Skin cancer - tanning

Summary

- The desire for the appearance of tanned skin is still high, especially among younger Australians.
- 'Fake tanning' lotions may provide a safer way to change the tone of your skin, but they do not usually offer sun protection.
- The UV radiation emitted by solariums contributes to skin and eye damage, and an increased risk of skin cancer.
- Both tans from the sun and solariums are a sign that your skin has been damaged by too much UV radiation exposure.

A suntan is a sign of skin damage. A tan is not a sign of good health, but rather a sign that skin is trying to protect itself from the sun's ultraviolet (UV) rays. There is no such thing as a 'safe' tan. Exposure to UV radiation from the sun or a solarium increases your risk of skin cancer and ages your skin. In fact, 80 per cent of fine lines and wrinkles can be attributed to UV exposure.

People with fair skin are at greater risk of developing skin cancer than those with naturally very dark skin.

Many people mistakenly believe that having a tan protects their skin against sunburn and UV damage. In fact, a tan offers minimal protection against sunburn (equivalent to around SPF 3, depending on your skin type), and will not protect your DNA from future UV damage.

Over the past 30 years in Australia, campaigns to heighten awareness of skin cancer have resulted in fewer people sunbaking.

Fake tanning lotions, sprays and creams offer little protection from the sun's UV rays. Some brands advertise that they include a high SPF sunscreen. Protection from UV does not last for as long as the fake tan. Sunscreen reapplication should occur every two hours. To get the best protection from UV, sunscreen should be used in conjunction with hats, protective clothing, sunglasses and shade.

How skin tans

Skin cells in the top layer of skin (epidermis) produce a pigment called melanin, which gives skin its natural colour. When skin is exposed to UV radiation, more melanin is produced, causing the skin to darken. This is what we know as a 'tan'. A tan is a sign that the skin has been damaged by UV radiation. It is not a sign of good health.

There is no 'safe' tan. Any tanning method that involves exposing the skin to UV radiation will cause skin damage. The more your skin is exposed to UV radiation, the greater the risk of skin cancer and the quicker your skin will age. Comparing the skin on the back of your hand with that on the inside of your thigh will show the damage caused by years of sun exposure.

Australians and tanning

The desire for a tan has been part of the Australian culture since the mid-1900s. However, we now know that deliberately exposing skin to UV radiation increases the risk of developing skin cancer.

Australians are exposed to some of the highest levels of UV radiation in the world. Australia also has one of the highest rates of skin cancer in the world, with two in three Australians developing some form of skin cancer before they reach age 70. Over 2,000 Australians die from skin cancer each year.

Challenging the tan beauty myth

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Recent public awareness campaigns have challenged the perception that tanned skin is more desirable than pale skin. While there have been improvements, the desire for the appearance of tanned skin still exists, especially among younger people.

Consequently, alternative tanning methods have become increasingly popular. If you must tan, choose a tanning method that doesn't use UV radiation (but remember you still require sun protection when using fake tanning products).

Types of tanning products
The range of tanning products available includes:

- topical dyes – tanning lotions, creams, sprays, mousses, combined moisturiser and ‘fake tan’ products. These are generally made up of vegetable dyes that stain the skin a darker colour and give a temporary appearance of a tan, which is why it is referred to as a ‘fake tan’. This colour does not stimulate the production of melanin, nor does it provide protection against UV radiation. The dye is shed, along with dead skin cells, after a few days
- bronzers and tinted sunscreens – tinted cosmetic and sun protection products such as moisturisers, foundation, powders and sunscreen. Bronzers provide the skin with temporary colour that, unlike dyes, wash off with soap and water
- tan accelerators – claim to speed up the natural tanning process by stimulating melanin production in the body. They come in tablet or lotion form. Using tan accelerators for a long time has also been associated with an increased risk of skin cancer. When taken by mouth, the possible side effects of tan accelerator products include nausea, headaches and itchy skin
- spray tanning booths – these use mister spray guns to apply an even coat of fake tan solution to all, or parts of, the body. They are often found at beauty salons, hairdressers and some gymnasiums.

Tanning products and UV radiation
A few tanning lotions include sunscreens, ranging from SPF 4 to 15. However, this protection only lasts for a short time following application and not for the duration of the fake tan, so sunscreen will need to be applied after two hours. Promoting a tanning product as being protective against UV radiation may be misleading.

All tanning products should be used in conjunction with the five sun protection measures – clothing, sunscreen, wide-brimmed hat, shade and sunglasses.

Tanning products and dihydroxyacetone (DHA)
Fake tan products usually contain three to five per cent of a substance known as dihydroxyacetone (DHA). Professional products can have up to 15 per cent of DHA, with lower concentrations producing a light tan and higher concentrations producing a darker tan.

DHA is considered safe for topical application to the skin. However, there is currently no conclusive research available regarding the safety of DHA exposure to the eyes, lips, mucous membranes or internal organs via ingestion or inhalation.

While there is no absolute evidence that spray tans can be harmful to humans, recent research has shown that DHA is potentially harmful if inhaled, as it can enter the lungs and be absorbed into the blood stream where it could damage DNA and cause tumours.

If you are getting a spray tan, make sure you are in a well-ventilated area, not a confined space, and wear goggles and a protective mask.

Tan accelerators
Tan accelerators are available in tablet or lotion form. These preparations contain the chemicals psoralen and tyrosine, among others. These chemicals contribute to the production of melanin, the pigment responsible for skin colour.
With sensitised melanin cells, it is possible to get a suntan in a shorter time than usual. However, these products don't provide any sun protection.

There is no evidence that the topical use of tyrosine has any effect on melanin cells. When applied to the skin, tan accelerator products can cause painful conditions, including blistering.

Psoralen should only be used under medical supervision to treat skin problems such as psoriasis.

Using tan accelerators for a long time has also been associated with an increased risk of skin cancer. When taken by mouth, the possible side effects of tan accelerator products include nausea, headaches and itchy skin.

**A solarium tan is not a safe tan**

It is a myth that using a solarium (also known as a sunbed, sunlamp or tanning bed) is a safe way to tan. Given that solariums emit stronger ultraviolet (UV) radiation levels than the sun (up to three times as strong as the midday summer sun), they can damage your skin even faster than a tan from the sun.

Solarium tans offer no protection against DNA damage to skin cells, which can occur without any visible signs of skin damage.

The International Agency for Research on Cancer has moved UV-emitting tanning beds to its highest cancer risk category and labelled them as ‘carcinogenic to humans’. Solariums can also cause eye damage, immediate skin damage (such as sunburn, irritation, redness and swelling) and possible immune system changes.

The risk of developing skin cancer is also increased. Research shows that people who use a solarium before the age of 35 have a 59 per cent greater risk of melanoma than those who do not use solariums. Using a solarium also increases the risk of developing squamous cell carcinoma by 67 per cent and basal cell carcinoma by 29 per cent, when compared to people who have never used a solarium.

Due to the associated health risks, solariums have been banned in Victoria since January 2015. Prior to the ban, it was estimated that each year in Australia, 281 new melanoma cases, 43 melanoma-related deaths, and 2,572 new cases of squamous cell carcinoma were attributable to solarium use.

Cancer Council Australia and the Australasian College of Dermatologists do not support tanning in solariums in any circumstances.

**Where to get help**

- Your doctor
- Pharmacist
- Dermatologist
- **Cancer Council**, 13 11 20 for information and support
- **Cancer Council – Phone support in your own language**. Victoria Tel. 13 14 50

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