

## Vitamin D

by  
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Vitamin D is best known as one of four fat-soluble vitamins; however this is only partly true. Vitamin D is actually a hormone. It is essential for promoting calcium absorption in the small intestine and making sure that serum calcium and phosphate concentrations are in balance to allow for proper mineralization of bone. It is also needed for bone development and remodeling by osteoblasts and osteoclasts. Without sufficient vitamin D, bones can become brittle, thin, or malformed. Adequate Vitamin D prevents rickets in children and osteomalacia in adults. Taken with calcium to aid in absorption, vitamin D also helps protect older adults from osteoporosis. Other roles include; modulation of neuromuscular and immune function and reduction of inflammation. Unfortunately this vitamin is found in very few foods naturally. It is produced endogenously by the liver and kidneys when one is exposed to the sun, however, many people today have sun phobia thanks to the skin cancer scares.

Sun exposure for no more than 15-20 minutes on Cape Cod in June or July at noon time is the equivalent to taking 20,000 IU of vitamin D orally. Studies have shown that in the absence of any sun exposure 1,000 IU of vitamin D3 a day is required to maintain healthy levels of active vitamin D (25-hydroxyvitamin D) in the circulation. A study from the NHANES III data has suggested that adults and children are not receiving adequate amounts of vitamin D from their diet or from dietary supplements.

Are there advantages from getting vitamin D from the sun vs from supplements? When exposed to the sun, vitamin D enters the skin and approximately 100% is utilized. When vitamin D is ingested, it is carried by the chylomicrons and is transported through the lymphatic system, and eventually into the venous system. It is then metabolized in the liver to active or 25-hydroxyvitamin D. Unfortunately only about 60% of the vitamin D that is ingested can be utilized. The rest is mostly bound to lipoproteins. Therefore the vitamin D obtained through the sun has a longer half-life when compared to dietary D. In addition, the vitamin D from the sun is free (not bound), unlike a vitamin D supplement. Another thing to take into consideration is that you can never become vitamin D intoxicated from sun exposure, but it is possible to take too many vitamin D pills.

It is estimated that 90-95% of most people's vitamin D needs come from casual sun exposure. Take advantage of sensible sun exposure, just don't overdo it. Studies have shown that people who get more sun light feel better and will have no problem getting their RDA for vitamin D. If you live in the north, it is still possible to get adequate vitamin D by taking a supplement; however, it is very unlikely that a person can get an adequate amount of vitamin D from their diet alone. The new RDA for vitamin D is 1,000 IU of vitamin D2 or D3 per day.

### References:

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