

The Amazing and Broad Ranging Health Benefits of Vitamin D: An Essential Building Block for Life

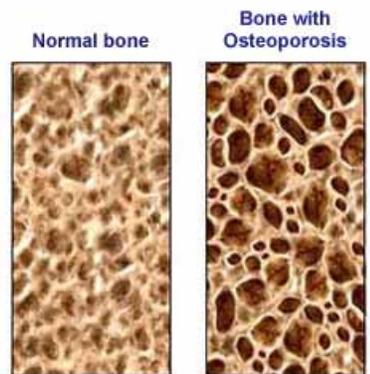
Vitamin D supports a healthy body in a variety of ways, many of which most people are likely unaware. The high rate at which our body can produce vitamin D is the first and single most important fact that every person should know about. Second, the fact most Americans are deficient in vitamin D is something that we should keep in mind, as evidence based research has linked vitamin D deficiencies to innumerable disease states such as several types of cancer, heart disease, stroke, hypertension, autoimmune diseases, diabetes, depression, chronic pain, osteoarthritis, osteoporosis, muscle weakness, muscle wasting, birth defects, periodontal disease, and more. Would you be interested to know that Vitamin D is an essential building block for life? If so read on as we highlight and explore the amazing health benefits of Vitamin D and the easy steps that can be taken to ensure that you maintain a healthy Vitamin D level for yourself and your loved ones.

The two main forms of Vitamin D are D2, ergocalciferol, and D3, cholecalciferol. Your body produces D3. Technically not a vitamin, Vitamin D is actually a prohormone, meaning that it enhances and strengthens certain hormones that occur naturally in the human body. Several scientific studies also suggest that Vitamin D is linked to and influences more than two hundred genes; therefore it is important for human life from the moment of conception. On a cellular level, Vitamin D helps to regulate the growth and proliferation of normal healthy cells, and decreases the likelihood of developing abnormal cell mutations and ultimately cancer cells.

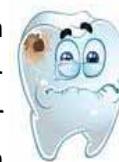
Calcium absorption and metabolism is aided by vitamin D, which means healthy support for bones and teeth. Vitamin D promotes the absorption of calcium through the intestines and enables the normal mineralization of bone during bone remodeling. Bone remodeling is the rate at which bone breaks down relative to the rate at which bone rebuilds. Insufficient vitamin D blood levels inhibit the healthy rebuilding of bones, causing them to become thin and brittle, a condition known as osteoporosis.

Tooth decay is a common and prevalent ailment that occurs in many people today, and is the leading cause of tooth loss for individuals under forty years of age. The bacteria streptococcus mutans, a bad bacteria, adheres to teeth and releases acids from the fermentation of carbohydrates. In other words, eating sugary and carbohydrate rich foods not only promotes the growth of bad bacteria in your gut, it proliferates bad bacteria in your mouth as well. When coupled with infrequent tooth brushing and flossing, this carbohydrate fermentation dramatically increases the rate at which the demineralization of teeth will occur over time. Vitamin D can reduce the incidence of tooth decay by inducing the production of cathelicidin and defensins, antimicrobial polypeptides.

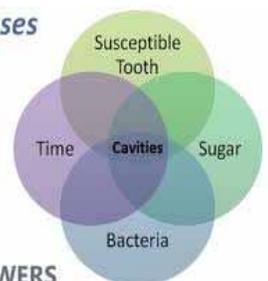
A polypeptide consists of two or more amino acids. Amino acids make up polypeptides, which in turn make up proteins. These antimicrobial polypeptides play a vital role in our immune system by defending against and preventing the growth of bad pathogenic bacteria and opportunistic infections.



What Causes Cavities?



ORAL ANSWERS



Vitamin D supports healthy nerve and muscle function, which is something that our ageing nation of baby boomers should be especially concerned about. Vitamin D can significantly reduce the risk of falls in elderly individuals. Evidence from studies indicates that vitamin D helps to stimulate the elastic fibers in muscles, has a stabilizing effect on the elasticity of muscle, and prevents the degeneration of muscle fibers.

Chronic low blood levels of vitamin D in the elderly can not only lead to muscle degeneration, but to cognitive decline as well. Such a long term deficiency can also increase the risk of developing Parkinson's disease, stroke and heart disease. The reasoning behind these claims is that vitamin D has been linked to stiffening of the arteries. Over time, plaque builds up in the veins and arteries causing either a rupture or a clot to break loose and complications to occur. Clinical studies have concluded that vitamin D decreases the deposition of plaques and fatty material from sticking to the inner walls of veins and arteries, suppresses vascular calcification, reduces inflammation and blood pressure, and increases muscle strength.

In addition, vitamin D supports a healthy serotonin level. Serotonin is an important initiator of sleep, and aids us to maintain a clear, calm state of mind, something that we could all use more of in this age of high stress lifestyles. A reduced serotonin level can yield symptoms of increased stress and anxiety, depression, brain fog, and decreased energy and muscle fatigue.

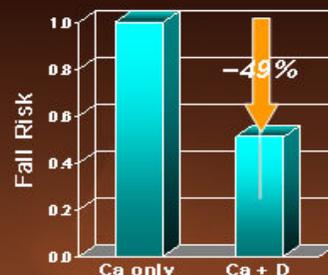
Also, vitamin D is directly related to decreasing inflammation and pain. Various studies show that vitamin D deficiency is widespread among the critically ill and suggest that that a vitamin D deficiency contributes to the inflammatory basis of various illnesses. Several studies suggest that supplementing with Vitamin D significantly reduces inflammation and decreases pain, especially in patients suffering from rheumatic symptoms such as arthritis, crohn's disease, and other autoimmune disorders.

The importance of vitamin D on the body's biological functions is something that can no longer be ignored by the health care industry, or anyone else who wishes to be proactive in maintaining a greater state of health. One of the most important things that you can do for your health is to learn about the benefits of safe and proper sunlight exposure and vitamin D. Vitamin D is called the "Sunshine Vitamin" for a reason. The human body is designed to produce vitamin D in response to sunlight exposure, specifically the UVB band of the sun's ultraviolet spectrum. Since this is the result that nature intended, it should be the method of choice for obtaining vitamin D.

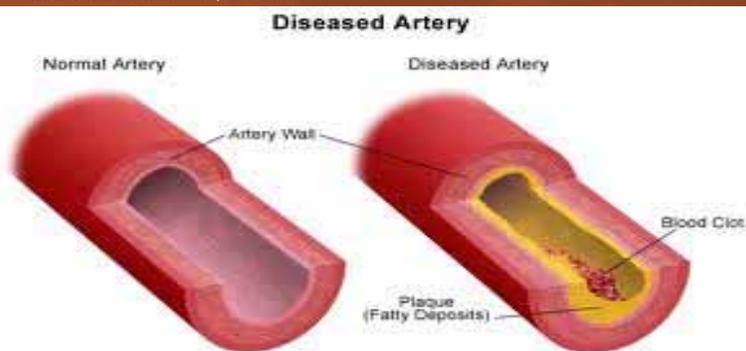
Modern society is conditioned by mainstream media as well as various health agencies to always wear sunscreen, and avoid exposure to sunlight. Following these recommendations may be doing people more harm than good, however. Several evidence based studies have concluded that while sunscreen does protect us from the damaging effects of sun exposure, blocking out the sun also hinders our bodies from producing vitamin D. Some other studies have concluded that thirty minutes of direct summer time sun exposure will induce the body to produce large quantities of up to 15,000 international units (IU) of vitamin D. Because this can happen within minutes, overexposure to the sun is not necessary.

VITAMIN D & RISK OF FALLING*

- 122 women
- Age: 63–99
- DB-RCT
 - Ca 1,200 mg/d
 - Ca + 800 IU Vit D
- 12 week duration
- 25(OH)D 12 ng/mL at baseline



*Bischoff et al. JGIM. 2003;18:343–351.



There are several factors that can influence how much vitamin D your body produces in response to UVB exposure. Environmental factors include the angle of the sun's rays, the time of day, the time of year, or season, cloud cover and air pollution. Individual specific factors for vitamin D production include skin type, amount of skin exposed, age, and sunscreen. The time of day, season, and distance from the equator all determine the amount of ultraviolet light that reaches your skin. When the sun's rays enter the atmosphere at too much of an angle, the atmosphere diffuses or blocks the ultraviolet portion of the rays. This atmospheric diffusion can occur during the early and later parts of the day, during the winter season, and increases the farther that you move away from the equator. Cloud cover and air pollution will also reflect UVB back out into the atmosphere.

A good indicator of whether the sunlight you are exposed to will yield much vitamin D is to observe your shadow. If your shadow is longer than you are tall then you will not make much vitamin D. For optimum vitamin D production, sun exposure is best taken between the hours of 10:00 a.m. and 2:00 p.m. These hours will vary slightly according to latitude and elevation, but generally noon time is the best time of the day to absorb UVB and produce vitamin D.

Winter is when little or no vitamin D is produced due to the atmosphere diffusing the majority of the UVB from the sun's rays. Typically this environmental condition will last for several months, with the duration of time increasing as you move farther away from the equator. For example, in St. Louis, Missouri, this atmospheric diffusing will last from around November through early March.

An individual's skin type also influences the amount of vitamin D that will be produced relative to the necessary amount of sun exposure. Vitamin D synthesis occurs faster in individuals with lighter skin than in those with darker skin. In fact, individuals with darker skin will need up to two hours of direct sun exposure compared to thirty minutes of sun exposure for those with lighter skin to produce around 10,000 IU of vitamin D. Also, as the body produces and builds up more vitamin D, the skin becomes darker as well. Most commonly known as getting a tan, this is the body's way of signaling that it has produced enough vitamin D; the darker your skin becomes the more difficult it is for you to absorb UVB and produce vitamin D.

Skin exposure, age and sunscreen are also significant factors that can influence UVB absorption and vitamin D production. At least forty percent of your body's skin should be exposed for ideal UVB absorption and vitamin D production. The torso produces the most, legs and arms less, and hands and face even less. Apparently, individuals over the age of sixty and under the age of twenty have less 7-dehydrocholesterol, which is converted to vitamin D₃ in the skin when exposed to sunlight. When it comes to sunscreen, an SPF as low as 8 can block as much as ninety-five percent of UVB and an SPF of 30 can completely block out UVB.

Research suggests that if we regularly avoid sunlight exposure, we should supplement our diets with at least 2000 to 5000 units (IU) of vitamin D each day. No big deal, you drink milk right? To obtain this amount from milk, you will need to consume around fifty cups a day. Even with a standard multivitamin, like the ones advertised on television, more than ten tablets a day will be necessary. There are vitamin D supplements that are available in 1000, 2000, and 5000 international unit (IU) quantities, and in addition to a high-potency multivitamin, this is something that pharmacist and certified clinical nutritionist Patty Frieda at Neels Pharmacy recommends. Mentioned above, the skin produces approximately 15,000 international units (IU) of vitamin D in response thirty minutes of summer sun exposure. This level is fifty times more than the US government's recommendation of 200 IU per day. In fact, the government's recommendation is by all means inadequate and should be reviewed with evidence based findings and updated.

Due to our modern lifestyle, the amount of time required to support our body with the vitamin D produced from sunlight exposure alone is not often met. Summer sunlight increases brain serotonin levels twice as much as winter sunlight, a finding consistent with both bright light in the visible spectrum and vitamin D levels affecting mood. Research indicates that vitamin D is widely involved in brain function, with evidence suggesting a major role for vitamin D in preventing and eliminating the depressing effects of seasonal affective disorder (SAD).



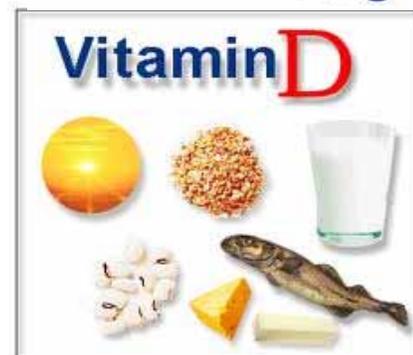
Clinical evidence exists that depression is associated with low vitamin D levels and that depression has increased in the last century as vitamin D levels have undeniably decreased. During this time, humans have reduced their sunlight exposure due to urbanization and industrialization. Our buildings have grown taller and we've produced more air pollution to block out the sunlight, we work in offices inside buildings with tinted windows, we obsessively use sun block as misguided medical experts advise us to never let sunlight strike our unprotected skin.



Also known as winter depression or winter blues, seasonal affective disorder is a mood disorder in which people who have normal mental health throughout most of the year experience symptoms of depression in the winter, repeatedly, year after year. Many of us experience a serious mood change when the seasons change. Our energy levels decrease; we can feel brain fog, may sleep too much, and crave sweets and starchy foods. We may also feel depressed. Does this sound like you? If so, then you may be deficient in vitamin D.

beat the winter blues

Besides sunlight, there are only a few natural sources of Vitamin D, and all of them are seafood or animal in origin. Eggs, margarine, butter, beef and chicken livers, sardines, mackerel, cod, salmon and shrimp are all good sources. Milk, some juices and breakfast cereals may be fortified with Vitamin D, but only at low levels. While food is a natural way to get regular vitamin D intake, it is difficult to quantify the adequacy of what we eat in relation to how much vitamin D we actually get. Also, it has become quite costly to eat properly these days, and with the instant gratification of fast food, and processed ready-made meals, it is unlikely that many of us can maintain healthy vitamin D levels solely from our diets, which are becoming increasingly more unhealthy.



So, if you want to be more proactive in maintaining a healthy vitamin D level, and help to prevent life debilitating illnesses associated with vitamin D deficiency, get more direct sunlight, eat and drink the right foods in sufficient amounts, or take between 2000 and 5000 IU per day in supplement form. Vitamin D supplements are a safe, effective, and affordable option, which is not time prohibitive, and does not warrant an unnecessary increase in caloric intake.

And finally, if you are not sure if you are vitamin D deficient, or how much vitamin D you should be supplementing with, please take the time to have your vitamin D level checked by a simple blood test that can be taken at your physician's office, or we offer this service at Neels Pharmacy as well.

Celebrating 80 years in business is an exciting milestone for Jon P. Frieda of Neels Pharmacy. "Neels Pharmacy was established in 1932 in downtown St. Louis by my great grandfather William J. Neels, Senior, in what is now Charlie Gitto's Downtown Restaurant. Mr. Gitto still has a couple of photos of the original Neels Pharmacy that hang on the wall by the front entry way his restaurant. One of the original businesses in Crestwood, William's son Jim Neels, my grandfather, moved the pharmacy to the Crestwood Bank Building in 1962, where he began serving residents of Crestwood, Kirkwood, and Webster Groves. When working towards her Masters Degree in History at Webster University, Jim's wife Patricia Neels, my grandmother, researched the Neels family and discovered a history of apothecaries dating back as far as the 15th century. In short, the practice of pharmacy is literally in our blood."

In 1999, Patty Neels Frieda, Jim's daughter and my mother, moved Neels Pharmacy into the Crestwood Executive Center at the corner of Watson and Sappington. After receiving a Masters in Business Administration from Webster University in 2005, I began working at the pharmacy. Four generations after the original downtown location, Neels Pharmacy is a holistic pharmacy care provider, integrating traditional pharmacy services, human and veterinary compounding, herbal/nutritional supplements, homeopathic remedies, and therapeutic teas. Patty Frieda is a pharmacist and Certified Clinical Nutritionist and offers consultations by appointment. Since 1962, Neels offered and still continues to provide **free** deliver to Affton, Crestwood, Glendale, Kirkwood, Sunset Hills, and Webster Groves.

Neels Pharmacy thanks all of the families in the community for allowing us to serve you over the years. So, if you are currently coming to Neels, or are looking for a pharmacy that will treat you like family, rest assured, Neels Pharmacy will be here to help you approach your health, wellness, and vitality for generations to come.

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