

## ☼ Skin Disorders

A. Skin cancer occurs in three forms:

- 1) **Basal cell carcinoma:** begins in the epidermis when basal cells form a tumor and rarely metastasizes; most common
- 2) **Squamous cell carcinoma:** begins in the epidermis due to squamous cell mutations and is likely to spread to nearby organs.
- 3) **Melanoma:** deadly form of skin cancer that begins in the melanocytes (pigment cells) present in epidermis.

6 - 35

## B. Burns

1. **Burn:** the epidermal injury caused by heat, or radioactive, chemical or electrical agents.
2. The severity of a burn depends on its depth and extent.

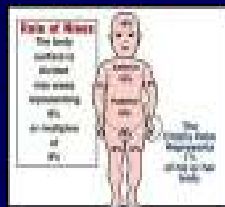
6 - 36

3. **“Rule of nines”:** a technique used for estimating the extent of a burn where the total body surface is divided into regions representing multiples of 9%:

In adults:



In infants:



4. Classifying burns according to the depth of the burned area:

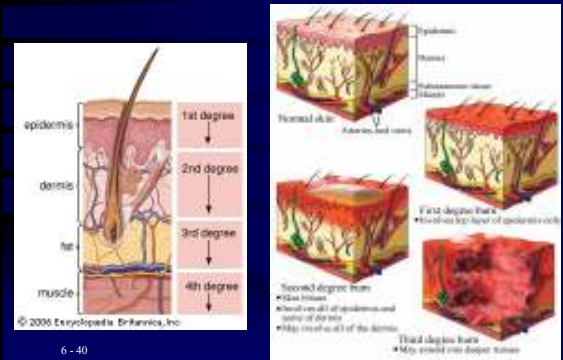
- 1) **First-degree burns:** affect only the epidermis (redness & pain, but no blistering or swelling).
- 2) **Second-degree burns:** affect the entire epidermis and a portion of the dermis (redness, pain, & blistering of the damaged tissue).

6 - 38

- 3) **Third-degree burns,** or full-thickness burns: affect the entire epidermis and dermis (leathery skin that can be brown, tan, black, white, or red, but no pain, heat loss, fluid loss, infections)
- 4) **Fourth-degree burns:** affects tissues down to the bone (Chances of survival are slim unless a very limited area of the body is affected)

6 - 39

## Skin Burns



6 - 40

5. Skin grafting used to replace the damaged skin:

- 1) **Autografting**: the graft is taken from other parts of the patient's body.
- 2) **Heterografting**: the graft is received from another person.
- 3) **Homografting**: the graft is received from a cadaver.
- 4) **Using skin substitute** such as an amniotic membrane from a fetus, artificial membranes, or lab-cultured epithelial cells.

6 - 41

### C. The process Wound Healing

1. Bleeding at the site of injury immediately after injury is followed by inflammation (redness, heat, swelling, pain)
2. Chemicals released from damaged cells will cause **blood clotting**, and a protective scab forms.
3. **White blood cells** move in to fight infections and **fibroblasts** pull the margins of the wound together.

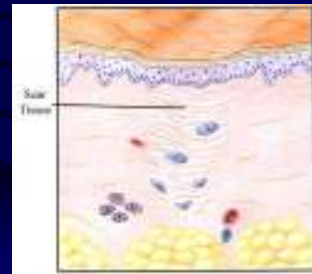
6 - 42

4. The scab is shed and new epidermis is complete.

- a. Superficial cuts are filled in by reproducing **epithelial cells**—no scar.
- b. Deep cuts are filled in by **connective tissue** formed by **fibroblasts**—scar forms

6 - 43

5. Areas with **scars** from large wounds do not contain the accessory organs of the skin and are usually devoid of feeling.



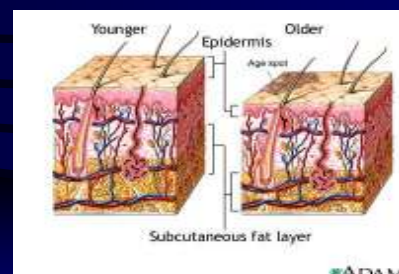
6 - 44

### Effects of Aging

- A. Skin wrinkles with age because
1. Epidermis is loose
  2. Fewer fibers in the dermis
  3. Hypodermis has less padding

6 - 45

### Differences in the Skin



6 - 46

- B. The epidermis maintains its thickness, but the turnover of cells decreases
- C. The skin has fewer blood vessels, sweat glands, hair follicles, & melanocytes
- D. Exposure to the sun results in skin changes associated with aging.

6 - 47

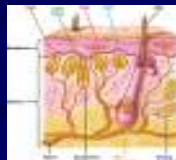
## Aging Skin



6 - 48

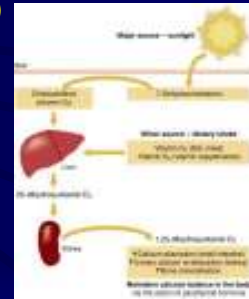
## Skin and Homeostasis

- A. **Skin protects the body** from physical trauma and bacterial invasion.
- B. **Skin helps regulate water loss and gain**, which helps the urinary system.
- C. **The skin contains sensory receptors**, which send information to the nervous system.



6 - 49

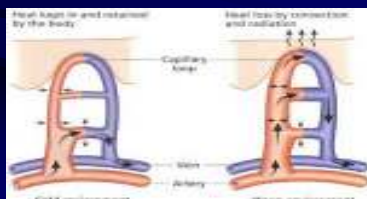
- D. **The skin produces vitamin D** following exposure to UV radiation. (Vitamin D is used to produce a hormone that controls bone development)



6 - 50

- E. **The skin helps regulate body temperature** with the hypothalamus controlling it by

- dilating/constricting blood vessels,
- activating sweat glands, and
- contracting arrector pili muscles.



6 - 51