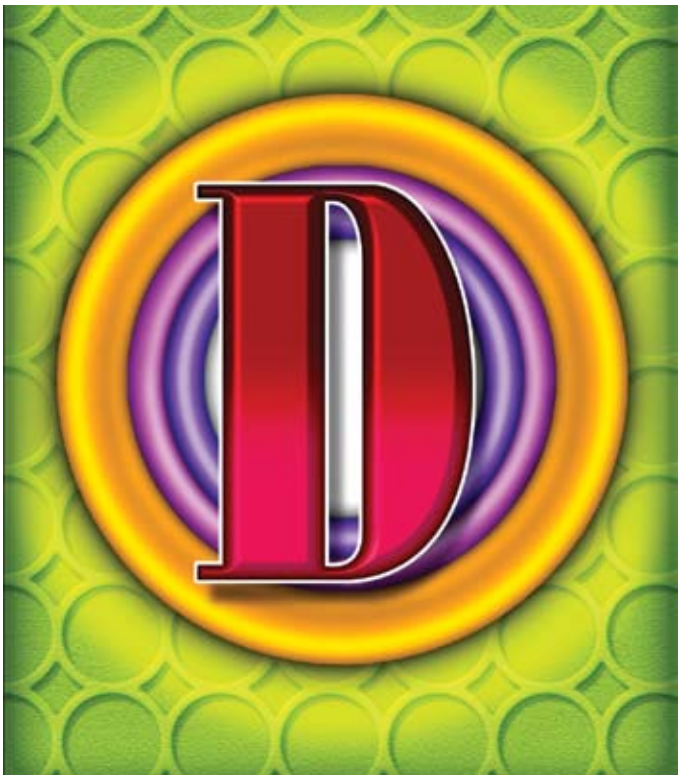
vitamin d: more than bones about it

by Carol Plotkin, MS, RD



What do osteoporosis, multiple sclerosis, diabetes, insulin resistance, arthritis, muscle weakness, gum disease, and cancers of the colon, pancreas, prostate, and breast have in common? These conditions belong to a growing list of illnesses that vitamin D may help to prevent.

Vitamin D is a hormone produced in the body by the action of sunlight on the skin. Practically every human cell has receptors for vitamin D. It impacts cell growth and proliferation, how the body makes bone, muscle, and insulin, and how the immune system works. That's a lot for one little vitamin. Unfortunately, during the Rochester winter there is typically not enough sunlight for the skin to make sufficient vitamin D, so resorting to supplements is necessary.

Here's a brief review of the evidence.

Bones: Vitamin D helps the body absorb calcium. When vitamin D intake is adequate, less calcium is needed to improve bone density and to prevent bones from breaking.

Muscle: Muscle tissue has receptors for vitamin D, which suggests that it is important for muscle function. It has been associated with muscle growth and strength in older people, and with improvements in balance and a lower risk of falling.

Gums: Many studies have identified a link between low vitamin D levels and gum disease. Older people given vitamin D supplements daily for three years had 60% less tooth loss. Vitamin D is thought to suppress the inflammation that influences gum disease.

Cancer: Animal studies show that vitamin D makes cancer cells less likely to multiply and more likely to die. The evidence in people is more complex, but higher vitamin D levels are associated with decreased risk of certain cancers, which makes it the most promising nutritional adjunct for the treatment of cancer.

Diabetes: Preliminary evidence suggests that vitamin D may prevent Type 2 diabetes by promoting insulin secretion and decreasing insulin resistance. Many diabetics are overweight, which increases the body's need for vitamin D.

Osteoarthritis: Low blood levels of vitamin D have been associated with knee and hip arthritis. In normal bone growth, cartilage cells lose their vitamin D receptors when the bones stop growing. In arthritis, the cartilage cells are stressed and vitamin D receptors reappear. Vitamin D is necessary for cartilage as well as bone.

Immune system: Vitamin D is important for a normally functioning immune system. Immune cells use vitamin D to make proteins necessary to fight bacteria.

Vitamin D is also being studied in autoimmune disease. Children with Type 1 diabetes were noted to have low blood values of vitamin D. Researchers are giving infants at high risk for Type 1 diabetes 2,000 IU of vitamin D daily to see if it can prevent the disease. Another study showed that women who supplemented with 400 IU of vitamin D daily were 40% less likely to develop multiple sclerosis.

How Much?

The skin makes thousands of units of vitamin D when exposed to sunlight. The safe upper limit of vitamin D (2,000 IU) is being re-examined as researchers are currently giving patients anywhere from 1,000 IU to 6,000 IU daily without adverse effects. Current recommendations are between 200-600 IU, depending on age.

Very few foods contain vitamin D, so taking 1,000 IU of vitamin D daily seems warranted. Since most multivitamins contain 400 IU of vitamin D, add an individual vitamin D supplement containing 400 IU and a couple of cups of low fat milk and you'll get 1,000 IU of vitamin D daily. Make sure your vitamin D supplement is D3 (cholecalciferol) and not the less potent D2 (ergocalciferol). Those with special conditions should talk with their doctor about taking more.

About the Author Carol Plotkin, MS, RD, is a registered dietitian. She is owner of ON NUTRITION, a nutrition practice specializing in wellness/disease prevention and sports nutrition. To find out more about her services, go to rochesternutrition.com or contact her at cplotkin@rochesternutrition.com.