



Tooele City Fire Department

- Burn Injuries -

One of the most painful injuries that one can ever experience is a burn injury. When a burn occurs to the skin, nerve endings are damaged causing intense feelings of pain. Every year, millions of people in the United States are burned in one way or another. Of those, thousands die as a result of their burns. Many require long-term hospitalization. Burns are a leading cause of unintentional death in the United States, exceeded in numbers only by automobile crashes and falls. Serious burns are complex injuries. In addition to the burn injury itself, a number of other functions may be affected. Burn injuries can affect muscles, bones, nerves, and blood vessels. The respiratory system can be damaged, with possible airway obstruction, respiratory failure and respiratory arrest. Since burns injure the skin, they impair the body's normal fluid/electrolyte balance, body temperature, body thermal regulation, joint function, manual dexterity, and physical appearance. In addition to the physical damage caused by burns, patients also may suffer emotional and psychological problems that begin at the emergency scene and could last a long time.

Classifying Burns

Burns are classified in two ways: Method and Degree of burn

Methods are:

- Thermal - including flame, radiation, or excessive heat from fire, steam, and hot liquids and hot objects.
- Chemical - including various acids, bases, and caustics.
- Electrical - including electrical current and lightning.
- Light - burns caused by intense light sources or ultraviolet light, which includes sunlight.
- Radiation - such as from nuclear sources. Ultraviolet light is also a source of radiation burns.

Never assume the source of a burn. Gather information and be sure.

Degrees are:

- **First degree burns** are superficial injuries that involve only the epidermis or outer layer of skin. They are the most common and the most minor of all burns. The skin is reddened and extremely painful. The burn will heal on its own without scarring within two to five days. There may be peeling of the skin and some temporary discoloration.
- **Second degree burns** occur when the first layer of skin is burned through and the second layer, the dermal layer, is damaged but the burn does not pass through to underlying tissues. The skin appears moist and there will be deep intense pain, reddening, blisters and a mottled appearance to the skin. Second degree burns are considered minor if they involve less than 15 percent of the body surface in adults and

less than 10 percent in children. When treated with reasonable care, second degree burns will heal themselves and produce very little scarring. Healing is usually complete within three weeks.

- **Third degree burns** involve all the layers of the skin. They are referred to as full thickness burns and are the most serious of all burns. These are usually charred black and include areas that are dry and white. While a third-degree burn may be very painful, some patients feel little or no pain because the nerve endings have been destroyed. This type of burn may require skin grafting. As third degree burns heal, dense scars form.

Determining the severity of burns:

- Source of the burn - a minor burn caused by nuclear radiation is more severe than a burn caused by thermal sources. Chemical burns are dangerous because the chemical may still be on the skin.
- Body regions burned - burns to the face are more severe because they could affect airway management or the eyes. Burns to hands and feet are also of special concern because they could impede movement of fingers and toes.
- Degree of the burn - the degree of the burn is important because it could cause infection of exposed tissues and permit invasion of the circulatory system.
- Extent of burned surface areas - It is important to know the percentage of the amount of the skin surface involved in the burn. The adult body is divided into regions, each of which represents nine percent of the total body surface. These regions are the head and neck, each upper limb, the chest, the abdomen, the upper back, the lower back and buttocks, the front of each lower limb, and the back of each lower limb. This makes up 99 percent of the human body. The remaining one percent is the genital area. With an infant or small child, more emphasis is placed on the head and trunk.
- Age of the patient - This is important because small children and senior citizens usually have more severe reactions to burns and different healing processes.
- Pre-existing physical or mental conditions - Patients with respiratory illnesses, heart disorders, diabetes or kidney disease are in greater jeopardy than normally healthy people.

Treatment of Burns

Cool a burn with water. Do what you must to get cool water on the burn as soon as you can. Go to the nearest water faucet and turn on the cold spigot and get cool water on the burn. Put cool, water-soaked cloths on the burn. If possible, avoid icy cold water and ice cubes. Such measures could cause further damage to burned skin. **Never apply** ointment, grease or butter to the burned area. Applying such products, actually confine the heat of the burn to the skin and do not allow the damaged area to cool. In essence, the skin continues to "simmer." After the initial trauma of the burn and after it has had sufficient time to cool, it would then be appropriate to put an ointment on the burn. Ointments help prevent infection. The one exception to the "Cool a Burn" method is when the burn is caused by lime powder. In that case, carefully brush the lime off the skin completely and then flush the area with water. In the event of any serious burns, seek immediate medical attention, or call 9-1-1.