

# Vitamin D-3 OVERVIEW

Vitamin D3 is the only vitamin the body can manufacture from sunlight (UVB). Yet, with today's indoor living and the extensive use of sunscreens due to concern about skin cancer, we are now a society with millions of individuals deficient in life-sustaining **bone building** and immune modulating 1,25-dihydroxy Vitamin D3.

For more than a century, scientists have recognized that **Vitamin D3** is involved in bone health. Research has continued to accumulate, documenting Calcitriol's role in the reduction of the risk of fractures to a significant degree. The latest research, however, shows that 1,25-dihydroxy Vitamin D3 deficiency is linked to a surprising number of other health conditions such as depression, back pain, cancer, both insulin resistance and pre-eclampsia during pregnancy, impaired immunity and macular degeneration.

As it becomes clear that **Vitamin D3** plays a wide role in overall health, it's becoming equally clear that a large percentage of individuals are deficient in this important nutrient, which has hormone-like activity. The fear of skin cancer has stopped many individuals from obtaining beneficial amounts of sunlight. The skin uses the energy of UVB to convert 7-dehydrocholesterol into Vitamin D3. Even individuals, who venture out into the sun often and use suntan lotion, may be deficient in Vitamin D3. Furthermore, as we age, we are less equipped to produce sufficient quantities of this vital nutrient. One study found that age-related declines in kidney function may require older people to ingest more Vitamin D3 to maintain the same blood levels as younger people.

Researchers, led by Dr. Amie L. Peterson from the Oregon Health and Sciences University, conducted a cross-sectional analysis of 286 patients with Parkinson's disease. They found that higher 25-hydroxyvitamin D (vitamin D3) blood levels were associated with less severe symptoms of Parkinson's, better cognition, and less depression in all the patients studied. Adding to this, patients who didn't suffer with dementia had the highest vitamin D3 blood levels.

Dr. Peterson explained that nearly 30 per cent of patients suffering with Parkinson's disease also suffer from cognitive impairment and dementia. However, a study conducted in 2012, published in *The Journals of Gerontology*, found that women with a low vitamin D intake were more likely to encounter cognitive decline. This adds to the evidence of another study, which had similar results and found that women who developed Alzheimer's disease (a severe form of dementia) had lower vitamin D levels than those who did not develop the illness.

The Recommended Daily Intake (RDI) of Vitamin D3 is set so low those mature individuals who consume this small amount (400 to 600 International Unites (I.U.'s)) are still likely to be deficient if they live north of the Tropic of Cancer or south of the Tropic of Capricorn. In fact, researchers have discovered that the RDI, which was considered adequate to prevent osteomalacia (a painful bone disease) or rickets, is not high enough to protect against the majority of diseases linked to 1,25-dihydroxy **Vitamin D3** deficiency. For example, an analysis of the medical literature found that at least 1,000 to 2,000 IU of Vitamin D3 per day is necessary to reduce the risk of colorectal cancer and that lower doses of Vitamin D3 did not have the same protective effect.

### **Researchers Call for Higher Doses**

In an editorial in the March 2007 edition of the American Journal of Clinical Nutrition, a prominent group of researchers from leading institutions such as the University of Toronto, Brigham and Women's Hospital, Tufts University and University Hospital in Zurich, Switzerland, lashed out at the conventional media for its inaccurate reporting of Vitamin D supplementation.

The researchers wrote, "Almost every time the public media report that Vitamin D nutrition status is too low, or that higher Vitamin D intakes may improve measures of health, the advice that accompanies the report is outdated and thus misleading. Media reports to the public are typically accompanied by a paragraph that approximates the following: 'Current recommendations from the Institute of Medicine call for 200 IU/day from birth through age 50 years, 400 IU for those aged 51–70 years, and 600 IU for those aged >70 years. Some experts say that optimal amounts are closer to 1,000 IU daily. Until more is known, it is wise not to overdo it.

The researchers point out that supplemental intake of 400 IU per day barely raises blood concentrations of 25(OH)D, which is the circulating Vitamin D metabolite that serves as the most frequently measured indicator of Vitamin D status.

The researchers went on to write that, "The balance of the evidence leads to the conclusion that the public health is best served by a recommendation of higher daily intakes of Vitamin D. Relatively simple and low-cost changes, such as increased food fortification or increasing the amount of Vitamin D in Vitamin supplement products, may very well bring about rapid and important reductions in the morbidity associated with low Vitamin D status."

One of the challenges is the outdated acceptable upper limit for Vitamin D3 consumption, which was set at 2,000 IU. However, researchers point out that more recent studies have shown that 10,000 IU is the safe upper limit.

Dr. R. Vieth, one of the foremost authorities on **Vitamin D3 supplementation**, has extensively studied Vitamin D, and lamented the low requirements for Vitamin D3 in a recent issue of the Journal of Nutrition: "Inappropriately low UL [upper limit] values, or guidance values, for Vitamin D have hindered objective clinical research on Vitamin D nutrition; they have hindered our understanding of its role in disease prevention, and restricted the amount of Vitamin D in **multivitamins** and foods to doses (that are) too low to benefit public health."

When examining the medical literature, it becomes clear that Vitamin D3 affects human health in an astonishing number of ways and that not obtaining enough of this important nutrient can leave the door open to developing a number of health conditions.

### **Depression**

**Vitamin D3** deficiency is common in older adults and has been implicated in psychiatric and neurologic disorders. For example, in one study of 80 older adults (40 with mild Alzheimer's disease and 40 non-demented persons), Vitamin D3 deficiency was associated with low **mood** and with impairment on two of four measures of **cognitive performance**.

### **Back Pain**

Musculoskeletal disorders have been linked to **Vitamin D3** deficiency in a number of studies. One of the newest studies explored the role that low Vitamin D3 levels play in the development of chronic low back pain in women. Sixty female patients in Egypt complaining of low back pain lasting more than three months were studied. Researchers measured levels of Vitamin D3 in the women with low back pain and compared those levels to those of 20 matched healthy controls.

The study revealed that patients with low back pain had significantly lower Vitamin D3 levels than controls. Low Vitamin D3 levels (25 OHD < 40 ng/ml) were found in 49/60 patients (81 percent) and 12/20 (60 percent) of controls.

### **Bone Health**

One of the best known and long-established benefits of **Vitamin D3** is its ability to improve bone health and the health of the musculoskeletal system. It is well documented that Vitamin D3 deficiency causes osteopenia, precipitates and exacerbates osteoporosis, causes a painful bone disease known as osteomalacia, and exacerbates muscle weakness, which increases the risk of falls and fractures. Vitamin D3 insufficiency may alter the regulatory mechanisms of parathyroid hormone (PTH) and cause a secondary hyperparathyroidism that increases the risk of osteoporosis and fractures.<sup>8</sup>

### **Cognitive Enhancement**

Scientists are developing a greater appreciation for **Vitamin D3's** ability to improve cognition. In a recent study, Vitamin D3 deficient subjects scored worse on mental function tests compared to individuals who had higher levels of the Vitamin.

### **Immunity**

Scientists have linked various aspects of **immune health** to a Vitamin D3 deficiency. Vitamin D3 regulates T cells, which are important to the functioning of a strong immune system. **Vitamin D3** acts as an immune system modulator, preventing excessive expression of inflammatory cytokines and increasing the killing efficiency of macrophages. In addition, it dramatically stimulates the expression of potent anti-microbial peptides, which exist in immune system cells such as neutrophils, monocytes, natural killer cells, and in cells lining the respiratory tract. These Vitamin-D3-stimulated peptides play a major role in protecting the lung from infection.

In addition, Vitamin D3 deficiency may influence development and progression of various autoimmune diseases.

### **Multi-Talented Nutrient**

**Vitamin D3** deficiency has been linked to a host of other conditions such as high blood pressure, fibromyalgia, diabetes, multiple sclerosis, rheumatoid arthritis, and an increased risk of pre-eclampsia and insulin resistance during pregnancy. Most recently, low Vitamin D3 levels have been linked to an increased prevalence of early age-related macular degeneration.

### **Proper Dosage**

In many of my patients, even after consuming 2,000 to 5,000 IU of **Vitamin D3** per day, their test results indicate that their Vitamin D3 levels have not increased. These patients needed to consume 8,000 IU of

Vitamin D3 per day to achieve proper blood levels of the Vitamin. Patients should, therefore, have their physicians test their serum 1,25-dihydroxy D3 levels to determine the proper level of supplementation required. Testing is very important due to the fact that, in a small number of patients, Vitamin D3 supplementation can raise calcium levels to an excessively high level. I have found this to be especially true in African American patients. Testing for 1,25-dihydroxy Vitamin D3, PTH and calcium blood levels should therefore become a part of every woman's regular blood work.

The supplements for vitamin D may be made from either plants or animals. However, if you were looking for a vitamin D3 supplement, you would look for only those available through animal supplements. It is also available from lamb's wool! **bozomer is available through lamb's wool.**

Vitamin D is frequently added to a number of foods, to make them beneficial. However, if you were looking for vitamin D-3 you would have to go for a pill or a liquid form. Not common in cereals or juices. Another important difference is that vitamin D2 has a shorter shelf life compared to vitamin D-3. This decreases the potency of the vitamin if it is used as a vitamin supplement.

### Summary:

1. Vitamin D is manufactured by both plants and animals. Vitamin D3 is particularly found on the skin of animals, as a byproduct of synthesis.
2. Vitamin D is not beneficial in all its forms. Vitamin D2, one of the forms of vitamin D can be toxic to the body. Vitamin D3 is good for the body.
3. You can get vitamin D from fortified foods or as pills. However, vitamin D3 is only available in the form of pills or in liquids. They are rarely found in foods.
4. Supplements for the two vitamins are sourced differently.
5. The D2 form of the vitamin has a shorter shelf life compared to the D3 form.

### Conclusion

A growing number of researchers who have widely studied **Vitamin D3** are almost begging the general public to consume more of this important nutrient. Due to Vitamin D3's high safety profile in doses up to 10,000 IU per day and because of the wide role it plays in our health, consuming 2,000 to 5,000 IU per day of this nutrient at times of the year when sunlight is scarce is a prudent way to improve overall health.

Vitamin D has been in the forefront of the medical world with all of the recent discoveries as to the significance of this essential nutrient for overall health and well being. Nicknamed the "Sunshine Vitamin", Vitamin D is unique among all other vitamins because it is the only conditional one and must be synthesized in the skin from exposure to ultraviolet radiation from sunlight. Concerns over skin cancer caused by overexposure to sunlight have prompted many to use sufficient sun block or limit exposure to a degree that can create a deficiency of Vitamin D produced by the body. But, in fact, a lack of Vitamin D is now linked to various forms of cancer including malignant melanoma and colon cancer. Vitamin D deficiencies can also drastically weaken the immune system, bones and brain function. For these reasons many physicians are now recommending their patients take levels of Vitamin D far in excess of the recognized Daily Value. Available in two forms, Vitamin D-2 (ergocalciferol) and Vitamin D supplements are available in two forms, D-3 (cholecalciferol) which is the natural form and D-2, (ergocalciferol) which is produced by radiating fungus. Vitamin D-3 5000 IU Capsules: Derived from lanolin, each small, easy to swallow vegetable capsule provides 5000 IU of natural Vitamin D-3.

**HOW TO USE**

As a dietary supplement take one (1) capsule daily.

**CAUTION:** Do not exceed recommended dose. Pregnant or nursing mothers, children under 18, and individuals with a known medical condition should consult a physician before using this or any dietary supplement. This product is manufactured and packaged in a facility which may also process milk, soy, wheat, egg, peanuts, tree nuts, fish and crustacean shellfish.

Our select line of supplements were compiled as a focused effort for the 45 and over group called Zoomers. Please join our health movement at [www.bozooomer.com](http://www.bozooomer.com)



# VITAMIN-D3 5000 iu



**Antioxidant Support**  
**Supports Overall Health**

**60 Capsules**  
**Dietary Supplement**

**Supplement Facts**

Serving Size 1 Veggie Capsule

**Amount Per Serving**

Vitamin D-3(cholecalciferol) 5,000IU 1,250%

**Other ingredients:** Cellulose, magnesium stearate, HPMC and silicon dioxide.

**KEEP OUT OF REACH OF CHILDREN. DO NOT USE IF SAFETY SEAL IS DAMAGED OR MISSING. STORE IN A COOL, DRY PLACE.**

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Lot#: \_\_\_\_\_  
Manufacture Date: \_\_\_\_\_  
Best if used by: 5467-21454-60

Made in USA – Manufactured for:



Clarkston, MI 48346  
888-571-5096



## bozooomer D-3 Other Ingredients:

**What is Cellulose?** It is a fibrous carbohydrate, but it's a carb VERY different form starch. Cellulose is a straight chain polymer: unlike starch, no coiling occurs, and the molecule adopts an extended rod-like conformation that's why you'll find that plant cell walls are made of cellulose. This strength is important in cell walls, where they are meshed into a carbohydrate matrix, helping keep plant cells rigid. So although it is technically a carbohydrate, it's so fibrous in nature that the bonds prevent it from acting like other carbohydrates.

If you're inquiring regarding its glycemic index values, I would categorize it as very low, unlike many other carbs. You can have it even if you can't have sugar, because cellulose is the slowest carb you can consume, since it's digested as strictly fiber. It's actually the healthiest "carb" possible.

**What is magnesium stearate?** Magnesium stearate is a white substance, solid at room temperature, used in the manufacture of pharmaceutical and supplement tablets and capsules. The primary role of magnesium stearate in supplements is to act as a lubricant to prevent tablet and capsule contents from sticking to the machinery that process them. The magnesium stearate we use is vegetable based and batch tested for purity by government standards.

**What is HPMC?** Several materials have been examined as a substitute for the gelatin in two-piece hard capsules. Hydroxypropylmethyl cellulose (HPMC) has become a successful alternative material for two-piece capsules and is actually on the market in the world. HPMC is also being adopted as a film coating or a sustained-release tablet material in the pharmaceutical field. HPMC capsules have been developed for both pharmaceutical products and dietary supplements. They are preservative free, allergen free, starch free, gluten free, non-animal: suitable for vegetarians and vegetarian minded users.

**What is silicon dioxide?** Silicon dioxide is found in many multivitamin and mineral supplements because silicon is necessary for good health. As a necessary nutrient for the health of your skin, hair, nails and bones, dietary silicon may also help to prevent arthritis and osteoporosis. But silicon dioxide also works as an anti-caking agent, and is added as an ingredient in foods to help keep your processed foods appetizing. Silicon is the second most common element on Earth, and the eighth most abundant element in the universe. Silicon makes up nearly 28 percent of the Earth's crust by weight. But in nature,

it doesn't occur by itself. Instead, it usually takes the form of an oxide, meaning that the silicon atom combines with one or more oxygen atoms. Silicon has been known to be an essential nutrient in human health for some time. Silicon contributes to the health of your bones and arteries, and may also help your body by maintaining a healthy blood pressure level.

Bear in mind all the material in this overview alert is provided for information purposes only. We are not addressing anyone's personal situation. Please consult with your own physician before acting on any information contained herein.

Please contact us at [www.bozomer.com](http://www.bozomer.com) for our complete family of supplements. Thank You!