

Vitamin D Testing



Finlandia
PHARMACY & NATURAL HEALTH CENTRE

Customer information sheet

73 per cent of Canadians are vitamin D deficient. Are YOU?

Over the years, we've seen health supplement fads come and go. For a while, the supplement is considered a miracle—only to fade into the background as subsequent studies refute that which gave it celebrity status in the first place.

Vitamin D, however, is different. Study after study has confirmed that never has there been a vitamin so vital to human health that even a small deficiency can precipitate a wide range of disease states. Vitamin D can also be a powerful flu preventive measure.

Known as the sunshine vitamin, vitamin D is manufactured within the skin when ultraviolet light from the sun penetrates its upper layers. The body itself does not manufacture the active form of the vitamin—D₃ (or cholecalciferol). Instead, it produces vitamin D₂, which is converted to D₃ in the presence of sunlight.

Vitamin D deficiency has been linked with a number of health conditions. Apart from the well known signs of vitamin D deficiency (osteomalacia or bone softening, osteoporosis, stress fractures and muscle and bone pain), there are a number of other physical signs of deficiency which can often be misdiagnosed as other ailments. These include stiffness (especially morning stiffness), difficulty climbing stairs, muscle weakness (including grip strength and difficulty getting out of a chair), an unsteady gait, and fibromyalgia.

Low levels of vitamin D have also been linked to conditions including Alzheimer's disease, anxiety, asthma, autoimmune diseases (lupus, rheumatoid arthritis,

continued over

Superior absorption VITAMIN D

Finlandia brand superior absorption vitamin D is formulated as a 1000 IU Food Nutrient tablet (5x as absorbable as regular vitamin D), or as convenient liquid drops (1000 IU per drop).

Available in-store or online.

We also compound economical high-dose vitamin D with a prescription from your medical or naturopathic physician.



An easy way to test your vitamin D levels

According to Health Canada, seven out of ten Canadians do not meet the suggested vitamin D levels for optimal health—and one out of three Canadian toddlers are vitamin D deficient. Furthermore, a 2010 study¹ estimated that 37,000 deaths could be prevented every year if the Canadian average vitamin D level was 105 nmol/L (42 ng/mL).

Canadians in general have low levels of vitamin D since our northern climate means we do not get much sunshine for many months of the year. However, although anyone can be deficient in vitamin D, certain people are more at risk. These include:

- vegetarians, vegans, and others who do not consume dairy foods (since a primary source of vitamin D for Canadians is fortified milk);
- people with darker skin, and others who avoid the sun for pigmentation reasons, and those who use sunscreens (therefore blocking their skin from UV rays);
- people over 50, since the ability to form vitamin D in the skin decreases with age;
- People with certain health conditions such as Crohn's disease, celiac disease, cystic fibrosis, and some forms of liver disease;
- People who are taking certain medications, including some steroids, anti-seizure medications and weight-loss drugs.

Knowing your vitamin D levels is vitally important, as low levels of the sunshine vitamin have been linked to numerous diseases, but how do you know if you are vitamin D deficient? How much of this important vitamin should you take?

Finlandia offers a vitamin D test called the D-Spot test. It is an easy-to-administer, take home test, that does not require a trip to the lab or a requisition from a doctor. It is something you can do on your own to monitor your personal vitamin D levels. Without regular supplementation with vitamin D, it is recommended to test at the end of March or April, when levels of this vitamin are typically at their lowest, and at the end of August or September, when vitamin D levels are usually at their peak. If you are already taking a vitamin D supplement, the test allows you to monitor if your levels are in the optimal range.

Please ask us for details as to how you can benefit from taking this valuable test.



inflammatory bowel disease), cancers of the breast, prostate, colon and lung), type 1 & 2 diabetes, heart disease, high blood pressure, mental health issues (including schizophrenia, depression and autism), multiple sclerosis, and poor immune response.

Several studies have also shown that low levels of vitamin D can increase the risk of contracting colds and flu.ⁱⁱ (Given the very low efficacy of flu vaccine, it is likely that vitamin D is more helpful in preventing flu than an annual flu shot.)

Even if you are not deficient in vitamin D, taking a quality vitamin D₃ supplement is a wise idea as it is extremely difficult to reach toxicity levels of this vitamin. In fact, vitamin K₂—found in green, leafy vegetables as well as available as a supplement—will prevent any toxicity from occurring. It is deficiency of vitamin K₂ that produces the symptoms of D toxicity.

HOW MUCH IS OPTIMAL?

Blood serum levels of vitamin D are measured using 25-hydroxyvitamin-D as a marker. The Vitamin D Council, a non-profit group that advocates higher vitamin D intake, suggests taking a *minimum* 5,000 IU a day of vitamin D to reach the minimum level recommended for adults—125 nmol/L (50 ng/mL).

Many people take 10,000 to 30,000 IU of vitamin D daily to establish the level of blood 25-hydroxyvitamin-D considered optimal for disease prevention and overall improved health—between 125 and 175 nmol/L (50 and 70 ng/mL). It is particularly important for Canadians to supplement with vitamin D, since our long winters do not allow significant levels of vitamin D to naturally accumulate within the body.

A POWERFUL ANTI-INFLAMMATORY

Research suggests a number of diseases can be prevented or ameliorated through increasing intake of vitamin D. This isn't surprising when you consider that most diseases are associated with inflammation, and vitamin D helps suppress the inflammatory process.

Belgian researchers showed that vitamin D₃ lowers C-Reactive Protein (CRP), a measure of inflammation in the body. This research was undertaken on critically ill patients, whose inflammation was reduced by more than 25 per cent after they were given a relatively small amount of vitamin D (500 IU). Subsequent studies have shown that Vitamin D deficiency is linked with inflammation in otherwise healthy people.

Vitamin D reduces inflammation by downregulating the expression of pro-inflammatory cytokines such as *tumour necrosis factor-alpha*. These same cytokines are frequently over-expressed as we age. This results in chronic low-level inflammation that causes damage to the arteries, joints and nerve tissue. It is therefore particularly important that aging people take enough vitamin D to prevent or reduce this damaging effect of the aging process.

SPECIFIC DISEASES

Osteoporosis: Assimilation of calcium by the bones requires the presence of vitamin D. A deficiency of vitamin D has been associated with greater incidence of hip fractures. Accordingly, when dietary and/or supplemental intake of vitamin D is increased, less bone loss has been noted.

Cancer: The active form of vitamin D (calciferol) acts as a regulator of cell growth and differentiation in a number of different cell types, including cancer cells. Numerous clinical studies show vitamin D deficiency to be associated with four common cancers—those of the

breast, prostate, skin, and colon.

In a 2007 Creighton University School of Medicine (Omaha, Neb.) studyⁱⁱⁱ reported in the *American Journal of Clinical Nutrition*, researchers determined that the higher the level of vitamin D in the blood, the lower a person's cancer risk.

Creighton's professor of nursing and medicine, Joan Lappe, and her team studied close to 1,200 post-menopausal women. Those taking a combination of vitamin D and calcium were found to have a 60 per cent lower risk of breast, lung and colon cancers, over four years of follow-up.

Autoimmune disorders: Autoimmune disorders such as multiple sclerosis, rheumatoid arthritis, thyroiditis, Crohn's disease and Sjogren's syndrome have been linked with low vitamin D levels.

Whereas researchers have determined that infrequent, intense exposure to UVB rays suppresses the immune system, the opposite applies to ongoing low-level exposure to sunshine: the abnormal inflammatory responses evident in autoimmune disorders

appear normalized.^{iv}

Rheumatoid arthritis: Scientific evidence increasingly suggests that not only may vitamin D deficiency be a risk factor for rheumatoid arthritis (RA), it may also increase the risk for cardiovascular disease in people with RA.

A 2010 study published in *Environmental Health Perspectives* looked at the effect environmental factors had on rheumatoid arthritis risk. The researchers found that women living in the sun-deprived Northeast were significantly more likely to develop the disease.

Another study, by Johns Hopkins University School of Medicine and published in *Arthritis Care Research* reviewed the connection between vitamin D levels and cardiovascular disease risk among people with rheumatoid arthritis.^v (Both vitamin D deficiency and rheumatoid arthritis are established risk factors for heart disease.)

The study showed that 41 per cent of the rheumatoid arthritis patients were significantly deficient in vitamin D, and another 46 per cent had insufficient levels of the vitamin. Those with lower vitamin D levels had more insulin resistance, lower levels of HDL ("good") cholesterol, and more markers of inflammation. Higher levels of inflammation suggest that low vitamin D status may actually worsen rheumatoid arthritis symptoms.

Seasonal Affective Disorder (SAD), depression and fatigue: Activated vitamin D in the adrenal glands regulates the release of *tyrosine hydroxylase*, the enzyme needed for the production of the mood-regulating chemicals *dopamine*, *epinephrine* and *norepinephrine*. Low vitamin D levels have therefore been strongly associated with depression and tiredness, particularly that of a seasonal nature, when levels of sunlight are low.

SAD has been successfully treated using vitamin D alone. In a 30-day study comparing Vitamin D with 2-hour daily use of UV-emitting lightboxes, depression completely resolved in the group taking vitamin D, but not in the group receiving light therapy.^{vi}

i. Grant WB, Schwalfenberg GK, Genius SJ, Whiting SJ, *An estimate of the economic burden and premature deaths due to vitamin D deficiency in Canada*. Mol Nutr Food Res. 2010 Aug;54(8):1172-81 ii JAMA Internal Medicine February 3, 2009; 169(4): 384-390 iii Joan M Lappe, Dianne Travers-Gustafson, K Michael Davies, Robert R Recker, Robert P Heaney, *Vitamin D and calcium supplementation reduces cancer risk: results of a randomized trial*, Am J Clin Nutr 2007;85:1586-91 iv McMichael AJ, Hall AJ. *Multiple sclerosis and ultraviolet radiation: time to shed more light*. Neuroepidemiology. 2001 Aug;20(3):165-7. v Haque UJ, Bathon JM, Giles JT. *Association of vitamin D with cardiometabolic risk factors in rheumatoid arthritis*. Arthritis Care Research. 2012 vi. Gloth FM, III, Alam W, Hollis B. *Vitamin D vs broad spectrum phototherapy in the treatment of seasonal affective disorder*. J.Nutr.Health Aging 1999;3:5-7.