

Test Values and Treatment for Vitamin D Deficiency

Before considering supplementation with Vitamin D, it would be wise to have your Vitamin D level tested. This is best done from a nutritionally-oriented physician. It is very important that they order the correct test. The advantage of having your medical doctor perform the test is that it will usually be covered by your medical insurance.

Don't Be Fooled – Order the Correct Test

There are two vitamin D tests -- 1,25(OH)D and 25(OH)D.

25(OH)D is the better marker of overall D status. It is this marker that is most strongly associated with overall health.

The correct test is 25(OH)D, also called 25-HydroxyVitamin D

Please note the difference between normal and optimal. We don't want to be average here; we want to be optimally healthy.

Primitive man likely developed in tropical and sub-tropical conditions with large exposure to UV-B and its secondary consequence to skin exposure, vitamin D.

Primitive environmental availability of a nutrient does not necessarily establish the higher requirements, but these exposures would have influenced the evolution of the relevant physiology, and such concentrations should at least be considered presumptively acceptable.

Some experts may disagree with the following healthy ranges, but they are taken from healthy people from the tropical or subtropical parts of the world where they are receiving healthy sun exposures. It seems more than reasonable to assume that these values are in fact reflective of an optimal human requirement.

Dr. Michael Hollick is one of the top Vitamin D researchers in the world and he has been advocating higher reference ranges, though not as high as the ones suggested here.

(Holick MF. Calcium and Vitamin D. Diagnostics and Therapeutics. Clin Lab Med. 2000 Sep;20(3):569-90)

| Optimal 25-hydroxyvitamin D values are: | Normal 25-hydroxyvitamin D lab values are: |
|---|---|
| 45-50 ng/ml or 115-128 nmol/l | 20-56 ng/ml 50-140 nmol/l |
| Your Vitamin D level should NEVER be below 32 ng/ml. Any levels below 20 ng/ml are considered serious deficiency states and will increase your risk of breast and prostate cancer and | |

autoimmune diseases like MS and rheumatoid arthritis.

If you have the above test performed, please recognize that many commercial labs are using the older dated reference ranges. The above values are the newest ones from the clinical research.

Make Sure Your Lab Uses the Correct Assay

There are a number of different companies that have FDA approval to perform Vitamin D testing. The gold standard company though is [DiaSorin](#). Quest Labs is the largest commercial lab in the US and they use this company to measure 25 Hydroxy D levels. However, many other commercial labs don't. So, if you do not have your test done at Quest Labs, please contact the lab directly to find out which assay is being used. Your test results will not be accurate and you cannot use the values in the table above unless the D is measured with a DiaSorin assay. The extra hassle is definitely worth it. You will only need to do this once though, as the labs do not switch assays. However, if your lab is not using the DiaSorin assay you could ask them to switch to the gold standard.

How To Dose Your Vitamin D Once You Know Your Levels

Vitamin D is a fat soluble vitamin and can be quite toxic. Once you have Vitamin D toxicity you can't easily turn it around. So, do not even think of starting this program unless you have your blood levels checked. Many of you may choose to ignore this warning, but I am telling you in plain simple English, that while Vitamin D has enormous potential for improving your health, it has nearly equal potential to worsen it, if you use it improperly.

For safety purposes it is advisable to optimize your Vitamin D levels only with the help of a trained health care professional. The exact protocol to optimize your Vitamin D levels will be in Krispin Sullivan's upcoming book *Naked at Noon*. The book will have far more information than is in this brief review and will further highlight the importance of testing. The provocative headline is actually quite accurate as many people, especially with dark skin, would best benefit from exposing as much skin as possible to the sun (naked) as long as they did not get burnt. This is in stark contrast to the approach most people take.

If you need to know this information before her book is published a preliminary copy of her Vitamin D research is available on her [Web site](#). While she has an e-mail listed on her site, please understand that she doesn't have time to respond to personal e-mails.

Krispin Sullivan and I share the same passion – seeking to help large numbers of people regain their health with inexpensive nutritional therapies. She has researched this subject for a number of years, and, to the best of my knowledge, is one of the most experienced clinicians in this area. She has provided much of the foundational background for this review, and I am very grateful for her willingness to bring me up to speed in, not only this area, but also Omega-3 nutrition and Vitamin K.

Sunlight Is Your Ideal Source of Vitamin D

Ideally, the best place to get Vitamin D is from your skin being exposed to the UV-B that is in normal sunlight. Vitamin D from sunlight acts as a pro-hormone, rapidly converting into 25-hydroxyvitamin D. Many experts believe that there is no harm in the Vitamin D concentrations associated with sun exposure and that such levels are probably optimal for human health. Unfortunately, the amount of sun reaching most of the U.S. is only

sufficient to generate a Vitamin D response for about three months of the year.

Most people do not live far enough south, or high enough in the mountains, to allow more Ultraviolet (UV-B) to reach their skins. So, for those times of the year when access to the proper amount of sun is not possible, you will want to consider an oral form of Vitamin D. A high-quality cod liver oil is probably your best choice, as it also supplies Vitamin A that helps limit Vitamin D toxicity, and also beneficial Omega-3 fats.

Ultraviolet-B Is What Generates Vitamin D in Your Skin

UV light is divided into 3 bands, or wavelength ranges, which are referred to as UV-A, UV-B and UV-C.

UV-B is sometimes called the "*burning ray*." It is the primary cause of sunburn caused by overexposure to sunlight. However, UV-B sunlight produces Vitamin D on the skin. The amount produced depends on exposure time, latitude and altitude of location, amount of skin surface exposed, skin pigmentation and season.

UV-B also stimulates the production of MSH, an important hormone in weight loss, energy production, and in giving you that wonderful tanned appearance.

However, UV-B does not penetrate very deeply into your skin. The darker the pigmentation or more tanned your skin, the less UV-B penetrates. Window glass allows only **5 percent** of the UV-B light range that produces Vitamin D to get into your home or auto.

The timing of your sun exposure is also a major factor. Sun exposure must take place when UV-B is present. The actual dosing of your sun exposure is quite complex, since it involves knowing the amount of UV-B and one's skin color.

This doesn't sound very complex, but the amount of UV-B is not a constant. It is a major variable and is influenced by a number of factors:

- Latitude -- the further north you are the less there is
- Time of Year -- virtually none available in winter in continental U.S.
- Clouds -- can block UV-B
- Pollution -- smog and ozone can block UV-B
- Altitude -- the higher up you are the more UV-B reaches you

It is important to know the level of UV-B exposure. Unlike the typical American strategy, more is better, that is not the case for UV-B exposure. Longer exposure will not increase Vitamin D production, but will increase the danger of skin damage and possible skin cancer.

Major Caution: Avoid Sunburn

It is important to stress that you should never get burned and should only implement sun exposure very gradually. While we all benefit from regular exposure to sun, it is important to recognize that you should always limit your exposure so that you always avoid getting burnt. Sunburn has been clearly related to an increased risk of skin cancer.

Interestingly, if you avoid getting sunburned and actually have regular sun exposure, you will have a decreased

risk of the dangerous skin cancer, melanoma.

However, dermatologists will seek to frighten you about sun exposure. Please remember that we were all designed to have regular sun exposure. It is very similar to water. Just because you can drown while swimming, doesn't mean you should never drink water or swim in it. Similarly, as long as you avoid sun exposure that will cause burning, it will help improve your health.

It is a complex issue though. Skin cancer is largely related to the over abundance of Omega-6 oils that we have in this country. When sunlight hits these fats it can convert them to cancer-causing molecules, and if one is not healthy, these cells can extend on to developing cancer. You can review the following article for more information:

- [Discovering the Truth Behind the Sunshine | Skin Cancer Myth](#) [Discovering the Truth Behind the Sunshine/Skin Cancer Myth](#)

This cancerous transformation doesn't happen with Omega-3 fats. So, changing the ratio of Omega-3 to Omega-6 oils in your diet is one of the keys to prevent this. The best sources of Omega-3 fat would be cod liver oil and grass fed animals like beef.

Remember: Don't Ever Get Sun Burned

It is also important to point out the obvious. Fair skinned individuals need far less exposure to receive their dose of sun to produce Vitamin D. Lighter skin allows for greater penetration of UV-B, leading to higher levels of D.

African Americans however, would need considerably more sun to generate Vitamin D. This is one of the reasons why breast and prostate cancers are so much higher in Africans who are living in temperate climates. They just aren't able to get enough sun to generate Vitamin D. In fact, in the Northern U.S. cities, they will find it impossible to get adequate Vitamin D from sunlight in any season.

Elderly individuals will also have a great difficulty getting enough Vitamin D from sun exposure, since an enzyme in their skin decreases with degenerative aging and, as a result, their skin has a limited capacity for producing Vitamin D.

Interestingly, it is impossible to get Vitamin D toxicity from too much sun exposure. Your body just won't let it happen. That is why receiving your Vitamin D from the sun is the best option if possible.

Ultraviolet exposure beyond the minimal dose required to produce skin redness, does not increase Vitamin D production any further.

An equilibrium occurs in **white** skin within **20 min of ultraviolet exposure**, in which further increases in Vitamin D is not possible, since the ultraviolet light will actually start to degrade the Vitamin D. It can take 3-6 times longer for pigmented skin to reach the equilibrium concentration of skin pre-Vitamin D. However, skin pigmentation does not affect the amount of Vitamin D that can be obtained through sunshine exposure.

It is commonly thought that only occasional exposure of the face and hands to sunlight is "sufficient" for Vitamin D nutrition. Indeed, this exposure can provide 200-400 IU Vitamin D during those months when the appropriate sunlight is available, but for most of us this is an absolutely inadequate exposure to move vitamin levels to the

healthy range of 45-50.

Oral Vitamin D

Unfortunately, the vast majority of us living in the U.S. just do not have access to the proper amount of sun most of the year. Even if the sun is out there, most of us are working during the week and don't have time to go out and capture some sunlight on our skins. So, that leaves supplementation as the only practical option for most of us.

Cod Liver Oil

If you have sub-tropical or summer sun exposure on your skin it will be wise to avoid any oral Vitamin D supplementation unless you regularly monitor your Vitamin D blood level. However, the vast majority of people in the U.S. cannot possibly receive enough UV-B to generate Vitamin D from September to mid-April.

Please also remember that just because it is sunny and hot outside this is absolutely no indication of the UV-B level that is present. If your latitude is above 30 degrees north or below 30 degrees south, you will likely benefit from Vitamin D supplementation from September to mid-April.

If you don't know the latitude of your city you can use [a latitude finder](#). If your latitude is lower than 30 degrees you have access to good sunshine and may not need Vitamin D supplementation.

Your best choice for obtaining supplemental **Vitamin D3** would be to use a high-quality cod liver oil. My research suggests Carlson's is one of the best tasting brands on the market and it can be obtained from our online store at www.HealthStyles4URx.com. The dose is about **one teaspoon for every 50 pounds of body weight**. However, you should not take more than one tablespoon per day unless you are monitored by a natural medical physician.

This will not only provide you, the average 150 pound adult, with 2-3,000 units of Vitamin D, but you will also provide you with Vitamin K which is an essential co-factor in building strong bones. Natural Vitamin A is also in the cod liver to support your immune system and the oil is full of the beneficial Omega-3 fats that nearly all of us are deficient in.

Additionally, there may be a protective benefit of Vitamin A in limiting high calcium levels from Vitamin D. (Johansson S, Melhus H. Vitamin A antagonizes calcium response to Vitamin D in man. J Bone Miner Res. 2001 Oct;16(10):1899-905)

What to Do If You Have a Tough Time with Cod Liver Oil

Some people will have a difficult time digesting cod liver oil. If this is the case, try taking it on an empty stomach. You can start with small quantities and build up. If you do not use [Nordic Naturals Cod Liver Oils](#), there is a chance that the cod liver oil may be rancid. This is easy to tell, as it will not taste good and will have a "fishy" odor or taste. If this is the case, do not use the cod liver oil--the fats are spoiled. If you can't take or tolerate cod liver oil you will need some source of Omega-3 fats.

HealthStyles4U has excellent sources for various types of high-quality Omega-3 – from fish and plant sources. Contact us at: www.HealthStyles4URx.com

Let Me Remind You That Eating Fish Just Won't Cut It Anymore

We have irreversibly polluted the environment by burning coal for electricity and there is more than enough mercury in the waters of the world to contaminate virtually all of the fish.

Even the conservative U.S. government warns pregnant women to avoid eating fish, since 60,000 kids are born brain injured from that mercury exposure every year. Farm raised fish do not avoid the problem – they still have the mercury, and are worse since they are high in Omega-6, NOT Omega-3, because they are fed corn.

Mercury is not oil soluble and therefore, is not present in the cod liver oil, so this problem is avoided. Milk does provide Vitamin D, but it is only about 250 units per 8 ounces. So, one would need to drink a half-gallon per day to receive enough Vitamin D. There are a large number of reasons that one should avoid drinking milk to stay healthy. Read the article: [“Don't Drink Your Milk”](#)

Vitamin D Toxicity

First, let me state that there are two types of Vitamin D supplements: Vitamin D3 (cholecalciferol) which comes from fish oil, and plant source D2 (ergocalciferol), which is found in fortified foods and some supplements. D2, found in plants and made active by irradiation, is less biologically active.

Vitamin D3 is found in eggs, organ meats, animal fat, cod liver oil and fish. It is the equivalent to the Vitamin D3 formed on our skins from UV-B. You should stay away from the synthetic D2 as it is the one that has been shown to have toxicity at the higher dose ranges. You will only want to use Vitamin D3.

There are newer reasons why Vitamin D2 has a greater potential for harm. First, Vitamin D binding protein has a weaker affinity for the Vitamin D2 metabolites than Vitamin D3. Second, unique biologically active metabolites are produced in humans from Vitamin D2, but there are no analogous metabolites derived from Vitamin D3.

There is no doubt that Vitamin D2 is a synthetic analogue of Vitamin D, with different characteristics. It is inappropriate to regard Vitamin D2 as a vitamin. Future research into the toxicity of this vitamin needs to focus on Vitamin D3 as being something distinct from Vitamin D2, for which almost all our current toxicity data relate to.

People Who Should Avoid Vitamin D

If you have sarcoidosis, tuberculosis, or lymphoma it would be best for you to avoid Vitamin D supplementation based on this test. It is recommended that you perform 1,25(OH)D test before you supplement with any sun exposure or oral Vitamin D.

Cod Liver Oil

First of all, let me warn you that if you have sub-tropical or summer sun exposure I do NOT advise any Vitamin D supplementation unless you perform the above described test.

My top recommendation for obtaining supplemental Vitamin D3 would be to use [Nordic Naturals Lemon or](#)

[Orange flavored Cod Liver Oil](#). It is one of the best tasting brands on the market. The dose is about one teaspoon for every 50 pounds of body weight.

The only caution here, and from my perspective it is a theoretical one only, is that pregnant woman should probably limit themselves to one tablespoon per day, as that would keep their daily vitamin A intake to below 10,000 units per day. However, pregnant women probably need cod liver oil the most, since their baby's brain profoundly benefits from the fish oils, DHA and EPA.

Please remember that it is best to have your levels regularly checked as supplemental Vitamin D in certain clinical settings can have toxicity.

It will be important to make certain that you are taking calcium while you are receiving the Vitamin D, or it will tend to take calcium out of your bones. Your normal calcium requirements are easily attained if you are following a vegetable juicing program.

It will be helpful to put the cod liver oil in the vegetable juice, since you will need some type of oil to actually absorb Vitamin D.

Related Articles:

[Vitamin D Is Not A Vitamin But A Steroid Hormone Precursor](#)

[Vitamin D for Inflammatory Bowel Disease](#)

[RDA for Vitamin D Too Low](#)

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