

VITAMIN D AND SUN EXPOSURE FACT SHEET

Vitamin D

is a fat-soluble prohormone that is needed for calcium absorption and bone health.

Low Vitamin D

can cause or worsen osteoporosis, rickets, cardiovascular disease, diabetes, immune disorders, metabolic syndrome, neuropathy, and certain types of cancer.

75%

or more of United States adults have vitamin D deficiency⁶



1 in 31 men

And 1 in 48 women in Idaho will be diagnosed with melanoma in their lifetime.



What is vitamin D and why is it important?

ANSWER: Vitamin D is nutrient found in food or formed in the skin from sun exposure that is needed to absorb calcium and help with bone strength. It also improves osteoporosis, cardiovascular disease, diabetes, nerve pain, immune disorders, and certain types of cancer. There are very few foods that contain vitamin D with fatty fish and cod liver oil having the highest amount available. Some dairy and ready-to-eat cereal are fortified with vitamin D to help with dietary intake. The body makes vitamin D when exposed to the sun. The season, time of day, cloud cover, skin pigmentation, and age can change the amount of vitamin D you produce. See below for examples of vitamin D sources¹⁻².

Sources of Vitamin D

Sources of Vitamin D	IU per serving	Percent DV
<i>Food Sources</i>		
Cod liver oil, 1 tablespoon	1,360	340
Salmon, cooked, 3 ounces	447	112
Tuna fish, canned in water, drained, 3 ounces	154	39
Milk, vitamin D fortified, 1 cup	115-124	29-31
Liver, beef, cooked, 3 ounces	42	11
Egg, 1 large (vitamin D found in yolk)	41	10
Ready to eat cereal, vitamin D fortified, 1 cup	40	10
<i>Sun exposure per week</i>		
Light skinned individual, 10-60 min midday summer sun	10,000	
Dark skinned individuals, 60-360 min midday summer sun	10,000	
<i>Supplementation</i>		
Vitamin D ₃ Supplements	200-500,000	

Source: National Institute of Health, 2016¹; Skin Cancer Foundation, 2008⁸

How much vitamin D can I get from the sun and is it safe?

ANSWER: The amount of vitamin D your skin can produce from sun exposure (UV rays) is dependent on your skin color, where you live, cloud cover, and sun protective behaviors. Lighter skin colors produce vitamin D quicker than darker skin tones. During summer months between the hours of 10am to 3pm, a very light skinned individual can make enough vitamin D needed in 15-60 mins of sun exposure per week. It can take darker skinned individuals 3-5 times more exposure (1-6 hours weekly) to produce the same amount of vitamin D. A good rule of thumb for vitamin D production is to get half the sun exposure it takes for your skin to begin to burn. However, it is extremely important to limit sun exposure to lower skin cancer risk. When outside, you should wear protective clothing and apply sunscreen with an SPF of 35 or more. Those who avoid the sun or wear protective clothing should include vitamin D in their diets or take supplements. Recommended intakes of vitamin D are set on the assumption of little sun exposure^{1,3-4}.

Can I produce vitamin D year-round living in Boise, Idaho?

ANSWER: No. You cannot produce vitamin D year-round when living in Boise because the strength of ultraviolet rays is reduced during the winter months. Those living in northern latitudes (above Boston, MA) have enough ultraviolet exposure to produce vitamin D from the end of March to mid-September when the UV index is at 3 or above³⁻⁴.

How much dietary vitamin D do I need daily?

Answer: The amount of vitamin D you need depends on your age. Recommended amounts are based on the Food and Nutrition Board at the Institute of Medicine for different age groups listed below in International Units (IU)¹:

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 kind of vitamin D supplements are available?

Answer: Vitamin D supplements can be found in two different forms: D₂ (ergocalciferol) and D₃ (cholecalciferol). Both increase vitamin D in the blood but vitamin D₃ may increase serum levels more^{1,5}.

Am I getting enough vitamin D?

Answer: Vitamin D is measured in blood levels in the form of 25-hydroxyvitamin D and the levels are described in either nanomoles per liter (nmol/L) or nanograms per milliliter (ng/mL). Serum levels are listed below in ng/mL¹.

ng/mL	Health Status
< 20	Vitamin D deficiency, leading to rickets in infants and children and osteomalacia in adults
20-30	Vitamin D insufficiency, generally considered inadequate for bone and overall health in healthy individuals
≥30	Normal levels of Vitamin D, considered adequate for bone and overall health in healthy individuals

Am I at risk for having low vitamin D?

Answer: It is difficult to obtain vitamin D from food sources alone and being exposed to some sunlight is necessary for maintaining an appropriate vitamin D level. Those at higher risk for vitamin D deficiency are breastfed infants, older adults, people with limited sun exposure, dark skinned individuals, people with inflammatory bowel disease, and those who are obese¹.

Can I get too much vitamin D?

Answer: Yes, when the amount in the blood becomes too high it can become toxic. This occurs more often in people taking extreme amounts of supplementation. Signs of toxicity include nausea, vomiting, poor appetite, constipation, weakness, weight loss, confusion, and heart rhythm problems. This occurs more often in people taking extreme long-term supplementation, such as 8,000-40,000 IUs daily¹.

References:

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