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Facts About Vitamin D[1]

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Why do we need vitamin D?

Vitamin D is needed for the absorption of calcium and phosphorus, required for strong bones and teeth, and it helps with bone formation. Vitamin D also helps keep the immune system functioning normally, so our bodies can resist disease.

Figure 1. In the United States, most milk is fortified with vitamin D. Many plant-based milks have vitamin D added.
Credit: Noel Hendrickson/Digital Vision/ istockphoto.com

What happens if we do not get enough vitamin D?

Lack of vitamin D affects bones and many other parts of the body. Growing children who do not get enough vitamin D may have bones that are too soft and unable to support their weight, a disease known as rickets. Adults deficient in vitamin D can develop soft bones (osteomalacia). They can also lose bone mass, which leads to fragile bones that are at risk of fracturing (osteoporosis).

How much vitamin D do we need?

We need to get enough vitamin D from all sources to have adequate levels of it in our blood. Current vitamin D intake recommendations for healthy people are shown in Table 1. Some people may need more vitamin D. For example, persons with certain diseases and conditions may be at higher risk of having low levels of vitamin D in their blood. Your physician may suggest a higher intake than current recommendations.

How can we get enough vitamin D?

We get vitamin D from three sources—food, supplements, and sunlight.

Figure 2. Salmon is a rich source of vitamin D, and broccoli is a good source of calcium. The two nutrients work together in our bodies.
Credit: Beti Gorse istockphoto.com

Food

Eggs, sardines, and salmon contain vitamin D. Most fluid milk and some brands of yogurt are fortified with vitamin D as well. Fortified breakfast cereals, breads, and orange juice may also contain vitamin D. Table 2 lists some foods and the amount of vitamin D they typically contain.

Supplements

If you cannot get enough vitamin D from your diet and you don't get out in the sun much, you may need to take a vitamin D supplement. It is recommended that older adults and persons with darker skin get extra vitamin D from fortified foods or supplements.

Sunlight

When exposed to sunlight, the skin makes a form of vitamin D, which is then activated in the body. Most people get some vitamin D from sunlight. However, several factors affect how well the body makes vitamin D after the skin is exposed to sunlight. For example, people in the northern

United States make less vitamin D than those in the South, because of the winter months.

In general, the following people may be at risk for vitamin D deficiency (NIH, 2021):

- Older people
- Persons with darker skin
- People who are obese or have kidney or liver disease
- People who do not get direct sun exposure

How much is too much?

Vitamin D toxicity is very rare, but it can cause nausea, constipation, weakness, and kidney damage. It is recommended to get no more than 4,000 IU (less for children younger than nine) of vitamin D each day from food and supplements (Institute of Medicine, 2011). Sun exposure will not cause vitamin D toxicity.

Where can I get more information?

Your local UF/IFAS Extension Family and Consumer Sciences (FCS) agent may have written information and nutrition classes for you to attend. In Florida, find your local UF/IFAS Extension office at https://sfyl.ifas.ufl.edu/find-your-local-office/. Also, a registered dietitian (RD or RDN) or physician can provide reliable information on vitamin D.

Reliable nutrition information may be found online at these sites:

National Institutes of Health:
https://ods.od.nih.gov/factsheets/VitaminD-Consumer/

US Department of Health and Human Services:
https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials

US Department of Agriculture: https://www.nutrition.gov

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National Institutes of Health. "Fact Sheet for Professionals", 2021. Accessed May 4, 2022. https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional/

U.S. Department of Agriculture and U.S. Agricultural Research Service. FoodData Central, 2019. Accessed May 13, 2021. https://fdc.nal.usda.gov/index.html

Table 1. Recommended Dietary Allowances for Vitamin D (Institute of Medicine, 2011).

Life Stage	Vitamin D (IU/day)	Vitamin D (mcg/day)
Children and teens	600	15
Adults, up to age 70	600	15
Adults, ages 71+	800	20
Pregnant and breastfeeding women	600	15

On food and supplement labels, the amount of vitamin D may be given in International Units (IU) or micrograms (mcg).

Since skin synthesis of vitamin D varies so much, dietary recommendations assume minimal sun exposure.

Table 2. Typical vitamin D content in food (US Department of Agriculture, 2019).

Food	Vitamin D in IU	Vitamin D in mcg
Salmon, sockeye, cooked, 3 ounces	570	14
Tuna, canned and drained, 3 ounces	240	6
Sardines, canned in oil and drained, 3 ounces	165	4
Milk, 1%, fortified, 1 cup	120	3
Vanilla yogurt, low-fat, 6 ounces	80	2
Fortified orange juice, ¾ cup	75	2
Cereal, fortified, 1 serving	40 or more	1 or more
Egg, hard cooked, 1 large	45	1

IU = International Units

mcg = micrograms

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