

Vitamin D & Health

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1. Vitamin D Deficiency Defined

- a. A vitamin D deficiency is defined as blood levels of 25-hydroxy vitamin D below 20ng/ml. insufficient levels are 20-32ng/ml and sufficient levels are more than 32ng/ml. Optimal levels of vitamin D are yet to be determined . . . some researchers suggest that levels be closer to 45-50ng/ml
- b. To determine vitamin D status blood levels of 25-hydroxy vitamin D should be checked NOT 1,25-hydroxy vitamin D. 25-hydroxy vitamin D is the “stored form”. 1,25-hydroxy vitamin D is the “active form”. The active form of vitamin D is almost always normal and will not reflect an actual deficiency.
- c. Vitamin D deficiency or insufficiency is common in the U.S. amongst all age groups—63% are below 32ng/ml.
- d. Historical sources of vitamin D were sunshine exposure to the skin and consumption of fatty seafood. There are few other natural sources of vitamin D. Vitamin D was added to milk in the 1920’s to treat the epidemic of rickets that was seen in children attending school (no sunshine!). Milk continues to be fortified to this day.
- e. We have limited sun exposure during optimal times (May-Oct., 10am-2pm) and we eat minimal amounts of seafood—contributing to a worldwide vitamin D deficiency. Our consumption of vitamin D fortified milk has also declined over the past 20 years. It is strongly recommended that we use sunscreen . . . which blocks the sun UVB rays that are responsible for the vitamin D conversion in the skin. (Continue to use your sunscreen however!)
- f. The following are at higher risk of vitamin D deficiency: seniors, persons with darker skin color, obese persons and persons with diabetes or elevated blood pressure.

2. Vitamin D is not a vitamin it is a hormone!

- a. Body hormones (such as insulin, estrogen, thyroid, etc.) are proteins that are in charge of running various activities in the body. They are very, very important.
- b. “Hormone D” is in charge of the repair and maintenance of the body. Think of it like you would your car mechanic. Hormone D directs the repair and maintenance of ALL body parts—bones, blood vessels, kidneys, brain tissue and more! Nearly every cell of the body has a garage where vitamin D car park and do its directing.

3. Diseases associated with vitamin D deficiency:

The following are conditions that have been associated with vitamin D deficiency. Please note that this does not mean that vitamin D deficiency causes these conditions—we need more research before we can make that conclusion. We only know that people who have these conditions are commonly deficient in vitamin D.

- a. **Auto-immune disease;** Type 1 diabetes, Multiple sclerosis, Lupus, Arthritis
- b. **Reduced immune response:** Increased risk of influenza and respiratory infections
- c. **Reduced insulin sensitivity/ reduced β -cell insulin release:** Increased risk of type 2 diabetes & metabolic syndrome
- d. **Elevated blood pressure/increased risk of heart disease**
- e. **Depression**

- f. **Fibromyalgia**
- g. **Psoriasis**
- h. **Irritable bowel syndrome (IBS)**
- i. **Reduced lower extremity neuromuscular function:** Increased risk of falling, muscle weakness, body aches & pains
- j. **Cancer:** Breast, colon, lung, prostate, lymphoma

4. **Recommended intake of Vitamin D3 (not vitamin D2 . . . D3 is better absorbed & utilized)**

- a. The current recommended daily intakes of vitamin D are:: 0-50 yrs: 200 IU, 51-70 yrs: 400 IU, >70 yrs: 600 IU, Safe upper limit is 2000 IU/day
- b. The Institute of Medicine is in the process of updating these recommendations to keep current with the recent research. They have not yet done so. Frustrated with the current recommendations the American Academy of Pediatrics DOUBLED the recommendations for children from 200 IU to 400 IU per day of vitamin D 2 years ago. An expert panel believes that the safe upper limit of vitamin D should be increased well beyond the 2000 IU per day.
- c. Vitamin D is a fat soluble vitamin and is stored in the body. If excess amounts are consumed it can be TOXIC and can cause excess calcium to be stored in body tissues. Supplementation of vitamin D with amounts exceeding 2000 IU per day should be based on vitamin D deficiency assessed by a blood test and supervised by a physician or other health care provider. Treatment of vitamin D deficiency may require very high doses for 6-8 weeks.
- d. Most persons can safely consume a daily supplement of 800-2000 IU/day of vitamin D3. If desired, vitamin D3 can be taken once a week in doses of 6000-14,000 IU. Vitamin D3 drops are a convenient form of supplementation.
- e. Those with NO history of skin cancer might choose to obtain their vitamin D from the sunshine (impossible between October-May!). Arms, legs and face can be exposed to the sun for 15 minutes between the hours of 10am-2pm and between the months of May-October. During these months and daytime hours the sun angle is high enough in the sky to allow the UVB rays to reach the earth.

5. **For more information see:**

- a. www.VitaminDCouncil.org
- b. Scientific America Article: <http://www.sciam.com/article.cfm?id=cell-defenses-and-the-sunshine-vitamin>
- c. Linus Pauling Institute: <http://lpi.oregonstate.edu/infocenter/vitamins/vitaminD/>
- d. LifeQuest Vitamin D Class—788-6720