Interview with Dr. Satkirin Khalsa

Vitamin D deficiency:
Health implications for women and children

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What is vitamin D and why is it so important? And why are we all deficient?

Vitamin D is a substance that has many functions in the body that are important to our health as women (don't worry, we'll get to the kids too!!). First, it's a "Vitamin" which means it's necessary for the body and is required as a nutrient, which cannot be synthesized by the body. Vitamins must be ingested from foods or supplements. But that's not all Vitamin D is. It's also a hormone. A hormone is a 'chemical' that IS made by cells in the body and when produced, it has an affect on other cells and tissues in the body. Hormones tell other parts of the body what to do.
To give an example of each:
1) Vitamin C- assists the body in growth and repair of all tissues including collagen and muscles. I always recommend obtaining vitamins and minerals from food first, before going to a supplement. To get your daily Vitamin C allowance, you could eat 1 orange, or 4 brussel sprouts, or 2 kiwi's or 8 strawberries, etc.
1)Hormone- Thyroid Stimulating Hormone (TSH) is produced by a small area in the brain and it gets released into our blood stream and acts as a messenger. It knocks on the door of the thyroid gland (in the neck) and says, "Hey- we need some T3 and T4 for proper metabolism in the body!" So the thyroid gland makes up some T3 and T4 and secretes it. These little powerful workers make sure we feel good and make our tissues (muscles and tendons, and other tissues) perform their daily workload.

So how is Vitamin D a 'vitamin' and a 'hormone'?
We need it to function, and we can ingest it from food, but we can ALSO produce it! As long as we are getting some sunshine everyday, we produce Vitamin D in our skin. When it's produced, it travels through the bloodstream and tells LOTS of our body tissues what to do. We have only just begun to understand all the effects vitamin D, as a hormone, has on all these different tissues. For many years it was believed that it only made our bones strong. So the daily allowance was set at the level where scientists saw bones remained neutral- no breakdown, no overgrowth. This level was 20ng/ml. Any less, and we saw Rickets in children and osteoporosis in adults. *For further details regarding all the diseases we are now learning have a possible correlation with low Vitamin D3 levels, please see references and websites referenced below*.

So what should all women and children do?
First, I would suggest getting your vitamin D checked. Our laboratories out here in New Mexico have finally begun to break down the TOTAL Vitamin D level, so they now report a D2 value and a D3 value. Usually D2 is <5, since it is unstable and

doesn't flow around in our blood stream for very long. And our body doesn't respond to it as well as it does to the D3. The D3 is 'sturdier' and can exist in the blood stream for months. But just as our red blood cells have a 3 months lifespan, Vitamin D3 also has a lifespan, so it must be continuously replaced. This is especially true if you wear lots of sunscreen, at least an SPF of 15 in your general moisturizer and higher if you are out for longer and wear SPF throughout a hike or a soccer game, for example. You are essentially blocking 98% of UVB. Don't stop doing this! You are protecting yourself from harmful rays, especially UVA.

So, what else can we do to get adequate Vitamin D?

Food is a source of Vitamin D, but mostly D2. Our 'fortified' foods are supplemented with D2 (short lifespan, even on the grocery shelf, so you many not get ANY when you ingest it!). Animal sources, such as fish, are a source of D3, but you would have to eat 4 servings of Salmon to get your daily value (my recommendations are at least 2,000 IU daily to maintain normal levels between 40-100ng/ml). Because 90% of my patients (women and children of all ages are deficient, where levels are less than 40), I recommend higher doses with laboratory monitoring till levels normalize. I also monitor more regularly during winter months because UVB during day is much less, especially if you live at higher latitudes.

Where can you get a good Vitamin D3 supplement?

I have researched a few, and a pure, reputable source that I have come across over the internet, and have viewed them in my hand personally, is Dr. Cannell's from www.purityproducts.com

I have e-mailed him to find out if he supplies chewable or liquid form of Vitamin D3 for children, and will report back once I hear. I'm sure you may have found other sources on your own that you trust, so stick with what you have found to be reputable.

For those of you that need high dose replacement (with blood levels less than 30, in my own practice), I replace with Vitamin D3, 50,000IU weekly. Laboratory work for my patients is done every 3 months till we find a stable range, either using the prescriptive weekly dose, or a daily dose. I have found chain pharmacies are dispensing high dose Vitamin D2, and lab values indicate high D2 and the D3 levels are routinely less than 10. This is not good, as you want D3, not D2. So here in my town, I send my patients to the local compounding pharmacies to get high dose D3.

Information regarding your children:

"After adjusting for age, sex, race/ethnicity, body mass index, socioeconomic status and physical activity, researchers found the adolescents with the lowest levels of vitamin D were:

- 2.36 times more likely to have high blood pressure;
- 2.54 times more likely to have high blood sugar; and
- 3.99 times more likely to have metabolic syndrome."

Source: http://americanheart.mediaroom.com/index.php?s=43&item=691

For more vitamin D information visit:

http://www.Vitamindcouncil.org
http://www.Vitamindrevolution.com

For information regarding vitamin D and the flu:
http://www.scientificamerican.com/blog/60-second-science/post.cfm?id=vitamin-d-deficiency-linked-to-more-2009-02-23

Other References & Resources

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2) Thomas Wang, MD (Harvard) et al 4/08 presentation AHA Arteriosclerosis, Thrombosis and Vascular Biology annual meeting, Atlanta

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4) Giovannucci Journal of the National Cancer Institute 2006 98(7):451-459;doi:10.1093/jnci/djj101

5) Goodwin P et al Prognostic effects of 25-hydroxyvitamin D levels in early breast cancer. J Clin Oncol 2009 May 18

6) Brita M et al Journal of Peds 154:132-134, 2009

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