Vitamin D – What's all the Buzz About?

Dr. Kate Thomsen and Silky

There's a lot of buzz about Vitamin D these days. Scientists want to re-classify it as a hormone. Researchers can't agree what the recommended doses should be. Policy makers don't know whether to tell you to get your Vitamin D from food, the sun, a tanning bed, or supplements. The consumer reads in every magazine that Vitamin D is the cheapest and easiest way to prevent or treat all our chronic conditions. And while there is some controversy and confusion out there, the research studies on Vitamin D continue to show it's benefit.

Sources of Vitamin D: Sunlight. 10 – 15 minutes of sun exposure at least 2 times per week to the face, arms, hands, or back without sunscreen is the recommendation to provide adequate Vitamin D. Adequate UV exposure from the sun depends on the season, geographic latitude, and time of day. Adequate absorption of these UV rays depends on the cloud cover, smog, sunscreen use and skin pigmentation. In my practice, almost everyone's vitamin D blood level goes down in the winter. Tanning Beds. UV light emitted from tanning beds can give us Vitamin D but most researchers agree that these beds also expose us to increased risk of skin damage (including skin cancer). Foods. Foods have very little Vitamin D in them naturally with the exception of fish liver. (Cod liver oil has a lot of Vitamin D but it also has a lot of Vitamin A which, in higher doses can be toxic. Stay with the manufacturer's suggested dose of cod liver oil.) Fortified Foods. Around the 1930s, "rickets" were found to be healed by sunlight and prevented by the ingestion of foods prepared with Vitamin D-like molecules. Many foods were soon fortified with Vitamin D and we continue to fortify foods like milk, juices and cereals. The amounts of Vitamin D per serving of these foods are still relatively small. Dietary Supplements. Because most of us do not get adequate Vitamin D from the sun or our foods, taking Vitamin D supplements has become commonplace. It is available both as Vitamin D2 and Vitamin D3, with the latter being more effective.

All of the above sources provide "inert" Vitamin D that undergoes changes first in the liver and then in the kidney to become the active form (1, 25-dihydroxyvitamin D). Vitamin D is fat soluble and stored in body fat. Our bodies were designed to soak up Vitamin D in the summer sun, store the excess in our body fat, and use that in the winter when, in the northern latitudes, our skin would not capture any vitamin D from the sun.

Health Effects of Vitamin D: Bone Health. Vitamin D allows the transport of calcium from the upper part of the small intestines into the bloodstream where it becomes available to the organs and tissues. Vitamin D, like calcium, is essential for bone growth and formation. Lack of adequate Vitamin D can cause brittle, thin bones. In children, this manifests as rickets and in adults as osteomalacia and osteoporosis. Severe "knocked knees" and "bowed legs" were the result of rickets (caused by children growing up in tenements suffering sunlight deprivation during the industrial revolution). Many people suffering from fibromyalgia and muscle/bone pain may actually have very low Vitamin D levels – osteomalacia. Our current osteoporosis epidemic is, in my mind, partly due to our years of insufficient Vitamin D intake. Cancer Prevention. There is increasingly strong evidence that Vitamin D plays a protective role in the prevention of breast, prostate, colon and other cancers. Inflammation/Immune balance. Vitamin D has been shown to protect against common infections (more common in the winter when more people become D-deficient). Vitamin D deficiency has been associated with multiple sclerosis, type 1 diabetes, psoriasis, rheumatoid arthritis, inflammatory bowel disease, and periodontal disease. Cardiovascular Health. Vitamin D deficiency has been shown to be related to high blood pressure, heart failure, and elevated hs-CRP (a marker of blood vessel inflammation).

So what isn't Vitamin D good for? Turns out there is at least one thing. Vitamin D should be monitored carefully in people with a sarcoid condition.

Why Is Everyone So Vitamin D Deficient? There are many reasons. Dietary Inadequacies. Milk allergy, lactose intolerance, strict vegetarianism, Vitamin D deficient mother breastfeeding an infant. Decreased Absorption From The Sun. Much less time spent outdoors, SPF (sun protection factor) in all our skin products, darker pigmented people living in northern latitudes. Decreased Absorption From the Intestines. Crohn's disease, cystic fibrosis, celiac disease, liver disease, use of orlistat (Xenical, Alli), use of cholestyramine (Questran) a fiber medication for lowering cholesterol, bariatric surgery for obesity. Increased Requirement for Vitamin D. Obesity (obese people sequester the Vitamin D in fat) and/or increasing age (elderly do not convert the inactive form to the active form in the kidneys efficiently). Increased Excretion of Vitamin D. Use of steroids, phenytoin, phenobarbital.

What To Do? I recommend monitoring and adjusting Vitamin D doses based on blood levels. First, a 25-hydroxy Vitamin D level is checked. Based on how low it is (and it usually is low in people not supplementing), I have people build up their level with a relatively high dose (5,000 IU/day) for 3 months. Dark skinned and obese people will need an even higher dose. At 3 months, if the blood level is around 50 -60ng/ml, I recommend decreasing to a maintenance dose – higher in the winter (2000 IU/day) and lower in the summer (1000 IU/day). Since it is a fat soluble molecule, I recommend taking it in an oil or gelcap form. Toxicity is extremely rare especially if you are monitoring blood levels. Symptoms of toxicity are nausea, vomiting, poor appetite, constipation, weakness, weight loss, confusion, and heart rhythm abnormalities. Some people taking excess Vitamin D and Calcium may have kidney stones and calcium deposits in soft tissue. But as the many benefits of Vitamin D keep accumulating, it seems wise to be supplementing and having your blood levels monitored by your provider.

Dr. Kate Thomsen has a holistic health practice in Pennington, NJ. She is board certified in Family Medicine and in Integrative/Holistic Medicine. For more information visit online at www.drkatethomsen.com. For information about appointments or our upcoming group programs, call the office at 609-818-9700.

Vitamin D Recommendations

Current Doses Considered Adequate Intake:

- Birth to adults < 50: 200 IU per day
- 51 – 70 years old: 400 IU per day
- 71 + years old: 600 IU per day
- American Academy of Pediatrics recommends birth - adult: 400 IU/day

Current Interpretation of Blood levels of 25(OH) Vitamin D

- <10ng/ml: Vitamin D deficiency (rickets, osteomalacia...)
- 10 – 15ng/ml: Inadequate Vitamin D for bone and overall health
- >15ng/ml: Adequate Vitamin D for health
- Consistently > 200ng/ml: Potentially toxic level

Since Adequate Intake is the dose required to prevent disease (rickets), policy makers are reconsidering recommendations to provide Optimal Doses (for health promotion).

Some Authorities Proposed Optimal Doses

- Birth to adult: 400 IU/day
- Adult: 2000 IU/day (more if obese, dark skinned, far northern latitude, winter, heavy smog area...)

Proposed Interpretation of Blood Levels of 25 (OH) Vitamin D

- <32 ng/ml: Inadequate Vitamin D for overall health
- 50 – 60 ng/ml: Adequate Vitamin D for overall health Consistently > 200ng/ml: Potentially toxic level

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