



Center for Integrative Oncology and Survivorship

## Getting the Vitamin D Your Body Needs

Vitamin D is an essential vitamin required by the body for the proper absorption of calcium, bone development, control of cell growth, neuromuscular functioning, proper immune functioning and alleviation of inflammation. A deficiency in vitamin D can lead to rickets, a disease in which bones fail to develop properly. Inadequate levels of vitamin D also can lead to poor hair growth, a weakened immune system, increased cancer risk, and osteomalacia, a condition of weakened muscles and bones.

Conversely, excess vitamin D can cause the body to absorb too much calcium, leading to increased risk of kidney stones and heart attack.

The current U.S. Daily Value (DV) for vitamin D is 600 IU (international units), and the toxicity threshold for vitamin D is thought to be 10,000 to 40,000 IU/day. Vitamin D is oil soluble, which means you need to eat fat to absorb it. It is naturally found in fish oils and fatty fish. To a lesser extent, it is found in beef liver, cheese, egg yolks and certain mushrooms. Vitamin D, the “sunshine vitamin,” also is naturally made by your body when you expose your skin to the sun. In addition, vitamin D is widely added to many foods such as milk and orange juice and also can be consumed as a supplement.

### Foods High in Vitamin D

- **Cod liver oil:** Cod liver oil has been a popular supplement for many years and naturally contains very high levels of vitamin A and vitamin D. Cod liver oil provides 10001 IU per 100 gram serving or 1360 IU in a single tablespoon.
- **Fish:** Various types of fish are high in vitamin D. Typically, raw fish contains more vitamin D than cooked, and fatty cuts will contain more than lean cuts. Fish canned in oil will have more vitamin D than those canned in water. Raw fish typically is eaten in the form of sushi.

Raw mackerel and salmon provide the highest amount of vitamin D with approximately 575 IU per 3 oz. serving. Other fish high in vitamin D are raw swordfish, canned tuna and raw halibut, ranging from 142 to 474 IU per 3 oz. serving.

- **Fortified cereal:** A breakfast staple in the Americas, most commercial cereals are fortified with essential vitamins

and nutrients. Exercise caution and check food labels when purchasing cereals: Choose products that have little or no refined sugars and no partially hydrogenated oils. Fortified cereals can provide up to 100 IU per 1 cup serving and even more if combined with fortified dairy products or fortified soy milk. Products vary widely with a majority of fortified cereals providing between 40-60 IU per 1 cup.

- **Oysters:** In addition to vitamin D, oysters are a great source of vitamin B12, zinc, iron, manganese, selenium and copper. Oysters also are high in cholesterol and should be eaten in moderation by people at risk for heart disease or stroke. Raw, wild-caught eastern oysters provide 269 IU for a 3 oz. serving (about six shells).
- **Caviar (black and red):** Caviar is a common ingredient in sushi and more affordable than people think. Caviar provides 19 IU per tablespoon or 99 IU for a 3 oz. serving.
- **Fortified soy products (tofu and soy milk):** Fortified soy products often are fortified with both vitamin D and calcium. Fortified tofu can provide up to 124 IU per 3 oz. portions. Fortified soy milk can provide up to 119 IU per 1 cup. Amounts of vitamin D vary widely in soy products, ranging from 80-124 IU per standard servings.
- **Salami, ham and sausage:** Salami, ham and sausage are a good source of vitamin B12 and copper. Unfortunately, they also are high in cholesterol and sodium, so they should be consumed in limited quantities by people at risk for hypertension, heart attack and stroke. Bratwurst provides 37 IU per 1 link. It is followed by bologna and salami with 13 IU and 12 IU per slice, respectively.
- **Fortified dairy products:** Dairy products already are high in calcium, so it makes sense to fortify them with vitamin D. Fortified vitamin D milk can provide up to 144 IU per 1 cup. Cheese can provide up to 7 IU per 1 slice, and butter provides up to 9 IU in 1 tablespoon. Products may vary because of fortification.
- **Eggs:** In addition to vitamin D, eggs are a good source of vitamin B12 and protein. One extra large egg provides 46 IU, and one large egg produces 41 IU.

- **Mushrooms:** More than just a food high in vitamin D, mushrooms also provide vitamin B5 (pantothenic acid) and copper. Portabella mushrooms provide 17 IU per 1 cup, while white mushrooms provide 9 IU per 1 cup.

### **Sunlight**

Spending time in sunlight is one of the most effective ways of raising your D3 levels. Less time spent working outside, awareness of the potential dangers of skin cancer and liberal use of sunscreen have decreased sun exposure in industrialized countries such as the United States.

Spending as little as five to 30 minutes in direct sunlight with your face, arms, legs or back exposed two times a week between 10 a.m. and 3 p.m. in the summer, fall and spring can synthesize enough vitamin D3 to supply your needs, according to the Office of Dietary Supplements. Your body can store excess vitamin D, a fat-soluble vitamin in your fat

stores and liver for use during the winter, but stores generally last just 30 to 60 days, according to DermNet NZ. If you have dark skin, your skin absorbs less sunlight.

Note: The American Academy of Dermatology actively opposes spending time in the sun or in tanning beds as a source of vitamin D and recommends the use of supplements instead.

### **Supplementation**

Oftentimes, the body's needs cannot be met, so supplements are recommended. Recommendations usually are to take vitamin D3 1,000 IU (one to two times daily) depending on your personal needs. Please discuss what's right for you with your healthcare provider.

### **Lab Values**

Normal total vitamin D level is 30-74 ng/ML.