CHOOSING WISELY AOTEAROA NEW ZEALAND

VITAMIN D TESTS AND DEFICIENCY

Vitamin D is a hormone that helps your body absorb the calcium it needs to keep your bones and muscles strong and healthy. We can get some of our vitamin D requirement from food, but it is very difficult to get enough vitamin D from diet alone. We are usually able to make most of the vitamin D we need ourselves, when our bare skin is exposed to ultraviolet (UV) radiation from sunlight.

WHY DO I NEED VITAMIN D?

We know that vitamin D is essential for bone and muscle health. Moderate to severe vitamin D deficiency can lead to rickets (soft bones) in infants and children. In adults over the age of 50, low vitamin D levels can lead to osteoporosis (brittle bones) and increase the risk of falls and fractures (broken bones).

Many health conditions, including diabetes, heart disease and some cancers, have been linked to low vitamin D levels, but whether low levels of vitamin D cause these conditions is unclear. The benefits of increasing vitamin D intake for these health problems —through sun exposure, diet or supplements — are unknown.

AM I AT HIGH RISK OF VITAMIN D DEFICIENCY?

You may be at risk of vitamin D deficiency if you:

- are confined indoors because of age, illness or disability — particularly residents of aged-care facilities
- are Māori, Pacific, African or Indian
- wear clothing that covers most of your body most of the time (e.g. for religious or cultural reasons)
- cover your skin or avoid the sun because of a condition that places you at higher risk of skin cancer (e.g. if you have a suppressed immune system, such as after an organ transplant)
- have a health condition that affects vitamin D absorption from your diet (e.g. cystic fibrosis, coeliac disease, Crohn's disease)
- take medicines that cause vitamin D to break down (e.g. some epilepsy medicines).

People with very low levels (moderate to severe deficiency) are most at risk of health problems.

Women need to maintain healthy vitamin D levels during pregnancy, as their unborn baby needs vitamin D to help bone and tooth development. Some pregnant women may be at risk of low vitamin D — this is most likely if you also have one or more of the risk factors listed above.

Breastfed babies who fall into the risk categories above or have mothers with low vitamin D may also be at risk of vitamin D deficiency. Infant formula in New Zealand is fortified with vitamin D.

HOW DO I GET VITAMIN D?

Sun Exposure
For most people, the simplest way to increase vitamin D levels is through sensible sun exposure on bare skin. The ideal amount of sun will vary depending on:

- where you live — UV levels are higher in northern New Zealand (e.g. Auckland)
- what season it is — UV levels are higher in summer than winter
- the time of day — UV levels peak during the middle of the day
- your skin colour — if you have dark skin, you need 3 to 6 times more sun exposure to produce the vitamin D your body needs.

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During summer, most fair-skinned people can probably get enough vitamin D from a few minutes of exposure to sunlight on their face, arms and hands (or the equivalent area of skin) on either side of the peak UV periods on most days. In winter, in southern New Zealand, more sun exposure may be needed. The table below provides an approximate guide to sensible sun exposure for a person with fair skin.

Most children and teenagers can maintain healthy vitamin D levels if they play outdoor games or sport during the day. Children need sun protection — such as sunscreen, a hat, clothing, sunglasses and shading during summer.

Recommended daily sun exposure for vitamin D production for people with fair skin*

Region	Dec-Jan (summer) 10 am or 2 pm	July-Aug (winter) 10 am or 2 pm	July-Aug (winter) Midday
Auckland	6-8 min	30-47 min	24 min
Christchurch	6-9 min	49-97 min	40 min

Diet
The natural food sources of vitamin D include liver, eggs and fatty fish such as salmon, herring and mackerel. In New Zealand, milk and other products such as margarine and cereals may be fortified with vitamin D, but if you are low in vitamin D you will not be able to correct the problem through diet alone.

Supplements
Some New Zealanders find it difficult to get enough sun to ensure adequate levels of vitamin D, especially those people identified at high risk of deficiency. In these situations, vitamin D supplements may be required.

If your health professional recommends a supplement, it's important to take it exactly as advised.

DO I NEED A VITAMIN D TEST?

Studies have found that many New Zealanders have lower than recommended vitamin D levels. Whether this has any negative health effects remains to be seen.

People at low risk of deficiency do not need to be tested for vitamin D. People who are at higher risk of deficiency, such as those with darker skin, or those who wear modest dress, may need to get tested, as well as:

- older people who have been diagnosed with osteoporosis and/or are at increased risk of falls and bone fractures
- pregnant women and breastfeeding mothers with vitamin D risk factors, as vitamin D deficiency could affect their baby's bone and tooth development
- babies, children and adolescents who are at high risk of vitamin D deficiency, as their bones are still growing.

A vitamin D test is not required before a health professional prescribes a vitamin D supplement, unless severe deficiency is suspected.*

If you're healthy but are worried your lifestyle is putting you at risk of low vitamin D, try to follow the safe sun exposure guidelines mentioned above and look after your bone and muscle health by:

- Eating a calcium-rich diet — many people don't consume enough calcium in their diet. The best food sources of calcium include dairy products, tinned bony fish, calcium-set tofu, nuts and some green vegetables.

- Keeping physically active — weight-bearing and muscle-strengthening exercises such as tennis, jogging and Tai Chi are best. The exercise may also help guard against obesity, another risk factor for low vitamin D.

WHAT DOES A VITAMIN D BLOOD TEST INVOLVE?

- A vitamin D test is a simple blood test that measures a form of vitamin D in the blood called 25-hydroxyvitamin D (25-OHD). In general, health experts agree that a vitamin D level of 50 nanomoles per litre (nmol/L) or above is adequate for bone health.
- Vitamin D tests are best performed at the end of winter or in early spring when your body's vitamin D levels are at their lowest. Ideally, your vitamin D level should be 50 nmol/L or above at this time, and somewhat higher in summer.

It's OK to ask questions
If you have questions about your symptoms or the medicines managing your symptoms, speak with your health professional.

*Source: *Best Practice Journal (2011), Vitamin D supplementation: navigating the debate.*

Adapted from NPS MedicineWise (2014), Vitamin D tests and deficiency.