

## Vitamin D deficiency makes a comeback

Around 1900, vitamin D deficiency reached almost epidemic proportions. Here we are, a century later, and vitamin D researchers are again sounding the alarm. The reasons are different and the consequences seemingly less extreme, but the number of people affected is extensive.

**Question:** Why are so many people low in vitamin D?

**Answer:** Vitamin D is synthesized in response to the action of sunlight on skin, but we avoid sun exposure and wear sunscreens to promote skin health. Vitamin D can be obtained from foods, but few of us eat enough of these foods. Vitamin D also is available in supplements, but levels are based on outdated recommendations that are much too low, according to an editorial in the March 2007 issue of the American Journal of Clinical Nutrition.

**Q:** What are the consequences of vitamin D deficiency?

**A:** The best-known consequence is bone loss, but researchers are finding other less obvious health problems. There is growing evidence that vitamin D is involved in maintaining healthy immune function. Some scientists have proposed that the reason more people catch the flu during the winter is because that is when there is the least sun exposure.

In addition, good vitamin D status appears to help prevent falls in older people by promoting improved muscle function. Vitamin D is also being studied as a way to help prevent and treat osteoporosis, various cancers, diabetes, asthma and multiple sclerosis. The relationships between these conditions and vitamin D are much more subtle than the childhood rickets that resulted in deformed leg bones in children at the beginning of the 20th century.

**Q:** How much vitamin D is required?

**A:** The answer to this question is highly controversial. Experts in the field of vitamin D complain that official Institute of Medicine recommendations are much too low. These recommendations are 10 years old and the knowledge of vitamin D has grown exponentially in that time.

Authors of the March editorial indicate that for a person with little sun exposure, about 1,700 IU of vitamin D per day is required to raise vitamin D blood levels into a healthy target range. Current Institute of Medicine recommendations for adults range from 200 to 600 IU, with an upper limit of 2,000 IU. Vitamin D researchers are recommending that the upper limit be increased to 10,000 IU per day.

**Q:** What foods provide vitamin D?

**A:** Unfortunately, it is not easy to get enough vitamin D from foods. The major sources are fortified milk (100 IU per cup) and fish that typically provide between 50 and 500 IU per 3-ounce serving. Dietary supplements come in two forms: D-2 and D-3, with D-3 being preferred.

**Q:** Can vitamin D be toxic?

**A:** Yes. Like any nutrient, too much can be very harmful. But some researchers who set the Institute of Medicine's upper limit in 1997 are now backing the proposed increase.

They know that until the recommendations are officially revised, they face an uphill battle. Meanwhile, they urge health care professionals to more routinely monitor their patients' vitamin D status with blood tests and make vitamin D supplementation recommendations based on the tests.

**Q:** Does vitamin D deficiency occur in sunny Hawaii?

**A:** Surprisingly, it does. Just over a year ago, the Hawaii Medical Journal published a case report from Honolulu endocrinologist Dr. Michael Bornemann that described a severe case of vitamin D deficiency locally. Dr. Bornemann stressed that even here, health care providers need to be more aware of vitamin D deficiency.

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Alan Titchenal, Ph.D, CNS and Joannie Dobbs, Ph.D, CNS  
are nutritionists in the Department of Human Nutrition, Food and Animal Sciences,  
College of Tropical Agriculture and Human Resources, UH-Manoa.  
Dr. Dobbs also works with the University Health Service.

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