The Case for Vitamin D Testing

Blood (serum) Vitamin D levels can inexpensively be optimized:

- to reduce the risk of cancer, many other illnesses, and death
- to minimize muscle and joint pain
- to maximize athletic performance.

Most Americans have insufficient blood (serum) levels of Vitamin D. One physician calls Vitamin D the single most cost-effective medical intervention in the U.S. today.

Vitamin D is a pre-hormone produced in the body from exposure to UVB rays in sunshine. If you avoid the sun, you cannot become Vitamin D sufficient just from eating a good diet. A cup of milk, for example, includes only 100 IU of Vitamin D.

If you live above approximately 35 degrees north latitude (Georgia), your body cannot synthesize Vitamin D in the winter. Since Vitamin D is stored in fat, the usual pattern is that serum Vitamin D levels reach a maximum in September and a minimum in March. Vitamin D is present in every tissue of the body, including muscle tissue, and appears to play a major role in normal tissue function. Insufficient serum Vitamin D is associated with a broad range of serious health issues. If you have any of the disorders discussed below, especially if your symptoms are worse in the winter and spring, then Vitamin D insufficiency may play a role.

The following is not medical advice, as everyone is different.

Please consider consulting with your health care provider about taking a blood test to measure your serum Vitamin D level. You can then adjust your Vitamin D intake and/or UVB exposure accordingly. Vitamin D synthesis requires exposure to the summer sun in the middle of the day (approximately 10 a.m. to 3 p.m.), and such synthesis is blocked by sunscreen. In good news, exposure for only 20-30 minutes will provide 10,000 IU, and that is the maximum the body can produce in one day. So one strategy for obtaining 5000 IU/day is to put sunscreen on your face only, then go out in the midday sun for 10 to 15 minutes wearing short sleeves and shorts, then put sunscreen on the remainder of your exposed skin. Please note that people of color will require far longer in the sun to achieve the same effect.

Here's why Vitamin D is important:

1. Low serum levels of Vitamin D are independently associated with a higher risk of cancer and cancer death, especially colorectal cancer and breast cancer. Vitamin D3 is a precursor to a molecule that fights many types of cancer cells in vivo and in vitro. Cancer tumors grow more rapidly in mice on a Vitamin D3-restricted diet. Vitamin D insufficiency has been estimated to cause more than 50,000 excess cancer deaths annually in the U.S.

2. Low Vitamin D levels are also independently linked to a higher risk of cardiovascular disease, cardiovascular death, high blood pressure, COPD, Crohn's disease, dementia, Alzheimer's disease, stroke, diabetes, diabetic nephropathy, kidney disease, lupus, multiple sclerosis, low testosterone, osteoarthritis, rheumatoid arthritis, bone loss, anemia, asthma, overactive bladder, upper respiratory tract infections and more severe bacterial infections including bacterial vaginosis in pregnant women.

3. The 25% of Americans with the lowest Vitamin D levels have a 26% increased risk of death from all causes vs. the 25% of Americans with the highest Vitamin D levels, and this increased risk of death was greater among the elderly.

4. Low back pain, muscle weakness, muscle pain, joint pain, bone pain and fatigue are symptoms of Vitamin D deficiency. In a study of 150 chronic pain patients, 93% had deficient vitamin D levels (below 20 ng/mL). If bodywork does not resolve your chronic musculoskeletal pain, Vitamin D deficiency may be a factor.

5. Supplementation with Vitamin D (often with calcium) has been shown to reduce rates of cancer, notably colorectal cancer by 50%, fractures in the elderly, stress fractures in young women, tooth loss in the elderly, premature births by 50%, type 2 diabetes, insulin resistance, type 1 diabetes, PMS, seasonal affective disorder and depression. Supplementation has also been shown to slow HIV disease progression, to eliminate muscle pain in 92% of statin-treated patients, to reduce low back pain, to increase muscle strength in the elderly, and to increase well-being (energy and mood).

6. A meta-analysis of randomized controlled Vitamin D trials has shown that supplementing with Vitamin D reduces total mortality (death from all causes).

7. Most Americans (77%) have serum levels of Vitamin D deemed insufficient (less than 30ng/mL or 75 nmol/mL) or deficient (less than 20 ng/mL) including 69% of children age 6 to 11 and 78% of non-pregnant women age 18-44. Dark-skinned, overweight, veiled or elderly individuals, people who live in northern latitudes, or people with celiac disease are more likely to have insufficient levels, as do 99% of black men in the Philadelphia area.

8. Athletes: Research suggests that optimal muscle and athletic performance occur at higher serum levels of Vitamin D. The NY Times surveyed research on Vitamin D and athletic performance, including low Vitamin D levels in (a) female gymnasts and (b) distance runners. Runners doused with UV light showed a 7.4% increase in sprinting speed.

9. The evidence is compelling that the current U.S. recommended daily intake (200-600 IU/day) of Vitamin D is far too low. 400 IU/day is insufficient for women in the Northeast to achieve 30 ng/mL. Several studies completed before 2005

showed a minimum level of serum vitamin D should be 32 ng/mL, while other research suggests that the "low end of normal" is 35 ng/mL. A breast cancer study found that serum levels >40 ng/mL cut the risk of a postmenopausal woman getting breast cancer by 50%. The risk of death study found death was minimized at serum blood levels of 30 to 49 ng/mL.

10. You can obtain a 25-hydroxyvitamin D [25(OH)D] blood test in the winter or early spring and adjust your vitamin D3 intake or UVB exposure in consultation with your health care provider. You must ask for this test: it is not part of the standard blood panels. The Vitamin D Council recommends against the 1,25-dihydroxy vitamin D (calcitriol) test in favor of the 25-hydroxyvitamin D (calcidol) test. Be informed before choosing to obtain a Vitamin D test from Quest Diagnostics. Unless you live in New York, you can purchase a test kit online if you do not have health insurance [an Aetna-insured NJ resident reported the following cost information: 25-hydroxyvitamin D test cost: $244. Discount to Aetna customers: $197.79. Paid by Aetna: $39.26. Patient paid $6.93.] You may wish to ask for your actual result from the lab in nanograms/milliliter and compare that result with the levels discussed in the studies linked to this message.

11. In some cases, calcium and Vitamin D apparently work together to fight cancer. Vitamin D requires fat to be absorbed; calcium requires Vitamin D to be absorbed. Consider taking calcium and Vitamin D3 together with a leafy green salad topped with flax or sunflower seeds, because these provide magnesium and other co-factors required for Vitamin D absorption. The body can only absorb about 500 mg calcium at one time. Consult with your health care provider before supplementing with Vitamin D and/or calcium if you have any calcium issues such as kidney stones.

12. **Sixteen leading Vitamin D researchers have produced a Call For Action on increasing Vitamin D intake, especially to prevent cancer. These researchers recommend "nearly universal oral intake" of 2000 IU/day, noting that some individuals will need to consume more.** One study recommends 5000 IU/day for individuals with serum levels <22 ng/mL and 3800 IU/day for individuals with serum levels 22 to 30 ng/mL.

On the web you will find some advice, including from Jane Brody, that people should supplement with 800 to 1000 IU/day, despite research on 30 healthy adults by Michael Holick at Boston University showing that consumption of 1000 IU/day for twelve weeks did not produce vitamin D sufficiency in any of the adults. You will also see advice recommending that everyone should supplement with 5000 IU/day (or more) and accept serum Vitamin D levels beyond those achieved by the overwhelming majority of extensively sun-exposed Hawaiian students and surfers (>58 ng/mL), ignoring any potential difference between the effects of taking pills to achieve high serum Vitamin D levels and the effects of being exposed to sunshine and achieving moderate-to-high serum levels naturally. Everyone is different, and the argument for testing and then supplementing as appropriate to achieve an optimal level is compelling.

Still not convinced? Consider watching Dr. Holick's entertaining lecture on Vitamin D deficiency.

It is not necessary to take Vitamin D every day, as it is stored in fat tissue. Therefore a person could take 7000 IU once a week, for example, rather than 1000 IU/day. The human body yields a maximum of 10,000 IU/day in any one day from sunshine, whether exposed for 30 minutes or 8 hours: please consider that fact before deciding to take more 10,000 IU in any one day. Especially, some physicians have utilized strategies of supplementing with megadoses of Vitamin D annually or quarterly and avoiding regular supplementation, in an effort to achieve high serum Vitamin D levels without much work on the part of patients. However, a major study has shown that this strategy is counterproductive, and an Anticancer Research paper "explains why higher 25(OH)D concentrations are not good if they fluctuate, and that desirable 25(OH)D concentrations are ones that are both high and stable."

Several clients have asked for specific product recommendations, as dozens of options are available at varying costs, both with and without the fat required for Vitamin D absorption. One option is Carlson 2000 IU Vitamin D3, which includes safflower oil, about 4 cents a day for 2000 IU. Another option is NSI Vitamin D Drops, which includes olive oil, very cost effective at less than 2 cents a day for 2000 IU and preferred by individuals who avoid pills. Again, everyone is different and these products may not be right for you: consult with your physician about a 25-hydroxyvitamin D test and about which supplements, if any, are right for you.

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