Structure and Function

• Integumentary system is composed of the skin and accessory structures

• Functions of the integumentary system
  – Protects the other body systems from injury and infection
  – Helps the body maintain homeostasis by regulating temperature, retaining body fluids, and eliminating wastes
Figure 9-1 Skin Structures

- Epidermis
- Dermis
- Subcutaneous
- Hair shaft
- Pore
- Melanocyte
- Nerve cell
- Sebaceous gland
- Arrector pili muscle
- Sudoriferous gland
- Blood vessel
- Hair root

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Skin

• The largest organ of the body
• Varies in thickness from 1/50 inch (0.5 mm) in the eyelids to 1/4 inch (6.3 mm) in the soles of the feet
• Changes in the skin often indicate the presence of other body system disorders including anemia, respiratory disorders, liver disorders, cancer, and shock
Layers of Skin

• Epidermis
  - Outermost layer of the skin that is composed of a surface of dead cells with an underlying layer of living cells

• Dermis
  - Called the “true” skin; the dermis contains the blood vessels and nerves
Hair and Hair Follicles

- Skin has hair in all areas except the soles of the feet and palms of the hands.
- Hair serves to block foreign particles from entering the body through structures such as the nose and eyes.
- The visible portion is called the shaft.
- The hair follicle is the root with its covering.
Glands

• Three types of glands in the skin
  – Sebaceous glands (oil)
  – Sudoriferous glands (sweat)
  – Ceruminous glands

• Function is to help regulate the body temperature and excrete body wastes

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Disorders of the Integumentary System

- Acne vulgaris
  - Caused by increased secretion of oil related to increased hormones during puberty
- Albinism
  - Inherited disorder in which melanin is not produced
- Alopecia
  - Baldness
- Athlete’s foot
  - Contagious fungal infection of the foot
Disorders of the Integumentary System (continued)

- Cellulitis
  - Bacterial infection of the dermis and subcutaneous layer of the skin
- Chloasma
  - Patchy discoloration of the face
- Cleft lip or cleft palate
  - Upper lip has a cleft where the nasal palate doesn’t meet properly
- Contact dermatitis
  - Allergic reaction that may occur after initial contact or as an acquired response
Disorders of the Integumentary System (continued)

- **Dandruff**
  - White flakes of dead skin cells from the scalp

- **Decubitus ulcers**
  - Sores or areas of inflammation that occur over bony prominences of the body

- **Eczema**
  - Group of disorders caused by allergic or irritant reactions

- **Fungal skin infections**
  - Skin infections that live on dead outer surface or epidermis
Disorders of the Integumentary System (continued)

- Furuncle
  - Boil, or bacterial infection of a hair follicle
- Hirsutism
  - Abnormal amount of hair growth in unusual places
- Impetigo
  - Very contagious bacterial skin infection that occurs most often in children
- Kaposi’s sarcoma
  - Form of cancer that originates in blood vessels and spreads to skin

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Disorders of the Integumentary System (continued)

- Lupus
  - Benign dermatitis or chronic systemic disorder
- Psoriasis
  - Chronic skin disorder in which too many epidermal cells are produced
- Rashes
  - May result from viral infection, especially in children
- Scleroderma
  - Rare autoimmune disorder that affects blood vessels and connective tissues of the skin
Disorders of the Integumentary System (continued)

• Skin cancer
  – Three forms are basal, squamous, and melanoma

• Skin lesions
  – Differ in texture, color, location, and rate of growth

• Streptococcus
  – Nonmotile bacteria that affect many parts of the body
Disorders of the Integumentary System (continued)

• Vitiligo
  – Condition that causes loss of pigment in the skin
• Wart
  – Papule caused by a viral infection
Issues and Innovations

• Skin and hair care
  – Skin care products include soap, astringents, and cosmetics
  – Ways to remove hair include wax, depilatory creams, and electrolysis

• Sun and skin cancer
  – Damage by ultraviolet rays
  – Types of skin cancer