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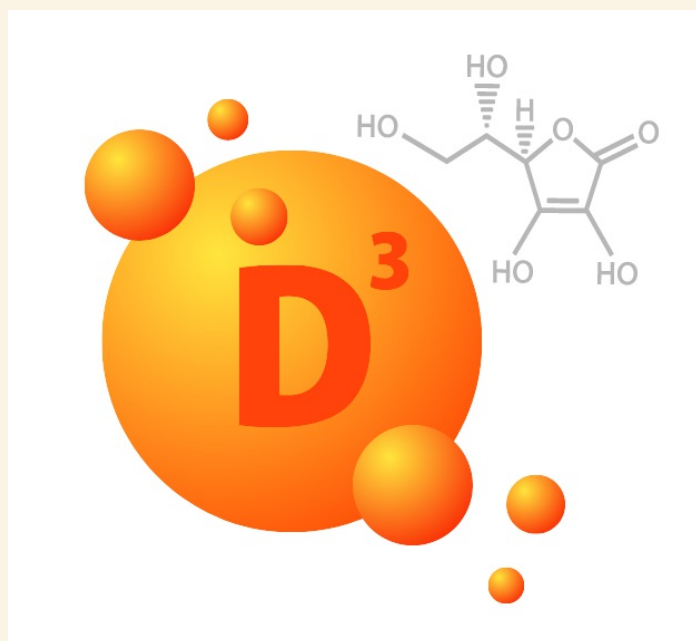
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Part 3 of 4 – Information About Vitamin D

Vitamin D deficiency can cause many problems.

A vitamin D deficiency can present as many different symptoms, including fatigue, back pain, muscle cramps, depression, nausea, hair loss, acid reflux, osteoporosis, and even poor disease resistance, for example. Vitamin D's primary benefit appears to be to strengthen our immune system. A vitamin D deficiency can increase the risk of developing a cold, or the flu, and historically, it was notorious for causing rickets. Even cancer, and many autoimmune diseases are associated with a vitamin D deficiency, including diabetes, multiple sclerosis, non-Alzheimer's dementia, and inflammatory bowel disease (IBD), to name a few.



Vitamin supplements in the form of D3, rather than D2, are more effective.

Medical research proves that vitamin D3 is much more readily absorbed, and generally more effective than vitamin D2. Vitamin D that our bodies produce after exposure to sunlight is in the form of D3 and this is also true for vitamin D associated with animals, in general. Plants generally are associated with vitamin D2, and

some vitamin supplements derived from plant sources are based on vitamin D2. At one time, whenever doctors prescribed vitamin D, they almost always prescribed D2. By now, most of them have probably corrected this mistake because of the medical research articles showing that practice to be counterproductive. Most prescriptions these days are likely to be for D3. Most vitamin D test

results, however, still report both D3 and D2 levels. Unless otherwise specified, all general references to vitamin D in this article pertain to vitamin D3, since that's the preferred form.

Absorbing sunlight, or taking supplements, will boost vitamin D levels.

But because our immune system can only use vitamin D in its active form, and an adequate magnesium level is required for that conversion, we need to remember to maintain our magnesium reserves in tandem with our vitamin D levels. Our great-grandparents got their vitamin D from spending time in the sun, and since their food and water contained higher vitamin and magnesium levels than the levels in our food and water today, most of them were less likely to have vitamin and mineral deficiencies than most of us today, unless they didn't get normal amounts of sun exposure.

The body rebuilds organs continuously.

The immune system is in charge of this process, and as cells age, at certain intervals they are marked for destruction and replaced with new cells. This process of programmed cell death is known as apoptosis. Cells that are exposed to harsh conditions, are replaced much more often than cells that have an easier existence. Cells in the lining of the stomach, for example, are replaced on an average of about every 2 days. At the other extreme, the body's skeleton is regenerated about every 10 years. By continually replacing cells on a scheduled basis, the body maintains its health, and old, diseased, or dead cells do not tend to accumulate and cause problems. After cells are marked for destruction, they are destroyed, and the residue removed, before the new cells are generated. And this process of continual renewal works smoothly, unless it's interrupted by an unnatural intrusion, such as the use of a bisphosphonate, for example.



Vitamin D, not calcium, is the key to preventing osteoporosis.

Most doctors do not understand this problem, and they mistakenly think that prescribing a calcium supplement should resolve osteoporosis problems. When that doesn't get results for a patient, they often prescribe a bisphosphonate, which causes unnatural, and undesirable effects, and can cause serious problems.

Bisphosphonates don't help to build new bone tissue —instead, they work by preventing bones from destroying old bone cells, and replacing them with new cells, which totally disrupts the normal way that bones are maintained as we age. This causes the old bone tissue to harden, giving the illusion that the bone is getting stronger (because it causes false DEXA scan readings), when in fact, the tissue is dying, and simply becoming more brittle. That's why bisphosphonate use is limited to 5 years (as the bones become more brittle, the risk of fractures increases).

Instead of taking a calcium supplement, take vitamin D.

Taking a calcium supplement typically will not significantly help to change anyone's osteoporosis status. Taking a vitamin D supplement, instead, will enhance the absorption of calcium. Most diets contain plenty of calcium. If we develop osteoporosis, it's not because we're not ingesting enough calcium, it's because we're not absorbing it properly. Vitamin D enhances the absorption of calcium in our diet, allowing us to absorb all the calcium we need for good health, without taking a calcium supplement. The higher our vitamin D level,

the better our absorption of calcium is likely to be; however, we absolutely must have adequate magnesium reserves in order to facilitate the ability of insulin to transport the calcium out of our bloodstream, and into the cells in our bones and other organs, wherever it's needed. Without adequate magnesium reserves, the calcium will simply build up in the blood, until it is eventually purged down the toilet, or (if magnesium is deficient) inappropriately routed, to wind up as kidney stones, or calcium deposits (calcification) in certain joints. But please note that the common problem of calcification is not due to vitamin D (as claimed by the medical community), it's due to insufficient magnesium (while taking a vitamin D supplement).

Vitamin D should not be supplemented without also taking magnesium.

This paragraph was included in last week's magnesium newsletter, but this information is important enough that it's included in this vitamin D newsletter, also. It's important, because, as noted above, taking a vitamin D supplement, will



increase the absorption of calcium from the foods in our diet. But the absorption of calcium depletes magnesium, so if magnesium is not also supplemented, it is likely to eventually become deficient, if it's not already deficient. Calcium is a vital electrolyte, and the blood level of calcium is critical for carrying out many processes at the cellular level. Because the calcium balance is so important, the blood level of calcium is carefully regulated within a narrow range, and magnesium plays a vital role in regulating that level. An adequate supply of magnesium is necessary in order to assist insulin in transporting the calcium out of the bloodstream, and into the bones and other cells of our body where it's needed. If the blood level of calcium should become excessive, then in order to prevent serious coronary issues, magnesium is utilized to purge the excess calcium, by way of the kidneys. If magnesium reserves are inadequate when this situation arises, the risk of an adverse outcome is significantly increased, up to, and including, cardiac arrest, in extreme cases.

IBD patients are typically vitamin D deficient.

The association of vitamin D deficiency with IBD's in general, has been well established by medical research (Fletcher, Cooper, Ghosh, & Hewison, (2019)).¹ Allowing our serum vitamin D level to fall below about 20 nanograms/milliliter (ng/mL), jeopardizes the ability of our immune system to function normally. At very low levels, such as below 10 ng/mL, the ability of our immune system to ward off disease and infections becomes severely compromised. Many authorities recommend a vitamin D serum level between 30 and 50 ng/mL, for optimum health.

Are higher vitamin D levels better?

Random control trials (RCTs) are the gold standard for medical research. At least one RCT has been published to show that treatment of Crohn's disease patients with up to 10,000 IU daily of vitamin D supplementation is safe and effective (Narula, Cooray, Anglin, Muqtadir, Narula, & Marshall, 2017).² Based on published medical research, it's rather obvious that taking a magnesium supplement is very beneficial for most IBD patients. Looking at the

data makes it rather easy to believe that taking higher doses of vitamin D would be more beneficial than using smaller doses.

However, a meta-analysis of 18 published RCTs, showed that, at least for Crohn's disease and ulcerative colitis patients, there was no significant difference between the symptoms or relapse rates of patients, regardless of whether they were using the higher or lower doses in the trials (Li, Chen, Wang, Zhang, & Gong, 2018).³ Most patients in the trials showed similar improvements over those in control groups who were taking placebos. That suggests that an adequate vitamin D level is definitely beneficial for IBD patients, but high levels do not appear to offer any significant advantage for most patients. Presumably, that general rule probably applies to most MC patients, as well, although MC patients weren't included in the trials.



Many MC patients have acid reflux problems.

A significant amount of epidemiological evidence suggests that vitamin D can be helpful for controlling acid reflux problems (especially in higher doses), and this is at least partially supported by published medical research (Uberti, Bardelli, Morsanuto, Ghirlanda, & Molinari, 2016).⁴ Of course, treating an acid reflux problem successfully usually requires more than just taking vitamin D, especially if the problem was initially caused by taking a proton pump inhibitor (PPI). It may be necessary to take an H2 antihistamine while weaning off the PPI. Weaning off the H2 antihistamine will be much easier than trying to wean off the PPI.

Avoid foods that cause reflux, such as coffee, alcohol, chocolate, peppermint, tomatoes or any other citrus fruits, and greasy or spicy foods, especially late in the day. And avoid eating anything after 3 or 4 hours before bedtime. Never lie on your right side, because that allows your lower esophageal sphincter to be lower than your stomach. And elevate the head of your bed a few inches, if needed. It will probably take at least several months or more before your lower esophageal sphincter will heal sufficiently from the damage caused by a PPI, before you will be able to begin relaxing some of these treatment rules. But weaning off a PPI, and resolving acid reflux or GERD problems is certainly doable, with persistence and dedication.

It's important to have our vitamin D level checked regularly.

Our vitamin D level is constantly changing. Not only does taking a vitamin D supplement affect our blood level, depending upon the amount of supplement taken, but the amount of sunlight available during the various seasons makes a big difference. Typically, we need to take more supplemental vitamin D during the colder months, and less during the warmer months. Consequently, it's a good idea to have our vitamin D level checked in the early spring, and again in the early fall, or somewhere thereabout, because levels tend to go down during the winter, and rise again during the warmer months.

Your doctor should be willing to order the test for you.

If not, these days, it's easy to get tested without a doctor's prescription. There are many walk-in and online labs where you can order a 25-(OH)D (25-hydroxy D) test. We compared the test results for a 25-(OH)D test at ZRT Laboratory (an online lab), with results from a laboratory used by many doctors (a hospital lab), and found that the results were identical for samples taken the same day. Here's a link to their website page where a 25-(OH)D test kit can be

ordered (Vitamin D, 25-OH, Total (Blood):



<https://store.zrtlab.com/index.php/blood-spot-testing>

Note that cheaper tests at some laboratories are available online, and some alternative laboratory suggestions are available at the website that can be found at the following url:

<https://www.medicalnewstoday.com/articles/vitamin-d-tests>

The integrity of our immune system is one of our most important possessions.

Keep in mind that vitamin D is the fuel that allows our immune system to operate at peak levels, as long as our magnesium level is also adequate. If either one should become deficient, the risk of disease and infections increases significantly. Chronic deficiencies open the door to the risk of autoimmune diseases, and once we develop an autoimmune disease, such as MC, the risk of developing additional autoimmune diseases, increases, making the avoidance of vitamin D and magnesium deficiencies even more important.

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