

## Vitamin D

Vitamin D is essential for strong bones, muscles and overall health. Ultraviolet (UV) radiation from the sun is the best natural source of vitamin D but it is also the main cause of skin cancer. Taking a balanced approach to sun exposure can help ensure you get enough vitamin D while minimising your skin cancer risk.

In Victoria, the average UV level is low (below 3) between May and August, making it a great time to roll up your sleeves and get some winter sun to help with vitamin D levels. Most people need only a few hours a week of UV exposure, outside peak UV times, to maintain adequate vitamin D levels. However, people with naturally very dark skin need three to six times the average amount.

There are very small amounts of vitamin D in some foods and drinks, but it is difficult to obtain enough vitamin D from diet alone. Only a few foods (such as fish and eggs) naturally contain vitamin D. Margarine and some types of milk have added vitamin D, but most people only get 5–10 per cent of their vitamin D from food.

### Health effects of low vitamin D

Vitamin D is crucial for bone and muscle development and in preventing osteoporosis. Vitamin D deficiency may not result in any obvious symptoms but, without treatment, it can have significant health effects and increase a person's risk of musculoskeletal conditions such as:

- Bone and muscle pain
- Rickets (soft, weakened bones) in children
- Osteopenia (weak, fragile bones – also known as osteomalacia or osteoporosis) in older adults.

Vitamin D deficiency may also be associated with an increased risk of bowel cancer, heart disease, infections and autoimmune diseases, although more research is needed for conclusive evidence.

### People at risk of vitamin D deficiency

People who are at increased risk of low vitamin D or vitamin D deficiency include:

- **People with naturally very dark skin** – the pigment in skin (melanin) acts as a filter to UVB (Ultraviolet B) radiation and reduces the amount of vitamin D the body makes (synthesises)
- **People with little or no sun exposure** – a range of life circumstances and occupations can lead to low sun exposure
- **Breastfed babies with other risk factors for low vitamin D** – although breast milk is the best food for babies, it does not contain much vitamin D. Babies get their initial store of vitamin D from their mothers, so they are at risk of low vitamin D if their mother has low vitamin D
- **People with conditions or medications affecting vitamin D metabolism** – such as obesity, end-stage liver disease, kidney disease, conditions that cause fat malabsorption (such as cystic fibrosis and coeliac disease) and use of some drugs that increase breakdown of vitamin D (such as rifampicin and some anticonvulsants).

If you are concerned that you or your child may be at risk of vitamin D deficiency, you should discuss this with your regular medical doctor (GP).

### Sun exposure and vitamin D

Most people with fair to olive skin need between two and three hours of sunlight (spread over a week) to the face, hands, arms or equivalent area of skin to help with winter vitamin D levels. People with naturally very dark skin may need three to six times this amount of exposure. It may not be possible to maintain vitamin D levels if you have naturally very dark skin and you may need to take supplements.

Whenever UV levels reach 3 and above, the UV can cause damage and this increases your risk of skin cancer. To avoid this risk, always use sun protection when UV levels are within this range. In Victoria, average UV levels are 3 and above from September through to April.

Given UV levels vary across the year in Victoria, balance is definitely the key. Too much sun exposure can increase the risk of skin cancer, so it's important to find a sensible balance between sun exposure for vitamin D and protection against skin cancer.

Use the **SunSmart UV Alert** or the **SunSmart app for iPhone** to determine whether or not sun protection is required on any given day for your location. Links for these are listed in the **Where to get help** section of this fact sheet.

## People who don't get enough sun exposure

Some groups of people are at particular risk of receiving little or no sun exposure. They include:

- Older adults – people who are frail, in medium to long-term residential or aged care and housebound people
- People who wear concealing clothing for religious and cultural purposes
- People who deliberately avoid sun exposure for cosmetic or health reasons
- People at high risk of skin cancers
- People who are in hospital for long periods
- People with a disability or chronic disease
- People in occupations with little sun exposure such as taxi drivers, factory workers or night-shift workers.

## Sun protection in Victoria

In Victoria	Fair to olive skin (Fitzpatrick skin types I–IV)  Higher risk of skin cancer	Naturally very dark skin (Fitzpatrick skin types V–VI: rarely or never burns) Higher risk of low vitamin D
<b>From September to April</b> – when average UV levels are 3 and above	<ul style="list-style-type: none"> <li>• <b>UV exposure:</b> a few minutes of sun exposure to the face, arms and hands (or equivalent area of skin) mid-morning or mid-afternoon most days of the week.</li> <li>• <b>Sun protection:</b> a combination of sun protection measures is needed during these months.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>UV exposure:</b> need 3–6 times the level of exposure compared to people with fair to olive skin. Vitamin D supplements may be required.</li> <li>• <b>Sun protection:</b> it is not really necessary for people with this skin type to wear sunscreen but they should still protect their eyes with sunglasses.</li> </ul>
<b>From May to August</b> – when average UV levels are below 3	<ul style="list-style-type: none"> <li>• <b>UV exposure:</b> approximately 2–3 hours of sun exposure to the face, arms and hands (or equivalent area of skin) spread across the week.</li> <li>• <b>Sun protection:</b> sun protection is not needed unless you are in alpine regions, outside for extended periods or near highly reflective surfaces such as snow and water.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>UV exposure:</b> need 3–6 times the level of exposure compared to people with fair to olive skin. Vitamin D supplements may be required.</li> <li>• <b>Sun protection:</b> sun protection is not needed unless you are in alpine regions, outside for extended periods or near highly reflective surfaces such as snow and water.</li> </ul>

## See your doctor about low vitamin D

If you are concerned about your vitamin D levels, seek advice from your doctor. A simple blood test can determine your level and assess your risk. Your doctor 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. If you are at risk of low vitamin D, you will need to have regular medical check-ups and monitor your levels every year.

## 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 60 60 24 – for expert health information and advice (24 hours, 7 days)
- SunSmart
- SunSmart UV Alert
- Official SunSmart app for iPhone

## Things to remember

- Vitamin D is essential for strong bones, muscles and overall health.
- The sun is the best natural source of vitamin D but you need to balance your skin cancer risk.
- 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.
- People with low vitamin D also need adequate calcium in their diet.
- Low vitamin D can be a long-term problem – people with risk factors for low vitamin D should have their levels checked every year and may need supplements.

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

Department of Health - Office of the Chief Health Officer

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