

Vitamin D

What is Vitamin D?

Vitamin D is a fat soluble vitamin. It is present in very few foods. Vitamin D is produced in the body when ultraviolet rays from the sun come in contact with skin.

What Does Vitamin D Do?

- ❖ Promotes calcium absorption
- ❖ Assists in bone growth and remodeling
- ❖ Reduces inflammation
- ❖ Helps to maintain muscle strength
- ❖ Aids in the treatment of psoriasis
- ❖ Modifies immune response
- ❖ Reduces risk for rheumatoid arthritis
- ❖ Reduces risk for osteoarthritis
- ❖ May reduce the risk of schizophrenia, depression, insulin resistance and cancer.
- ❖ May affect mood regulation and neuromuscular function

Vitamin D Deficiency

A deficiency of vitamin D can occur when usual intake is lower than recommended levels over time, exposure to sunlight is limited, the kidneys cannot convert vitamin D to its active form, or absorption of vitamin D from the digestive tract is inadequate.



Vitamin D Deficiency Symptoms

Symptoms of Vitamin D deficiency are generally silent or easily misinterpreted.

Symptoms like muscle weakness, bone pain and muscle spasms are commonly mistaken for other conditions. Long term deficiency results in osteomalacia (softening of the bone).

Who is at Risk for Vitamin D Deficiency?

If you are or have any of the following:

- ❖ Milk allergy or lactose intolerance
- ❖ A strict vegan
- ❖ Inadequate intake of vitamin D
- ❖ Breast fed infant
- ❖ Older adult (50 and older)
- ❖ Limited sun exposure
- ❖ Dark skin
- ❖ Obesity
- ❖ Fat malabsorption
- ❖ Celiac, kidney or liver disease

What blood level is adequate?

Age	Conventional Units	Standard International Units
Under age 50	30-40 ng/mL	75-100 nmol/L
Over the age of 50	50 ng/mL	125 nmol/L

Some researchers suggest that blood concentrations at or above 80 nmol/L (32 ng/mL) are needed to support the immunomodulatory and anticancer effects of Vitamin D.

How much do I need?

The Adequate Intake Guidelines (AI) for Vitamin D Are:

Age	Children	Men	Women	Pregnancy
Birth to 13 years	200 IU			
14-18 years		200 IU	200 IU	200 IU
19-50 years		200 IU	200 IU	200 IU
51-70 years		400 IU	400 IU	
71+ years		600 IU	600 IU	

* The AI is the **minimum** amount needed to prevent adverse symptoms, optimal intake may be higher. Most experts agree that without adequate sun exposure children and adults require 800 to 1000 IU per day.

Sources of Vitamin D

People get vitamin D from exposure to sunlight, food, and dietary supplements.

Some examples of food sources are:

Food	Serving	Vitamin D (IU)
Salmon, Chinook	4 ounces	411
Salmon, Atlantic (farmed)	4 ounces	346
Salmon, canned in oil	4 ounces	250
Salmon, Sockeye (wild)	4 ounces	739
Tuna, canned light or white	4 ounces	63
Tuna, canned, yellowfin, albacore, ahi	4 ounces	161
Herring or Trout	4 ounces	242
Shrimp	4 ounces	160
Cod	4 ounces	60

Mackerel, cooked	4 ounces	242
Sardines, canned in oil	4 ounces	250
Milk	1 cup	100
Fortified Orange Juice	1 cup	90
Egg yolk	1	20
Margarine, fortified	1 Tbsp	60
Cereal, fortified with 10% vitamin D	1 cup	40
Fortified rice or soy milk	1 cup	80
Fresh shitake mushrooms	3.5 ounces	100

Label Tip: 10% of the Daily Value for vitamin D = 40 IU

Sunlight and Vitamin D

Season, geographic latitude, time of day, cloud cover, smog, skin melanin content, and sunscreen are among the factors that affect UV radiation exposure and vitamin D synthesis. It is estimated that most people need 10 to 15 minutes of direct sunlight a day in order to manufacture adequate amounts of vitamin D. In winter (November to March), a person needs to be south of Atlanta, GA in order to make vitamin D from sunlight. You cannot make too much vitamin D from sunlight.

Can I get Vitamin D by using a tanning bed or a SAD UV light?

Exposure to a tanning bed for 6-10 minutes of and UVB light therapy does allow vitamin D to be synthesized in the skin. However, use of tanning beds/booths can increase your risk of skin cancer.

For further information contact the
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