Vitamin D
The “Sunshine” Vitamin

There are 13 so-called “essential” vitamins. They’re called essential because they are literally necessary for our bodies to function and stay alive. By and large, our bodies do not produced these vitamins on their own, which is why we must consume them, either through the food we eat or through supplementation.

There is one notable exception to this rule, however – Vitamin D. Our bodies use sunlight, absorbed through the skin, to produce our own Vitamin D. How much we get this way, however, depends on a number of factors:

The Sun Is Vitamin D's Best Friend

For those of us over a certain age, we will remember being told as children to get out into the sun – that it was good for us. In more recent decades, however, that message gradually started to shift, as new concerns arose about the health risks from exposure to the sun – everything from skin cancer to premature aging of the skin. While this article is not going to address these concerns (we'll leave that to your medical professionals), what we can do is address what limiting our sun exposure means to our Vitamin D levels.

But before we get to that, let's talk about what Vitamin D actually DOES for us, and why it's so important.

It's Not Just About Your Bones

The one thing that most people probably know about Vitamin D is its importance in maintaining healthy bones, and preventing rickets in children. But more recently, as important advances in the study of vitamin D have been made, its importance for other tissues beside the bones (extraskeletal tissues) have been discovered. Vitamin D helps regulate the neuromuscular system and the immune system, reduces inflammation, and plays a major role at the cellular level, helping to regulate the life cycle of our cells themselves.

Calcium Can’t Go It Alone

As we all know, calcium is the key component of our bones, and we need adequate levels of it in order to keep our bones strong and healthy. What many of us don’t know is that our bodies require Vitamin D in order to absorb that calcium from the small intestine, utilize it in our bones, and then keep it

from OVERproducing. Maintaining this healthy level is called “calcium homeostasis,” and if we don’t have adequate Vitamin D in our systems, the balance can be thrown off. Vitamin D actually gets a lot of help in this delicate balancing act from Vitamin K, which is why the two are so often taken together. Because of its effects on coagulation, however, persons who take anti-coagulant medications like Coumadin (Warfarin) are advised to consult a physician before taking Vitamin K

But What Exactly IS Vitamin D?

Vitamin D is one of the "fat soluble" vitamins, so called because the dissolve in fat and are stored in the body, primarily the liver, unlike the water soluble vitamins, which are not. The other fat soluble vitamins are A, E, and K. There are actually two different TYPES of Vitamin D – D2, known as ergocalciferol, and D3, known as cholecalciferol. Structurally, D2 and D3 are not the same, and we don't get them from the same places. More importantly, we don't metabolize them in the same way, and they are not equally useful. Although for many years, the most common form of Vitamin D used in prescription medications was D2, more recent studies have shown that it is nowhere near as effective as D3 for preventing fractures and maintaining bone health.

One reason some people may choose to take D2 over D3 is that in general, D3 comes from animal sources (lanolin, the oil found in sheep's wool), whereas D2 is most commonly produced from plant or synthetic sources.

Where Do We Get It?

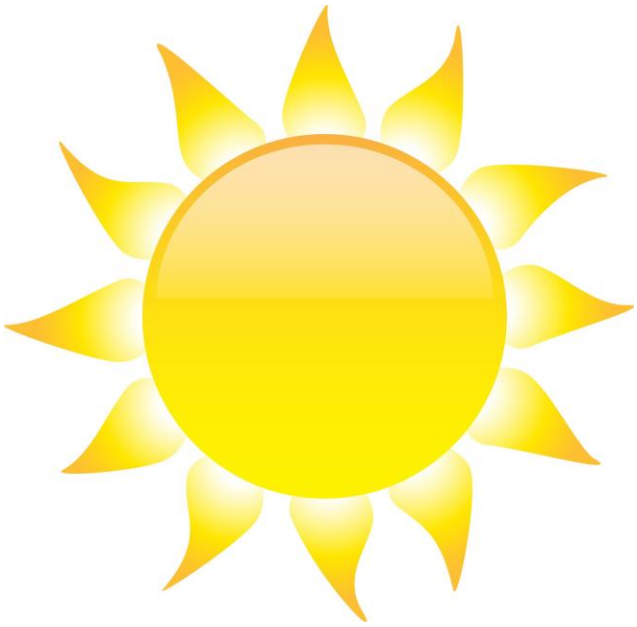
While the number one source for Vitamin D is our own bodies, which produce it through the skin when the skin is exposed to ultraviolet radiation from the sun, there is a limited amount of Vitamin D available in food as well. Some of the foods that contain significant amounts of Vitamin D are:

- Fatty Fish (Salmon, Mackerel, Tuna)
- Egg Yolks
- Beef Liver
- Cheese
- Mushrooms
- “Fortified” Dairy Products

Please Don't Take My Sunshine Away

Still, with all those foods providing potential sources of Vitamin D, there's nothing like the sun to make sure we're getting enough. The problem is that very few of us are spending enough time in the sun for it to do its job in this regard. And this leads to the high risk of developing a Vitamin D deficiency.

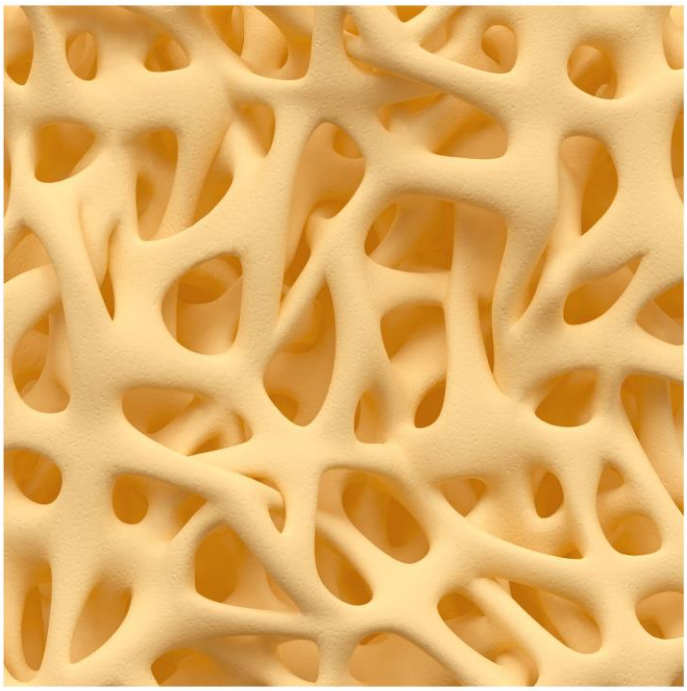
So who is most at risk for Vitamin D deficiency?



- People who live in northern climates, with limited sunlight.
- People who spend little time outdoors.
- People with dark skin – the pigment melanin reduces the skin's ability to make Vitamin D in response to sunlight exposure.
- People who are obese.
- People with kidney disease or digestive tract diseases such as Crohn's Disease or celiac Disease.
- The elderly.

What are the symptoms and health risks of Vitamin D deficiency?

- Bone pain
- Muscle Weakness
- Osteoporosis
- Greater risk of bone fractures
- Soft bones that may result in deformities
- Rickets in children
- Unexplained fatigue
- Difficulty thinking clearly



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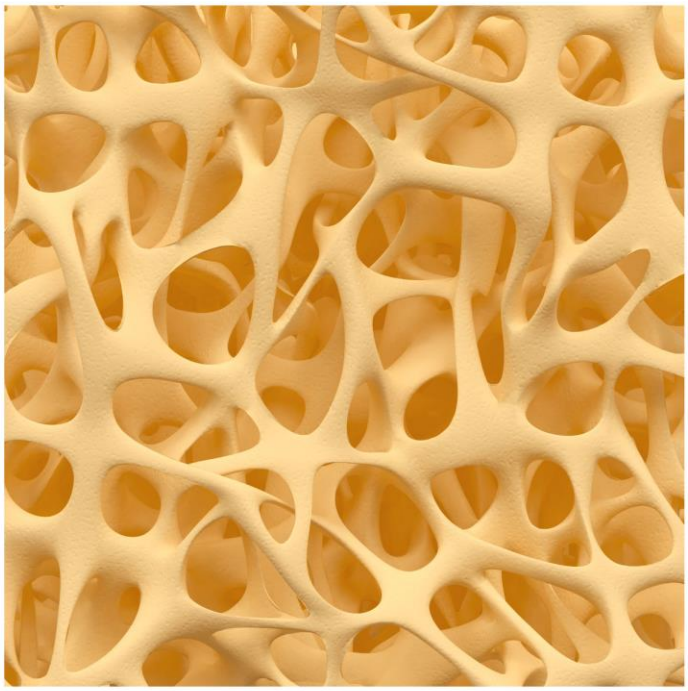

osteoporosis

How Much Do I Need?

Recent studies have shown that up to 42% of the adult population in the U.S. has low vitamin D levels. This rises to 70% for Hispanics, and a whopping 82% for African-Americans. For those people with deficiencies, or who may fall into the “low normal” levels, and experience some of the symptoms and risks of full-on deficiency, the best way to ensure that they are getting enough Vitamin D is through supplementation. It’s simply not reliable enough to depend on sun exposure, and our diets are generally not sufficient. In fact, most of the Vitamin D consumed through diet by Americans comes in the form of “fortified foods.” These are mostly processed foods to which Vitamin D has been added, rather than food in which the Vitamin D occurs naturally.

While the Recommended Dietary Allowance for adults ranges only from 600 – 800 IU (International Units), in order to ensure that blood serum levels of Vitamin D are kept high enough, the daily intake should be at least 2,000 IU. The safe upper limit, or UI, according to the Institute of Medicine, is 4,000 IU, so before taking that much or more, one should absolutely consult with a physician. Supplements can be found in doses from 400 IU to as high as 5,000 IU, and some physicians will prescribe even more, often in the form of D2. As we noted above, D2 is not nearly as well absorbed, so higher doses are less likely to create overly high blood serum levels. For most people, the safest bet is to keep supplementation to no more than 2,000 IU per day.

In summary, it's important to be aware of the fact that Vitamin D (by which we generally mean D3, or cholecalciferol) is very difficult to get in adequate amounts from your diet, is vital to maintaining optimum bone and muscle health, and unless you're spending a lot of time in the sun, you're likely not getting enough. Therefore the best option is to take a quality Vitamin D supplement, of up to 2,000 IU per day.

And coming soon –
our **Vitamin D3 plus K Complex**

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