

Vitamin D Deficiency

The more we have departed from the life of our ancestors, the bigger price we have paid biologically.

We evolved as a species that spent its days hunting and gathering in the great outdoors, getting plenty of exercise, excitement, camaraderie, fresh air and sun. Those were the good old days when the best things in life were free.

It is disheartening to discover that so many have become deficient in a vitamin that is really free for the asking. Yet that is what study after study is finding.

Here are some figures from studies done within the last ten years: 84% of elderly subjects found deficient in vitamin D; 30% of adolescents found deficient; 70-80% of people over the age of 50 found deficient; 32% of adults under the age of 30 found deficient!

Pediatricians are even seeing an increasing number of cases of rickets in children, a disease of the bones that doesn't occur except under severe vitamin D deficiency conditions. . . . *a major contributor to our current epidemic of chronic disease*
As more scientific research is done, we continue to discover the many important roles vitamin D plays in the human body, and the dire consequences of D deficiencies.

What we currently know about the many roles of vitamin D is still the tip of the iceberg, but we know enough to state with confidence that D deficiencies are a major contributor to our current epidemic of chronic disease.

Arthritis. Vitamin D plays an important role in the synthesis of synovial fluid, the fluid that protects joint health. Vitamin D status has been found to be protective in both osteo and rheumatoid arthritis.

Autoimmune Disease. Low levels of vitamin D have been linked with lupus, multiple sclerosis, Sjogren's Syndrome, rheumatoid arthritis, thyroiditis and Crohn's disease. **Cancer.** Vitamin D helps to prevent 77% of all cancers through a variety of mechanisms. As the use of sunblock has gone up, so has the cancer rate. Cancer rates also increase the further you live from the equator (and the less sunlight you get).

Cardiovascular Disease. Vitamin D helps protect against heart disease by promoting the body's production of anti-inflammatory chemicals and suppressing the calcification of blood vessels. It has been used as a treatment for high blood pressure, and those with low levels have twice the risk of heart attack, heart failure and stroke.

Chronic Fatigue Syndrome/Fibromyalgia. Correction of vitamin D deficiencies have led to amelioration of symptoms.

Depression. Depression and Seasonal Affective Disorder have responded favorably to vitamin D treatment. Vitamin D regulates the production of serotonin and other important neurotransmitters.

Diabetes. Supplementing with vitamin D and calcium cuts the risk of developing diabetes by 33%. Children who receive D supplementation from the age of one have an 80% reduced risk of developing Type I diabetes. Vitamin D also improves insulin reception. Insulin resistance is a factor in not only diabetes but in heart disease and cancer.

Immunity. Vitamin D plays an important role in the immune response and is itself an anti-viral. Vitamin D researcher J.J. Cannell reported that in a psychiatric institution where he works, while every ward around his fell victim to an influenza epidemic, the vitamin-D supplemented patients in his ward did not.

Inflammation. Vitamin D is an anti-inflammatory, helpful with allergies or any other inflammatory condition.

Muscles/Pain. Muscle pain and fatigue are among the first signs of vitamin D deficiency. Vitamin D improves motor function, muscle strength and maintenance of muscle mass, balance, speed, and quickness of reaction; in addition it lowers both chronic pain and pain after injury. Elderly supplemented with vitamin D have fewer falls.

Osteoporosis. Vitamin D plays crucial roles in calcium absorption and metabolism, and in bone building. Supplementing with both calcium and vitamin D reduces bone loss and fracture risk.

Parkinson's Disease. Vitamin D is crucial in the production of neurotransmitters like dopamine. It has been shown to be protective against getting Parkinson's, and D-deficiency may be a major cause of this disease.

Periodontal Disease. Low serum levels of vitamin D are associated with periodontal disease.

Women's Health. Infertility is associated with low vitamin D status. PMS has been completely reversed by supplementing with calcium, magnesium and vitamin D. Vitamin D has been used successfully to treat polycystic ovarian syndrome, an endocrine disorder leading to irregular periods, masculinization and often obesity. The only way to know for sure is with a test called the 25(OH)D test, which measures blood concentration of 25-hydroxyvitamin D. A level below 20ng/ml is considered deficient, although I believe you should aim for a "high normal" level, generally around 50ng/ml.

Make sure you get the 25(OH)D test rather than an older test, which is not as useful, called 1,25(OH)D.

Here are some factors that can lead to deficiency:

In order for your skin to make vitamin D from the sun, the UV Index must be over 3. If you live in a tropical climate, this occurs daily. However in most of the United States it doesn't occur during the fall, winter and early spring -- hence the valuable tradition of taking vitamin D-rich cod liver oil during these months.

The lighter your skin shade, the more readily you absorb and convert UVB rays from the sun into vitamin D. The converse is true if you are dark-skinned, and in fact vitamin D deficiency is much more prevalent among African Americans than Caucasians.

Obese people tend to store vitamin D, a fat-soluble vitamin, in their fat stores where it is inaccessible, so they need more.

Over the age of 50 or so, we start becoming less efficient at making vitamin D from the sun. This, combined with the fact that elderly people spend most of their time indoors, makes deficiency a particular problem in these populations.

Many people today have malabsorption problems, and these people can be low on D. Our new liquid D3 is perfect for these people as it can be absorbed directly in the mouth.

Pregnant women need more D, and unless they supplement at very high doses (4,000 IU/day), their breast milk will not be an adequate source of vitamin D for their infant child. For this reason the American Academy of Pediatrics recommends supplementation of 400 IU to all children from birth.

Toxins, for example lead, will impede the formation of the active form of vitamin D. For the body to make the conversion of UVB rays from the sun into useable vitamin D, a number of chemical processes needs to occur. If you're not healthy -- in other words if you are nutrient-deficient and/or toxic, you will be hampered in making this conversion.

Other conditions like chronic renal failure, gastric bypass surgery and taking steroid drugs necessitate taking additional vitamin D.

Certain drugs interfere with vitamin D absorption and metabolism, including Dilantin, phenobarbital, laxatives, and cholestyramine or any other drug that binds fats. Given all the different factors involved, it is impossible to determine a single amount of vitamin D that will be right for everyone. I recommend getting tested once a year with the 25(OH)D test and modifying your supplement program to achieve "high normal" levels.

However, you can't go wrong taking 1,000 to 2,000 IU per day. If you are taking our multi, you are getting 400 IU of top of the line D3. Our Bone Mineral Formula provides another 400 IU of the same D3, and a tablespoon of cod liver oil supplies another 1,200 IU per tablespoon.

Many experts are now recommending up to 5,000 IU a day and even more for particular situations, for example, correcting a long-standing deficiency. At these levels, testing with the 25(OH)D is mandatory. For those who need or want additional supplementation, we now have a new liquid D3 formula. It provides 500 IU per drop, and is ideal for those with malabsorption problems since it's absorbed directly in the mouth.

Food is not a significant source of vitamin D. I don't approve of orange juice, breakfast cereals or milk, which have all been fortified with vitamin D. They're not

appropriate foods and most use a form of vitamin D, D2, that is not very biologically active.

An egg yolk will provide 20 IU, 3.5 ounces of salmon 360 IU. Sardines and herring are quite good sources, if you like them: 3 ounces of sardines provides 500 IU; 3 ounces of herring, 1,400 IU. Other foods provide only trace amounts of vitamin D.

If you have sarcoidosis, TB, lymphoma or parathyroidism, or take Coumadin or Warfarin, use supplemental vitamin D only under a doctor's supervision.

When supplementing with vitamin D, it is also important to be taking in enough vitamin K and bone-supporting minerals like magnesium. Nutrients act as a team. Vitamin D increases the amount of calcium in the blood. Vitamin K and minerals make sure this calcium is directed to bones, where you want it, rather than to arteries or soft tissue, where you don't.