sunflower seeds, leafy vegetables, and walnuts.

Omega-3 fatty acids, such as docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) are important for enzymatic pathways required to metabolize long-chain polyunsaturated fatty acids (PUFAs). Low plasma concentrations of DHA is associated with depression and suicide.

To Optimise your omega 3 essential fatty acid levels on a vegetarian diet -

- Have a daily intake of nuts, seeds and their omega 3 6 9 oils.
- Include an algae / alga (AFA, spirulina or chlorella) drink 4 times a week.
- Include good sources of the nutrients which aid essential fat conversion – zinc, magnesium, calcium, biotin and vitamins B6, B3 and C.
- Avoid things that inhibit conversion; alcohol, saturated and trans fats (from animal foods and processed foods), smoking, caffeine, viral infections, stress and excess intake of vitamin A and copper.
- Balance your intake of omega 3 and 6 fatty acids. Due to the widespread use of sunflower oil in food manufacturing and grain fed livestock we tend to have a much greater intake of omega 6 to 3 fats in our diets. This imbalance can lead to the conversion enzymes getting used up for omega 6, restricting omega 3 conversion. The ideal balance is around 3 to 4 parts omega 6 to one of omega 3.

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- Buy your seed oils cold-pressed and from the fridge in your health shop. Also buy in small quantities so it remains fresh. At home store them in the fridge and use them cold. If heating oils use butter, ghee or even better coconut oil.
- Some people may have less of the conversion enzymes and may need to be strict with the above nutrient supporters and inhibitors. These people include those with atopic allergies (asthma, eczema and hay fever which run in the family) and those with diabetics.
- Increase your algae intake when planning a pregnancy, pregnant or breast-feeding.
- Have an essential fatty acid test to determine your specific needs and if your diet is meeting these.

There are many protocols you can do to improve your absorption of nutrients including fasting and colon hydrotherapy. In addition to these the following supplements can also be very beneficial for improved digestion and assimilation.

Food (digestive) Enzymes

We have spoken at length in an earlier module about the importance of enzymes. Many people find that by supplementing with high quality plant-based food enzymes their digestion and absorption improve dramatically. Digestive enzymes have only three main jobs: digesting protein, carbohydrate and fat. Proteases are enzymes that digest protein, amylases digest carbohydrate, and lipases digest fat. Digestive enzymes are particularly beneficial if you still eat cooked food or have digestion issues.

Betain Hydrochloride (Hydrochloric Acid)

"Hypochlorydia" means the inadequate production of stomach acid by the parietal cells in the stomach. "Achlorydia" means a complete lack of stomach acid production. Experts believe that about half of all people over 65 suffer hypochlorydia. (It's known that the amount of stomach acid we produce decreases as we age, although we have often found insufficient acid among much younger people.)

It's vital that we have enough stomach acid to break down food and release nutrients, and to kill any opportunistic invaders entering our bodies via the mouth.

Hypochlorydia symptoms can include heartburn, indigestion, gas, burping, bloating, flatulence, stomach pain or ache, feeling too full after eating (unless you genuinely have eaten too much!), constipation, diarrhoea and breaking down nutrients in food insufficiently.

So, why might your stomach acid production be low? Stress can impair production. Trauma such as emotional shock or a burn can stop it suddenly. Alcohol and food allergy substances can damage the parietal cells in the stomach, and this affects production. Bacteria such as helicobacter pylori can also affect acid levels. And, of course, as we age, our bodies typically produce less and less hydrochloric acid.

For these reasons, most of us who are over the age of 40 will benefit from supplemental Betaine Hydrochloride.

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Probiotics

Probiotic' actually means 'for life'. The World Health Organisation define a probiotic as 'live micro-organism which, when administered in adequate amounts confer health benefits on the host'. Probiotics are 'good' bacteria that live in your digestive system. Probiotics are microorganisms that are similar to the microorganisms that exist naturally in the human stomach. Most are bacteria but some can also be viruses or yeasts. They help to keep the natural proportions of good bacteria in our digestive tracts. They can be found in dietary supplements such as capsules, tablets, liquids and powders but can also be found in foods. Examples of foods containing probiotics include yoghurt, fermented or unfermented milk, miso, tempeh and some juices and soy beverages.

Good bacteria are vital to the proper development of the bodies immune system, and for the proper digestion and absorption of food and nutrients into the body. The balance of good bacteria in the stomach can be thrown off predominantly by consuming antibiotics and also by growing numbers of bad bacteria such as disease-causing bacteria, yeasts, fungi and parasites. Though Antibiotics kill bad bacteria, they can also kill good bacteria in the digestive tract. Probiotics counteract antibiotics (hence the name) and can be used to prevent the side effects of consuming antibiotics such as gas, cramping or diarrhoea and increase the count of good bacteria in the gut in order to keep a healthy digestive system. They can also be used to ease the symptoms of lactose intolerance. A diet high in processed carbohydrates (particularly sugars and starches) as well as chlorine, fluoride, alcohol and the contraceptive pill can also upset this balance.

"Unfriendly" bacteria could be the cause of contagious diarrhoea, irritable bowel syndrome, inflammatory bowel disease, ulcers and many types of chronic stomach inflammation, tooth decay and periodontal disease, vaginal infections, stomach and respiratory infections that children acquire in day care and skin infections.

There are several reasons people are increasingly seeking out probiotics supplements for health reasons. While antibiotics destroys intestinal bacteria, probiotics feed the gut with beneficial bacteria such as the Lactobacillus and Bifidobacterium strains. By supplementing with a probiotic capsule, millions of live bacteria are introduced into the intestinal wall and can significantly inhibit bad bacteria growth, improve absorption and assimilation of vitamins and minerals, stimulate of the body's immune system and production of certain vitamins including the important B group vitamins. Many of the readily available probiotics on the market today promote "general well-being," but scientists are increasingly discovering many more specific benefits from consuming foods with sufficient levels of probiotic bacteria. Probiotics can also be used to:

- Treat diarrhoea
- To prevent and treat infections of the urinary tract or female genital tract
- To treat irritable bowel syndrome or IBS
- To reduce recurrence of bladder cancer
- To shorten the length of intestinal infection
- To prevent and treat colitis
- To prevent and manage eczema
- To improve lactose intolerance

The bacterial strain commonly used in yogurt can produce lactase enzymes. Therefore, people with lactose intolerance and children suffering from intestinal infection can usually tolerate yogurt with an active culture.

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Additionally, new generations of probiotic bacteria are targeted at specific problems or areas of the body. A number of probiotic products are believed to be able to lower cholesterol for example. The ability of probiotic bacteria to support the immune system is very important, especially to the elderly and people suffering from weak.

So Probiotics are good bacteria that exist normally in the digestive system and play an important part in general health and wellbeing. Probiotics can be taken as dietary supplements and these can help with prevention and treatment of a wide range of diseases.

As you can see reversing a nutrient deficiency is not always as simple as ingesting more of the lacking nutrient. There are a great many other variable factors which can influence nutrient levels in our body; ie iron is absorbed much more easily in conjunction with [vitamin c](#).

This is a vast and complex area of study and I recommend that you also do your own research and experimentation to find out what works best for your body.

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