Lesson 4.1 Objectives

- Discuss anatomic structures and physiologic processes related to the integumentary system.
- Contrast and compare primary and secondary skin lesions.

Integumentary System Overview

- The integumentary system includes the skin and its accessory structures:
  - Hair
  - Nails
  - Various glands
  - Various muscles
  - Various nerves

Integumentary System Overview (cont’d.)

- The skin is divided into two distinct regions:
  - Epidermis
  - Dermis

Integumentary System Overview (cont’d.)

- The epidermis is the most superficial skin layer and contains:
  - Keratinocytes (skin cells)
  - Melanocytes (contribute to skin color)
  - Nails
  - Pores (allow passage for hair and glands)

Integumentary System Overview (cont’d.)

- The dermis is beneath the epidermis and contains:
  - Blood vessels
  - Sensory nerve receptors
  - Collagen
  - Elastin
Integumentary System Overview
(cont'd.)

- Subcutaneous layer:
  - Beneath the dermis
  - Also known as superficial fascia or hypodermis
  - Not part of the skin but anchors skin to underlying tissues and organs

Integumentary System Overview
(cont'd.)

- Skin functions:
  - Protection
  - Absorption
  - Sensory reception
  - Temperature regulation
  - Vitamin D production

Integumentary System Overview
(cont'd.)

- Hairs:
  - grow from follicles
  - protect scalp, eyes, nostrils, ears
  - have touch receptors (activated by hair movement)
  - arrector pili muscle (erect hairs)

Integumentary System Overview
(cont'd.)

- Nails:
  - are plates of tightly packed epidermis cells
  - help when grasping and manipulating objects
  - protect ends of fingers and toes
  - enable scratching to remove irritants

Dermatologic Pathologies

- Skin lesions
  - Defined as any deviation from the norm
  - Two categories
    - Primary variation in skin color or texture (ex. freckle, blister)
    - Secondary: develops from a primary lesion, disease progression, or external forces (ex. ulcer, scar)
  - Differentiations not always clear

Image references:
Dermatologic Pathologies (cont’d.)

- Primary skin lesions
  - Macule
  - Patch
  - Papule
  - Plaque
  - Wheal
  - Nodule
- Secondary skin lesions
  - Tumor
  - Vesicle
  - Bulla
  - Pustule
  - Cyst
  - Telangiectasia

Dermatologic Pathologies (cont’d.)

- Secondary skin lesions
  - Atrophy
  - Scar
  - Scale
  - Lichenification
  - Crust
  - Erosion
  - Excoriation
  - Ulcer
  - Fissure
  - Purpura
    - Petechiae
    - Ecchymoses

Lesson 4.2 Objectives

- Define bacterial skin infections and list appropriate massage considerations.
- Identify fungal skin infections and list appropriate massage considerations.
- Name viral infections that affect the skin and state appropriate massage considerations.

Lesson 4.2 Objectives (cont’d.)

- Discuss inflammatory skin conditions and list appropriate massage considerations.
- List materials and chemicals known to cause contact dermatitis.

Bacterial Skin Infections

- Acne
- Impetigo
- Paronychia
- Folliculitis
- Boils (furuncles and carbuncles)
- Cellulitis
- Erysipelas

Acne

- Inflammatory infection of hair follicles and associated sebaceous glands
- Presence of comedos, papules, and pustules
  - Blackheads: open comedos
  - Whiteheads: closed comedos
- Local contraindication
**Acne (cont’d.)**


**Impetigo**

- Infection around mouth, nose and hands
- Vesicles or pustules itch or burn then burst, leaving fluid that dries to form a crust
- Massage is postponed until areas have completely healed

From Habif T: Clinical dermatology: a color guide to diagnosis and therapy, ed 4, St. Louis, 2004, Mosby.

**Impetigo (cont’d.)**

**Paronychia**

- Infection surrounding the nail
- Affected area is red, swollen, painful and tender; nail plate can be discolored or deformed
- Local contraindication


**Folliculitis**

- Inflammation limited to hair follicles
- Pustular rash with surrounding redness
- Local contraindication


**Boil (Furuncle and Carbuncle)**

- Infection of hair follicles and surrounding areas
- Painful, tender, red, firm, swollen; abscess formation
- Local contraindication

Cellulitis and Erysipelas

- Infection of skin and subcutaneous tissues; erysipelas is a superficial form of cellulitis
- Swelling, redness, warm and tender skin
- Local contraindication in localized cases; absolute contraindication in widespread cases

Fungal Skin Infections

- Ringworm
- Athlete’s foot
- Jock itch
- Nail fungus

Ringworm (Tinea corporis)

- Fungal skin infection
- Red, raised, round/oval scaling area with a clear center
- Massage is contraindicated

Athlete’s Foot (Tinea pedis)

- Fungal infection of the foot
- Skin discoloration with a ridge of red tissue
- Local contraindication

Nail fungus (Tinea unguium)

- Infection of the nails
- Nails become yellow or white, raised, thickened and brittle
- Local contraindication
Jock Itch (*Tinea cruris*)
- Fungal infection in groin area
- Local contraindication if widespread (inner thighs, buttocks)

Viral Skin Infections
- Cold sores and fever blisters
- Chickenpox
- Shingles
- Warts

Cold Sore and Fever Blister
- Recurrent infection of skin and mucous membranes from HSV
- Painful, fluid-filled vesicles; usually around mouth
- Absolute contraindication

Chickenpox
- Acute infection: affects mostly children
- Itchy, widespread rash of fluid-filled blisters that erupt and crust over
- Massage is contraindicated

Shingles
- Reactivated varicella-zoster virus
- Painful vesicles in bandlike pattern along dermatomes
- Massage is contraindicated

Shingles (cont'd.)
- Dermatome map:


**Wart**
- Small, benign mass from rapid skin growth
- Caused by HPV
- Local contraindication

**Inflammatory Skin Disorders**
- Eczema
- Contact dermatitis
- Seborrheic dermatitis
- Psoriasis
- Rosacea
- Pityriasis rosea
- Lichen planus
- Scleroderma
- Hives

**Eczema**
- Chronic inflammatory disorder
- Dry skin, scaling, may itch or burn
- Adjust pressure over sensitive areas and avoid areas of broken skin

**Psoriasis**
- Accelerated proliferation of epidermal cells
- Elevated, thick, red skin covered with silver-white scales; dry plaques
- Adjust pressure over sensitive areas and avoid areas of inflamed or broken skin

**Contact Dermatitis**
- Inflammatory skin condition; types are irritant and allergic
- Rash with redness, swelling, and small vesicular lesions
- Local contraindication in localized cases; absolute contraindication in widespread cases
Seborrheic Dermatitis

- Chronic inflammatory condition of sebaceous glands
- White to yellow, greasy-appearing scales
- Adjust pressure over hypersensitive areas

Rosacea

- Progressive inflammatory skin disease
- Persistent redness usually in middle third of face
- Adjust pressure over sensitive areas; avoid areas containing pustules

Pityriasis Rosea

- Self-limiting, occurs most often in winter
- Begins with a single lesion (herald patch) spreading to a more generalized rash
- Local contraindication in hypersensitive and inflamed areas

Lichen Planus

- Self-limiting
- Rash of flat-topped, red- to violet-colored polygonal papules
- Local contraindication in hypersensitive and inflamed areas

Scleroderma

- Autoimmune disease causing overproduction of collagen
- Skin appears hard, shiny, and stretched across bones
- Massage indicated; adjust pressure in sensitive or numb areas

Hives (Urticaria)

- Inflammation, edema, wheals; severe itching
- Most often cause is unidentified
- Massage is contraindicated in acute cases; avoid affected area in chronic cases
Lesson 4.3 Objectives

- Contrast and compare lice and mites.
- Define miscellaneous skin injuries and discuss other skin disorders.
- Delineate types of skin pigmentation.
- Name benign and premalignant skin proliferations and determine their appropriate massage considerations.

Lice and Mites

- Lice
- Scabies

Lice

- Contagious parasitic infestation
- Presence of nits on hair shaft; rash on scalp, neck and shoulders
- Massage is contraindicated

Scabies

- Contagious burrowing parasitic mite infestation
- Rash of thin, tiny, light brown lines in skin creases
- Massage is contraindicated

Skin Injuries

- Bruises
- Burns
- Stretch marks
- Scars
- Corns and calluses
- Decubitus ulcers

Bruise

- Injury that does not break the skin; usually induced by mechanical trauma
- Swelling, discoloration (blood leaked from broken vessels), tenderness, pain
- Avoid the area until it begins to turn greenish-yellow; adjust pressure over sensitive areas
**Burns**

- Skin injury caused by heat, cold, radiation, chemicals, electricity, or friction
- First-degree burn: damage to epidermis
- Second-degree burn: damage to epidermis and upper layers of dermis
- Third-degree burn: destruction of epidermis, dermis, follicles, skin glands
- Postpone massage until affected area completely heals; adjust pressure over sensitive or numb areas

**Burns (cont’d.)**

- First degree burn
- Second degree burn
- Third degree burn

**Rule of Nines**

![Rule of Nines diagram](image)

**Stretch Marks**

- Tearing, thinning, for overstretching of skin; reduces its thickness
- Red-pink streaks that eventually turn silvery white
- Reduce pressure over affected areas

**Scars**

- Mark left on damaged skin after it is healed
- Can be flat and pale, slightly elevated, or form depressions; two types of abnormal scars caused by excess collagen production are:
  - Hypertrophic (raised)
  - Keloid (raised and extend beyond boundaries of original wound)
- Postpone massage until the area completely heals; adjust pressure over sensitive areas

**Scars (cont’d.)**


From Judd RL, Ponsell PP: First responder, ed 2, St. Louis, 1988, Mosby.
**Corn and Callus**

- Skin thickening from repeated friction or pressure
  - Corn: top and sides of toe
  - Callus: hands or sides and soles of the feet
- Adjust pressure or avoid affected area

**Decubitus Ulcer**

- Caused by local ischemia on area subjected to prolonged pressure
- Classified in four stages (I, II, III, IV)
- Signs and symptoms dependant on stage of severity
- Avoid affected area within a 4-inch radius around ulcer’s edge

**Decubitus Ulcer (cont’d.)**

- Stage I
- Stage II
- Stage III
- Stage IV

**Other Skin Disorders**

- Ichthyosis vulgaris
- Epidermal cyst
- Skin pigmentations

**Ichthyosis Vulgaris**

- Disruption of skin cell generation and removal
- Causes skin thickening and scaling
- Use emollient cream and adjust pressure over sensitive areas; avoid areas of broken skin

**Epidermal Cyst**

- Benign pouch filled with keratinous material
- Located beneath the skin, easily palpable, and usually mobile
- Local contraindication
Skin Pigmentations

- Birthmarks (Moles, café-au-lait spots, Mongolian blue spots, beauty marks)
- Hemangiomas (Strawberry and cherry hemangiomas, port wine stains, stork bites, angel's kiss)
- Age spots (solar lentigo, senile lentigo, liver spots)

Skin Pigmentations

- Freckles (ephelis)
- Melasma (chloasma, mask of pregnancy)
- Albinism (hypopigmentation)
- Vitiligo (leukoderma)

Benign and Premalignant Skin Proliferations

- Actinic keratosis
- Seborrheic keratosis
- Skin tags

Skin Tags

- Benign skin growths
- Resemble tiny flaps of skin attached by a narrow stalk
- Adjust pressure if affected area is sensitive

Actinic Keratosis

- Premalignant; found on sunlight-exposed skin
- Yellow, brown, or red lesions; rough scaly surface
- Local contraindication