



Patient Resources

Vitamin D

What is vitamin D and what does it do?

Vitamin D is also known as the 'sunshine vitamin' our bodies make vitamin D when our skin is exposed to the sun. This nutrient can be found in some foods, but not many, which is why some foods are fortified, or enhanced, with vitamin D. This nutrient is important for many functions in our body including:

- Maintenance of strong, healthy teeth and bones
- Protection of muscle function and strength
- Immune system to fight off infections
- Cardiovascular function for a healthy heart and circulation
- Respiratory function for healthy lungs and airways
- Brain development

How much vitamin D do I need?

The recommended amount of vitamin D needed each day depends on your age and are set on the assumption of little sun exposure. The average daily recommended amounts from the Food and Nutrition Board (a national group of experts) for different ages are listed below in International Units (IU):

Life Stage	Recommended Amount
Birth to 12 months	400 IU
Children 1–13 years	600 IU
Teens 14–18 years	600 IU
Adults 19–70 years	600 IU
Adults 71 years and older	800 IU
Pregnant and breastfeeding women and teens	600 IU

What kinds of vitamin D dietary supplements are available?

There are two forms of vitamin D: D₂ (ergocalciferol) and D₃ (cholecalciferol). Both increase vitamin D in the blood.

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Adapted from National Institutes of Health: Office of Dietary Supplements
& the Food and Drug Administration

What foods provide vitamin D?

There are very few foods that naturally have vitamin D. Fortified foods provide most of the vitamin D in American diets. The best sources include:

- Fatty fish such as salmon, tuna, and mackerel
- Beef liver, cheese, and egg yolks have lesser amounts of vitamin D
- Mushrooms provide some vitamin D
- Almost all the U.S. milk supply is fortified with 400 IU of vitamin D per quart, but foods made from milk, such as cheese and ice cream, are usually not fortified.
- Vitamin D is added to many breakfast cereals and to some brands of orange juice, yogurt, margarine and soy beverages; check the nutrition facts label to be certain.

Can I get vitamin D from the sun?

Our bodies can make vitamin D when our skin is directly exposed to the sun. This means that if our skin is exposed to sunshine indoors through a window, our bodies will not be able to produce vitamin D. Other barriers to our bodies making vitamin D include cloudy days, shade, and having dark-colored skin.

Although sun exposure is important to vitamin D production, it is also important to limit sun exposure to reduce your risk for skin cancer. We encourage you to wear protective clothing and apply sunscreen with an SPF (sun protection factor). Tanning beds also cause the skin to make vitamin D, but can pose similar risks for skin cancer.

How do I know if I'm getting enough vitamin D?

A blood test is the best way to find out if you are getting enough vitamin D. In general, young people tend to have higher levels of vitamin D than older people and males have higher levels than females. By race, non-Hispanic blacks tend to have the lowest levels and non-Hispanic whites the highest. Other groups that may not get enough vitamin D:

- Older adults, since their skin is less efficient at making vitamin D when they were young and their kidneys are less able to convert vitamin D to its active form.
- People with dark skin, because their skin has less ability to produce vitamin D from the sun.
- People with disorders such as Crohn's disease or celiac disease who don't handle fat properly, because vitamin D needs fat to be absorbed.
- Obese people, because their body fat binds to some vitamin D and prevents it from getting into the blood.

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What happens if I'm not getting enough vitamin D?

If you're not getting enough vitamin D, you are considered vitamin D deficient, which means that you do not consume or absorb enough from food, your exposure to sunlight may be limited, or your kidneys are unable to convert vitamin D to its active form in the body. In adults, vitamin D deficiency leads to osteomalacia, which is a softening of the bones and causes both bone pain and muscle weakness.

What are some effects of vitamin D on health?

Vitamin D is being studied for its possible connections to several diseases and medical problems, including: diabetes, hypertension, and autoimmune conditions such as multiple sclerosis, bone disorders (osteoporosis) and some types of cancer (colon, prostate and breast cancers).

Can vitamin D be harmful?

Yes. High levels of vitamin D can be toxic; signs of toxicity may include:

- Nausea, vomiting
- Poor appetite
- Constipation
- Weakness
- Weight loss
- Confusion, disorientation
- Irregular heart rhythm

Vitamin D toxicity often occurs from overuse of supplements. Excessive sun exposure does not cause vitamin D toxicity because our bodies limit the amount of vitamin D it produces as a safeguard.

Are there any interactions with vitamin D that I should know about?

Like most dietary supplements, vitamin D may interact or interfere with other medicines or supplements you might be taking. It is very important that you discuss all the medicines and dietary supplements you are taking with your doctor, pharmacist and other health care providers. Examples of interactions include:

- Prednisone and other corticosteroid medications to reduce inflammation impair how the body handles vitamin D, which leads to lower calcium absorption and loss of bone over time.
- Both the weight-loss drug orlistat (brand names Xenical® and Alli®) and the cholesterol-lowering drug cholestyramine (brand names Questran®, LoCholest®, and Prevalite®) can reduce the absorption of vitamin D and other fat-soluble vitamins (A, E, and K)

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Where can I found out more about vitamin D?

For general information on vitamin D:

- Office of Dietary Supplements Health Professional Fact Sheet on Vitamin D
- Vitamin D, Medline Plus

For more information on food sources of vitamin D:

- U.S. Department of Agriculture's (USDA's) National Nutrient Database
- Nutrient list for vitamin D (listed by food or vitamin D content), USDA