

## Burns

Burns can be caused by flame, UV radiation, hot liquids, electricity, lightning and certain chemicals. Major burns are a medical emergency and require urgent medical attention. In some cases, skin graft surgery is needed.

### Different types of burns

There are three levels of burns:

- **Superficial** – these burns cause damage to the first or top layer of skin. The burn site will be red and painful.
- **Partial thickness** – includes damage to the first and second skin layers. The burn site will be red, peeling, blistering and swelling with clear or yellow-coloured fluid leaking from the skin. The burn site is very painful.
- **Full thickness** – involves damage to both the first and second skin layers, plus the underlying tissues, muscle, bone and organs. The burn site generally appears black or charred with white exposed fatty tissue or bone. Yellow in the wound is likely to be exposed muscle tissue. The nerve endings are generally destroyed and so there is little or no pain experienced at the site of the full thickness burn. However, surrounding partial thickness burns will be very painful.

### First aid

It is most important to ensure that you don't get burnt yourself. Be careful of still burning material or chemicals. Remove either the patient from the danger or the danger from the patient if possible.

Immediate first aid for all burns is to hold the burn under cool running water for at least 20 minutes. Stop cooling the burn if the person becomes very cold and shivers. Try to prevent heat loss by covering any unburnt area. Burnt clothing can be removed only as long as the clothing does not stick to the burn at all. Clothing should not be pulled at when it sticks to the burn.

Chemicals, such as acids and alkalis, must be washed off with plenty of water for at least 20 minutes but take care not to splash the chemicals onto other people.

Superficial burns are usually treated with painkillers, appropriate dressings, slings (in the case of burns to the hand or arm) and regular checking. Many burns may require stronger painkillers. Do not apply anything other than water to more severe burns until they are fully cooled and properly assessed.

The definition of a major burn is injury to more than 20 per cent of the total body surface area for an adult. (In general, one arm is considered nine per cent and one leg as 18 per cent.) For children, a major burn is defined as injury to 10 per cent or more of their total body surface area.

Major burns are a medical emergency and require urgent treatment. Call triple zero (000) for an ambulance immediately.

### Complications of major burns

Some of the many complications of major burns include:

- **Injury to lungs** – in the case of respiratory burns. Symptoms can include breathing difficulties and whistling sounds when breathing (stridor)
- **Hypovolaemia** – loss of plasma (blood) from injured blood vessels, which causes abnormally low blood pressure

- **Heat loss (hypothermia)** – since burnt skin is unable to properly regulate body temperature
- **Cardiac arrhythmia** – irregular heart beat
- **Kidney failure**
- **Death**
- **Infection.**

## Initial hospital emergency treatment

The medical treatment you will receive on admission to the hospital emergency department could include:

- The burning process is stopped by removing clothes and jewellery, and covering the affected areas with cool water.
- To boost blood volume, an intravenous cannula (medical tube) is inserted into a vein (through undamaged skin). Medications are also given through this line.
- A urinary catheter allows the medical staff to regularly check your urine output, which shows whether or not you are dehydrated.
- Respiratory burns need intubation, which means putting a tube down your throat.
- Your vital signs are regularly checked, particularly your heart rate.

## Admission to a burns unit may be necessary

There are national guidelines that help hospital emergency department staff decide whether you need care in a specialised burns unit. Some of these guidelines include:

- For adults – full thickness burns over 10 per cent of the body surface.
- For children – full thickness burns over five per cent of the body surface.
- Respiratory burns – lungs or other parts of the breathing system affected.
- Circumferential burns – burns that go right around the body.
- Burns to hands, feet, face, perineum and joints.
- Electrical burns.
- Chemical burns.

## Skin graft surgery

If the body will not be able to heal the injury by itself, skin grafts will be needed. The specifics of skin graft surgery depend on the location and severity of your burns, but generally include:

- You are prepared for theatre and given general anaesthesia.
- The site where the graft is taken (donor site) is usually a spot that is generally covered with clothes, such as the thigh or buttock.
- The type of skin graft required depends on the burn. The different types of skin graft include pinch, split-thickness, full-thickness and pedicle.
- Pinch grafts are tiny pieces of donor skin. In time, these individual pieces heal together. Generally, pinch grafts are used in areas where blood circulation is poor.
- A split-thickness graft involves superficial and some deep skin layers. Generally, this type of graft is used for non-weight-bearing areas.
- A full-thickness graft involves all the skin layers and associated blood vessels. Generally, this type of graft is used for weight-bearing areas, such as the feet.
- A pedicle graft isn't removed in its entirety from the donor site. Instead, a small flap remains attached, to ensure a good blood supply while the rest of the graft heals in its new location. Generally, this type of graft is used for the face or hands.
- The burnt skin is cut away.
- The donor skin is removed with special instruments.
- The skin graft is laid over the wound, and stitched or stapled into position.

## Immediately after the operation

After the operation, you can expect:

- Your vital signs are closely checked by medical staff.

- Your wounds are bandaged.
- You have a drainage tube from your wounds to help remove any excess fluids.
- Nursing staff give you pain relief as prescribed by your doctor.
- New blood vessels start to grow into the skin graft within 36 hours or so.
- Your skin graft and donor site are closely checked for signs of infection.
- Your skin graft is checked for signs of rejection.
- The length of your hospital stay depends on the severity of your burns and whether or not you experience any complications following surgery.

## **Possible side effects and complications**

Some of the possible risks and complications of skin graft surgery include:

- Allergic reaction to the anaesthetic
- Blood loss (haemorrhaging)
- Blood clots
- Infection of the wound or the bloodstream
- Death of the skin graft, which means another operation is necessary.

## **Taking care of yourself at home**

Be guided by your doctor, but general suggestions include:

- Rest as much as you can.
- Follow all self-care instructions from your doctor.
- Try to avoid moving or stretching the area, as you may injure your skin graft.
- Antibiotics are usually prescribed to reduce the risk of infection. Make sure you take the full course.
- Avoid getting your dressings wet.
- See your doctor immediately if you experience any unusual symptoms.
- Depending on the size of your skin graft, it may take a few weeks or months for the wound to fully heal.

## **Long-term outlook**

Some of the ongoing problems or concerns you may have following surgery could include:

- The skin graft will have a different colour and texture to the surrounding healthy skin.
- The skin graft may contract and thicken during the healing process – this can cause mobility problems in the area.
- The donor site tends to heal very slowly.
- Once the donor site has healed, it may appear coarse and discoloured.
- The donor site may remain painful for some time.
- It may take time and counselling to come to terms with changes to your appearance.

## **Where to get help**

- In the case of a major burn – or where breathing has been affected – call triple zero (000) for an ambulance
- Your doctor
- Emergency department of your nearest hospital
- Burns unit.

## **Things to remember**

- Some of the causes of burns include flame, UV radiation, hot liquids, electricity, lightning and certain chemicals.
- Major burns are a medical emergency and require urgent treatment.
- Depending on the size of your skin graft, it may take a few weeks or months for the wound to fully heal.

- First aid treatment is to apply cool running water over the burn site for a minimum of 20 minutes.

**This page has been produced in consultation with, and approved by:**

Ambulance Victoria

Content on this website is provided for education and information purposes only. Information about a therapy, service, product or treatment does not imply endorsement and is not intended to replace advice from your doctor or other registered health professional. Content has been prepared for Victorian residents and wider Australian audiences, and was accurate at the time of publication. Readers should note that, over time, currency and completeness of the information may change. All users are urged to always seek advice from a registered health care professional for diagnosis and answers to their medical questions.

For the latest updates and more information, visit [www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au)

**Copyright** © 1999/2012 State of Victoria. Reproduced from the Better Health Channel ([www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au)) at no cost with permission of the Victorian Minister for Health. Unauthorised reproduction and other uses comprised in the copyright are prohibited without permission.