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## Vitamin D

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### Summary

- Vitamin D is a hormone that controls calcium levels in the blood. It is needed for strong bones, muscles and overall health.
  - The sun's ultraviolet radiation (UV) is the main cause of skin cancer and the best natural source of vitamin D.
  - Vitamin D levels change naturally with the seasons. How much UV exposure a person needs depends on the time of year, UV levels, their skin type and their existing vitamin D levels.
  - Being physically active outdoors will help make vitamin D.
  - The body can only absorb a limited amount of vitamin D at a time. Spending extra time in the sun won't increase vitamin D levels – but will increase your risk of skin cancer.
  - Some people are at increased risk of low vitamin D – this includes people with naturally very dark skin and people who have very low exposure to sunlight.
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Vitamin D is important for strong bones, muscles and overall health. Ultraviolet (UV) radiation from the sun is necessary for the production of vitamin D in the skin and is the best natural source of vitamin D.

UV radiation from the sun is also the main cause of skin cancer.

Small amounts of the vitamin D you need can be obtained through food (about 5 – 10 per cent). Fish and eggs naturally have some vitamin D, while margarine and some milks have added vitamin D.

The body can only absorb a limited amount of vitamin D at a time. Spending extra time in the sun will not increase vitamin D levels – but will increase your risk of skin cancer.

Daily exercise also assists with the body's production of vitamin D.

### Health effects of low vitamin D

Vitamin D deficiency does not always have obvious symptoms but without treatment there can be significant health effects. These can include bone and muscle pain, and softening of the bones – such as rickets (in children) and osteomalacia (in adults).

Some people are at greater risk of vitamin D deficiency, including:

- people with naturally very dark skin –this is because the pigment (melanin) in dark skin doesn't absorb as much UV radiation
- people who avoid the sun due to previous skin cancers, immune suppression or sensitive skin and those people who have limited sun exposure, such as nightshift workers
- people who wear covering clothing or concealing clothing
- people who spend a long time indoors – such as those who are housebound or institutionalised
- people who are obese
- people who have a disability or a disease that affects vitamin D metabolism, such as end stage liver disease, renal disease and fat malabsorption syndromes such as cystic fibrosis, coeliac disease and inflammatory bowel disease
- people who take medication that affects vitamin D metabolism
- breast-fed babies of vitamin D deficient mothers (formula milk is fortified with vitamin D)

If you think you may be at risk of vitamin D deficiency, talk to your GP for advice. Your GP may recommend taking a vitamin D supplement.

Overexposure to UV is never recommended, even for people who have vitamin D deficiency.

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## Vitamin D and food

There are small amounts of vitamin D in some foods such as fish, eggs and UV-irradiated mushrooms, but it is difficult to obtain enough vitamin D from diet alone. Most people only get five to 10 per cent of their vitamin D from food. Margarine and some types of milk have added vitamin D.

## Vitamin D and safe sun exposure

UV levels vary depending on the time of year, and the amount of sun exposure you need varies accordingly.

The 'daily sun protection times' indicate when the UV level is forecast to be three or above. During these times, people are recommended to use a combination of sun protection measures (sunscreen, hat, protective clothing, sunglasses and shade).

Check the free SunSmart app or the Bureau of Meteorology website for daily sun protection times for your location.

## UV levels in Victoria

As shown in the table below, from mid-August to April, average UV levels in Victoria are three and above for much of the day. This level of UV increases the risk of overexposure and skin damage, and sun protection (clothing, sunscreen, hats, shade and sunglasses) is recommended. Using good sun protection should not put people at risk of vitamin D deficiency.

From May to mid-August, average UV levels in Victoria are low (below three). During this time, sun protection is not recommended, unless you work outdoors, are near highly reflective surfaces (like snow), or are outside for extended periods.

Table 1. Recommended sun exposure in Victoria, to reduce the risk of low vitamin D

The infographic is titled "How much sun do I need in Victoria?". It is divided into three horizontal sections. The top section, "NATURAL SKIN TYPE", shows six skin tones from left to right: Dark brown to black, Dark brown, Moderate brown, Light brown, Fair, white, and Very fair, pale white. Below each skin tone are descriptions of how they burn or tan. The middle section, "MAY TO MID-AUGUST", provides advice for people with darker skin types, stating that sun protection is not recommended unless working outdoors or near reflective surfaces. The bottom section, "MID-AUGUST TO END OF APRIL", provides advice for people with lighter skin types, recommending a few minutes of mid-morning or mid-afternoon sun exposure and sun protection measures. A circular callout box on the right side of the infographic says "WORK OUTDOORS? Sun protection is recommended every day, year-round. Visit sunsmart.com.au/work for more." At the bottom right, it says "Based on available evidence as of October 2017." Icons for a hat, sunscreen, clothing, shade, and sunglasses are shown at the bottom left.

NATURAL SKIN TYPE	Dark brown to black	Dark brown	Moderate brown	Light brown	Fair, white	Very fair, pale white
	Never burns	Rarely burns	Burns minimally, tans easily	Burns moderately, usually tans	Burns easily, tans minimally	Always burns, never tans
MAY TO MID-AUGUST	It may not be possible to maintain vitamin D through sun exposure alone and supplementation may be required. Speak to your doctor for advice.		To help the body make vitamin D, get active outdoors every day in the middle of the day with some skin exposed. Sun protection not recommended, unless you are outdoors for extended periods or near highly reflective surfaces (like snow).			
MID-AUGUST TO END OF APRIL	A few minutes of mid-morning or mid-afternoon sun exposure each day is recommended for vitamin D levels. When outdoors for more than a few minutes, wear covering clothing, sunscreen, a hat, and sunglasses, and seek shade.					

## Low vitamin D

If you are concerned about your vitamin D levels, seek advice from your GP.

Your GP may recommend vitamin D supplements, which should be taken strictly as directed. Once low vitamin D is treated, the aim is to maintain normal vitamin D levels.

## Where to get help

- Your GP
- Maternal and child health nurse

- **Dietitians Association of Australia** Tel. 1800 812 942
- **NURSE-ON-CALL** Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)

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

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