

## Vitamin D, sun exposure and the UV Index

### Key points

- The sun's ultraviolet (UV) radiation is both a major cause of skin cancer and the best source of vitamin D.
- Most people get enough vitamin D by going about their usual daily outdoor activities.
- Just 10 minutes in the sun on most days of the week in summer, 15-20 minutes in spring and autumn, or 30 minutes in winter, outside peak UV times (10am-2pm or 11am-3pm daylight saving time), will usually give you enough vitamin D.
- Always protect yourself from the sun when the UV index is 3 or above.

Australia has the highest rate of skin cancer in the world. Around half of all people who spend their life here develop some form of skin cancer. Almost all these skin cancers are caused by ultraviolet (UV) radiation from the sun. By reducing our exposure to UV radiation, most skin cancers can be prevented.

Australia has very high levels of UV radiation, especially in summer. This is mainly because we are close to the equator and often have clear skies.

But the sun's UV rays are also the best source of vitamin D, which we all need for strong and healthy bones. Vitamin D also has other health benefits, with new research showing it may protect against some important diseases.

Almost all vitamin D comes from the sun's UV radiation. We can get a small amount of vitamin D from some foods such as milk, margarines, oily fish and eggs, but usually this is not enough to keep us healthy.

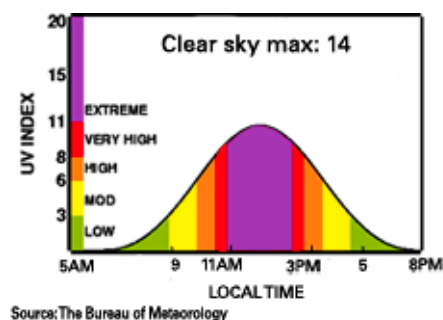
We now know that despite our sunny climate, some Australians who spend little time in the sun may have low levels of vitamin D.

This fact sheet looks at how you can get enough vitamin D from the sun without increasing your risk of skin cancer.

### How intense is the sun?

To know how to stay safe from the sun and still get enough vitamin D, it helps to understand the UV Index. The UV Index is a simple way to show the intensity of the sun's UV radiation. It divides UV radiation levels into: low (1-2), moderate (3-5), high (6-7), very high (8-10) and extreme (11 and above). *When the UV forecast is 3 or above, you need to protect yourself from the sun because the UV rays are strong enough to damage your skin.*

The UV Index is often presented in the shape of a bell curve to show how it changes throughout the day, peaking in the middle part of the day (when the UV is strongest) and gradually dropping again throughout the afternoon.



Look out for the information about the UV Index in most newspaper, TV and radio weather forecasts, which will tell you when it is 3 or above so you know when to make sure you're protected.

For further information visit the [Australian Bureau of Meteorology \(UV index information\)](#).

### UV radiation levels vary because:

- There's more UV radiation in sunlight in the north than in the south of Australia and UV radiation is stronger at higher altitudes. This means that even on the same day, the UV Index may be higher in some parts of NSW than in others.
- Thick cloud provides a good filter, but UV radiation can penetrate thin cloud cover.
- Surfaces such as light coloured concrete, water and snow can reflect UV radiation onto the skin.
- The higher the sun is in the sky, the greater the UV radiation level and the less time it takes for skin damage to occur. Generally, UV radiation levels are greatest around the middle of the day (10am-2pm or 11am-3pm during daylight saving). This is because the sun's rays take the shortest course through the atmosphere and so less UV radiation is absorbed before they get to the earth's surface. UV radiation levels are lowest at the beginning and end of the day.
- UV radiation is greatest in summer for the same reasons it is greatest in the middle of the day – the sun gets high in the sky and its rays pass through less atmosphere before getting to the earth's surface. In winter the sun is much lower in the sky and its rays have a long course through the atmosphere, so more UV radiation is absorbed and the levels are lower.

### Do you need more sun to get enough vitamin D?

Sunlight has important health benefits. Vitamin D, which is needed to develop and maintain strong and healthy bones, is made in the body when skin is exposed to UV radiation. Some people who have limited exposure to sunlight have been found to have low levels of vitamin D. (See section "Who is at risk of not getting enough vitamin D in Australia")

**However**, most people receive enough vitamin D by simply going about their normal activities<sup>1</sup>. People who spend very little time outdoors may benefit from spending some time outside each day but *most people don't need to make a special effort to go outside to get a sufficient 'dose' of vitamin D.*

### How can you get enough vitamin D while still being sunsmart?

To be sure you're getting enough vitamin D while still being sunsmart, follow these guidelines:

- Always protect yourself from the sun when the UV Index is 3 (moderate) or above. Look out for the UV alert in newspapers, TV and radio weather forecasts. For more information on the UV Index visit The Cancer Council website [www.cancercouncil.com.au](http://www.cancercouncil.com.au)
- Exposing your face, arms and hands to the sun for 10 minutes in summer, 15-20 minutes in spring and autumn and 30 minutes in winter, outside peak UV times, should give you enough vitamin D.
- During these short times, there's usually no need to worry about sun protection such as wearing sunscreen and a hat unless the UV Index is 3 or above or you are going to be in the sun for a longer period of time.
- Skin cancer is a high risk for all Australians. Deliberately exposing yourself to the sun when the UV Index is 3 or above increases your risk of developing skin cancer.

Keep in mind these tips about sun exposure and vitamin D:

- To get enough vitamin D, you need only to expose about 15% of your body, such as your arms, hands and face. It's not an excuse to sunbake, and the best time to get vitamin D is either side of the peak UV period (10am-2pm or 11am-3pm in daylight saving).
- Short periods of exposure to UV radiation (outside peak UV times) are also more efficient at producing vitamin D than long or intense periods of exposure. Long periods in the sun do not improve vitamin D levels but increase the risk of skin damage and skin cancer.
- Exposure to UV radiation in a solarium produces little vitamin D, and should NOT be used to treat vitamin D deficiencies.

## Does sunscreen stop vitamin D?

Sunscreen filters out most but not all UV radiation. Regular use of sunscreen when the UV Index is 3 or above does not greatly decrease vitamin D levels over time<sup>2,3,4</sup>.

## Who is at risk of not getting enough vitamin D in Australia?

Some people have lower levels of vitamin D. They include:

- The elderly, particularly those who do not go outdoors very often (older people do not produce vitamin D as well as young people)
- Babies of mothers who have low levels of vitamin D
- People with dark skin who naturally have more melanin (the pigment that turns skin brown after exposure to sunlight and reduces the amount of UV radiation getting through the skin)
- People who cover their skin and heads with clothing and veils for cultural or religious reasons (less skin is exposed to UV radiation)
- People with prolonged illnesses who are unable to be taken outside

People who have a lack of vitamin D may need to take a supplement and eat foods that are rich in vitamin D, rather than spend more time in the sun.

It is important to remember that strong, healthy bones need a healthy diet, regular exercise and safe exposure to UV radiation as recommended in this fact sheet

If you are concerned about vitamin D, talk to your doctor or ring the Cancer Council Helpline: 13 11 20

### HOW TO PROTECT YOURSELF AGAINST SKIN CANCER

#### Sun protection in a nutshell

#### Remember - when the UV Index is 3 (moderate) or above:

- Avoid being outdoors during the peak UV periods of the day
- Use shade wherever possible
- Wear clothing that covers as much skin as possible
- Wear hats that protect the face, ears and neck
- Wear close-fitting sunglasses that meet the Australian Standard 1067
- Use broad spectrum, water resistant, SPF30+ sunscreen and reapply it every two hours and after swimming
- Take extra care when out in the sun near highly reflective surfaces like snow or water or when at high altitudes.

For further information visit The Cancer Council website [www.cancercouncil.com.au](http://www.cancercouncil.com.au)

<sup>1</sup> Diamond TH, Eisman JAE, Mason RS, Nowson CA, Pasco JA, Sambrook PN, Waek JD. Vitamin D and adult bone health in Australia and New Zealand. Medical Journal of Australia. 2005

<sup>2</sup> Marks R, Foley PA, Jolley D, Knight KR, Harrison J, Thompson SC. The effect of regular sunscreen use on vitamin D levels in an Australian population. Results of a randomised controlled trial. Arch Dermatol 1995 Apr; 131(4):415-21

<sup>3</sup> Farrerons J, Barnadas M, Rodriguez J, Renau A, Yoldi B, Lopez-Navidad A, Moragas J. Clinically prescribed sunscreen (sun protection factor 15) does not decrease serum vitamin D concentration sufficiently either to induce changes in parathyroid function or in metabolic markers. Br J Dermatol 1998 Sep; 139(3):422-7

<sup>4</sup> Farrerons J, Barnadas M, Lopez-Navidad A, Renau A, Rodriguez J, Yoldi B, Alomar A. Sunscreen and risk of osteoporosis in the elderly: a two year follow-up. Dermatology 2001; 202(1):27-30