

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
- ▶ have naturally dark skin
- ▶ 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 Australia 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 Australia (e.g. Darwin or Brisbane)
- ▶ 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.

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 the southern states of Australia, more sun exposure may be needed. The figure 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 — particularly when the UV index is 3 or above.

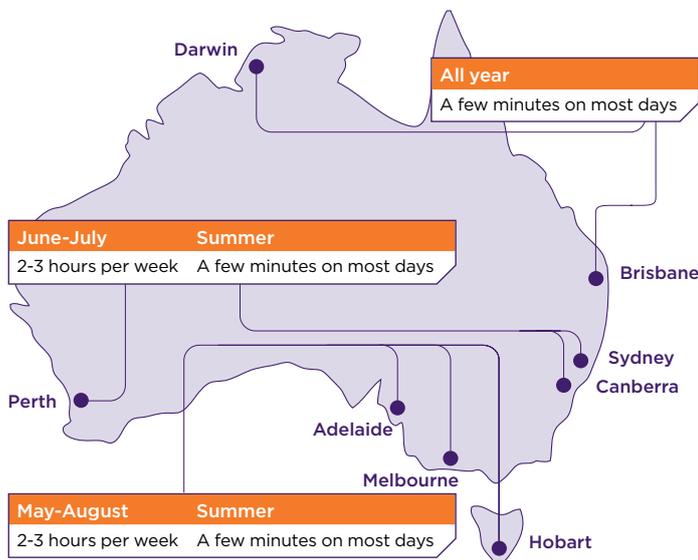


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People of all ages should follow safe sun guidelines — too much sun increases your risk of skin cancer and can even cause the vitamin D in your skin to break down.

More information on safe sun exposure, sunscreen and vitamin D can be found on the Cancer Council website, at www.cancer.org.au. UV levels can also be found in most metropolitan newspapers and on the Bureau of Meteorology website, at www.bom.gov.au.

Diet

The natural food sources of vitamin D include liver, eggs and fatty fish such as salmon, herring and mackerel. In Australia, all margarines and some milk products are 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 Australians 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. More information on vitamin D supplements is available on the NPS MedicineWise website, at www.nps.org.au/vitamin-d-supplements.

Do I need a vitamin D test?

Studies have found that many Australians, including some shift and office workers, 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.

When are vitamin D tests less useful?

Vitamin D testing is less useful for healthy adults under 50 years of age without symptoms or risk factors, as the effects of mild deficiency on a person's health are unclear.

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 Australians 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.

If a blood test shows that you have a mild deficiency (vitamin D 30-49 nmol/L), your doctor may recommend simple measures to address this, such as increasing sun exposure, increasing dietary calcium, increasing physical activity, or a supplement.

If you have moderate to severe deficiency (vitamin D less than 30 nmol/L), you will need to take a higher-dose supplement and have a repeat blood test after 3 months.

Pregnant women at risk of vitamin D deficiency should have a vitamin D blood test at their first antenatal visit. If you are found to be low in vitamin D, you'll be asked to commence a vitamin D supplement and be retested at your 28-week visit.

Some children and teenagers who are identified as at high risk of deficiency may need annual vitamin D testing. Talk to your doctor if you are unsure.

If my doctor recommends a vitamin D test

Blood test result: _____

Is a repeat test needed? _____

Do I need a supplement? _____

If yes, dose: _____

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