

Vitamin D

Vitamin D plays an important role in helping the body to absorb calcium through the small intestine. Our bodies need calcium to help them develop and maintain healthy bones, muscles and teeth.

The bulk of our vitamin D is produced by the body when UV radiation in sunlight hits our skin and reacts with a cholesterol-like substance in the skin. There are also very small amounts of vitamin D in some foods and drinks. However, this is usually not enough to maintain the levels our bodies need.

Most people get enough vitamin D through exposure to sunlight during normal day-to-day outdoor activities. However, some people have very low levels of daily sun exposure, which can lead to vitamin D deficiency. This includes people who cover their skin for cultural or religious reasons and people who spend most of their time indoors. People with dark skin may need more sun exposure time than people with fair skin to produce an adequate amount of vitamin D.

Too much sun exposure can increase the risk of skin cancer. It is important to find a sensible balance between sun exposure and protection.

Vitamin D deficiency

If you don't get enough vitamin D, your body will not absorb as much calcium as it needs and the 'mineralisation' of bones will be affected. Lack of vitamin D and calcium can increase the risk of developing a range of musculoskeletal conditions, including:

- Rickets in children with growing bones – a condition with soft, weakened and deformed bones in children often with poor muscle development
- Neonatal hypocalcaemia – not enough calcium in the blood, in babies exposed to low levels of vitamin D during pregnancy
- Thinning of the bones in adults – causing bony weakness and increased risk of fractures (a condition known as Osteomalacia)
- Muscle weakness, aches and pains – increasing the risk of falls, fractures and balance problems, especially in older adults.

Osteomalacia is a different condition from the more commonly known condition, osteoporosis. Both conditions result in bone thinning and weakness as well as a greater risk of bone fractures, especially in older people.

High-risk groups

People at increased risk of vitamin D deficiency include:

- Babies born to women with a vitamin D deficiency
- Children and adults with little sunlight exposure
- People who cover most of their body for religious or cultural reasons
- People unable to regularly get out of their house
- People with naturally very dark skin
- People in residential care
- Frail older people
- Shift workers
- People with some medical conditions such as certain bowel diseases.

Some studies suggest that about eight out of 10 people in these high-risk groups have some degree of vitamin D deficiency. If you are in one of these groups, you should consult your doctor for advice on whether you need to take a vitamin D supplement.

UV and vitamin D

The best source of vitamin D is ultraviolet (UV) radiation from the sun. A sensible balance of sun exposure and sun protection can protect against vitamin D deficiency without putting you at risk of skin cancer.

UV radiation levels vary depending on location, time of year, time of day, cloud coverage and the environment. Whenever UV radiation levels reach 3 and above, most people need to use sun protection. When UV levels are below 3, most people do not require sun protection unless they are in high-altitude (alpine) regions or near highly reflective surfaces such as snow or water.

To check the UV levels for the day, go to the SunSmart UV Alert. There is a SunSmart UV Alert for over 300 cities across Australia. You can find them in the weather section of your daily newspaper or visit SunSmart UV Alert website.

Recommended sunlight exposure

Some sun exposure on your arms, face, hands or similar surface area is important to reduce your risk of vitamin D deficiency. Recommended sunlight exposure for people with fair skin includes:

- **September to April** – a few minutes of sunlight exposure either side of peak UV times. Always protect your skin from the sun with clothing, shade and/or sunscreen between 10am and 3pm. Reapply sunscreen every two hours.
- **May to August** – two to three hours of sunlight exposure over the week. Take advantage of sunny periods. Sun protection is not necessary during the winter months in the southern areas of Australia, unless you are at high altitudes or near reflective surfaces like snow or water.

People with very dark skin may need three to four times more exposure time than people with fair skin to achieve sufficient levels of vitamin D. This is because the pigments in dark skin reduce the effects of UV radiation in the production of vitamin D.

Be SunSmart

Remember to 'slip, slop, slap, seek and slide' whenever the UV Index is forecast to reach 3 or above:

- **Slip** on clothing to cover the skin.
- **Slop** on SPF 30+ water-resistant sunscreen, reapplied every two hours.
- **Slap** on a broad-brimmed hat to protect the face, ears and neck.
- **Seek** shade wherever you can.
- **Slide** on sunglasses to protect against eye damage – choose a pair that carries the Australian Standard AS1067 tag or sticker.

Solariums have been linked to causing skin cancer and are **not recommended** as a way to treat vitamin D deficiency.

Some people need extra sun protection

Some people may need to limit their sunlight exposure or use sunscreen outside the recommended hours. Talk to your doctor before increasing your level of sun exposure, especially if you:

- Are regularly outdoors for prolonged periods of time
- Have very fair or sun sensitive skin that burns easily
- Have a history of skin cancer
- Have had an organ transplant or are taking medications that increase your risk of skin cancer.

Babies and young children also need extra protection due to their sensitive skin. Australia's high UV radiation levels mean that most children get more than enough Vitamin D, even when outdoors for very short periods with small amounts of skin exposed.

Diet and exercise

For the majority of Australians, it is almost impossible to get enough vitamin D from diet alone. However, you can make sure your body has the calcium it needs by paying attention to what you eat and making sure you get enough physical activity. Consume calcium-rich foods in your diet and exercise moderately each day to maintain healthy bones.

Make sure you include foods in your diet that contain vitamin D such as:

- Milk that contains added vitamin D (check the label)
- Soy drinks that contain added vitamin D (check the label)
- Margarine
- Eggs
- Liver
- Fish such as tuna, salmon, sardines, herring and mackerel.

See your doctor

See your doctor if you think you may be at risk of vitamin D deficiency. A simple blood test can assess your risk. If you are at risk, make sure you have regular medical check-ups. The doctor may recommend that you take vitamin D supplements. If so, take the supplements strictly as directed.

Where to get help

- Your doctor
- Maternal and Child Health nurse
- An Accredited Practising Dietitian, contact the Dietitians Association of Australia
- Nurse-on-Call Tel. 1300 606 024 – for expert health information and advice 24 hours, 7 days
- SunSmart

Things to remember

- Most of our vitamin D comes from sunlight hitting the skin.
- Some people are at increased risk of vitamin D deficiency: for example, people with naturally very dark skin, people who cover their skin for cultural or religious reasons, people who spend most or all of their time indoors and people with very low exposure to sunlight for any other reason.
- Vitamin D deficiency increases the risk of various musculoskeletal conditions including rickets (soft, weakened bones) in children and osteomalacia (weak, fragile bones) in older adults.

This page has been produced in consultation with, and approved by:

Department of Health - Office of the Chief Health Officer

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