

CHRONIC VITAMIN D DEFICIENCY AND YOUR HEALTH

Hi USANA. This is Tim Wood, Vice President of Research and Development for USANA Health Sciences. I am writing with an important technical update that concerns your health. It involves the high rates and growing prevalence of vitamin D deficiency in our society.

As many of you know, vitamin D is essential for good health. For the record, Vitamin D is not a true vitamin in that it doesn't function as a coenzyme. Instead it is a hormone; one that helps regulate the uptake and utilization of calcium and phosphorus in the body. In this capacity, vitamin D is absolutely essential for optimizing bone health, lifelong. From infancy through the senior years, vitamin D helps us absorb maximum amounts of calcium from our diet. It further assists in regulating the proper balance between bone production and bone remodeling; a balance that is essential for maintaining a strong, mineral-rich skeleton. This, in turn, is critical for reducing the risk of osteoporosis, a crippling chronic degenerative disease that results in debilitating bone fractures, typically of the hip, wrist and spine. More than 14 million Americans and 1-2 million Canadians have been clinically diagnosed with low bone mineral density and osteoporosis. These disorders are most prevalent among post-menopausal women, but they also affect men.

Importantly, recent research suggests that the benefits of vitamin D are not limited to bone health. Vitamin D receptors have been found in a wide range of human tissues suggesting that this hormone has multiple functions in the body. We now know, for example, that vitamin D is critical for optimal immune function. Deficiencies have been linked to increased risk of multiple sclerosis, lupus, and Type 1 diabetes (all auto-immune disorders). Vitamin D deficiencies have also been linked to increased risk for some cancers (ovary, breast, colon and prostate), to high blood pressure, and to the risk of heart disease. Deficiencies also appear to be linked to chronic muscle pain, weakness, and fatigue; symptoms associated with Chronic Fatigue Syndrome and Fibromyalgia.

If the prevalence of vitamin D deficiency were low, the associations between vitamin D status and chronic degenerative disease risk might be academic. But they are not. Numerous scientific studies conducted throughout North America have shown that startlingly high percentages of us are at risk. Some 30-60% of us are vitamin D insufficient, including some 5-30% of us who are acutely vitamin deficient. Rates of vitamin D deficiency are particularly high during the winter months. They are also particularly high among people living at higher latitudes (e.g. in Canada and in the northern tier of U.S. states), among African Americans, among the elderly, and among people who are homebound.

How do we best overcome and prevent vitamin D deficiency? One approach is to improve our diet. But the potential here is limited, because few foods are rich in this important nutrient. The recommended "Adequate Intake" for vitamin D

varies with gender and age group from 200 to 600 International Units (IU) per day. But on average, we get only about 100 IU per day from our diet. Most dietary vitamin D comes from fortified cow's milk and from certain fish, like mackerel and salmon that are relatively rich in this nutrient. Most meats contain little vitamin D. And fruits, vegetables, whole grains and legumes are virtually devoid of this nutrient.

Supplementation offers a second, and extremely effective avenue for preventing vitamin D deficiency. Many nutritionists now recommend that adults consume at least 400 IU of supplemental vitamin D per day. Seniors, African Americans, and people who do not get adequate sun exposure need more – probably in the neighborhood of 600-800 IU per day in supplemental form.

The third avenue for preventing vitamin D deficiency requires that we increase our sun exposure. The major source of vitamin D for most of us is, in fact, internal. We produce vitamin D in the cells of our skin, where cholesterol-like molecules are modified by ultraviolet light from the sun to form vitamin D. Research indicates that many of us can satisfy a significant fraction (>50%) of our daily vitamin D requirement by exposing our face and arms to the sun for about 15 to 20 minutes per day, at least during the summer months.

At the same time, related studies indicate that insufficient sun exposure is a leading factor behind the high rates of vitamin D deficiency. It is a root cause of vitamin D deficiency at higher latitudes where, during the winter months when sunlight is weak, individuals produce little or no vitamin D within their skin. It is a factor in the high rates of vitamin D deficiency among African Americans whose skin pigmentation blocks the photochemical synthesis of vitamin D. It is a factor for seniors whose aged skin is less efficient at producing vitamin D. It is a factor for homebound people who get little sunlight, year round. And it is a factor for the majority of us who have been told for the last 10 years that we need to avoid the sun (stay indoors, wear a hat, apply sunscreen) in order to decrease our risk of skin cancer. What are we to do?

The answer lies in the word "balance". We need to balance our approaches to vitamin D supply in a way that addresses our current life situation. We need to recognize that our bodies require 400-800 IU of vitamin D per day from food and supplements – the higher end of the range pertaining to seniors, to those who live at higher latitudes, to African Americans, and to those who otherwise get little exposure to the sun. Moreover, we need to recognize that adequate sunlight is an important aspect of maintaining good health. Most of us probably need to spend more time in the sun – at least 15-20 minutes per day with appropriate adjustments for skin color, tendency toward sunburn, and family / personal histories of skin cancer.

The bottom line is this. Many of us are chronically deficient (if not acutely deficient) for vitamin D. This is a result of sub-optimal dietary intakes plus

inadequate sun exposure. Vitamin D deficiencies can have serious health consequences, and to avoid these consequences, we need to make a concerted effort to increase our vitamin D levels, through a balance of improved diet, nutritional supplementation, and increased sun exposure. If you have questions as to the most appropriate balance for you, don't hesitate to consult with a qualified healthcare professional; someone who can give you comprehensive and personalized advice about your health.

Additional Reading

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