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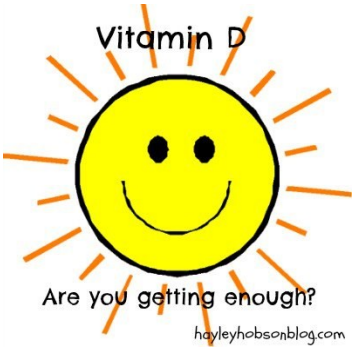
American Certification Agency for Healthcare Professionals



Special Points of interest:

- People that get too little vitamin D may develop soft, thin and brittle bones.
- Very few foods contain vitamin D naturally so most vitamin D comes from fortified foods. Fatty fish such as salmon, tuna, and mackerel are the best sources.

Inside this issue:

VITAMIN D

There is a lot of interest these days in vitamin D as more people learn about the rising prevalence of vitamin D deficiency and the potential health risks associated with it. Up to 75% of the world's population is vitamin D deficient. Do you know your level?

What is vitamin D and what does it do?

The general term vitamin D refers to two different vitamins. Vitamin D2 (ergocalicierol) is synthesized by plants, and Vitamin D3 (cholecalciferol) is synthesized in the skin when it is exposed to the sun's ultraviolet rays, hence its nickname, the "sunshine vitamin". Vitamin D is a nutrient found in certain foods that is needed to maintain strong bones. It helps the body absorb calcium from food and supplements. People who get too little vitamin D may develop soft, thin and brittle bones. Muscles need vitamin D to move; nerves need vitamin D to carry messages from the brain to other parts of the body.; and the immune system needs vitamin D to help fight off infections. Along with calcium, vitamin D helps protect older adults from osteoporosis. Vitamin D is found in cells throughout the body.

How much vitamin D do you need each day?

Amounts of vitamin D needed per day depend on your age. The Food and Nutrition Board has established recommendations in International Units (IUs).

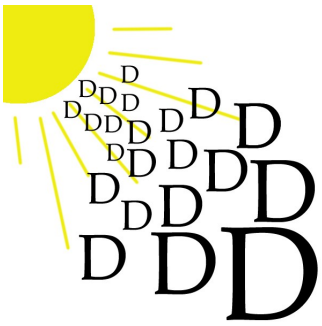
Birth to 12 months	400 IU/per day
Children 1 – 13 yrs.	600IU/per day
Teens 14 -18 yrs.	600 IU/per day
Adults 19- 70 yrs.	600 IU/per day
Adults 71 yrs. and older	800 IU/per day
Pregnant/ breast feeding women	600 IU/per day

Where do you get vitamin D?

Very few foods contain vitamin D naturally so most vitamin D comes from fortified foods. Fatty fish such as salmon, tuna, and mackerel are the best sources. Small amounts of vitamin D come from beef liver, cheese and egg yolks. Mushrooms provide some vitamin D especially those that are exposed to ultraviolet light before being sold. Almost all of the US milk supply is fortified with 400 IU of vitamin D per quart; but foods make from milk like cheese and ice cream are not fortified. Make sure to check the labels – many breakfast cereals, orange juice, yogurt, margarine and soy beverages have vitamin D added. Vitamin D can come from supplements in two forms – D2 and D3. Con't page 2

VITAMIN D—Continued

Both will increase the vitamin D level in blood. Vitamin D can also come from the sun. The body will make vitamin D when the skin is directly exposed to the sun. Skin exposed to sunshine indoors through a window will not produce vitamin D. Cloudy days, shade, and having dark-colored skin also cuts down on the amount of vitamin D that the skin makes. However, it is still wise to limit the amount of sun exposure to the skin to lower the risk of skin cancer. It is well known that Americans, Canadians, Europeans, and other people living in the northern hemisphere do not get enough vitamin D from the sun and need to rely on supplements.



"People concerned about skin cancer should avoid the sun and/or regularly use sunscreen. Sunscreen absorbs UV radiation and using an SPF 15 sunscreen reduces vitamin D production by up to 99%."

What are causes of low vitamin D levels?

- Sun avoidance: People concerned about skin cancer should avoid the sun and/or regularly use sunscreen. Sunscreen absorbs UV radiation and using an SPF 15 sunscreen reduces vitamin D production by up to 99 %.
- Melanin: Dark skinned people do not produce enough vitamin D from sun exposure. Melanin in the skin absorbs UV radiation and reduces vitamin D synthesis.
- Liver or kidney problems: Vitamin D undergoes two hydroxylation steps in the body to become a bioavailable form of vitamin D. One step occurs in the liver and one in the kidneys so reduced function in either organ can increase the risk for a deficiency.
- Malabsorption: People with Crohn's disease, cystic fibrosis, celiac disease or other digestive disorders are unable to absorb vitamin D through food digestion.
- Vegetarian diet: Most dietary sources of vitamin D are animal based so a plant based diet puts one at risk for vitamin D deficiency.
- Obesity: People with a BMI above 30 often have low vitamin D levels because vitamin D is sequestered in fat and is not available for use.

So health conscious people who limit sun exposure and avoid animal based foods to avoid skin cancer and cardiovascular disease may be lowering their vitamin D levels!

Breastfed infants are at risk for not getting enough vitamin D, since human milk is a poor source of vitamin D, and should be given a supplement of 400 IU per day. Also older adults are more at risk due to their skin not making vitamin as efficiently as it once did and because their kidney function is less able to make vitamin D.

What are some effects of low vitamin D on health?

- Bone health: Vitamin D deficiency causes osteomalacia (rickets in children) and has been associated with falls and low mineral density. Osteoporosis, in adults, is characterized by a decrease in bone mineral density and the appearance of small holes in bones. In osteoporosis vitamin D inadequacy is seen with low serum 25-hydroxyvitamin D levels of less than 20ng/ml.
- Increased risk of death: Low levels of vitamin D are associated with increased mortality due to abnormal functioning and premature aging.
- Cancer: Some studies indicate that vitamin D may protect against colon cancer and possibly prostate and breast cancer as well.

VITAMIN D—Continued

But higher levels of vitamin D have been linked to pancreatic cancer.

- Immune system: Vitamin D deficiency has been linked to an increased risk of viral infections.
- Multiple sclerosis: Vitamin D deficiency is thought to be a risk factor in MS because of the following:
- MS frequency increases with increasing latitude, which is strongly inversely correlated with duration and intensity of UVB from sunlight and vitamin D concentrations;
- Prevalence of MS is lower than expected at high latitudes in populations with high consumption of vitamin D rich fatty fish;
- MS risk seems to decrease with migration from high to low latitudes.
- Pregnancy: Low levels of vitamin D in pregnancy are associated with gestational diabetes, pre-eclampsia, and small infants.

"Can too much vitamin D be harmful? Signs of high levels of vitamin D include nausea, vomiting, poor appetite, constipations, weakness and weight loss.

Can too much vitamin D be harmful?

Signs of high levels of vitamin D include nausea, vomiting, poor appetite, constipation, weakness and weight loss. Excess vitamin D can also damage the kidneys. By raising blood levels of calcium, too much vitamin D can cause confusion, disorientation, and heart dysrhythmias. The safe upper limit for vitamin D is 1000 to 1500 IU/day for infants, 2500 to 3000 for children 1-8 years, and 4000 IU/day for children 9 years and older, adults, and pregnant and lactating teens and women. Vitamin D toxicity almost always occurs from overuse of supplements. Excessive sun exposure does not cause vitamin D poisoning because the body limits the amount of this vitamin it produces.

Vitamin D may interact or interfere with other medicines or supplements. Examples include: prednisone and other corticosteroid medicines, weight loss drug orlistat (brand names Xenical® and Alli®), cholesterol lowering drug cholestyramine (brand names Questran®, LoCholest®, Prevalite®), and phenobarbital and phenytoin.

Vitamin D testing

Serum concentration of 25(OH) vitamin D is the best indicator of vitamin D status. It reflects vitamin D synthesized through unprotected skin or ingested in food or supplements and absorbed by the intestines. Total 25(OH) vitamin D is the sum of 25(OH) vitamin D2 and 25(OH)vitamin D3. If the assay does not detect vitamin D2 fully or even partially, it is likely that the patient's result will be reported in the "insufficient" range when the actual circulating concentration is sufficient.

References

"Vitamin D testing: clinical and laboratory considerations", by Andrea M. Rose, PhD,MBA; MLO, May 2013.

"Vitamin D: how much is enough, too much, or too little?", by Beth A. Schodin, PhD; MLO, February 2012.

Vitamin D – Health Professional Fact Sheet; Office of Dietary Supplements; National Institutes of Health.

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ACA RECERTIFICATION

Recertification packets were mailed in May to those whose certification was due to expire on June 30, 2013. If you did not receive your packet, you can download the **Recertification Application**, under the "applications" tab from the ACA website:

www.acacert.com

Submit the form along with the required proof of continuing education and fee to ACA. After June 30th, there is a $40.00 additional late fee until August 31st, 2013. After September 1st, 2013 the only way to recertify is by re-examination.

Proof of continuing education: certificates of attendance or completion from CE events; copies of transcripts from college; documented CE activities from place of employment listing topic, date and amount of time or CE hours assigned; or activities listed and signed by supervisor or manager.

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A reminder that ABP, Inc. offers home study continuing education booklets to help you earn CE contact hours.

Call ABP at (574)277-0691 to order or visit ABP's website at

Www.abpincorp.com to download an order form.

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