

Vitamin D

Cholecalciferol; Vitamin D3; Ergocalciferol; Vitamin D2

Last reviewed: February 8, 2011.

Vitamin D is a fat-soluble vitamin. Fat-soluble vitamins are stored in the body's fatty tissue.

Function

Vitamin D helps the body absorb [calcium](#) . Calcium and phosphate are two minerals that are essential for normal bone formation.

Throughout childhood, your body uses these minerals to produce bones. If you do not get enough calcium, or if your body does not absorb enough calcium from your diet, bone production and bone tissues may suffer.

Vitamin D deficiency can lead to [osteoporosis](#) in adults or [rickets](#) in children.

Food Sources

The body makes vitamin D when the skin is directly exposed to the sun. That is why it is often called the "sunshine" vitamin. Most people meet at least some of their vitamin D needs this way.

Very few foods naturally contain vitamin D. As a result, many foods are fortified with vitamin D. Fortified means that vitamins have been added to the food.

Vitamin D is found in the following foods:

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Dairy products

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Cheese

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Butter

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Cream

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Fortified milk (all milk in the U.S. is fortified with vitamin D)

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Fatty fish (such as tuna, salmon, and mackerel)

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Oysters

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Fortified breakfast cereals, margarine, and soy milk (check the Nutrition Fact Panel on the food label)

It can be very hard to get enough vitamin D from food sources alone. As a result, some people may need to take a vitamin D supplement. Vitamin D found in supplements and fortified foods comes in two different forms:

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D2 (ergocalciferol)

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D3 (cholecalciferol)

Side Effects

Too much vitamin D can make the intestines absorb too much calcium. This may cause high levels of calcium in the blood. High blood calcium can lead to:

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Calcium deposits in soft tissues such as the heart and lungs

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Confusion and disorientation

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Damage to the kidneys

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[Kidney stones](#)

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Nausea, vomiting, constipation, poor appetite, weakness, and weight loss

Recommendations

Ten to 15 minutes of sunshine three times weekly is enough to produce the body's requirement of vitamin D. The sun needs to shine on the skin of your face, arms, back, or legs (without sunscreen). Because exposure to sunlight is a risk for skin cancer, you should use sunscreen after a few minutes in the sun.

People who do not live in sunny places may not make enough vitamin D. Skin that is exposed to sunshine indoors through a window will not produce vitamin D. Cloudy days, shade, and having dark-colored skin also cut down on the amount of vitamin D the skin makes.

The Recommended Dietary Allowance (RDA) for vitamins reflects how much of each vitamin most people should get on a daily basis.

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The RDA for vitamins may be used as goals for each person.

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How much of each vitamin you need depends on your age and gender. Other factors, such as pregnancy and your health, are also important.

Infants (adequate intake of vitamin D)

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0 - 6 months: 400 IU (10 micrograms (mcg) per day)

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7 - 12 months: 400 IU (5 mcg/day)

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Children

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1 - 3 years: 600 IU (15 mcg/day)

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4 - 8 years: 600 IU (15 mcg/day)

Older children and adults

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9 - 70 years: 600 IU (15 mcg/day)

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Adults over 70 years: 800 IU (20 mcg/day)

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Pregnancy and breast-feeding: 600 IU (15 mcg/day)

In general, people over age 50 need higher amounts of vitamin D than younger people. Ask your health care provider which amount is best for you.

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Vitamin D toxicity almost always occurs from using too many supplements.

The safe upper limit for vitamin D is:

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1,000 to 1,500 IU/day for infants

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2,500 to 3,000 IU/day for children 1 - 8 years

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4,000 IU/day for children 9 years and older, adults, and pregnant and breast-feeding teens and women

One microgram of cholecalciferol (D3) is the same as 40 IU of vitamin D.