Vitamin D and UV radiation

The sun's ultraviolet (UV) radiation is both:

- a major cause of skin cancer
- the best natural source of vitamin D.

In Victoria, we need to balance the risk of skin cancer, with getting enough vitamin D.

What is vitamin D?

Vitamin D is a hormone. It controls the amount of calcium in the blood. We need it for healthy bones, muscles and teeth. It is also important for general health.

Where can we get vitamin D?
We can get vitamin D from:

- the sun – the body makes vitamin D when the skin is out in the sun.
- some foods – such as fish, eggs, margarine and some types of milk.

It is, however, hard to get enough vitamin D from food alone.

How much sun do we need?

- The body can only absorb a certain amount of vitamin D at a time.
- Exposing your skin to the sun for a long time does not make vitamin D levels go up more. However, it makes the chance of getting skin cancer higher.
- Short periods of time spent in the sun may be more efficient at making vitamin D.

September to April

In Victoria from **September to April** (when the UV Index is 3 and above) most people need sun protection. During these months, most Victorians with fair to olive skin will get enough vitamin D during normal day-to-day activities where the face, arms and hands are out in the sun for a few minutes a day. You should do this mid-morning or mid-afternoon. Be extra careful in the middle of the day when UV levels are higher.People with naturally very dark skin may need three to six times this amount of sun.

May to August

From **May to August**, most Victorians with fair to olive skin need two to three hours of midday winter sun on their face, arms and hands, spread over a week. You do not need sun protection unless you are at the snow, outside for long periods or when the UV reaches 3 and above.

People with naturally very dark skin may need three to six times this amount of sun.

We do not recommend solariums to boost vitamin D levels as they are dangerous.

Will sunscreen stop you from making enough vitamin D?

Sensible sun protection does not put people at risk of being low in vitamin D.

In laboratory tests, sunscreen lowers the amount of vitamin D made in the body. However, in real life, sunscreen has little effect on vitamin D levels. This is probably because people who use more sunscreen spend more time in the sun, so will have higher vitamin D levels.

Who is at risk of vitamin D deficiency?

People with naturally very dark skin	• A pigment in the skin (melanin) lowers the amount of vitamin D that can be made by the body
People with little or no sun exposure	This group includes people: • who are older, especially the frail, those in residential care, aged care or housebound • who wear concealing clothing for religious or cultural reasons • who avoid the sun for cosmetic or health reasons • at high risk of skin cancers • who are in hospital for a long time • with a disability or chronic disease • such as taxi drivers, factory workers and night-shift workers.
Breast fed babies	• who fall into the categories above; or • who have mothers with low vitamin D.
People with the following conditions	• obesity • end stage liver disease • renal disease • cystic fibrosis • coeliac disease • inflammatory bowel disease.

Some medicines may also affect your ability to make vitamin D.

What if I am concerned about my vitamin D levels?

People in the groups above, and those who are concerned about their vitamin D levels, should talk with their doctor.

Your doctor can check your vitamin D levels with a simple blood test. Being out in the sun may not be enough for some people. You may need to consider a vitamin D supplement, especially in winter.

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What are the symptoms of low vitamin D?

Low vitamin D may have no obvious symptoms. But without treatment, it can have significant health effects.

These include:

- bone and muscle pain
- softer bones. These can lead to rickets (bone deformity) in children and osteomalacia in adults.

There may also be a higher chance of getting bowel cancer, heart disease, infections and auto-immune diseases. We need more research to work out whether having more vitamin D can prevent these conditions.

What is considered naturally very dark skin?

Too much sun can damage all skin types. However, naturally very dark-skinned people (skin type 5 and 6 on Table 1) need three to six times more sun. They may need to take vitamin D supplements depending on their vitamin D levels.

Table 1

Skin type	Natural skin colour	Tendency to burn	Skin cancer risk
1	Very fair, pale white, often freckled	Always burns, never tans	Greatest risk
2	Fair, white skin	Burns easily, tans a little	High risk
3	Light brown	Burns moderately, usually tans	High risk
4	Moderate brown	Burns a little, tans well	At risk
5	Dark brown	Rarely burns	Relatively rare. Cancers are often found at a later, more dangerous stage. Higher risk of low vitamin D levels.
6	Deeply pigmented, dark brown to black	Never burns	Relatively rare. Cancers are often found at a later, more dangerous stage. Higher risk of low vitamin D levels.

Do people with naturally very dark skin need to worry about sun exposure?

Yes – care still needs to be taken in the sun. Skin cancer is less common for people with naturally very dark skin. But skin cancers are often found at a later, more dangerous stage. People with this skin type do not normally need to apply sunscreen. They can safely get high levels of UV radiation without getting burnt.

However, regardless of skin colour, you can still damage your eyes. The sun may contribute to 20% of cataracts, especially in countries such as India, Pakistan and parts of Africa. Cataracts have blinded around 16 million people around the world. High levels of UV radiation can also harm the immune system.

We recommend that all people, regardless of skin type, wear a hat and/or sunglasses to protect their eyes.

What about children with naturally very dark skin at school and in care?

Children at school and in care usually spend at least 60 minutes a day outdoors. It is important for children with naturally very dark skin to get some sun when outside. These children do not normally need to apply sunscreen because of the high level of melanin in their skin. This is a decision for their families to make. We recommend that all children wear a hat (and sunglasses if appropriate) to protect their eyes and face.

SunSmart vitamin D tracker app
This app allows you to find out if you are getting enough sun for your skin type. Find out more at sunsmart.com.au/resources/sunsmart-app

Multilingual Cancer Information Line
To talk confidentially with a cancer nurse in your preferred language, with the help of an interpreter, follow these steps:

1. Call the Translating and Interpreting Service on 13 14 50, Monday to Friday, 9am to 5pm.
2. Say the language you need.
3. Wait on the line for an interpreter (may take up to 3 minutes).
4. Ask the interpreter to contact the Cancer Council Helpline on 13 11 20.
5. You will be connected to the interpreter and a cancer nurse.

Visit www.cancervic.org.au/multilingual for more cancer information in your language, or for this fact sheet in other languages.

This information is based on evidence available at the time of review. The references used can be found on the English version available at sunsmart.com.au. It can be photocopied. This information is also available in other languages.

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Cancer Council Victoria VicHealth