

**Fact Sheet
on
Actinic Keratosis**

Introduction

Actinic keratoses (AKs) form on skin that soaks up lots of sun over the years. An actinic keratosis (AK), is a rough, dry, scaly patch or growth that forms on the skin. An AK forms when the skin is badly damaged by ultraviolet (UV) rays from the sun or indoor tanning. Most people get more than one AK. When one has more than one AK, one has actinic keratoses, or AKs.

[Picture Credit: Actinic Keratosis]

Anyone who has many AKs should be under a dermatologist's care. Most people who have many AKs continue to get new AKs for life. AKs are considered precancerous. Left untreated, AKs may turn into a type of skin cancer called squamous cell carcinoma (please refer to the Fact Sheet on Squamous Cell Carcinoma).



AKs typically appear on sun-exposed areas such as the face, bald scalp, lips, and the back of the hands, and are often elevated, rough in texture, and resemble warts. Most become red, but some will be tan, pink, and/or flesh-toned. If left untreated, up to ten percent of AKs develop into squamous cell carcinoma (SCC), the second most common form of skin cancer. In rarer instances, AKs may also turn into basal cell carcinomas, the most common form of skin cancer (please refer to the Fact Sheet on Basal Cell Carcinoma).

By seeing a dermatologist for check-ups, the AKs can be treated before they become skin cancer. If skin cancer does develop, it can be caught early when treatment often cures skin cancer.

(American Academy of Dermatology; Skin Cancer Foundation).

Causes of Actinic Keratosis (AK)

Chronic sun exposure is the cause of almost all actinic keratoses. Sun damage to the skin is cumulative, so even a brief period in the sun adds to the lifetime total. Cloudy days are not safe either, because 70-80 percent of solar ultraviolet (UV) rays can pass through clouds.

These harmful rays can also bounce off sand, snow and other reflective surfaces, giving one extra exposure.

The ultraviolet radiation given off by the lamps in a tanning salon can be even more dangerous than the sun, so dermatologists warn against indoor tanning.

[Picture Credit: Tanning Bed]

Occasionally, actinic keratoses may be caused by extensive exposure to X-rays or a number of industrial chemicals.



Because the total amount of time spent in the sun adds up year by year, older people are most likely to develop actinic keratoses. However, nowadays, some individuals in their 20s are affected. Still, actinic keratoses become much more common in people over the age of 50. Some experts believe almost everyone over 80 has actinic keratoses.

Also, individuals whose immune defences are weakened by cancer chemotherapy, Aids, organ transplantation or excessive UV exposure are less able to fight off the effects of the radiation and thus more likely to develop actinic keratoses.

People who have fair skin, blonde or red hair, and blue, green, or gray eyes are at the greatest risk, but darker-skinned people can develop keratoses if they expose themselves to the sun without protection.

People with certain rare conditions that make the skin very sensitive to the sun's UV rays, such as albinism and xeroderma pigmentosum (XP), are at very high risk.

[Picture Credit: Albinism]

Though only about 10 percent of AKs turn into cancers, there is no way to know ahead of time which ones are precursors of squamous cell carcinoma. That is why it is fortunate that there are so many effective treatments for eliminating actinic keratoses.



When an AK is suspected to be an early cancer, the physician may take tissue for biopsy. This is done by shaving off the top of the lesion with a scalpel or scraping it off with a curette. Local anaesthesia may be required. Bleeding is usually stopped with a styptic agent.

(Skin Cancer Foundation; Johns Hopkins Medicine).

Who is at Risk for Actinic Keratosis?

Those individuals who develop actinic keratoses tend to be fair-skinned people who have spent a lot of time outdoors at work or at play over the course of many years or who have exposed their skin to indoor tanning radiation. Their skin often becomes wrinkled, mottled, and discoloured from sun exposure. Others at risk for developing actinic keratoses include those who have their immune systems suppressed, such as organ-transplant patients, as

well as patients with psoriasis treated with PUVA therapy (topical long-wave ultraviolet light plus oral chemicals called psoralens).
(MedicineNet).

Signs and Symptoms of Actinic Keratosis (AK)

The signs and symptoms of an actinic keratosis include:

- Rough, dry or scaly patch of skin, usually less than 2.5 centimetres in diameter
- Flat to slightly raised patch or bump on the top layer of skin
- In some cases, a hard, wart-like surface
- Colour as varied as pink, red or brown, or flesh-coloured
- Itching or burning in the affected area

Actinic keratoses (AKs) are found primarily on areas exposed to the sun, including the face, lips, ears, back of the hands, forearms, scalp and neck.
(Mayo Clinic).

Diagnosis of Actinic Keratosis (AK)

A General Practitioner (GP) may be able to diagnose actinic keratosis by examining the patches on a person's skin. In some cases, the diagnosis may need to be confirmed by removing a small sample of skin and examining it under a microscope.

Actinic keratosis can often be managed by a GP, but one may need to see a skin specialist (dermatologist) for further assessment if the:

- GP is not certain about the diagnosis
- GP thinks one or more of the patches may be cancerous or at a high risk of becoming cancerous
- patches are particularly severe or widespread
- patient is taking immunosuppressant drugs - for example, following an organ transplant
- patches have not responded to treatment

(NHS Choices).

Tips for Managing Actinic Keratosis (AK)

An actinic keratosis (AK) forms on skin that has been badly damaged by ultraviolet (UV) rays. The sun and indoor tanning expose individuals to these harmful rays. If a person has been diagnosed with AKs, dermatologists recommend protecting the skin from the sun. By protecting the skin from the sun, one can help prevent new AKs from forming. This also will help make the treatment more effective.

Dermatologists offer the following tips to their patients who have AKs:

- Avoid the midday sun. Do this by scheduling outdoor activities for earlier in the morning (before 10:00) and later in the afternoon (after 15:00).
- Put on sunscreen every day — even on cloudy days and in the winter. Apply sunscreen to all skin that clothing will not cover.
3 things that a sunscreen must offer:

- SPF (sun protection factor) of 30 or higher
 - UVA/UVB protection (label may say 'broad-spectrum')
 - Water resistance
- Protect the lips. Apply a lip balm that contains sunscreen (if available). The lip balm also should offer an SPF of 30 or greater and UVA/UVB protection.
 - Protect the skin with clothing, preferably with a good UPF value. Whenever possible wear:
 - A wide-brimmed hat
 - Long sleeves
 - Long pants

To see how well the clothes will protect - hold each garment in front of bright light. If one can see light through the cloth, harmful light from the sun can penetrate the cloth. Select another garment. One could also wear that garment but apply sunscreen first to the skin that the garment will cover.

Do not use tanning beds or other indoor tanning devices. Tanning beds and sun lamps emit UV rays that can be stronger than the rays from the sun. This can cause new AKs.

Check the skin as often as the dermatologist recommends. If one notices a growth on the skin that has any of the following traits, contact a dermatologist right away:

- Starts to itch or bleed.
- Becomes noticeably thicker.
- Remains after treatment.
- Changes in size, shape, or colour.

Keep all appointments with a dermatologist. Left untreated, AKs can turn into a type of skin cancer called squamous cell carcinoma (please refer to the Fact Sheet on Squamous Cell Carcinoma). With early detection and treatment, skin cancer has a high cure rate.

Because AKs develop on skin that has been badly damaged by UV rays, one also has a higher risk for developing other types of skin cancer, including melanoma (please refer to the Fact Sheet on Melanoma). Keeping one's appointments helps to detect skin cancer early when a cure is likely.

Realise that new AKs may form. AKs form on badly damaged skin. Some people will continue to develop new AKs for life, even when they protect their skin from the sun. This does not mean that sun protection and treatment are not working. (American Academy of Dermatology).

Treatment of Actinic Keratosis (AK)

- Early treatment of actinic keratosis is recommended to stop the possible progression to a type of skin cancer (squamous cell carcinoma).
- Treatment may include:
 - Freezing the skin growth with liquid nitrogen (cryotherapy) to destroy it. Cryotherapy (also called cryosurgery) can cause mild pain that can last up to

3 days. Healing typically takes 7 to 14 days. And there is little or no scarring, though some people with darker skin have permanent skin colour lightening. This procedure can be done in a doctor's office.

- Scraping and using electric current (curettage and electrosurgery). The skin is numbed, and the growth is scraped off using a spoon-shaped instrument (curette). After scraping, electrosurgery may be done to control bleeding and destroy any remaining abnormal cells. Curettage is a quick treatment, but it can cause scarring. Sometimes a thick scar, or keloid, develops after curettage treatment. A keloid can be itchy or grow larger over time but it does not require medical treatment.
- Shaving the growth with a surgical blade (shave excision). This is done to remove the growth and check the cells for basal or squamous cell carcinoma. Healing typically takes 7 to 14 days. There may be some scarring and changes in the colour (pigment) of the skin.
- Peeling the skin with chemicals (chemical peel). This is done so new skin can grow and replace damaged skin.
- Resurfacing the skin with laser (laser resurfacing). An intense beam of light from a laser (such as the carbon dioxide or CO₂ laser) is used to destroy the top layer of skin. As the treated area heals, new skin grows to replace the damaged skin.
- Curettage and cautery may be preferred with thicker keratoses, and is a common method of removing early squamous cell cancers. A specimen is sent for pathological examination. Curettage is the removal of a lesion by scraping it with a sharp instrument. Cautery or diathermy burns the keratoses off and prevents bleeding. A scab forms which heals over a few weeks, leaving a small scar.
- Excision - Cutting the lesion out makes sure the lesion has been completely removed, confirmed by pathological examination. This is sometimes important if a lesion may be cancerous. Usually the surgical wound is sutured (stitched). The sutures are removed after a few days, the time depending on the size and location of the lesion. The procedure leaves a permanent scar.
- 5-Fluorouracil cream (5-FU, Efudix) is most useful when there are many keratoses on the face. The cream is applied onto facial skin once or twice daily for two to four weeks. The treated areas become red, raw and uncomfortable. About half of all lesions will clear up. Healing starts when the cream is discontinued, and the eventual result is usually excellent.
- Imiquimod is an immune response modifier in a cream base. It is applied to areas affected by actinic keratoses two or three times weekly for four to sixteen weeks. A typical regime is four weeks use, four weeks break then restart for another four weeks if needed. It causes an inflammatory reaction, which is maximal at about three weeks and then gradually settles down with continued use. The results are variable, but generally excellent.
- Diclofenac gel has been used successfully to treat actinic keratoses. Applied twice daily for 3 months, it is well tolerated..
- Ingenol mebutate gel was registered by the FDA (USA) in 2012 to treat actinic keratoses. About half of all lesions resolve after two to three days of treatment, which results in inflammation on treated areas for a week or so.

(WebMD; DermNet NZ).

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