

Vitamin D

Most people are familiar with vitamin D's role in helping the body absorb calcium from the diet and preventing rickets in children. Vitamin D along with calcium is critical for skeletal mineralization and most studies on vitamin D insufficiency have focused on bone health. There are many ongoing studies about the health relationships between Vitamin D insufficiency and chronic conditions such as diabetes, multiple sclerosis and cancer, but according to the Institute of Medicine, there is currently inadequate data to link health benefits to a particular level of vitamin D intake other than bone health.

Vitamin D is actually a hormone and not technically a vitamin. Vitamin D is predominantly made by the action of ultraviolet light (sunlight) on 7-dehydrocholesterol, the vitamin D precursor that is found in the skin. Ninety per cent or more of our vitamin D comes from the sun. Inadequate sun exposure of the skin due to use of sunscreen or limited time outdoors may lead to lower vitamin D levels. Even in countries near the equator, people may have much of their skin area covered for cultural reasons which blocks the synthesis of vitamin D in the skin.

Vitamin D can also be obtained through dietary sources. Food sources high in vitamin D include salmon, mackerel, tuna and vitamin D fortified milk, yogurt and orange juice. Other sources of vitamin D are sardines, liver, margarine, eggs and vitamin D fortified ready-to-eat breakfast cereals.

Who is at risk?

People with Limited Sunlight Exposure

People who have limited sunlight exposure because of location, season of the year, indoor work environment or cultural dress habits may have low vitamin D levels. In people at high risk for sun-related skin damage and/or skin cancer, it may be advisable to continue avoiding the sun while increasing food sources of vitamin D and when necessary, taking vitamin D supplements. Consult with your clinician as to what is best for you.

Dark-skinned People

Higher melanin levels in the skin of dark-skinned people block the action of sunlight on vitamin D precursors in the skin, requiring much longer sunlight exposure to generate adequate circulating vitamin D compared to fair-skinned people.

People with Evidence of Stress Fractures or Osteoporosis

These conditions may be associated with possible vitamin D insufficiency. Vitamin D deficiency can contribute to bone loss related to decreased calcium absorption and resultant hyperparathyroidism. Consult with your clinician as to whether vitamin D supplementation is appropriate for you.

People with Certain Malabsorption Conditions

People who have certain conditions that increase the risk of malabsorption such as pancreatitis, celiac sprue, short bowel syndrome, Crohn's disease, cystic fibrosis and some weight loss surgeries may be at higher risk for vitamin D insufficiency since vitamin D absorption requires some dietary fat in the gut. Consult with your clinician as to what is best for you.

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People with Severe Liver and Kidney disease

People who have severe renal or liver disease may be at increased risk of vitamin D insufficiency. Discuss your needs with your clinician.

Overweight or Obese People

Vitamin D can be locked up in fat stores in obese people, who have been found to have lower levels of 25-hydroxyvitamin D and may be at risk of deficiency. Discuss your needs with your clinician.

Breast-fed Infants and Children with Limited Sunlight Exposure

All children require adequate circulating vitamin D to prevent rickets. Dark-skinned children and those who spend much of the day in indoors are at risk of insufficiency. Breast-fed children may receive inadequate amounts of vitamin D especially when their mother is deficient.

The Elderly

Amounts of the vitamin D precursor in the skin decrease with age, therefore elderly people are particularly prone to deficiency. Elderly persons who are living in care facilities or becoming home-bound often have limited exposure to sunshine and can be at risk for vitamin D deficiency. Muscle weakness and osteoporosis associated with vitamin D deficiency make the elderly more susceptible to falling and fracture risk, and research indicates that vitamin D supplementation may decrease the risk of fractures.

Should I take vitamin D supplements?

If you feel your sun exposure, diet or health history put you at increased risk for low vitamin D levels; speak with your health care provider about vitamin D supplementation. The usual recommended dose of vitamin D supplementation, in the form of vitamin D3, is 600-1000 IU/day. While vitamin D supplementation is generally considered safe, exceeding recommended dosing may increase the risk of adverse health effects. Speak with your health care provider about whether to take vitamin D supplements on an ongoing basis.

It is also important to remember that adequate calcium intake is necessary to support bone health along with vitamin D. Adequate calcium intake is generally agreed to be 1000 mg/day for people aged 19-50, excluding pregnant and lactating women who need more calcium. Dietary sources of calcium are preferred.

Should I have my vitamin D tested?

Vitamin D testing is not currently recommended for healthy asymptomatic adults. Vitamin D levels are known to change with the seasons, sun exposure and dietary intake. There is still not a consensus as to the optimal level of vitamin D needed to maintain healthy bone mass and minimize the risk of fracture. Levels of 25-hydroxyvitamin D between 20-30 ng/ml are generally considered to be adequate for bone and overall health in healthy individuals. Consult with your clinician on what is right for you.

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