VITAMIN D UPDATE

Deficiencies Contribute to Autoimmune Diseases and Various Cancers

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Recent evidence shows that vitamin D deficiencies are widespread and contribute to autoimmune diseases as well as various cancers. Blood tests of vitamin D are essential.

What is Vitamin D?

Vitamin D is a nutrient hormone although it's not a vitamin in the classic sense. Vitamin D exists as an inactive prohormone until it is metabolized within the body to a steroid hormone. Deficiencies of vitamin D have been found to contribute to various cancers and autoimmune diseases, particularly conditions of type 1 diabetes, multiple sclerosis, and psoriasis. Recent studies indicate that there’s a critical need for testing blood levels of vitamin D.

Sources of Vitamin D

About 80 percent of the body’s supply of vitamin D is produced photochemically when ultraviolet radiation from sunlight reacts with a precursor chemical found in the skin. The end product is vitamin D3 or cholecalciferol. The liver metabolizes vitamin D3 into calcidiol, which is the main form of vitamin D that circulates in the blood. The kidneys then convert calcidiol into compounds that bind with protein. Linked to protein, vitamin D travels to various organs within the body.

With age, the body’s ability to manufacture vitamin D declines. Sunblocks, cloud covers, and pollution also reduce absorption of vitamin D. Recent studies show that vitamin D deficiency is widespread, especially among minority groups. Levels of vitamin D are also low in celiac disease, Crohn’s disease, and in pancreatic enzyme insufficiency. Besides sunlight, vitamin D is available from cod liver oil, fatty fish, and vitamin D-fortified milk.

Functions of Vitamin D

Vitamin D maintains blood levels of both calcium and phosphorus. These minerals are essential for the support of normal neuromuscular function and skeletal mineralization. Without adequate vitamin D, calcium is leached from blood, causing rickets in children and osteomalacia in adults. In addition, low calcium levels (hypocalcemia) can lead to low levels of parathyroid hormone (hypoparathyroidism).

At the Cellular Level
At the cellular level, vitamin D supplementation can help prevent or reduce disease progression. In certain malignancies, such as prostate cancer, vitamin D acts as an anti-inflammatory agent by downregulating the enzyme cyclo-oxygenase II. Vitamin D also downregulates pro-inflammatory cytokines and increases levels of anti-inflammatory cytokines. In recent prostate cancer studies, the addition of vitamin D to chemotherapeutic agents resulted in markedly improved outcomes.

**Blood Levels**

In general, levels of at least 80 nmol or 32 ng/ml are needed to maintain health. The adequate intakes are 200 IU (5 mg) daily up to age 50 and 400 IU (10 mg) for people between the ages of 51 and 70. After age 70, the recommended intake of vitamin D is 600 IU (15 mg) daily.

**Resource:**


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