

Live Healthy and Be Well!

“Vitamin D – Another great reason to live in the south!”

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We will continue the series about some things that seem to confer health benefits and may even prevent disease. The idea comes from a book by Dr. Sanjiv Chopra titled *The Big 5* - which presents “...five simple things you can do to live a longer, healthier life.” For this month, as summer begins, we will discuss Vitamin D – “the sunshine vitamin.”

Vitamins are substances that the body needs for normal function, that are not produced in the body but must come from extrinsic (outside) sources. So, technically, vitamin D is not a true vitamin, but is actually a *hormone*, because it is produced by the largest organ of your body – your skin. Ultraviolet radiation in sunlight is converted to Vitamin D3 (25-dihydroxycholecalciferol) by your skin. Externally, it comes in two forms, D2 and D3, but we will discuss D3 because that is what is produced by the skin.

Vitamin D deficiency may be best known to most of us as the cause of *rickets* in children – defective mineralization of the bones before closure of the growth plates. This leads to deformities (“bowlegs”) and fractures. The adult version of this condition is *osteomalacia*, which can lead to osteoporosis. That is why we prescribe calcium and vitamin D for people at high risk for osteoporosis. Vitamin D makes it possible for the calcium to be deposited properly in the bones and teeth.

So, it is obvious that vitamin D will be very good for bone health and preventing fractures as we age gracefully. But, in the past 50 years, we have begun to see many other benefits to the sunshine vitamin. While we must be very careful about using the word *cause* (see April article), deficiencies of vitamin D3 have been shown to be highly correlated to a weakened immune system and increased respiratory infections to include flu, development of pre-eclampsia and gestational diabetes in pregnant women, higher prevalence of non-skin cancers, high blood pressure, heart disease, stroke, diabetes, dementias, multiple sclerosis (MS), and overall mortality (death). We are not yet allowed to say that taking vitamin D will cure or prevent all these conditions, but research has found strong linkages to the above situations that should result in more respect for our levels of vitamin D3.

While we can find Vitamin D now in some of our foods, such as milk, cheese, and bread fortified with extra vitamin D, the best source is sunlight – which is a free source. The amount of vitamin D you get is directly related to the amount of sunlight you receive. And, it is also related to where you live with regards to latitude. We are lucky to live in the south, where we get more days of good sunlight than those in the northern latitudes. Further evidence of this relationship is that the diseases implicated in deficiency of vitamin D are noticeably more prevalent in northern versus southern climates.

I agree we must treat the sun with respect, with regards to being at increased risk for skin cancers, but you do need some sunlight as a natural source of this substance. Wearing protective clothing or high grade sunscreen will block the production of Vitamin D, as does the increased melanin found in dark skinned people. It has been recommended that 15 or 20 minutes a day of unprotected sun exposure is enough to produce needed vitamin D, and obviously, the more skin you expose will result in higher levels of production (think like solar panels making electricity).

Most of us think or have been told that if we are ill, especially with a respiratory infection, to take vitamin C, but you might be better off to take vitamin D instead. The *Archives of Internal Medicine* (2009) reported that people with low vitamin D levels were 36% more likely to develop a respiratory infection. Similar findings in the *Journal of OB-GYN* (2013) were reported with regards to findings above in pregnancy. The *Journal of the National Cancer Institute* in 2006 found and reported a strong latitudinal gradient among people with breast, colon, and prostate cancer – people in the northern states were twice as likely as people in the southern states – implying that exposure to more sunlight (vitamin D?) was a key factor.

Again, we are careful not to state that vitamin D deficiency causes certain conditions, but we are finding very strong correlations. For example, in 2008, a Harvard Medical School research project reported in the journal *Circulation* that those deficient in vitamin D were twice as likely to develop high blood pressure, or have heart attacks or strokes. There are also many findings about vitamin D's effect on the brain and nervous system. The *Journal of the American Medical Assoc* (2006) found that population migration from darker to more sunny areas had resulted in decreased development of MS – and stated increased vitamin D levels as a key factor. A relationship to development of cognitive decline and dementias (including Alzheimer's) was reported in the *Archives of Internal Medicine* (2010) – older persons deficient in vitamin D were 60% more likely to develop dementias and decline.

Many other good studies have reported that vitamin D, as an anti-oxidant, reduces inflammation and insulin resistance in your body, and likely has a role in preventing the development of both type I and type II diabetes (*Diabetes Care*, 2012). It has also been found to be associated with a reduction in all-cause mortality (death), as reported in the *British Medical Journal* (2014).

So, after all this information, what can you do to find out about your level of vitamin D3? You should talk to your Provider, and next time you get some blood drawn to check labs – have your level of vitamin D3 checked. While there is no “best answer” to what the level should be, it is generally accepted that a level of 30 (nmol/L) is too low, and 125 is too high. Current recommendations advise a level between 50 and 100 nmol/L.

If you, in discussion with your provider, find your level to be on the low side, supplements are readily available over the counter. Vitamin D3 supplements are measured in IUs (international units). There is a prescription strength of 50,000 IUs taken once a week. However, it is not expensive for you to get the OTC version and take 2,000 to 4,000 IUs each day. I would recommend having your level re-checked about once a year to make sure you are staying in the acceptable range.

So, while we cannot say that vitamin D can prevent or cure many diseases and conditions – we do find that a deficiency of it seems to be implicated as a factor worthy of consideration. The bottom line might this - if what we suspect is not the case, keeping your vitamin D3 level up won't hurt you at all, either. But, as Dr. Robert Heaney, Professor of Medicine at Creighton University and an expert in Osteoporosis remarked: “Even if two-thirds of these things don't pan out...it's (vitamin D) still a blockbuster!”

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