

Who is at risk of vitamin D deficiency?

There are groups within the population that are at higher risk of vitamin D deficiency including:

- People with naturally very dark skin. The melanin in dark skin affects UV penetration so you need more UV exposure to make vitamin D.
- People with little or no sun exposure including older adults, especially those who are in residential care or housebound; people who wear concealing clothing for religious or cultural purposes; people who deliberately avoid sun exposure for cosmetic or health reasons; people hospitalised for a long time; people with a disability or chronic disease; night-shift and indoor workers, such as factory workers who have limited incidental UV exposure throughout the day.
- Breast fed babies who fall into the risk categories above or have mothers with low vitamin D. Breast milk contains little vitamin D and infants depend on maternal stores initially. (Formula milk is fortified with vitamin D.)
- People with conditions (obesity, end stage liver disease, renal disease and fat malabsorption syndromes such as cystic fibrosis, coeliac disease, inflammatory bowel disease) or medications affecting vitamin D metabolism.

If you're at risk of vitamin D deficiency, consult your GP. Vitamin D levels can be checked with a blood test, and your GP can advise on options, such as supplementation, depending on your individual circumstances.

Solariums should never be used to boost vitamin D as they emit dangerous levels of UV that increase your risk of skin cancer.

1 Gies P, Roy C, Javorniczky J, Henderson S, Lemus-Deschamps L, Driscoll C. Global Solar UV Index: Australian Measurements, Forecasts and Comparison with the UK. Photochemistry and Photobiology, 2004; 79(1): 32-39.

2 Hobart and Canberra data is supplied from personal communication from ARPANSA August 2011

For more information

- Cancer Council cancer.org.au/VitD
- Cancer Council Helpline, ph 13 11 20 (cost of a local call anywhere in Australia)
- Australasian College of Dermatologists dermcoll.asn.au
- Osteoporosis Australia osteoporosis.org.au
- Australian and New Zealand Bone and Mineral Society anzbms.org.au
- Bureau of Meteorology bom.gov.au/uv
- Australian Radiation Protection and Nuclear Safety Agency arpansa.gov.au



Getting the balance right:
vitamin D and sun protection



How much
sun is
enough?

This information has been jointly developed by:



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The sun's ultraviolet (UV) radiation is both the major cause of skin cancer and the best natural source of vitamin D.

In Australia we need to balance the risk of skin cancer from too much sun exposure with maintaining vitamin D levels.

What is vitamin D and why is it important?

Vitamin D forms in the skin when it is exposed to UVB radiation from sunlight. Some foods, such as oily fish and eggs also contain small amounts of vitamin D, while margarine and some types of milk have added vitamin D. However, food only makes a small contribution to the body's overall vitamin D levels and it is difficult to get enough from diet alone.

We need vitamin D to maintain good health, in particular to keep bones and muscles strong and healthy.

How much sun do we need for vitamin D?

When the skin is exposed to UV radiation from the sun, vitamin D is formed through a series of processes that start in the skin.

The amount of sunlight you need to make vitamin D depends on a range of factors such as the UV level, your skin type, and your lifestyle. UV levels vary across Australia and throughout the year. Therefore, the amount of time you need to be in the sun to make vitamin D will vary according to your location, the season and the time of day.

Prolonged sun exposure does not cause your vitamin D levels to increase further, but does increase your risk of skin cancer. Short incidental exposure to the sun, such as walking from the office to get lunch, is the best way to produce vitamin D. The amount of vitamin D you make is also related to the amount of skin exposed to the sun – if you expose more of your skin, in most cases you'll make more vitamin D.

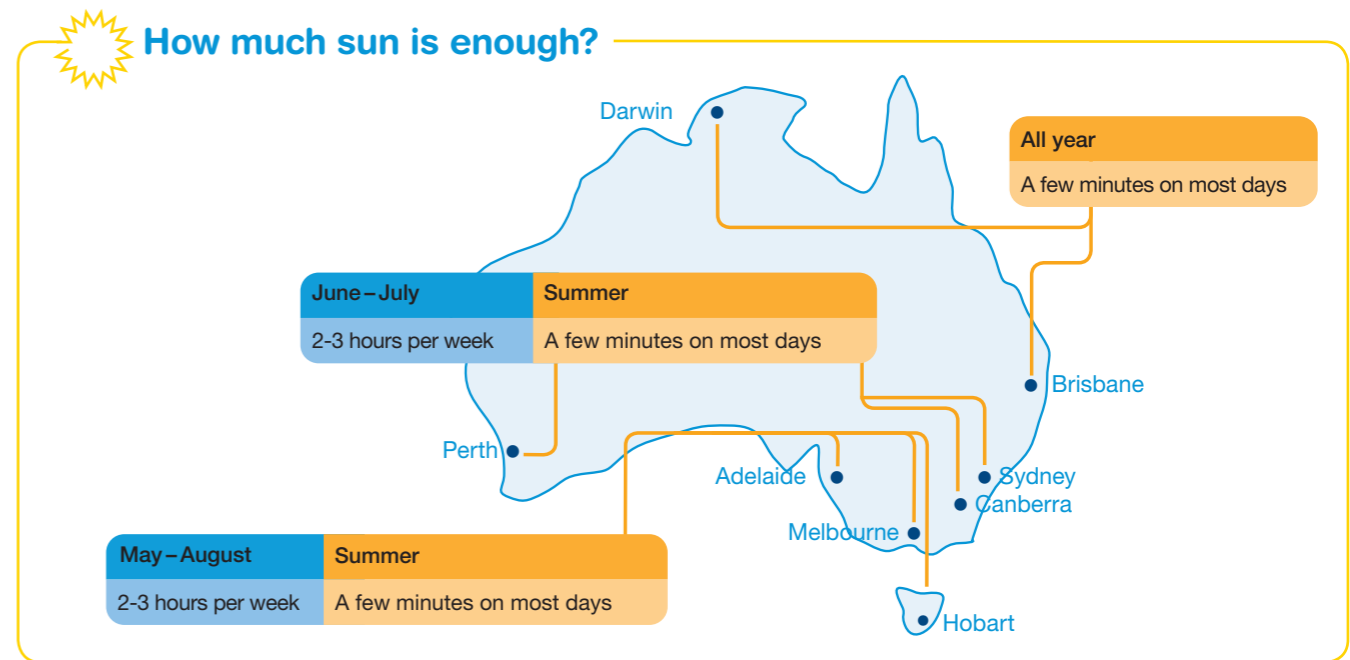
During summer in the southern parts of Australia (for example Sydney, Melbourne, Canberra, Adelaide, Hobart and Perth), and all year round in the north (Brisbane and Darwin), people with fair to olive skin need just a few minutes of mid-morning or mid-afternoon sun exposure to the face, arms and hands (or equivalent area of skin) to help with vitamin D levels. Be extra cautious in the middle of the day when UV levels are most intense.

In winter in the southern parts of Australia, where UV radiation levels are below 3 all day, people with fair to olive skin need about two to three hours of midday sun exposure to the face, arms and hands (or equivalent area of skin) spread over the week. People with naturally very dark skin may require up to 3-6 times more sun exposure to help with vitamin D levels.

Daily exercise will also assist your body with the production of vitamin D.

If I protect myself from the sun, will I still get enough vitamin D?

Sunscreen use during the sun protection times should not put people at risk of vitamin D deficiency. When sunscreen is tested in lab conditions it is shown to block vitamin D production, however regular use in real life has been shown to have little effect on vitamin D levels. This is probably because people who use more sunscreen spend more time in the sun, so naturally they will have higher vitamin D levels.



When do I need sun protection?

Most Australians need sun protection when the UV Index is 3 or above. The UV Index is an international standard measurement of the strength of UV radiation from the sun at a particular place on a particular day. UV levels are low in the early morning as the sun comes up, gradually increasing to a peak around the middle of the day when the sun is at its highest, and then decreasing slowly as the sun gets lower in the sky.

In the northern parts of Australia (for example Brisbane and Darwin), UV levels are above 3 all year round and reach extreme levels of 14+ in summer, so sun protection is needed daily.

In the southern parts of the country, there are times of the year when sun protection is not necessary. For example, in Adelaide, Melbourne and Hobart, the average daily UV levels remain below 3 from May to August, so sun protection is not required unless you are at high altitudes, outside for extended periods or near highly reflective surfaces like snow.

UV Index in selected Australian cities averaged over the days in each month

Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Darwin	11	12	11	6	8	7	7	9	11	11	11	10
Brisbane	11	10	9	6	4	3	3	5	7	8	10	11
Perth	11	10	8	5	3	2	2	4	6	8	9	10
Canberra	10	9	7	5	3	2	2	3	5	7	9	10
Sydney	10	9	7	5	3	2	2	3	5	7	8	8
Adelaide	11	10	7	5	2	2	2	2	5	7	9	10
Melbourne	9	9	6	4	2	1	1	2	4	6	8	9
Hobart	8	7	4	3	1	1	1	2	3	4	6	7

Table is from Gies et al. UV levels remain below 3

The table above is a guide to average peak UV levels by month for Australian capital cities. The shaded area identifies the months of the year when sun protection may not be required.

You can refer to the SunSmart UV Alert to find out the sun protection times for your location.