

Vitamin D Deficiency

Vitamin D keeps our bodies healthy and builds strong bones. It does this by helping the body absorb calcium and phosphorous from foods and supplements. Vitamin D may also protect us from heart disease, high blood pressure, diabetes, infections and immune system problems, some types of cancer (colon, breast, and prostate) and multiple sclerosis (MS).

If your child has a vitamin D deficiency it means they do not have enough vitamin D in their body. Most people with a vitamin D deficiency do not have any symptoms. If they do, common symptoms are muscle weakness or cramps, bone pain, feeling tired or being depressed.

Vitamin D deficiency can cause babies and children to get rickets. Rickets is a disease that causes thin, weak and deformed bones. In adults, not having enough vitamin D and calcium causes osteoporosis (loss of bone density) and can lead to fractures (broken bones). When vitamin D is low, glands in the body take calcium from the bones to keep calcium levels in the blood within normal range.

The most common cause of Vitamin D deficiency is lack of proper nutrition. It can also be due to genetic disorders, but this is rare. The disorders are 25- hydroxylase deficiency, 1-alpha-hydroxylase deficiency and hereditary resistance to vitamin D.

Vitamin D levels

Know your child's vitamin D level number as shown below. Your child's health care provider will share their number with you.

Number	What it means
less than 21	deficient (very low level)
21-29	insufficient (does not have enough)
30-120	sufficient (has enough)
over 120	has too much

Levels lower than normal mean your child is **not**

- making enough vitamin D on their own, **or**
- getting enough vitamin D in the diet, **or**
- absorbing as much vitamin D from food as they should, **or**
- getting enough vitamin D from sun exposure.

Above normal levels mean your child is taking too much vitamin D supplement.

Risk factors

Those at risk for Vitamin D deficiency include:

- Babies who are breast fed and do not get vitamin D supplements.
- Children who do not drink enough milk or eat foods with added vitamin D.
- Premature babies. These babies have less time to get vitamin D from their mother during the third trimester of pregnancy.
- Babies, children, and adults who spend most of their time indoors or live in a climate that is cloudy or cold most of the time. Sunlight helps your body make vitamin D.
- People who have darker skin pigment. Dark skins needs more time in the sun to absorb enough vitamin D.
- People who are obese. Fat cells keep the body from being able to use vitamin D.
- People who had bariatric surgery.
- Older people. The skin's ability to make vitamin D decreases when you are over 50 years old.
- People taking certain medicines (anti-convulsant, gluco-corticoids, HIV medicines).
- People with medical conditions like cystic fibrosis, Crohn's disease, celiac disease, or kidney and liver diseases. With these diseases vitamin D is not absorbed as easily.

Diagnosis

Your child will have a blood test to screen for vitamin D deficiency. The test checks 25 – hydroxyvitamin D, and sometimes 1,25 di-hydroxyvitamin D, parathyroid hormone, and calcium levels. When you have this blood test, you get the results in 1 to 2 days. Your health care provider will let you know if your child needs a supplement.

Treatment

Your health care provider may prescribe Vitamin D supplements. Your child may take them one time each day or one time each week depending on their needs.

Diet

When your child has a vitamin D deficiency their health care provider will ask you to give them foods that have vitamin D such as:

- baby formula, milk, orange juice or yogurt with vitamin D added
- cooked salmon or mackerel
- canned tuna
- cereals or bread with vitamin D added
- cod liver oil
- vegetables high in vitamin D like spinach, kale, okra, and collard greens
- egg yolks

Activity

Your child can get vitamin D from the sun. Playing outside can help them get exercise and vitamin D at the same time.

However, to avoid sunburn, it is important to:

- protect children with sunscreen with a sun protection factor (SPF) of 15 or higher.
- limit their time in the sun from 10 a.m. to 4 p.m. when the sun's rays are the strongest.

If you have a question about your child's vitamin D deficiency, call their health care provider.