

Health Bytes

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Emergency treatment of burns at home and the workplace



Caution: Do not Play with Fire

Burns are one of the most common injuries and occurs when cells in the skin and underlying tissue is destroyed by heat. It can be minor such as burning a knuckle while removing a pot from the stove to major when a toddler pulls a pot with boiling water or fat from the stove.

Common Burn Injuries

According to the January 2018 Burns Factsheet the World Health Organization estimate South Africa is spending around **R326 781 000,00 annually on the care of burns** from paraffin cookstove incidents.

This does not include the emotional trauma, commitment of family members to care for deformities, or lost wages.

Burns affects mostly children and young adults. If poorly managed the repercussions go further than the pain of the acute injury, causing significant physical dysfunction and scarring with long-term limitations. Patients with major burns have good survival chances in the first world but in South Africa few patients with burns exceeding 40% of total body surface area survive.



Burns should be prevented as far as possible and if it does occur the importance of first aid cannot be underestimated. Principles for the care of burns include:

- ✓ Stopping the burning process – remove the person from the source or the source from the person
- ✓ Maintaining an airway, the respiratory function, cardiovascular status and fluid balance as needed
- ✓ Cool the burned area with running water (tap) for up to 20 minutes (DO not use ice water)
- ✓ Remove any item that might constrict circulation to the burn including clothing and jewellery
- ✓ Cover the area loosely
- ✓ Transport to major trauma centre or Burn Center as soon as possible

CAUTION DANGER

Chemicals used in industry that may cause burn injuries include **Nitric acid, Phosphoric acid, Hydrofluoric acid, Hydrochloric acid, Muriatic acid, Sodium hydroxide, Potassium hydroxide, Sodium hypochlorite, Calcium hypochlorite and Ammonia.**



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Treatment of burns

Stop the burning process based on the cause of the burn

- ▶ **Thermal burns**
 1. Extinguish flames (Stop, drop, roll)
 2. Roll patient on the floor, cover with a blanket, use water or fire extinguisher
- ▶ **Hot liquid (water, oil etc)**
 1. Remove the source of the hot liquid and any wet covering or remove the victim from the area
- ▶ **Chemical burns at home**
- can be caused by household cleaning products.
 1. Remove the chemical by dusting it off, removing contaminated clothing and the person from the area
 2. Dilute the chemical with cool running water, making sure to direct the flow away from the rest of the body
- ▶ **Industrial chemical burns**
Treat according to the MDS.
 - Metallic lithium, potassium, sodium and magnesium burns
 1. Remove the metallic pieces with forceps if possible
 2. Cover with mineral oil as irrigation with water may result in a chemical reaction that cause the burn to worsen
 - Carboic acid (phenol)
 1. Dilute with alcohol
 2. Flushing with water because phenol is not water soluble
- ▶ **Electrical burns**
 1. Switch the power of at the main or safely remove the live wire – do not touch the person with bare hands, the electricity will be conducted to the rescuer.

Maintain respiratory function, cardiovascular status and fluid balance

- ▶ **Assess the depth of the burn**
 - First degree burns show redness to the affected area such as sunburn
 - Second degree burns commonly show blistering
 - Third degree burns may appear black with a charred skin or the skin may appear white. The victim may not experience pain in the 3rd degree burn
 - Fourth degree burns involve deep connective tissue, muscle or bone
- ▶ **Use the rule of nines to calculate the total body surface area covered by the burn**
- ▶ **Perform basic trauma resuscitation as needed (maintain an open airway and do 30 cardiac compressions and give 2 breaths every 30 seconds (100 compressions and 6 breaths per minute))**
- All smoke inhalation victims
- Burns involving more than 20% of the total body surface



Cool the burn Area



1. Start cooling down the temperature of the tissue to reduce damage by running water from a cold water tap as soon as possible
2. Continue the treatment for a minimum of 20 minutes or until the victim can be transported to a Burn Centre

Remove any item that might constrict circulation to the burn including clothing and jewellery

- Burns often cause local oedema and clothing may become constrictive later

Cover the area loosely

1. Use a commercially available hydrogel-impregnated burn dressings or clean wet sheet or towel

Transport to major trauma centre or Burn Centre as soon as possible



References

<http://www.who.int/mediacentre/factsheets/fs365/en/>
<http://burninjuryguide.com/workplace-chemical-burns/>
<https://emedicine.medscape.com/article/769193-overview>
 Images: <https://www.pixabay.com> & <https://www.freepix.com>