CHAPTER 11

BURNS

Burns are caused as a result of exposure to heat, chemicals and electricity. A burn is an injury caused by heat to the skin and its underlying soft tissues. Burns also inspire a great deal of distress to casualties, bystanders and rescue personnel. Where a casualty has been burned you have to deal with danger, airway burns, respiratory arrest, poisoning and the burn itself.

RESCUING THE BURNT CASUALTY

Any situation where a casualty is burnt represents great danger to you. Rescue of trapped persons is an extremely dangerous undertaking and should be left to the fire-fighting authority when they arrive. Untrained rescuers run a very high risk of death or serious injury.

<table>
<thead>
<tr>
<th>RESCUE FROM A BUILDING OR STRUCTURE</th>
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<tr>
<td>If you do decide to attempt a rescue from a burning building you must ensure the following</td>
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<tr>
<td>1. You must know where the casualty is</td>
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<td>2. You must plan your entry with care</td>
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<td>3. You must identify a number of alternative escape routes</td>
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<td>4. You must allot a set time for a search, say 60 seconds</td>
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<td>5. You must cease the search when the allotted time elapses</td>
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<td>6. Stay low to the ground and do not breath any smoke</td>
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<td>7. Test all doors before you attempt to open them</td>
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<td>8. If you have to carry a casualty out - drag them and keep low</td>
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PUTTING OUT CLOTHING FIRES

Do not be deceived by clothing fires. Clothing burns at very high temperature and can result in severe burns to the casualty and to your face and hands. The severity of these fires is increased by the fact that casualties often inhale the rising superheated air and they often run around, fanning the flames and increasing the temperature.

Fig: 8-1: Roll casualty with foot keeping hands and face away from rising hot air
PROCEDURE FOR EXTINGUISHING CLOTHING FIRES

1. React quickly
2. Throw down, push over or trip casualty
3. Do not stand above casualty as rising hot air can burn your face and hands
4. Roll the casualty using your foot or smother flames with a blanket
5. Get water onto casualty ASAP

TYPES OF BURN

Burns are classified into two types, superficial and deep.

![Fig. 8-2: The level of Superficial and deep burns](image)

**SUPERFICIAL BURN**

Superficial burns involve injury to the upper layers of the skin only. This leaves the deeper skin cells, nerves and other structures alive and the skin is able to recover by itself.

**DEEP BURN**

A deep burn, as the name suggests, extends deep into the skin killing all the skin cells and underlying structures including nerves. Thus deep burns are painless, although the area surrounding a deep burn may be painful. Any deep burn is a serious burn.

IDENTIFYING THE AREA OF A BURN

Body area is estimated using the rule of 9s. The rule applies to both children and adults, however, the measurements differ as a child’s head is much larger in proportion to their body than an adult’s. The rule of 9s is applied as follows:
Fig. 8-3: The rule of 9s applied to the adult male

Fig. 8-4: Rule of 9s estimation of Burns on a child

PROVISIONAL DIAGNOSIS OF SUPERFICIAL BURN

HISTORY
a. Story of exposure to heat source, chemicals, hot liquids
b. Burnt clothing

SIGNS
a. Redness
b. Inflammation
c. Swelling
d. Blisters
e. Moist appearance

SYMPTOMS
a. Pain
b. Tenderness
c. Gritty feeling
d. Nausea with large burn
e. Dizziness with large burn
PROVISIONAL DIAGNOSIS OF DEEP BURN

HISTORY
a. Story of exposure to heat source, chemicals, hot liquids

SIGNS
a. Altered conscious state
b. Dry looking, black, brown or white marble appearance
c. Inflammation
d. Swelling

SYMPTOMS
a. Pain only in areas surrounding burnt area
b. No tenderness
c. No feeling or sensation on burnt area
d. Nausea with large burn

TREATMENT OF BURNS

1. Danger - ensure your own safety and then that of the bystanders
2. Get casualty out and put water on them as soon as possible
3. Airway - look for ash, soot, burns, blistering or swelling to airway
4. Breathing - look for respiratory distress
5. If not breathing - Be prepared to give CPR
6. Call ambulance immediately
7. Remove all clothing unless stuck to burned area
8. Apply running cool water for up to 10 minutes
   - do not over cool the casualty, beware of hypothermia
9. Find and remove all jewellery from casualties body
10. Look for other injuries - burned casualties often suffer cuts and fractures during their attempts to escape the flames
11. Place a dry, clean sheet over casualty
12. Reassure casualty and bystanders
14. Take and record observations

SCALDS

Scalds are burns caused by hot fluids. Scalds can be very serious and it is essential that quick action be taken to limit the extent of the burn. Scalds can be caused by hot water, hot oil or any hot liquid. In all scalds it is very important that all clothing be quickly removed.

In scalds the hot water or oil is absorbed into the clothing and held close to the casualty's skin. This results in the liquid being insulated from any cold water that is applied and the heat being retained against the skin for a longer period. Young children who are scalded often have the deepest burns in the groin area due to their nappies absorbing and holding the hot liquid. Treatment is the same as for other burns.

CHEMICAL BURNS

Chemical burns are treated in exactly the same way as other types of burn with the exception that water is applied for longer, up to 20 minutes. You should take care to ensure that you do not come into contact with the chemical or the water being used to remove it from the casualties' body.

Chemical burns to the eyes receive special attention. If casualty has chemical or heat burns to eye immediate action is required in order to save the casualties sight.
### TREATMENT OF CHEMICAL, SMOKE OR HEAT BURNS TO EYE

1. DRABCD  
2. Get casualty to water or water to casualty  
3. Open eyelids  
4. Flush with large amounts of cool water for 20-30 minutes  
5. Get ambulance immediately  
6. Treat as for severe eye injury  
   - dressings to both eyes  
   - stay with casualty  
   - keep them calm

![Fig. 8-5: Wash eyes with large amounts of water](image)

### ELECTRICAL BURNS

Electrical burns can appear to be very small at first but later extend into very large and serious burns. No matter how minor an electrical burn seems the casualty must be sent to hospital because the electric shock may cause electrical disruption of the heart.

High tension electrical burns are often associated with explosive injuries with the casualties arms, legs or other parts of the body being blown off.

### TREATMENT OF ELECTRICAL BURNS  
**NEVER ATTEMPT TO RESCUE ANYONE FROM A HIGH TENSION AREA**

You do not need to touch a high tension electrical cable to be electrocuted. Electricity can arc out from high tension equipment and electrocute anybody entering its electro-magnetic field. This field increases with humidity and therefore rescue is an expert activity, and then only after the electrical current is shut off.

1. Apply running cool water for up to 10 minutes  
   - do not over cool the casualty, beware of hypothermia  
2. Look for other injuries  
3. Place dry, clean sheet over casualty  
4. Reassure casualty and bystanders  
5. Take and record observations