

The Modern Epidemic of Vitamin D Deficiency

By Terri Saunders

Before the Industrial Revolution a couple of centuries ago, humans spent most of their time living and working outside bathing in the Sun's life-giving rays. The ancients revered the Sun as sacred and essential to health. It wasn't until the 19th century when a large proportion of the population moved to the cities and began to spend a majority of their time indoors that the diseases of modern civilization began to appear. Cancer, heart disease, diabetes, osteoporosis, multiple sclerosis, autism, Alzheimer's disease, fibromyalgia and numerous autoimmune disorders were unheard of before then. Modern man now views the solar rays as something to be feared and seek protection from.

Rickets, a painful childhood deformity caused by an inability to form hardened bones, was the first disease to surface in Europe in the early 1800's as a direct result of inadequate sunlight. In the early 1900's, it was discovered that sunlight and later, cod liver oil could help to heal Rickets. Several decades later it was found that sunlight could also heal the dreaded tuberculosis, an infectious disease which caused bone deformities. In 1914 Vitamin D was discovered in cod liver oil, and in 1922 vitamin D was discovered as the essential nutrient created in the skin when exposed to the Sun. During the next 50 years most of the research focused on how vitamin D acts in the kidneys, intestines and skeleton to help control the flow of calcium into and out of the bones through the bloodstream. More recent studies reveal the broader impact this important micronutrient has on total health.

In truth, though referred to as a fat soluble vitamin, vitamin D is actually a hormone which like other hormones, acts as a chemical messenger that regulates numerous functions in the body. We are capable of manufacturing our own vitamin D through a chemical reaction that occurs when our skin is exposed to the sun's ultraviolet B rays, the same rays that can cause sunburn from overexposure. This is the primary way that nature intended us to obtain vitamin D, and to a lesser extent from dietary sources such as fatty fish, organ meats, and dairy products. Dietary sources alone cannot supply us with enough vitamin D, since the high amounts of vitamin A in fish oils would be toxic in the large doses needed to satisfy our vitamin D requirement, and the high calcium content in dairy (and from calcium supplements) can interfere with vitamin D absorption.

Obtaining enough vitamin D from the Sun presents a dilemma to those living in temperate and northern climates including most of the United States, Europe, Australia, and other countries far from the equator. In order to produce enough vitamin D from sunlight to maintain health, light-skinned individuals would have to get at least 30 minutes of mostly full body exposure to the midday Sun every day. In most of these climates this is simply not possible for an average of 6 months each year, and even if it was, the use of sunscreen that blocks the UV rays prevents the production of vitamin D in the skin. African-Americans and other dark-skinned people need 6 times the amount of Sun exposure as those with light skin to make enough vitamin D, and the elderly are able to manufacture only a quarter of the vitamin D that younger people can. Overweight individuals have more difficulty utilizing vitamin D, and medications can compromise the body's ability to synthesize vitamin D. Studies show that diseases associated with vitamin D deficiency are far more common in geographic areas

associated with low sunlight or long "vitamin D winters." In these cases vitamin D supplementation is necessary.

Vitamin D is by far the greatest deficiency in the civilized world. Surveys show that at least 70% of all Americans are vitamin D deficient, and up to 85% of African-American women of child-bearing age are deficient. 48% of young girls aged 9 to 11 are deficient. 76% of pregnant mothers are severely vitamin D deficient causing widespread deficiencies in their unborn children. 90% of all hospital patients are deficient, and 99% of nursing home residents are deficient. 65% of Chicago residents are deficient and even doctors living in southern Florida are 42% deficient. It is estimated that at least 1 billion people worldwide are deficient.

Vitamin D researcher, Professor Robert Heaney refers to vitamin D as "the key that unlocks the DNA library". In its role as a hormone, Vitamin D binds to receptors in cells throughout the body to influence the expression of over 1,000 genes in a number of important processes. Once activated in the skin by the Sun's rays, vitamin D is metabolized by the liver and kidneys to be used by all the tissues in the body.

Vitamin D has long been known to play an essential role in calcium absorption to build strong healthy bones, teeth and musculature. People with vitamin D deficiency are able to absorb only a third to half as much calcium as those with sufficient levels. It is alarming to note that rickets has once again emerged in children in the U.S. and Great Britain. Osteomalacia (softening of the bone) and osteoporosis (loss of bone density) in adults are both caused by vitamin D deficiency and associated with an increased risk of bone fractures. Chronic pain, including fibromyalgia is also associated with vitamin D deficiency. A 2003 study by the Mayo Clinic showed that 93% of patients with chronic non-specific musculoskeletal pain were vitamin D deficient.

Vitamin D is crucial to a strong immune system, producing a potent antimicrobial peptide called cathelicidin which is capable of killing harmful bacteria, viruses and cancer cells, thus the increase in winter colds and flus. Vitamin D also reduces abnormal cell growth and keeps cancer cells in check. Harvard University researchers found that vitamin D deficiency increases the risk of 27 different types of cancers by up to 40% including cancers of the colon, breast, prostate, ovaries, uterus, kidney, bladder, esophagus, stomach, gallbladder, Hodgkin's lymphoma and non-Hodgkin's lymphoma. Dr. William Grant reported that 257,000 cancer deaths in 2007 in the U.S. were due to vitamin D deficiency. Cancer cases increase the greater the distance from the equator. Evidence shows that vitamin D supplementation can greatly help to heal cancer.

Vitamin D has strong anti-inflammatory properties and can destroy free radicals that cause cellular damage. Vitamin D deficiencies have been implicated in several autoimmune disorders including multiple sclerosis, lupus, Crohn's disease, rheumatoid arthritis and psoriasis. Vitamin D supplementation helps heal these conditions.

Sun avoidance and vitamin D deficiency in pregnancy contribute to higher rates of rickets, autism, asthma, and Type 1 diabetes in children, and Type 2 diabetes, obesity and osteoporosis later in life. Vitamin D plays a strong and vital role in fetal brain development and cognitive ability, with lower IQ children being born to vitamin D deficient mothers. Schizophrenia may also be initiated in utero and during

childhood by vitamin D deficiency. Studies show that most nursing mothers do not have enough vitamin D in their breast milk to nutritionally support their infants.

Vitamin D is essential for a healthy heart and circulatory system, helping to keep the heart muscle strong and balance blood pressure. Just 30 minutes of exposure to the noon day Sun three times a week has been shown to reduce blood pressure by 40 points. Framingham Heart Study researchers reported in the Journal of the American Heart Association that of 1,739 participants, those with low blood levels of vitamin D had twice the risk of a cardiovascular event such as a heart attack, heart failure or stroke in the next five years compared to those with higher levels of vitamin D.

Lung capacity is also greater in those with adequate vitamin D levels, with low levels of D present in those with emphysema, chronic bronchitis and breathing difficulties. One study showed that people who had never smoked but were vitamin D deficient had 35% worse lung function than former smokers who were getting sufficient vitamin D.

Vitamin D's hormonal action affects other hormones including estrogen, progesterone, testosterone, insulin, thyroid, parathyroid and adrenal hormones. A deficiency in this vital nutrient can have a major impact on hormonal balance. According to psychiatrist Dr. John Cannell, sunshine causes the brain to produce endorphins which lower anxiety and prevent and cure depression. Winter has long been associated with the depression known as Seasonal Affective Disorder or S.A.D. This is because vitamin D is essential for the production of serotonin and other "feel good hormones". Daily exposure to a full-spectrum light box for 30 minutes can help during the winter months, but more recently it is has been found that vitamin D supplementation can help to dramatically elevate the mood in those with depression at any time of year.

Considering the epidemic of vitamin D deficiency, vitamin D supplementation is advised but controversy remains regarding the recommended dose. In the early 1900's the recommended daily intake (RDI) of vitamin D was set at 400 IU which is the minimum necessary to prevent rickets. Despite overwhelming evidence in recent decades that this minute amount does not begin to prevent other disease conditions caused by a vitamin D deficiency, the U.S. RDI has not been changed, causing needless suffering for millions.

Vitamin D supplements are now available in higher doses in two forms. Vitamin D2 (ergocalciferol) is prescribed by physicians and derived from irradiated yeast. This form is not as easily absorbed by the cells and stays in the body half as long as the more desirable form vitamin D3 (cholecalciferol) which comes from either fish oils or lanolin. Fish oil D3 can be problematic in higher doses due to the toxicity of high levels of vitamin A. Vitamin D3 from lanolin has no toxicity at the higher doses required to quickly resolve deficiency. The safest and most bioavailable source of vitamin D is a lanolin D3 powder that is combined with co-factors magnesium, vitamin C, inulin and xylitol ([available from Sunrise Herb Shoppe](#)). Xylitol is a sugar-free sugar-alcohol that facilitates vitamin D absorption and can help to prevent tooth decay.

To determine the presence of a deficiency, doctors recommend a 25 (OH)D3 blood test to test the level of 25-hydroxy-vitamin D in the blood. Research has shown that while a minimum level of 50 ng/ml is optimum for protection from many diseases including cancer, a large majority of the population has tested at about half of that level or even lower. A recent US study of 2, 972 African-American women found

that 45% had levels less than 15 ng/ml and 12% had levels less than 10 ng/ml. Hospital patients routinely test at levels less than 15 ng/ml. Natural blood levels of vitamin D found in humans who live or work in the sun are 50 to 70 ng/ml which is attained by only a small fraction of modern society.

In light of these statistics, vitamin D researchers strongly recommend that the RDI for vitamin D be raised dramatically. Canada recently raised the RDI of vitamin D to 4,000 IU per day for adults and 2,000 IU per day for infants. Researchers recommend 6400 IU per day for pregnant women and much more to heal from illness such as depression, osteoporosis and cancer (10,000 IU to 50,000 IU per day). Blood serum tests are recommended to determine proper amount. Other factors in dosage consideration are skin pigmentation, age, weight, geographic location, time of year, degree of Sun exposure, diet and medications. It can take from 1 to 12 months to raise vitamin D to normal levels depending on the degree of deficiency and health condition of the individual.

Vitamin D is one of the safest substances on Earth. It is true that too much vitamin D can be toxic to the body causing hypercalcemia, kidney stones and calcification of tissues, however, this is not likely with therapeutic doses, and studies have not demonstrated a lethal dose. A case was reported of an attempted poisoning of two men who were unknowingly given a dose of 1.7 million IU of D per day for 7 months. They developed headaches, stomach aches and diarrhea but they did not die. Since then, people have been known to self-dose up to 88,000 IU per day for 4 years with no dangerous side-effects, as in the case of a man who healed himself of Multiple Sclerosis. He finally reduced the dosage when told that such high doses were not needed. It is impossible to overdose on vitamin D from sunlight due to the self-adjusting mechanism inherent in the body that destroys excess vitamin D obtained from the ultraviolet B rays. A 30 minute full-body sunbath at midday without sunscreen will provide from 10,000 IU to 20,000 IU of vitamin D.

In the case of deficiency, some vitamin D experts suggest starting out with 10,000 IU to 12,000 IU of a good quality lanolin D3 with co-factors per day which can raise blood levels from 10 ng/ml to approximately 60 ng/ml in four weeks. Those with osteoporosis can take 15,000 to 25,000 IU per day. Within days after beginning supplementation, most people experience an upliftment in mood and increase in energy. Later they notice that their muscles are stronger and that they have less morning stiffness and pain. In time they enjoy enhanced immunity and become more resistant to colds, flus and other illness.

Vitamin D deficiency is indeed an epidemic of modern civilization. The current perception of the Sun as dangerous couldn't be farther from the truth as our ancestors well knew. Fortunately, for those of us with lifestyles that keep us indoors or covered up more than we would like it is reassuring to know that we can obtain the sunshine vitamin from other sources to help maintain our health.

Terri Saunders is an Herbalist, Nutritional Consultant and Certified Natural Health Professional in Charlottesville, Virginia where she does in-person and telephone consultations and classes on natural healing. For information on consultations, products and classes contact Sunrise Herb Shoppe at 434-984-2665, sunherb@mindspring.com or see website at www.sunriseherbshop.com.