

VITAMIN D DEFICIENCY LINKED TO MS AND OTHER DISEASES

Vitamin D is a steroid hormone which is mainly produced in our bodies when our skin is exposed to ultraviolet light from the sun. Our levels of vitamin D are far higher in summer and autumn than in winter and spring.

A deficiency of vitamin D can lead to osteoporosis and affect our strength and balance and make us prone to falls and often, fractures. Groups particularly at risk of vitamin D deficiency include those who spend little or no time outside such as the elderly and people living in institutions.

Recent reports also suggest vitamin D deficiencies may be associated with the onset of diseases such as multiple sclerosis (MS), colorectal cancer, breast cancer, prostate cancer, type 1 diabetes, cardiovascular diseases and tuberculosis.

Research findings

Researchers at the Menzies Research Institute in Tasmania are analyzing data collected on people under 60 years with and without MS. Those with MS in the low disability group had no disability or could walk an unlimited distance without rest but not run.

“The study found that the level of disability was strongly associated with lower vitamin D levels and with lower levels of sun exposure.”

The study found that the level of disability was strongly associated with lower vitamin D levels and with lower levels of sun exposure. In fact those with a higher disability were three times more likely to have low vitamin D levels (<40 nmol/L) compared to a healthy control group.

However, those with no or minimal disability were as likely as the control group to have low levels of vitamin D with about 55% being vitamin D deficient in winter and spring, indicating that a deficiency of vitamin D is also a concern among Tasmanians generally.

Ways to increase Vitamin D levels

Recent research suggests there may be additional benefit in maintaining vitamin D levels of 75 nmol/L or higher.

A blood test ordered by your GP will determine whether or not your vitamin D levels are adequate. If they are low, the problem can be tackled in three ways: taking vitamin D supplements, increasing exposure to sunlight safely and increasing the intake of foods containing vitamin D.

Vitamin D supplements

The current recommended intake of vitamin D for adults in Australia is 400 IU per day. However, there is general consensus among scientists that this should be much higher, at least 1000 IU per day.

Adequate vitamin D is currently defined as a blood test level above 50 nmol/L (nanomols or parts per million). Taking 1000 IU (International Units) per day seems to increase vitamin D levels on average to about 70 nmol/L, and 4000 IU per day seems to increase vitamin D levels on average to around 100 nmol/L. No adverse effects have been reported at these doses.

Some people require more vitamin D than others to reach a given level of vitamin D in their blood. In addition, the level of vitamin D in the blood also depends on the amount of exposure to the sun.

Moderate to severe vitamin D deficiencies

If a blood test confirms moderate to severe vitamin D deficiency a GP should assist you in your treatment. Supplementation with 3000-5000 IU (3-5 capsules) is recommended for 6-12 weeks, after which say, 1000 IU per day can be used. Alternatively, higher single doses can be taken - for example 500,000 IU (using 50,000 IU capsules) or 1 capsule of 50,000 IU once a month for 3-6 months, after which a dose of around 1000 IU per day can be used.

Vitamin D supplements

There are three over-the-counter pure vitamin D preparations available in Australia - OsteVit-D, Ostelin Vitamin D and Blackmores Vitamin D3.

Each capsule contains 1000 international units (IU). OsteVit-D and Blackmores both contain vitamin D3 (cholecalciferol), while Ostelin contains vitamin D2 (ergocalciferol). People do not produce vitamin D2 naturally in the body and vitamin D2 seems a little less effective in raising vitamin D levels than vitamin D3.

OsteVit-D is the least expensive, retailing for around \$32 for 250 capsules. Alternatively, a high dose preparation of vitamin D3 (50,000 IU per capsule, taken monthly, around \$60 for 12 capsules) can be ordered at some chemists with prescription. If you decide to take a vitamin D supplement, we suggest that you inform your GP.

Increasing exposure to the sun safely

Exposure to the sun is the cheapest way to increase vitamin

D levels, but could come at a cost because it increases the risk of skin cancer and eye disease.

While vitamin D levels are always far higher in summer/autumn compared to winter/spring, deficiencies are also greater the further one lives from the equator as the sun's strength is lower. The amount of clothing worn, the use of sunscreen, as well as the amount of time spent outside and what time of the day this occurs, all determine vitamin D levels. Being outside early in the morning or late in the afternoon during the winter has little effect on vitamin D levels for people living in Tasmania.

The Menzies Research Institute has detailed data about recommended sun exposure for people with high levels of disability but in brief:

- 1-2 hrs a day of sun exposure in summer during weekends and holidays (using WHO sun protection recommendations) seems sufficient for most Tasmanians to maintain vitamin D levels at 50 nmol/L in summer and spring.
- In winter, it is difficult to maintain vitamin D levels above 50 nmol/L in Tasmania. Therefore, a vitamin D supplement might be required to ensure vitamin D adequacy.
- The sun's heat might make MS symptoms worse. If so, go outside when there is a pleasant breeze.
- Aboriginals and others with darker skin require more sun to produce the same amount of vitamin D compared with Caucasians.
- Glass filters nearly all ultraviolet radiation required to produce vitamin D in the body. Therefore, vitamin D levels do not increase if sitting behind a window.

Dietary sources vitamin D

Less than 5% of the vitamin D in our body comes from dietary sources. The best source is fatty fish, such as mackerel, herring and salmon. Liver, eggs and fortified foods, such as margarine and some milks, also contain a very small amount of vitamin D.

For most Australians, adequate vitamin D is unlikely to be achieved through diet alone.

The Menzies Research Institute can be contacted on (03) 6226 7700 or at www.menzies.utas.edu.au for further information. ☺

■ Disclaimer: This general information was developed by Dr Ingrid van der Mei of the Menzies Research Institute. The information contained in this section should not be used for individual medical advice. Please see your doctor if you have concerns or specific questions relating to your health. © Copyright Menzies Research Institute 2008