

Health Notes by Evelyn Ames Importance of Vitamin D

Recent news reports suggest the importance of Vitamin D in maintaining a healthy body and possibly preventing certain diseases. Vitamin D is found in food (e.g., fortified milk, fatty fish) and is made in the body (liver and kidneys help convert D to its active hormone form) following exposure to the sun's ultraviolet rays. "Vitamin D is a fat-soluble vitamin that is naturally present in very few foods, added to others, and available as a dietary supplement. It is also produced endogenously when ultraviolet rays from sunlight strike the skin and trigger vitamin D synthesis. Vitamin D obtained from sun exposure, food, and supplements is biologically inert and must undergo two hydroxylations in the body (in the liver and kidneys) for activation" (NIH, Office of Dietary Supplements, 2008).

What Vitamin D does: Maintains normal blood levels of calcium and phosphorus, aids in absorption of calcium to form and maintain strong bones, and promotes bone mineralization.

Sources of Vitamin D:

- Fortified foods are major dietary sources (e.g., one cup of "D fortified milk supplies about one-fourth of the estimated daily need for this vitamin in adults" (National Institutes of Health, 2001). Breakfast cereals, pastries, breads, crackers, cereal grain bars and other foods may be fortified with 10% to 15% of recommended daily value for vitamin D. Check labels to see which food products are fortified with D.
- Significant amounts of D are found in fatty fish and fish oil.
- **Exposure to sunlight is an important source of vitamin D.** Ultraviolet (UV) rays from sunlight trigger vitamin D synthesis in the skin. Twenty minutes in the sun without sunscreen can raise levels of D. It is highly recommended that individuals who spend more time indoors include good sources of vitamin D in their diets.
- Vitamin D supplements.

Older Americans (greater than age 50) are thought to have a higher risk of developing vitamin D deficiency. The ability of skin to convert vitamin D to its active form decreases as we age. The kidneys, which help convert vitamin D to its active form, sometimes do not work as well when people age. Therefore, some older adults may need vitamin D from a supplement. It is important for those with limited sun exposure to include good sources of vitamin D in their diets. Excessive sun exposure does not result in vitamin D toxicity because the sustained heat on the skin is thought to photodegrade previtamin D₃ and vitamin D₃ as it is formed. High intakes of dietary vitamin D are very unlikely to result in toxicity unless large amounts of cod liver oil are consumed; toxicity is more likely to occur from high intakes of supplements.

Vitamin D and disease: "Further research is needed to determine whether vitamin D inadequacy in particular increases cancer risk, whether greater exposure to the nutrient is protective, and whether some individuals could be at increased risk of cancer because of vitamin D exposure." "A growing body of research suggests that vitamin D might play some role in the prevention and treatment of type 1 and type 2 diabetes, hypertension, glucose intolerance, multiple sclerosis, and other medical conditions. However, most evidence for these roles comes from in vitro, animal, and epidemiological studies, not the randomized clinical trials considered to be more definitive" (National Institutes of Health, Office of Dietary Supplements, 2008).

Is there a risk of too much vitamin D? It is unlikely unless one routinely consumes large amounts of cod liver oil or has high intakes of vitamin D supplements. Toxicity can cause nausea, vomiting, poor appetite, constipation, weakness, and weight loss. It can also raise blood levels of calcium, causing mental status changes such as confusion. High blood levels of calcium also can cause heart rhythm abnormalities.

For more information about building a healthful diet, refer to the *Dietary Guidelines for Americans* (<http://www.health.gov/dietaryguidelines/dga2005/document/default.htm>)