What is skin cancer?

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The skin

The skin is the largest organ of the body and it has many purposes, including protecting the body, regulating temperature and controlling fluid loss.

Skin, like all other body tissues, is made up of cells. The two main layers of the skin are the epidermis and dermis. Below these is a layer of fatty tissue.

Epidermis

This is the top, outer layer of the skin. It has four main cell types:

- keratinocytes (make up about 95 per cent of the epidermis)—basal cells and squamous cells are types of keratinocytes
- melanocytes
- Langerhans cells
- Merkel cells.

The three main types of skin cancer—basal cell carcinoma, squamous cell carcinoma and melanoma—begin in particular cells of the epidermis.

Basal cells—these tall cells make up the lower layer of the epidermis. They multiply constantly, and the older cells move up within the epidermis and flatten out to form squamous cells.

Squamous cells—these are flat cells that are packed tightly together to make up the top and thickest layer of the epidermis. Squamous cells are formed from old basal cells and they constantly shed as new cells are made.

Melanocytes—these cells produce a dark pigment called melanin, the substance that gives skin its colour. When skin is exposed to the sun, melanocytes make extra melanin to protect it from getting burnt. This is what causes skin to tan. Melanoma starts in melanocytes. Melanocytes are also in non-cancerous (benign) spots on the skin called moles or naevi.
Dermis

This layer of the skin sits underneath the epidermis. The dermis contains the roots of hairs (follicles), sweat glands, blood and lymph vessels, and nerves that are held in place by collagen, a protein that gives skin its elasticity and strength.

Skin cancer spreads by moving into the dermis via the basement membrane, allowing cancer cells to reach blood or lymph vessels and move around the body.
What is skin cancer?

Skin cancer is the uncontrolled growth of abnormal cells in the skin.

There are three main types of skin cancer: basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), which are called non-melanoma skin cancers, and melanoma. BCC and SCC are also called keratinocytic or non-melanoma skin cancers.

Rare types of skin cancer include Merkel cell carcinoma and angiosarcoma, but they are treated differently from BCC and SCC. Call Cancer Council 13 11 20 for information about rarer skin cancers.

Basal cell carcinoma (BCC)

This starts in the lower layer of the epidermis and accounts for about 70 per cent of keratinocytic skin cancers. BCC:

- commonly develops on areas of the body that receive high sun exposure, such as the head, face, neck, shoulders, back, lower arms and lower legs, but it can start anywhere on the body
- may appear as a pearl-coloured lump or as a slightly scaly area that is shiny and pale or bright pink in colour, although some BCCs have a darker colour
- may bleed and become inflamed. Some BCCs heal then become inflamed again, often in a three-month cycle.

BCC often has no symptoms and it does not usually hurt when it is knocked against something, but it may itch. It tends to grow slowly and rarely spreads to other parts of the body.

The earlier a BCC is found, the easier it is to treat. Left untreated, it can grow deeper into the skin and damage nearby tissue, making treatment more difficult and increasing the chance of it recurring (coming back).

Having one BCC increases the risk of getting another. It is possible to have more than one BCC at the same time on different parts of the body.

Squamous cell carcinoma (SCC)

This starts in the upper layer of the epidermis and accounts for about 30 per cent of keratinocytic skin cancers. SCC:

- usually appears on parts of the body most often exposed to the sun, such as the head, neck, hands, forearms and lower legs, but it can start anywhere on the body
- may bleed and become inflamed and be tender to touch
- often appears as a thickened red, scaly or crusted spot or rapidly growing lump
- may look like a sore that hasn't healed.

SCC tends to grow quickly over several weeks or months. It may spread to other parts of the body if left untreated, although this is uncommon. SCC on the lips and ears is more likely to spread and should be examined by a doctor as soon as possible.

Bowen disease

Bowen disease (also called squamous cell carcinoma in situ) is an early form of skin cancer that begins in the epidermis, the top layer of the skin. It looks like a red, scaly patch and can develop into squamous cell carcinoma if left untreated.
Melanoma

Australia has the highest incidence of melanoma in the world. Although it is not as common as BCC and SCC, melanoma is considered the most serious type of skin cancer because it is more likely to spread to other parts of the body, such as the lungs, liver, brain and bones. Melanoma:

- can often appear as a new or existing spot on the body that changes in size, shape or colour over several weeks or months
- often has an irregular edge and a flat or raised surface
- may be more than one colour (brown, black, blue, red, white, light grey or pink).

The earlier melanoma is diagnosed, the more successful treatment is likely to be. Left untreated, melanoma may spread deeper into the skin, where it can be carried to other parts of the body via lymph vessels or blood vessels.

For more information about melanoma, refer to the melanoma web pages, call Cancer Council 13 11 20 or you can download the booklet Understanding Melanoma.

What about spots that aren’t cancer?

Not all spots that appear on the skin are cancerous. However, moles, freckles and sunspots are warning signs that the skin has had too much sun exposure, increasing the risk of skin cancer.

Moles (naevi)

A mole (naevus) is a normal growth on the skin that develops when the pigment-producing cells of the skin (melanocytes) grow in groups. Moles can be brown, black or skin-coloured and are usually round or oval.

Moles are very common. Some people have many moles on their body—this can run in families. Overexposure to the sun, especially in childhood, can also cause moles.

Dysplastic naevi

Moles with an irregular shape and uneven colour are called dysplastic naevi. People with many dysplastic naevi have a greater risk of developing melanoma.

Ask your doctor how to examine your skin regularly for any changes and see 'How to check your skin' below.

Sunspots (solar keratoses)

Red, flat, scaly spots on the skin that feel rough are called sunspots (solar or actinic keratoses). They usually occur in people over 40 on areas of skin frequently exposed to the sun, such as the head, neck, hands, forearms and legs. Rarely, sunspots develop into SCC.
How common is skin cancer?

Australia has one of the highest rates of skin cancer in the world. About two in three Australians will be diagnosed with some form of skin cancer before the age of 70. Skin cancer is the most common cancer diagnosed in Australia.

Almost 770,000 new cases of BCC and SCC are treated each year. BCC can develop in young people, but it is most common in people over 40. SCC occurs mostly in people over 50.

More than 12,000 cases of melanoma are diagnosed each year, with the highest incidence in people over 40, especially men. It is the most commonly diagnosed cancer in people aged 15–29.
Who is at risk?

Anyone can develop skin cancer. However, the risk is higher in people who have:

- fair skin, especially if it burns easily, is prone to freckles and doesn’t tan
- red or fair hair and light-coloured eyes
- experienced short, intense periods of exposure to ultraviolet (UV) radiation, e.g. on holidays or playing sport, especially if it caused sunburn
- actively tanned or used solariums
- worked outdoors
- a weakened immune system, which could be caused by taking certain medicines after an organ transplant or being HIV-positive
- numerous moles on their body
- dysplastic naevi
- a personal or family history of skin cancer.

People with olive or very dark skin naturally have more protection against UV radiation because their skin produces more melanin than fair-skinned people. However, they can still develop skin cancer.

What causes skin cancer?

The main cause of skin cancer is overexposure to UV radiation. This is produced by the sun, but it can also come from other sources, such as solariums (sun beds). While these are now banned in Australia, people who used a solarium before age 35 have an almost 60 per cent greater risk of melanoma.

Most parts of Australia have high levels of UV radiation all year round. UV radiation cannot be seen or felt and it is not related to temperature, but it can cause:

- sunburn
- premature skin ageing
- damage to skin cells, which leads to skin cancer.
The UV Index and SunSmart UV Alert

The UV Index shows the intensity of the sun’s UV radiation. An index of 3 or above indicates that UV levels are high enough to cause skin damage.

The daily SunSmart UV Alert shows sun protection times and forecasts the maximum UV Index for many locations in Australia. You can check the UV Alert on the weather page of most daily newspapers, at your local Cancer Council website, or by using the free SunSmart app for iPhone, iPad and Android devices.

How to read the UV Alert

This website page was last reviewed and updated December 2017.

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