

5 The Integumentary System

Chapter Summary

The skin covers the entire surface of the body and is composed of two regions, an outermost epidermis and a dermis. The hypodermis is located below the dermis. The epidermis is composed of stratified squamous epithelium and functions to keep the skin waterproof, and protect the underlying tissues. The cells of the epidermis also give rise to the accessory structures of the skin, which are hair, nails, and glands. The dermis contains connective tissue, blood vessels, and nerves. The hypodermis region is composed mainly of loose connective tissue and adipose (fat) tissue which serves as an energy store and insulates the body from heat and cold. The skin houses many sensory receptors and also functions to protect the body from physical trauma, bacterial invasion, and fluid loss or gain, while helping to regulate body temperature and synthesizing vitamin D. Skin cancer and burns are discussed in this chapter. Burns are classified by depth and extent. By depth, burns are classified as first-degree burns, which affect only the epidermis; second-degree burns, which affect the epidermis and part of the dermis; and third-degree burns, which affect the entire epidermis and dermis. The skin's ability to heal is also discussed.

Chapter Outline

- I. Structure of the Skin
 - A. Epidermis
 - 1. Stratum Basale
 - 2. Stratum Corneum
 - B. Dermis
 - C. Hypodermis
- II. Accessory Structures of the Skin
 - A. Hair and Nails
 - B. Glands
 - 1. Sweat Glands
 - 2. Sebaceous Glands
 - 3. Mammary Glands
- III. Disorders of the Skin
 - A. Skin Cancer
 - B. Burns
 - C. Wound Healing
- IV. Homeostasis
 - A. Functions of the skin
 - 1. Hyperthermia and Hypothermia

Suggested Student Activities

1. Investigate the effects of tanning on the skin.
2. Use the rule of nines to estimate the extent of various hypothetical burns.
3. Label cross-sectional diagrams of the skin.

Answers to Objective Questions

1. b
2. c
3. a
4. b
5. b
6. hair follicles, sebum
7. temperature
8. physical, bacterial, fluid
9. D
10. depth, extent
11. melanoma, basal cell carcinoma

Answers to Medical Terminology Reinforcement Exercise

1. epidermo/myc/osis - condition of fungal infection of epidermis (upon the skin)
2. melano/genesis - formation of melanin (black/pigment)
3. acro/dermat/osis - condition of skin of extremities (hands and feet)
4. pilo/nidal cyst - “nest of hair” in a dermoid cyst (found near the coccyx)
5. mammo/plasty - to form or shape the breast (may be augmentation or reduction)
6. anti/pyretic - against fever (medication used to reduce fever)
7. derma/tome - an instrument to cut skin (used to take skin for grafting)
8. hypo/derm/ic - pertaining to below the skin (injection beneath the skin)
9. onycho/crypt/osis - condition of hidden (ingrown) hair
10. hyper/hydr/osis - condition of excessive sweating
11. sclero/derma - hardened skin
12. pilo/erection - hair standing upright
13. cellul/itis - inflammation of tissue
14. dermat/itis - inflammation of skin
15. rhytido/pathy - wrinkling due to disease
16. tricho/pathy - disease of hair

Audiovisual Materials

1. Models of the Skin (Concept Media)
2. Charts of the Skin (Concept Media)