



The Integumentary System

Burns and other Problems/Skin
Color



Burns

Burns are caused by:

- heat
- radiation
- electric shock
- strong chemicals



Burns

There are three different types of burns:

- 1st, 2nd, and 3rd degree burns

1st Degree Burns

- A sunburn is a good example.
- Burns only the epidermis and does not cause blisters.
- Is red but turns white when you press on it.
- Heals in 3 - 6 days.



2nd Degree Burns

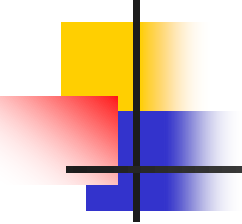


- Burns all the epidermis and top part of the dermis.
- Blisters form and there can be scarring.
- Skin grafts needed for bad 2nd degree burns.

3rd Degree Burns

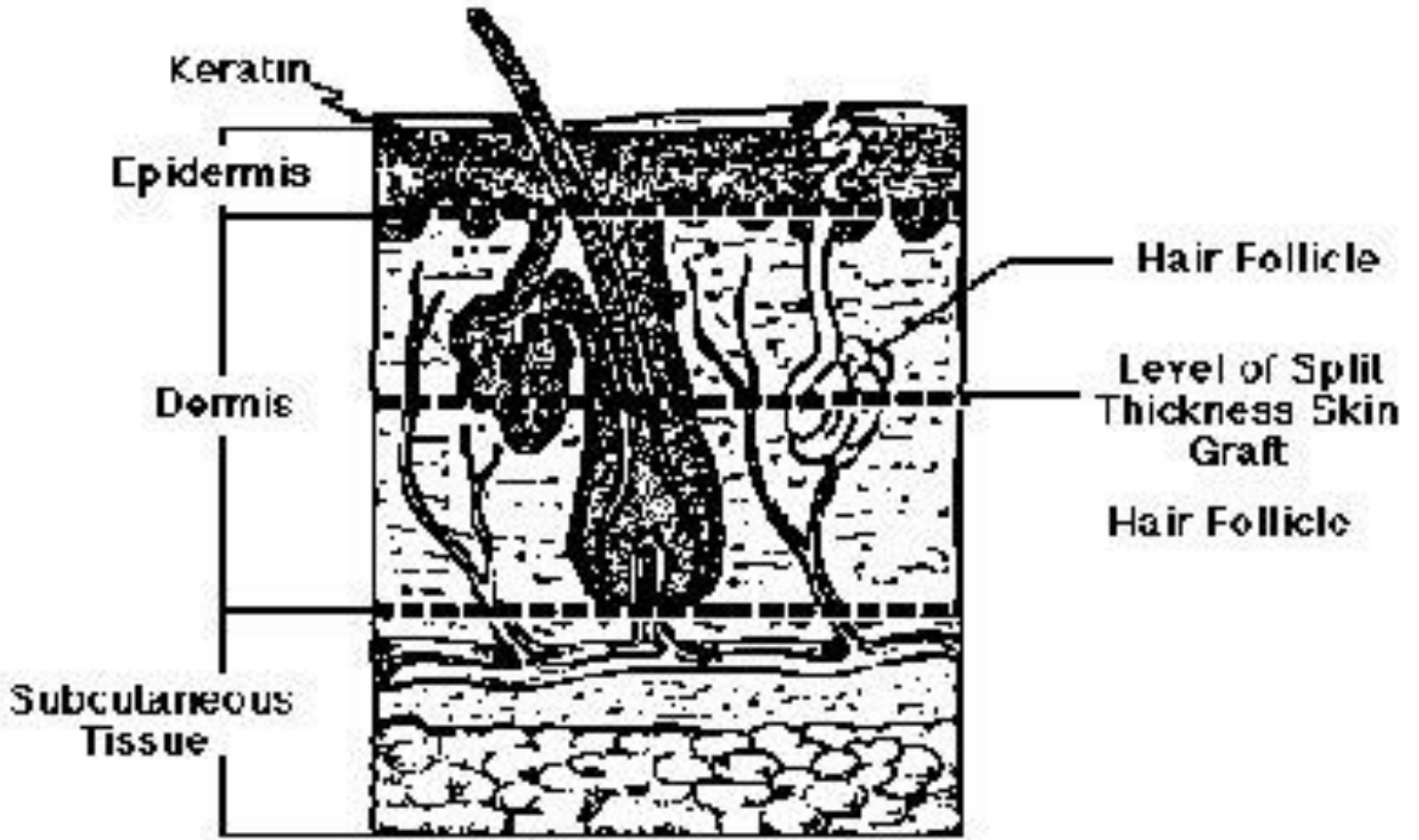
- The burn destroys the full epidermis and dermis, the burn may damage the connective tissue too.
- These burns can never heal themselves, skin grafts are needed.





Pain is not as bad
as all sensory
cells have been
destroyed.







Rule of Nines

- A method of estimating the percentage of skin surface burned is called the rule of nines.
- The body is divided up into multiples of 9...in the following way...



Rule of Nines

- Head – 9%
- Upper limbs – 9%
- Trunk – 18%
- Genitalia – 1%
- Lower limbs – 18%



Burns Over 20%

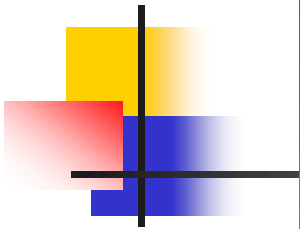
- A serious threat to life because:
 1. The body loses too much fluid
 2. Can't maintain body temperature
 3. Bacteria attach through the damaged skin – leading cause of death in burn victims

Skin Grafts



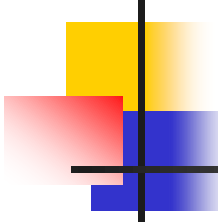


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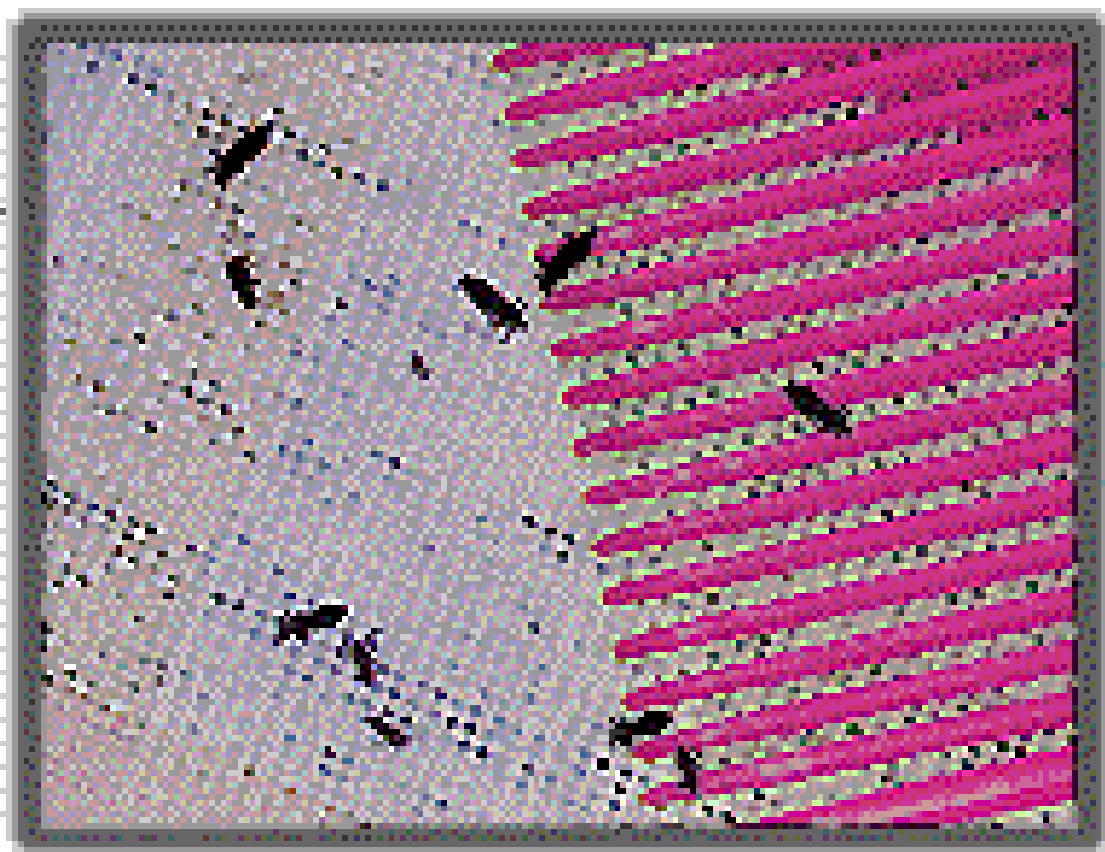




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Mom & Dad (Adult Head Lice)



*Family Outing
(Head Lice in Relation to Comb)*







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2 Main Reasons for Skin Color

- Colored pigments
- Blood seen in the dermis

Every person has a mixture of brown, yellow, pink and blue tones in their skin.



2 Main Reasons for Skin Color

- Pigments - give yellow and brown color.
- Blood in dermis - give blue and pink color.



Skin Pigments - 2 Main Ones

- **Carotene** - an orange-yellow pigment found in the stratum corneum. The pigment is picked up from the diet by eating orange-colored vegetables (ex., carrots).
- **Melanin** -



Skin Pigments - 2 Main Ones

- **Melanin** - brown to black pigment produced by special cells called melanocytes.



Melanocytes

- Melanocytes are located in the stratum basale (germinativum). Melanocytes convert the amino acid tyrosine into melanin. The melanin is put into vessicles called melanosomes.



Melanocytes (con't)

- Very dark skinned people have larger melanosomes.



Ultraviolet Light Protection

- UV radiation is dangerous as it will alter DNA (though you need a little UV light).
- Melanin blocks UV light. Exposure to the sun causes melanocytes to produce melanin - a tan.



Ultraviolet Light Protection (con't)

- Albinos have melanocytes but can't produce melanin.



Freckles

- These are areas where the melanocytes are producing more melanin than usual. This is usually found on the face.
- Liver spots (dark spots on older people) are areas of abnormal melanocytes.



Vitamin D Production

- A small amount of UV light is needed to produce vitamin D3 or cholecalciferol.
- The liver turns D3 into the hormone calcitriol which is needed for normal calcium and phosphorus absorption and thus bone growth.

