



HOW VITAMIN D AFFECTS BONE HEALTH

SEARCH

WHAT IS VITAMIN D?

Vitamin D is important for maintaining bone health. It affects bones by controlling the body's levels of calcium and phosphate, which are critical for building new bone. Vitamin D controls calcium and phosphate levels in three ways:

1. how much we absorb from our diet
2. how much is within our bones
3. how much we excrete

We get vitamin D from our diet, sun exposure, and oral supplements like multivitamins. Only a few foods naturally contain vitamin D. These include some oil-rich fish, certain mushrooms, and egg yolks. Most of our dietary vitamin D comes from fortified dairy products, cereals, and bread products. The sun provides a major source of vitamin D, but sunscreen, which protects against sunburn and skin cancer, decreases the skin's production of vitamin D.

What is low vitamin D?

Low vitamin D is very common in all regions of the globe. In the United States, approximately 30% of the population has a low vitamin D level. Factors that increase the risk of having low vitamin D include low dietary intake and low sun exposure, which often occurs in colder climates and during the winter months.

In addition, women, older people, and those with darker skin are all more likely to have low vitamin D levels. Some conditions associated with low vitamin D include being overweight, kidney failure, liver failure, dietary malabsorption syndromes, and parathyroid problems. Smoking and taking certain medications such as oral steroids and some seizure medicines can cause low vitamin D. There are also some genetic disorders that cause low vitamin D.

Several bone health problems are associated with low vitamin D, including low bone density (osteoporosis) and rickets in children. People with chronically low vitamin D are more likely to have low bone density and are more likely to experience breaks or fractures. Researchers have also linked low vitamin D levels to broken bones of the foot or ankle. In addition, research suggests that broken bones are less likely to heal without adequate vitamin D.

What can I do if I have low vitamin D?

Several large research studies have shown that taking vitamin D decreases the risk of fractures. This includes foot and ankle fractures as well as other fractures, such as hip and wrist fractures. Improved fracture healing has also been found in people taking vitamin D. For this reason, many doctors recommend testing vitamin D levels (through a blood test) for people who are at risk of low vitamin D. Treatment is typically with oral vitamin D and calcium.

Who should have a vitamin D level checked?

Anyone with a low-energy fracture (often called a **stress fracture**), especially if it is slow to heal, should speak with an orthopaedic surgeon or primary care doctor about testing a vitamin D level. Additionally, patients at particular risk of low vitamin D because of medical conditions, including but not limited to kidney disease and parathyroid disorders, should discuss a vitamin D check with their doctor.

What level of vitamin D is considered to be low?

Most doctors consider a vitamin D level of less than 30 to be low. Treatment typically attempts to raise the vitamin D level above 30.

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