



Vitamin D: The “D” stands for *definitely* important

Vitamin D consumption is one of the hottest topics in the health/supplement world right now. But how much vitamin D should we take? What level? In what form? And what does it really do for us?

Nearly 3 out of 4 adults and teens may be deficient in vitamin D. Deficiency risk increases with age, skin pigment, and limited sun exposure. Current daily intake recommendations (400 IU to 600 IU) are primarily based on bone health, and it has been suggested that higher levels may be necessary to maintain optimum physical functions, muscle strength, and other health functions. Several health organizations and nutritional councils are expected to provide revised guidelines for higher daily intake soon.

Vitamin D could be called “hormone D” due to its powerful effects. It regulates more than 2,000 of the 30,000 genes in the human body. We know that the major and most well-known function of vitamin D is to maintain the calcium and phosphorous balance, and to promote bone mineralization. However, its role has expanded to cover medical and health conditions such as muscle function, falls, immunity, glucose balance, and cardiovascular diseases^{1,2,3}.

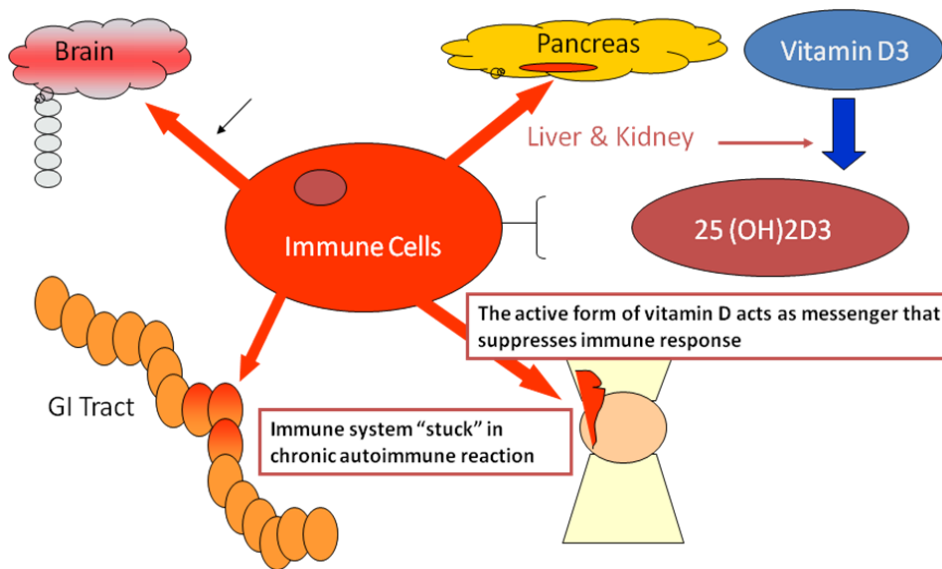
Vitamin D is sometimes referred to as the “sunshine” vitamin because it is created in the skin. However, when you live on the East coast, and work indoors all day, fifteen minutes of sunshine is real hard to come by; in fact, we need sunlight when the UV index is greater than 3. This occurs daily within the tropics, during the spring and summer seasons within the temperate regions, and almost never within the arctic circles. Therefore, supplementation is the answer.

Vitamin D’s influence on key biological functions is vital to one’s health and well-being. It can no longer be ignored by individuals, nor by the health care industry, in achieving and maintaining a greater state of health. Vitamin D is essential to bone and cartilage health. A deficiency in vitamin D can increase the risk of osteoporosis, inflammatory bowel disease, type-I and type-II diabetes, metabolic syndrome, and hypertension⁴.

Studies have also shown that the use of vitamin D has shown positive effects on osteoarthritis (OA), such as helping prevent the breakdown of cartilage. Low intake of vitamin D may be linked to greater risk of hip osteoarthritis in older women and OA-related joint changes in both men and women. Research demonstrates that adequate levels of essential vitamins do indeed support overall good health, and more specifically:

- Normal cell proliferation
- Proper neurological function
- Balanced immune activity
- Optimal bone density and more

Vitamin D Inhibits Inflammatory Cytokines and Acts as an Immune System Brake



Courtesy of Metagenics.com

An article published in 2004 in *Experimental Biology and Medicine* concluded that there was, "increasing evidence pointing to a link between vitamin D and autoimmunity. Increased vitamin D intakes might decrease the incidence and severity of autoimmune diseases"¹.

Vitamin D may also protect against heart attack. Men classified as deficient in vitamin D are about 2 ½ times more likely to have a heart attack than those with higher levels of the vitamin. Researchers compared those deficient in vitamin D (no more than 15 ng/mL of blood) to men in the lower-end of the normal range (at least 30 ng/mL of the blood)⁵. Higher levels of the vitamin reduce the risk of CVD, according to a recent study published in the *Journal of Circulation*.

On the other hand, low vitamin D levels are seen to be linked to sudden cardiac death. Low vitamin D levels are also linked to higher blood pressure. Improving one's calcium and vitamin D nutritional status substantially reduced all cancer risks in postmenopausal women⁹.

Recent publications in the *Journal of Biological Chemistry* (Jan. 22, 2010) and from McGill University described how vitamin D could help protect against Crohn's disease. Researches in

the study identified vitamin D as a new treatment avenue for people with Crohn's disease and other inflammatory bowel disease¹⁰. More importantly, a substantial study that was presented at the annual meeting of Pediatric Academic Societies in Vancouver, BC in early 2010 concluded that raising the amount of vitamin D intake daily is not only safe for pregnant women, but may reduce risk of complications and made women less likely to go into labor early, give birth prematurely or develop infections. However, as with all supplements and medications, pregnant women should not change their intake without consulting their physicians¹¹. In another study that was published in Spine magazine in 2003, vitamin D (subjects were given either 5000 IU or 10,000 IU daily) was credited with relieving chronic low-back pain¹². Yet another study from the University of Minnesota concluded that when combined with a reduced-calorie diet, supplementation with vitamin D helps promote increased weight loss¹³.

Vitamin D is not only helpful in obtaining optimum health, It can also benefit the active individual as well. A recent study in adolescent females found a positive relationship between vitamin D levels and jump velocity, jump height, power and force. This lead the scientist to conclude that vitamin D was significantly associated with muscle power and force in adolescent girls¹⁴. Another study showed that in Chinese adolescent girls, vitamin D status was positively associated with lean body mass¹⁵. Additionally, a review of literature from USC concluded that adequate vitamin D levels were important for promoting muscle and strength. This USC study showed that women with low intakes of vitamin D had increased levels of muscle-fat¹⁶. In May, 2009, a publication in *Medical Science Sports Exercise* concluded that "vitamin D may improve athletic performance in vitamin D deficient athletes. Peak athletic performance may occur when 25(OH)D levels approach those obtained by natural, full-body, summer sun exposure, which is at least 50 ng. Such 25(OH)D levels may also protect the athlete from several acute and chronic medical conditions"¹⁷. Yet another review in *Molecular Aspects of Medicine* in December 2008 showed that vitamin D increases the size of fast-twitch muscles and muscular strength¹⁸. Professionally speaking, the Chicago Black Hawks have become the first modern sports team to supplement with vitamin D.

Unfortunately, good sources of vitamin D may be hard to find. Our bodies manufacture vitamin D₃ when skin is exposed to the sun's ultraviolet-B rays—which can be blocked by both windows and sunscreen. Furthermore, vitamin D is only found naturally in a few foods (e.g., fish, eggs, mushrooms), which is why products like milk are vitamin D-fortified, sometimes with the less absorbable vitamin D₂ form. Dietary supplements are often recommended, but they vary in quality and may be made from vitamin D₂ or D₃. D₃ supplements may be 3 times more effective than D₂ at increasing vitamin D levels in the body. The supplement delivery form and manufacture may also influence absorption potential, so it's just as important with this "basic" vitamin to seek higher quality for maximum benefits.

To ensure these benefits, I recommend the combination of vitamin D with soy isoflavones. This combination is designed to support optimal metabolism of vitamin D to its most active form^{19,20}. My recommendation is for 2000 IU per day. Although this is significantly higher than

what is currently considered, recent research demonstrates these levels to be safe and possibly necessary to maintain adequate 25(OH)D concentrations.

Finally, it is essential that individuals assess their vitamin D levels via a blood test. What is considered normal range is 32 – 100 ng/mL. My recommendation is that optimum levels should be 50 – 60 ng/mL, and high-functioning athletes should be between 60 – 80 ng/mL. Please follow my recommendation of 2000 IU per day and evaluate your vitamin D levels.

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