

BURN INJURIES



Ranjan Kumar

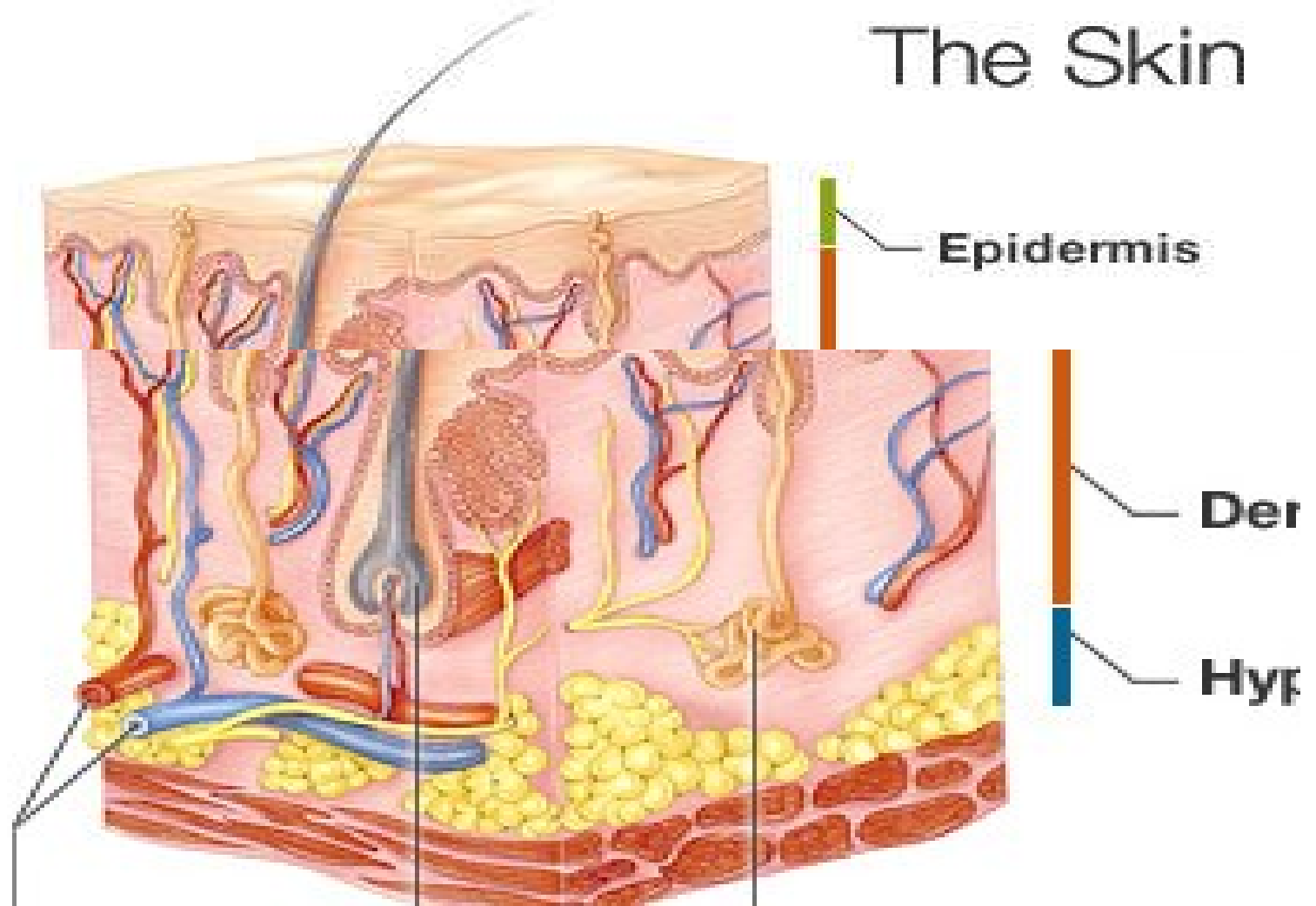
OBJECTIVES



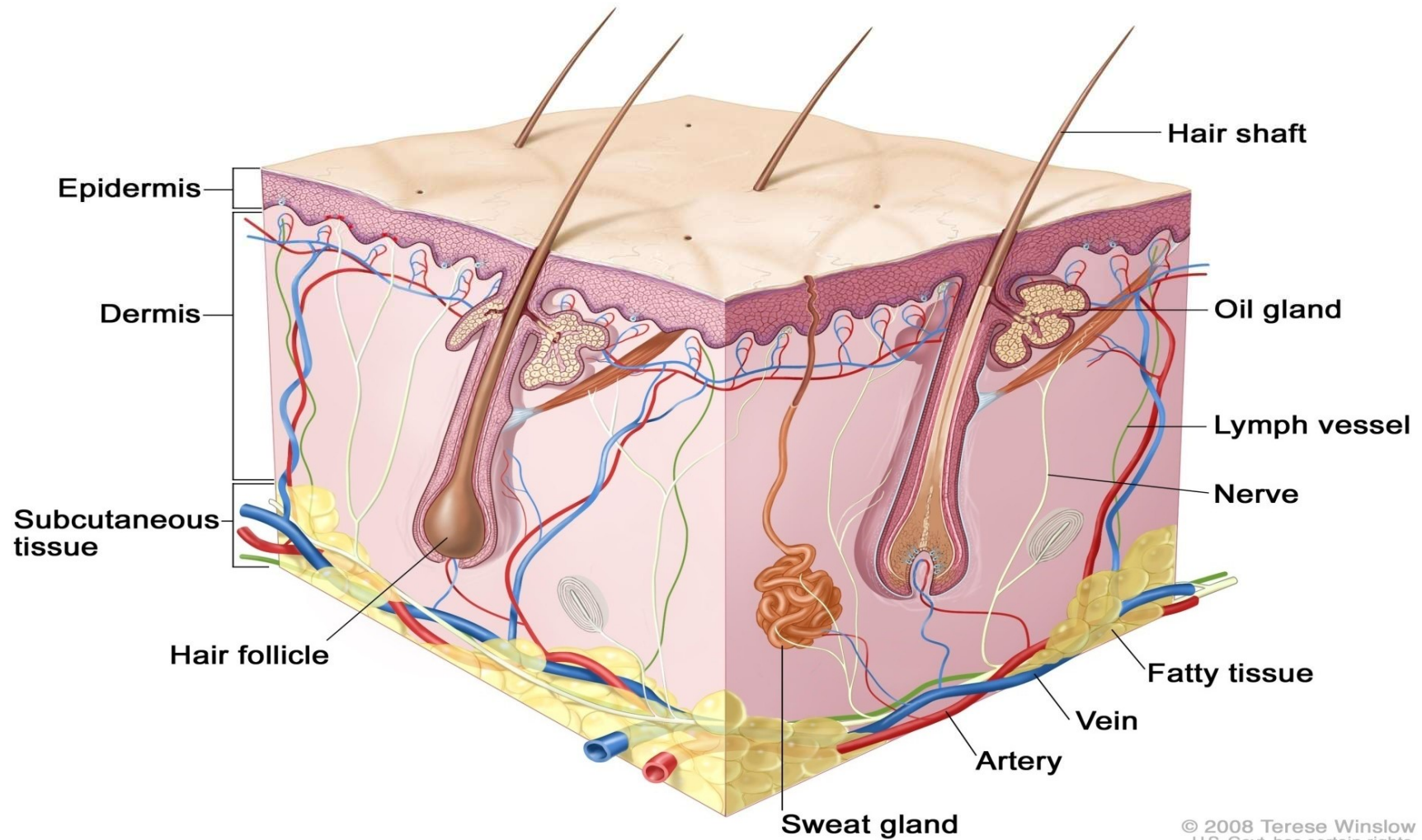
- Burns, types, signs and symptoms and its pre-hospital treatment.
- Rules of nine, burns severity.

The Skin

The Skin



The skin



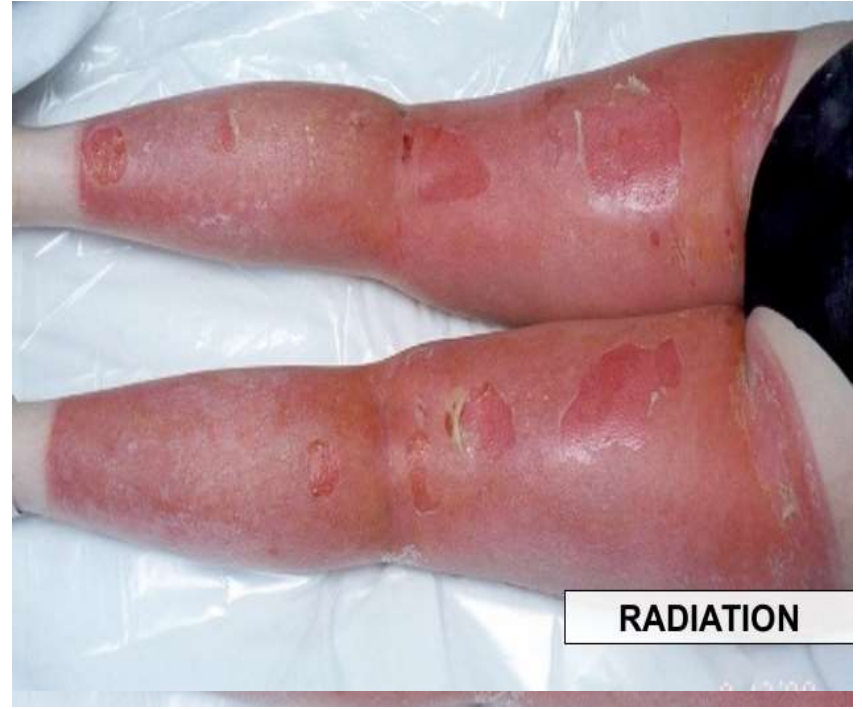


Burns

Definition:

Injuries caused by exposure to excessive heat from thermal, chemical, electrical or radiating sources.

Burns can injure the skin, muscles, blood vessels, nerves and bones. The eyes, ears and the respiratory system can also be affected. Apart from the physical damage, the victim suffers psychologically and emotionally.





Causes of Burns

- 1) Thermal: heat (fire, vapour and hot objects), and cold (freezing and frozen objects).
- 2) Chemical: includes several caustics such as acids and alkalis.
- 3) Electrical: electricity, i.e., house current, lightning.
- 4) Radiation: Ultraviolet rays (including sunlight) and radioactive agents.



Classification, Signs and Symptoms of Burns

- Classification by Depth
- Extent of Body Surface Burned



Classification by Depth

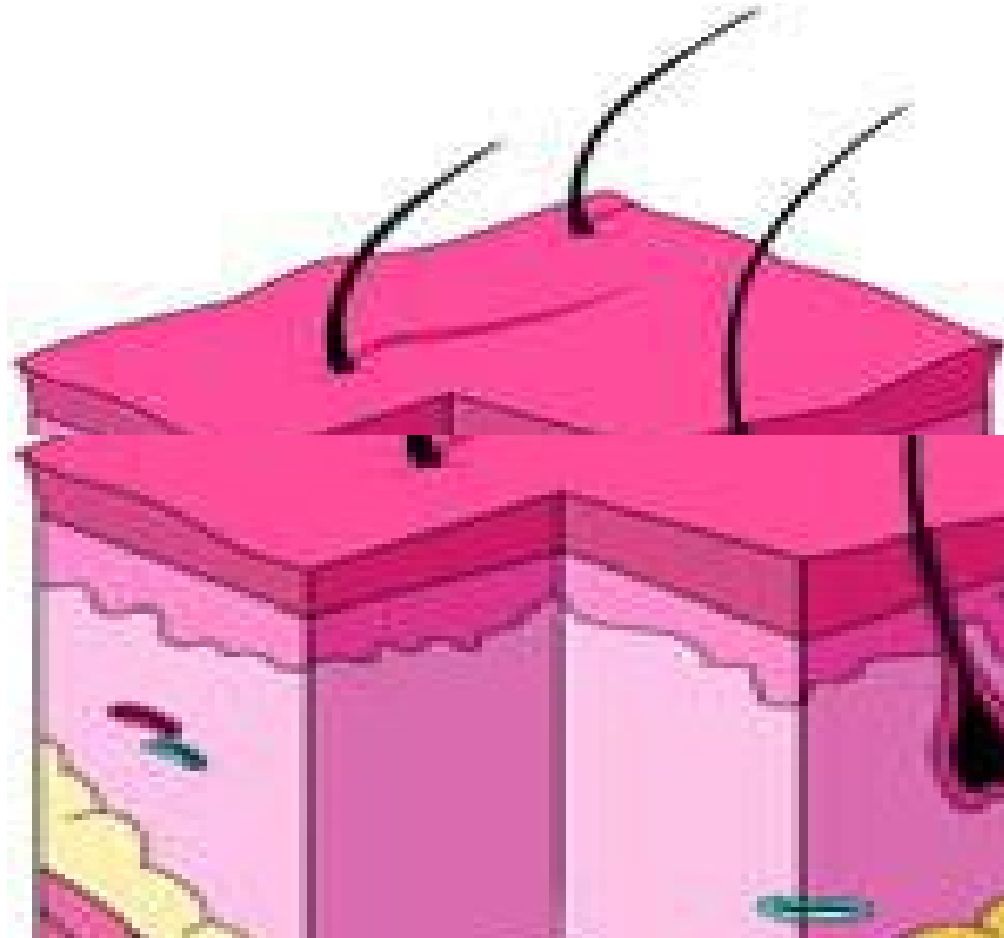
- Superficial (first-degree)
- Partial Thickness (second-degree)
- Full thickness (third-degree)



Classification by Depth

- Superficial (first-degree) burns:
 - These involve only the top layer of skin (epidermis).
 - *Reddening of the skin and some pain and swelling of the area.*

Superficial Burns



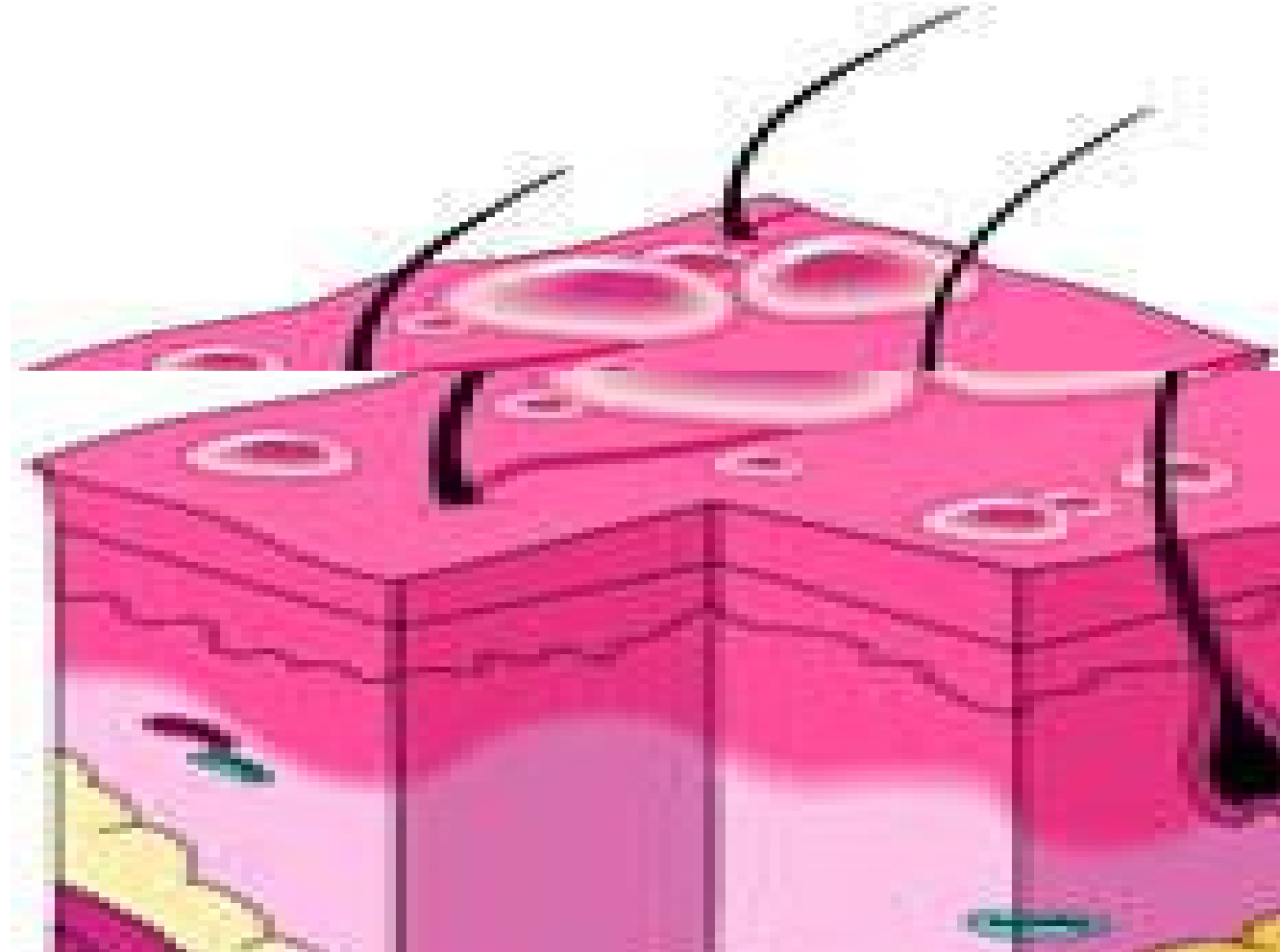




Classification by Depth

- Partial thickness (second-degree) burns:
 - The superficial layer of skin is burned through and the second layer is damaged.
 - This type of burn is painful.
 - There will be swelling and blistering,
 - Skin may appear white or red,
 - May be moist and mottled (spotted).

Partial Thickness Burns







Classification by Depth

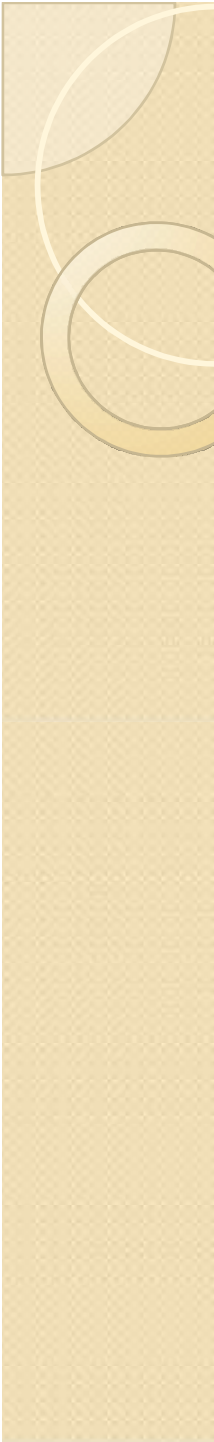
- Full thickness (third-degree) burns:

All the layers of the skin are burnt, including the fatty layer, muscles, blood vessels and nerves, and in some cases the bone.

This type is the most serious of all burns and is characterised by the following:

-Skin is usually dry, hard, pale or white but it can be brown or scorched(dry as a bone).

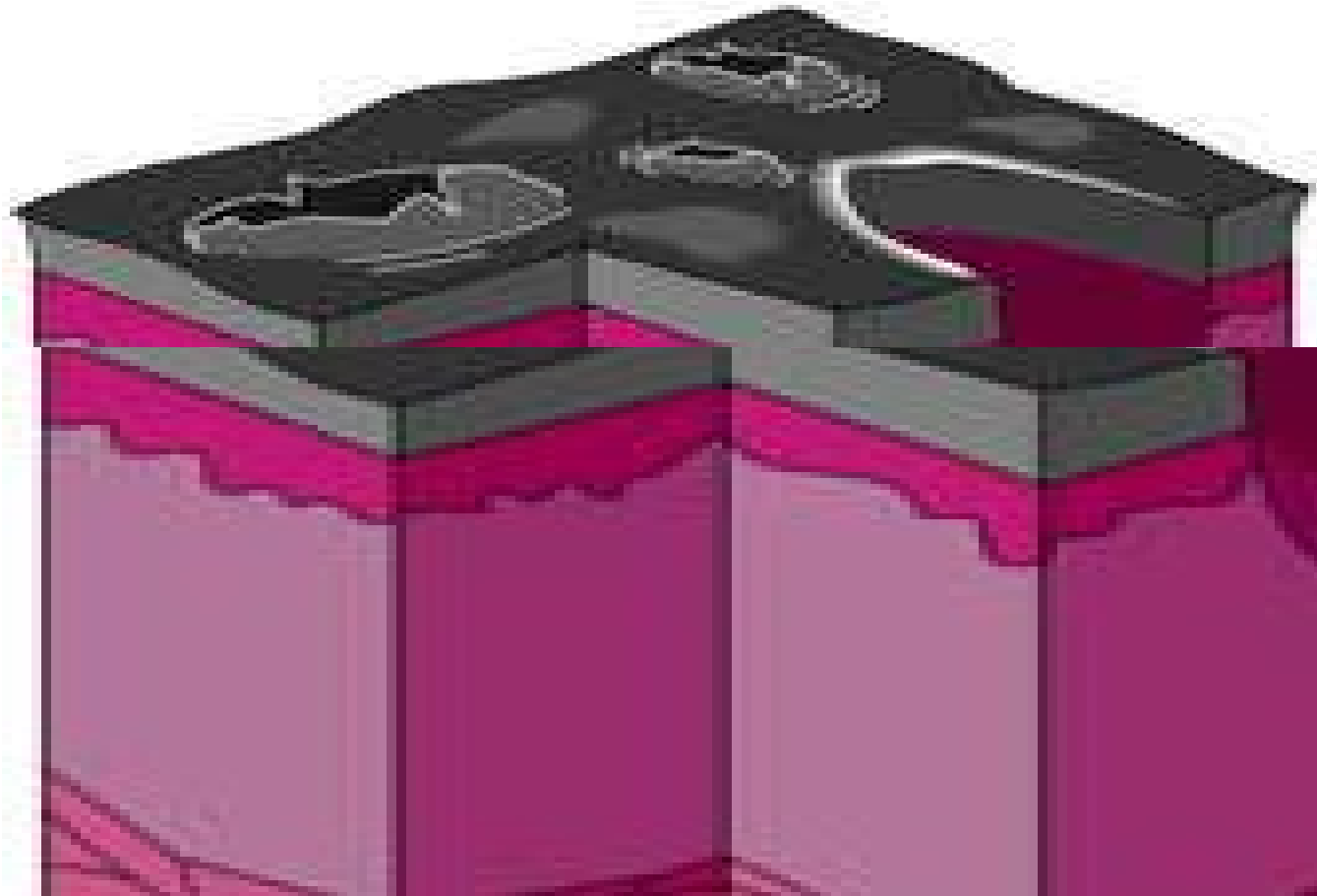
cont..



May be accompanied by a loss of the sensitivity in the area affected due to destruction of nerves. Possible pain around periphery of burn area.

- First-degree or second-degree can be very painful burns, but with third-degree burns most of the nerve endings have been damaged. Skin may feel hard to the touch.

Full Thickness Burn



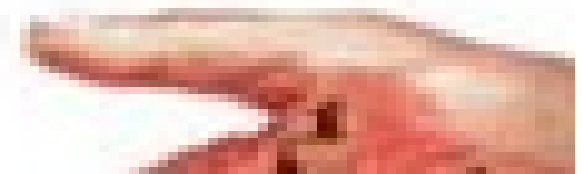
**First degree
burn**



**Second degree
burn
Second degree
burn**

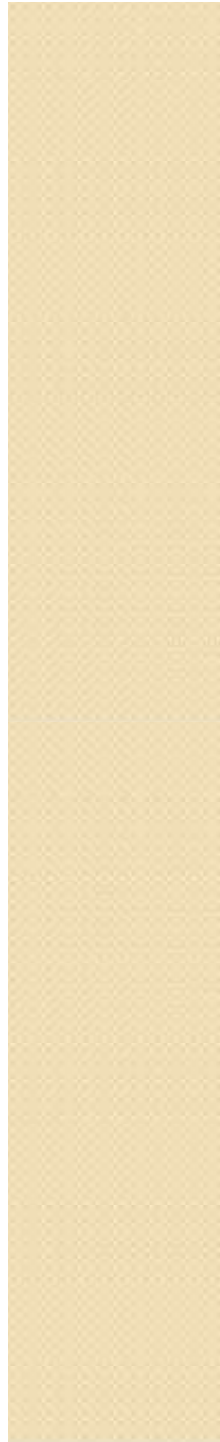


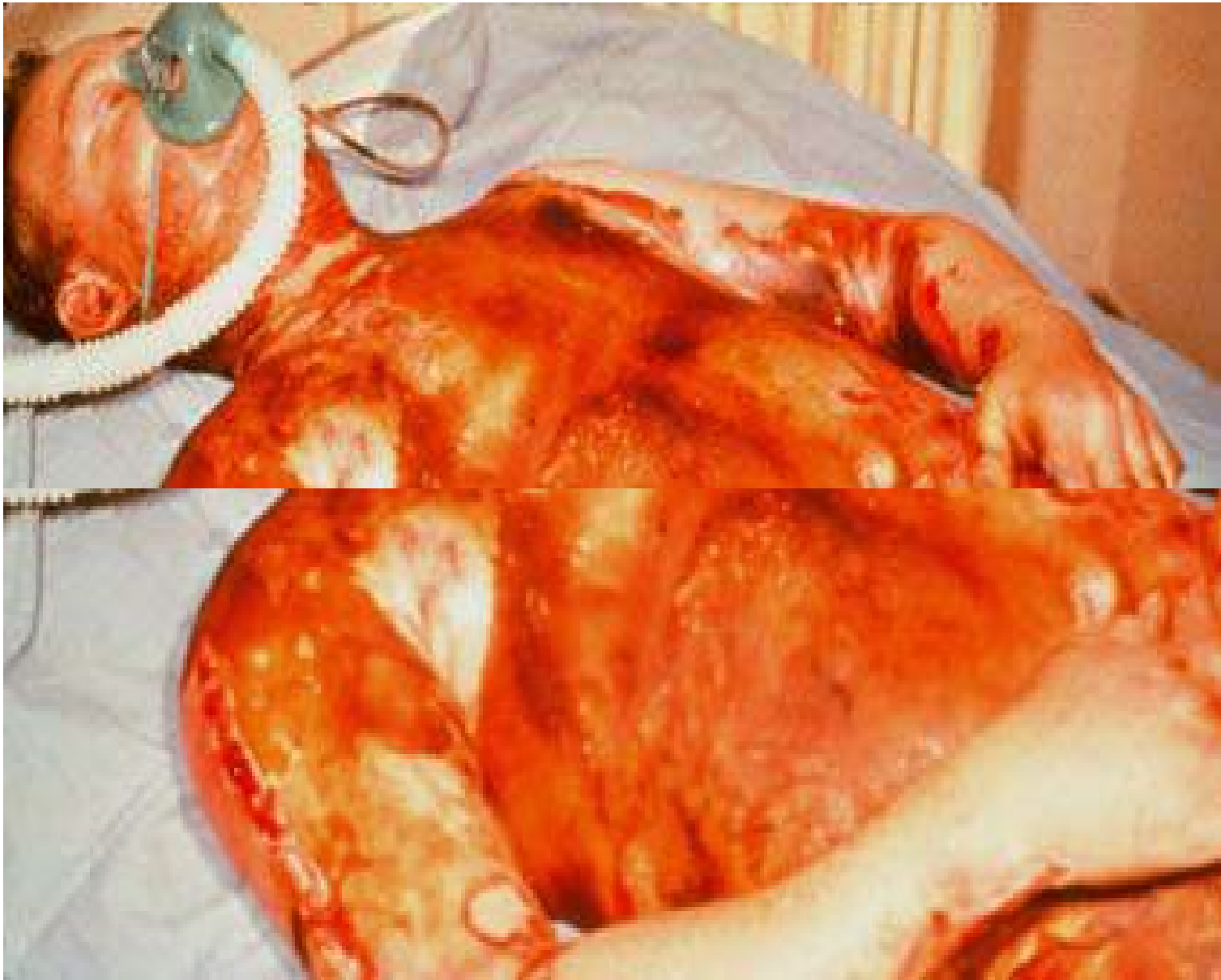
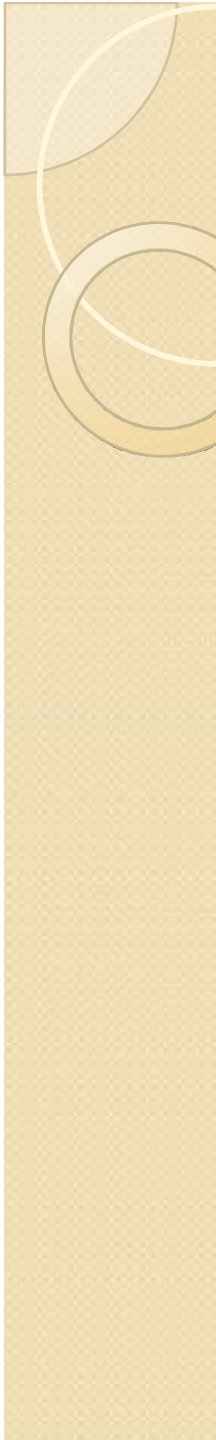
Third degree



DEGREES OF BURNS









EXTENT OF BODY SURFACE BURNED

The “Rule of Nines” is a standardised way of estimating the amount of body surface area (BSA) burned:

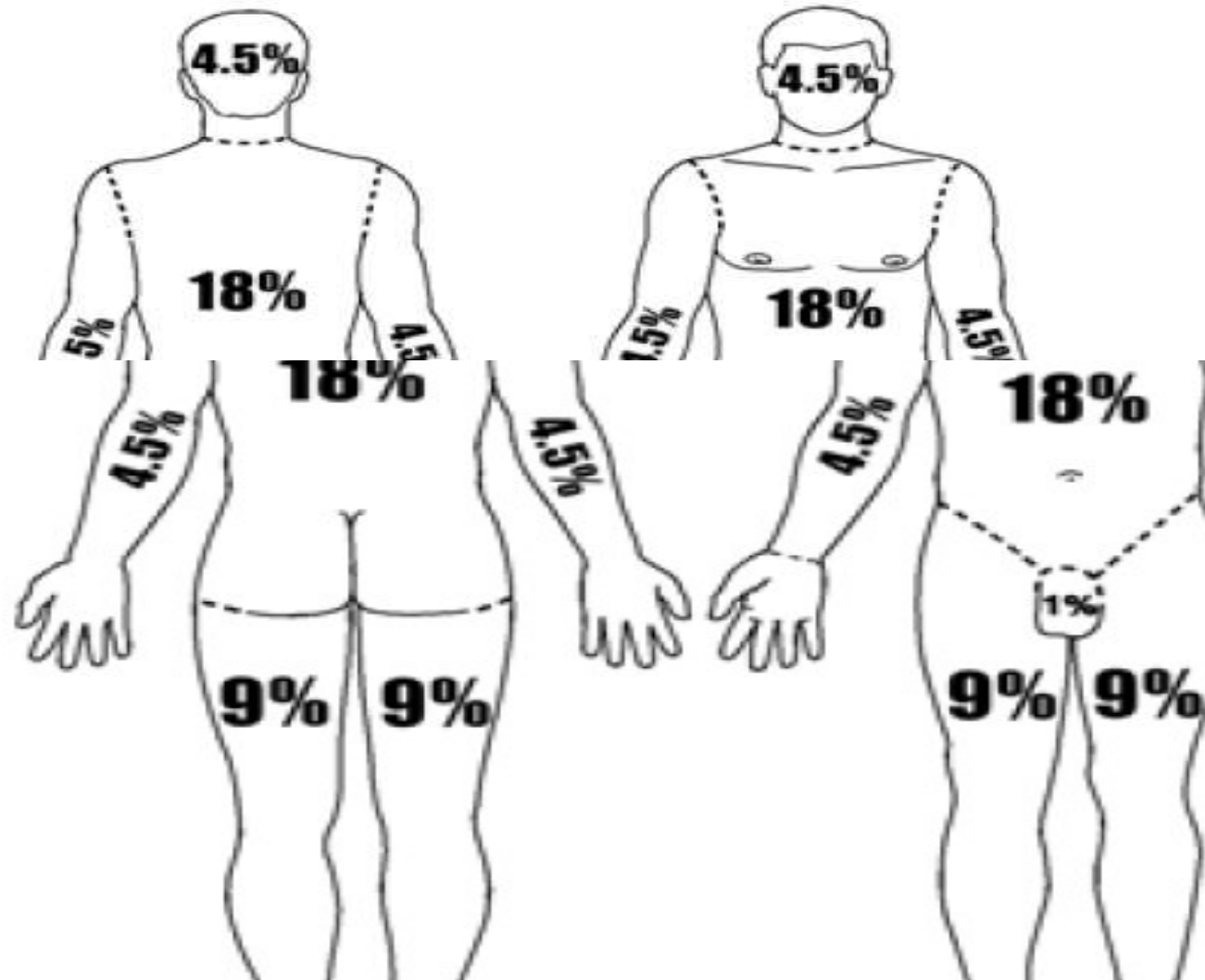
The body is divided into regions for estimating body surface areas as follows:

Rule of Nines

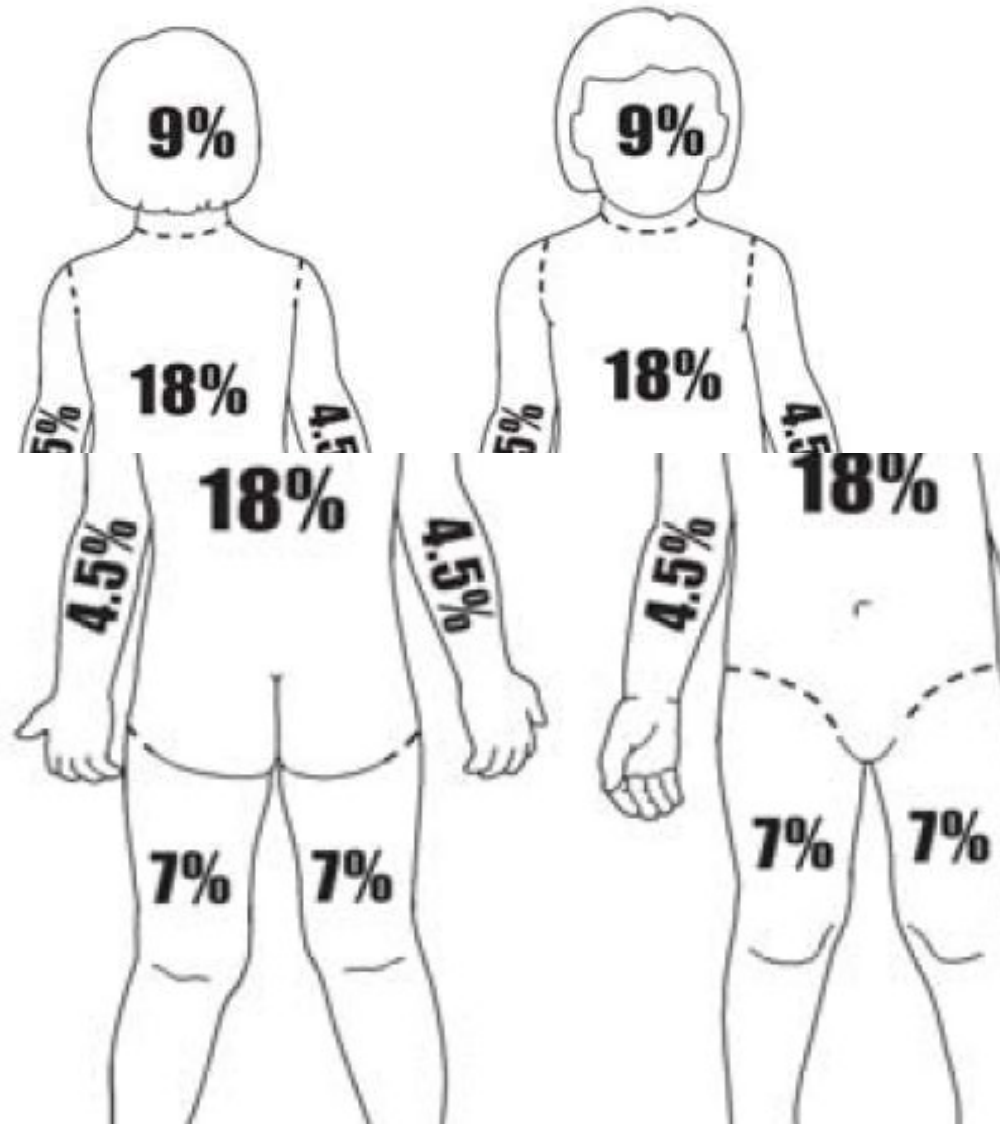
(% Body Surface Area)

	<u>Adult</u>	<u>Child</u>
Head	9%	18%
Upper extremities	9% each	9% ea
Anterior Trunk	18%	18%
Posterior Trunk	18%	18%
Genital	1%	incl. in ant.
Lower extremities	18% each	14% e
BSA	100%	100%

Rule of Nines (Adult)



Rule of Nines (Child)





BURN SEVERITY

- Depth of the Burn
 - (Superficial, partial or full thickness)
- Percentage of burned surface area
- Location
- Complicating factors
 - Patient's age
 - Patient's pre existing illnesses



MINOR BURN

- Full thickness burn less than 2% BSA excluding face, hands, feet, genitalia, or respiratory tract.
- Partial thickness burns of less of 15% BSA
- Superficial burns of 50% BSA or less



MODERATE BURNS

- Full thickness burns of 2% to 10% BSA, excluding face, hands, feet, genitalia, or respiratory tract
- Partial thickness burns of 15% to 30% BSA
- Superficial burns over 50% BSA



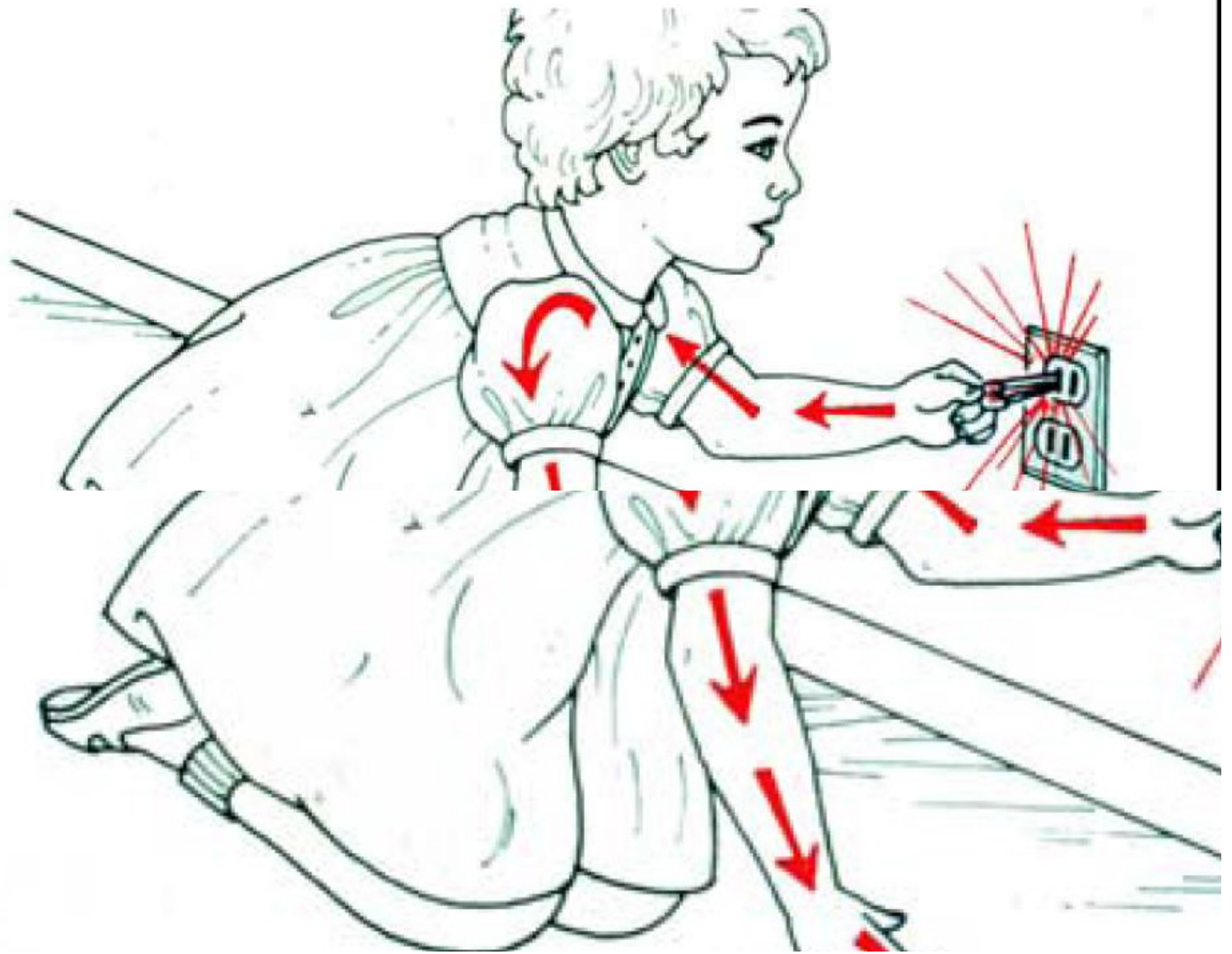
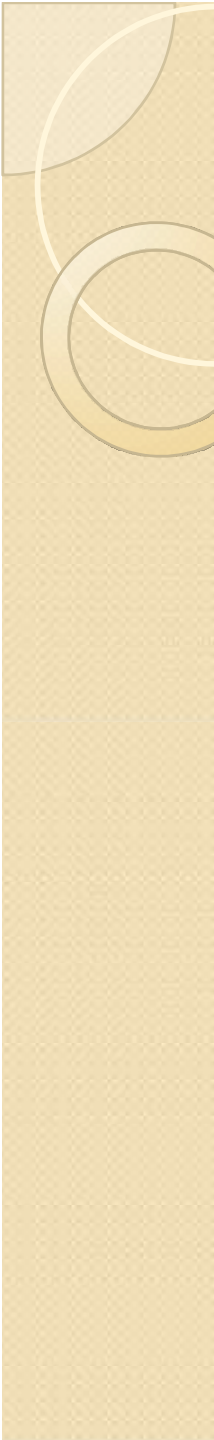
CRITICAL BURNS

- All burns complicated by injuries of the respiratory tract, other soft tissue injuries, and injuries of the bones.
- Partial or full thickness burns involving the face, hands, feet, genitalia, or respiratory tract.
- Full thickness burns of more than 10% BSA.
- Partial thickness burns of more than 30% BSA.
- Burns complicated by musculoskeletal injuries
- Circumferential burns



ELECTRICAL BURN

- Body regions burned – Face, Hand and feet.
Groin, genitalia, buttocks and inner thighs.
- Burns around joints.





OTHER COMPLICATING FACTOR

- Patient age
- Patient pre existing illness
- Burns which by the above classification are moderate, should be considered critical in a patient less than 5 or more than 55 years of age



PRE- HOSPITAL TREATMENT

- Use universal precaution and secure the scene
- Stop the burning process. Run cold water over the scald burns. Flush away chemicals with water for 20 minutes or more.
- Remove any smoldering clothing and jewelry. If you meet resistance or if you see pieces melted in to the skin cut around the area. Do not try to remove them.
- Perform initial assessment.



PRE- HOSPITAL TREATMENT

- Administer oxygen per local protocol.
- Determine the severity of burn using the rule of nine.
- Cover the burn. Use dry sterile dressing . Do not use grease or fat, ointment, lotion, antiseptic, or ice on the burns. Do not break blisters.
- If a burn involves the eyes, be sure to cover both eyes after treating
- Fingers with second or third degree burn require dressing each finger individually
- Keep the patient warm and treat for shock.





PHT FOR CHEMICAL BURNS

- Brush off dry chemicals, such as lime powder.
- Rinse the area with water for at least 20 min.
- Apply a sterile dressing to the affected area.
- Treat for shock

PHT FOR CHEMICAL BURNS TO EYES:-

- Rinse the eyes immediately with water for at least 20 min. maintain a flow of water on the affected eye from a faucet (low pressure), bottle, glass or other source. Keep the patient's eyelids open.





ELECTRIC BURN

- The more serious problems related to electric burns are respiratory and / or cardiac arrest, damage to the nervous system and injury to internal organs.
- Use universal precaution, secure the scene
- Alert EMS
- Follow local protocols

“prolonged CPR should be performed on electrical injury victims as they can remain viable for a longer period than with other types of injuries”.



PHT OF ELECTRICAL BURN

- Perform initial assessment.
- Evaluate burn and look for at least two burn area.
- Apply a dry , sterile dressing to the burns.
- Treat for shock.