



Weekly Nutrition Alert: February 14, 2007
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Vitamin D Needs Higher, Risk for Toxicity Lower Than Previously Thought

The Tolerable Upper Limit (UL) for vitamin D should be raised five-fold, according to a report from the Council for Responsible Nutrition (the professional branch of the supplement industry), as well as researchers from Mount Sinai Hospital in Toronto and Creighton University in Omaha. These reviewers pooled data from 21 clinical trials that used doses far above the current UL of 50 micrograms (2,000IU), and recommend the UL should be raised to 250 micrograms (10,000IU).¹ They conclude that:

“The lack of adverse effects in clinical trials that used intakes up to 1,250 micrograms vitamin D per day and the lack of adverse effects at lower doses inspires a high level of confidence in the data from the strongly designed clinical trails that used 250 micrograms vitamin D per day.”

This proposed UL is not meant to suggest that higher levels might be unsafe, nor does it present a recommended intake. In fact, some past studies have suggested intakes for vitamin D far higher than this proposed UL. The new recommendations are meant to provide guidelines for a daily intake that is nontoxic and that has ample evidence to support its safety. Many experts have called for revisions in the current vitamin D recommendations, set back in 1997 and considered outdated and too restrictive; however, this is the first published review that provides a quantitative basis and recommendation for a new UL.^{2,3}

Why Now?

Vitamin D is the “hot” new vitamin. Until recently, its only substantiated role was in boosting calcium intake and deposition into bone, thus reducing the risk for bone disorders including osteoporosis, osteomalacia, and rickets. Now research is showing this vitamin also aids in the prevention and/or treatment of muscle weakness, gum disease, diabetes, insulin resistance, arthritis, multiple sclerosis, hypertension, and certain cancers, including colon, breast, pancreas, and prostate cancers. Vitamin D supplements also reduce the incidence of falls by up to 60% in seniors, while a deficiency can mimic symptoms of fibromyalgia. In all cases, researchers conclude that much higher amounts than the current RDAs are needed to see benefits.⁴

Who Is at Greatest Risk for Deficiency?

Three factors increase the risk for vitamin D deficiency: Age, location, and food sources.⁵⁻⁸

Age: Vitamin D is a hormone, as well as a nutrient. Our bodies make vitamin D when skin is exposed to UVB sunlight. However, a person's ability to manufacture vitamin D decreases with age, so that by the time people enter the senior years, their bodies make as little as 40% of the vitamin D made in childhood. As a result, dietary/supplemental intake becomes increasingly more important with each passing decade.

Location: People living north of the Latitude running generally through Los Angeles and Atlanta typically are sun-deprived and, consequently, low in vitamin D, especially during Fall and Winter. Even in the summer, the use of sunscreen blocks UV light and reduces vitamin D synthesis. A recent study from the University of Georgia, found that 75% of young girls had blood levels for vitamin D below 80nmol/L (100nmol/L is better, while early humans had levels above 130nmol/L). Researchers suspect that everyone living in the North is not getting enough UVB light to synthesize adequate vitamin D. In short, the farther north a person lives, the more critical dietary/supplemental sources of the vitamin become. 9

Diet: Few foods contain this vitamin. Natural sources of vitamin D are limited to fish and cod liver oils, while the FDA allows only a few kinds of food to be fortified with vitamin D, including milk, fortified OJ and soymilk, or fortified cereals. Even then, not all brands add the vitamin. In addition, fortification levels established back in the 1930s were set very low (i.e., vitamin D fortification of milk is limited to 100IU per cup). The wealth of new research shows that the only realistic and dependable source of the vitamin - to reach levels found effective for disease control - is through supplementation. Currently, most multi's only include 400IU of the vitamin, far below the new recommended UL.

Can You Take Too Much?

Theoretically, vitamin D can be toxic. However, there has never been a reported case of vitamin D toxicity from excessive sun exposure, since our bodies have a well-programmed system for avoiding toxicity of this vitamin. Excessive intake from dietary sources also is rare. However, a few reports of toxicity from supplemental intake have been reported, but the dose is at much higher amounts than previously thought. In one case study, a patient who presented with toxicity symptoms had mis-read the dosage and taken up to a million units of vitamin D daily. Those toxicity symptoms can manifest as nausea and vomiting, eventually progressing to soft tissue calcification, kidney failure, kidney stones, a high blood calcium levels, and calcification of blood vessels. Even in this case study, after discontinuing the supplement, the patient's levels fell gradually over three years with no permanent damage to tissues or health.

The new proposed UL of 10,000IU could be taken a few times a week or month, to safe guard against disease. Many researchers suggest up to 50,000IU of vitamin D once a week for eight weeks to "...fill up their vitamin D tank..." Then decrease the dose to 50,000IU once or twice a month. Some disease states, such as hypoparathyroidism or resistant rickets, require up to 600,000IU in divided daily doses. Even these high regimens have not produced toxicities in adults. 10

Can You Be Tested?

Yes. The best time of year is in the Fall or early Winter, such as November, when deficiencies are most pronounced. Ask for a test of 25-hydroxy vitamin D, not 1,25-dihydroxy vitamin D, which is the active form of the vitamin and can produce misleading results.

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