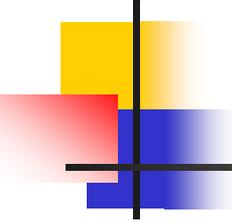


Integumentary System

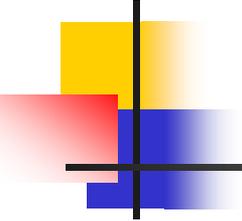
Williams & Hopper
Chapter 50



Integumentary System

Anatomy & Physiology (Review)

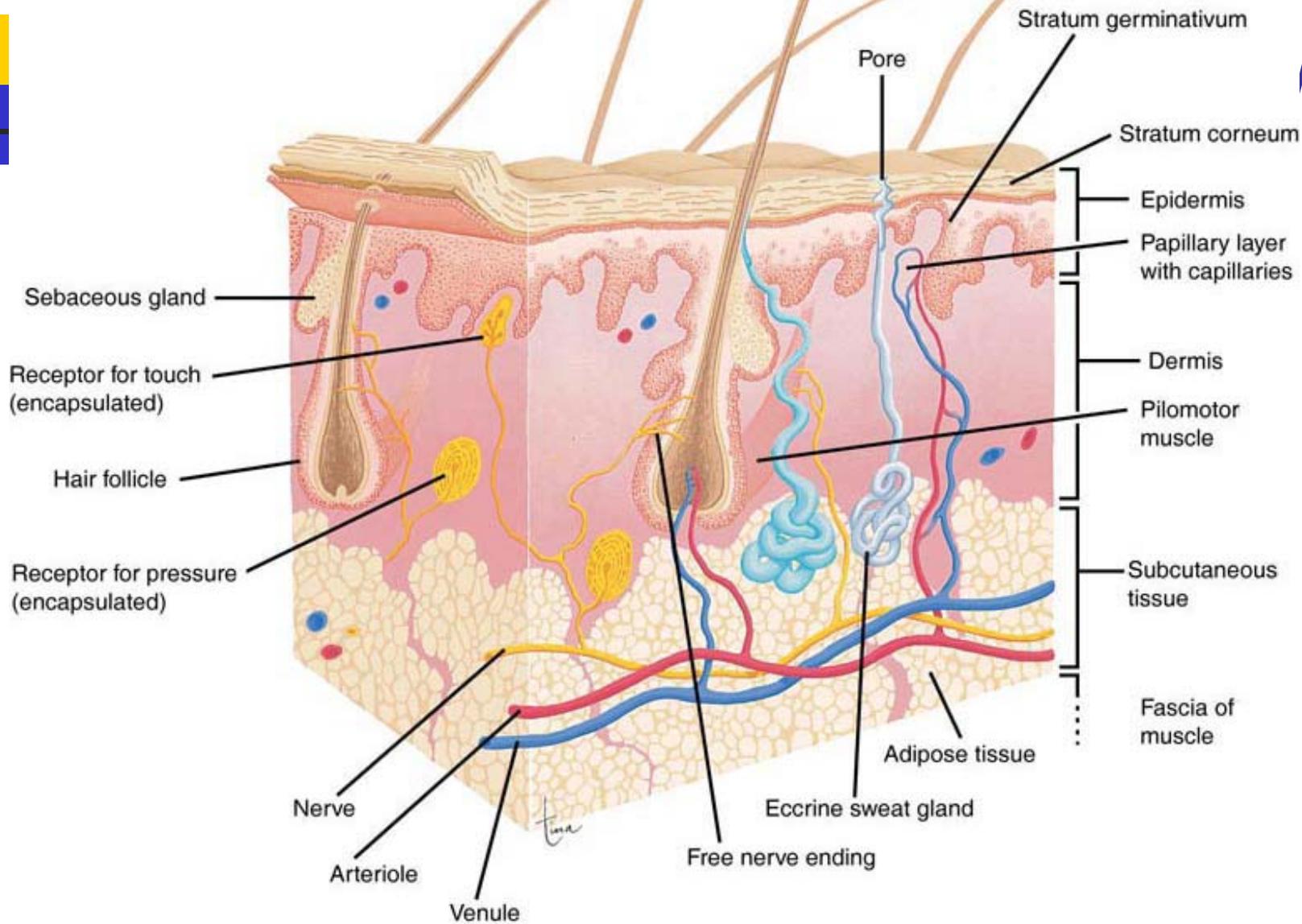
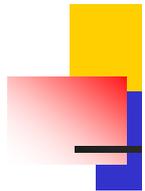
- Composition
 - Skin
 - Accessory structures
 - Hair
 - Nails
 - Nerve endings
 - Sebaceous glands
 - Sweat glands
 - Blood vessels
 - Subcutaneous tissue

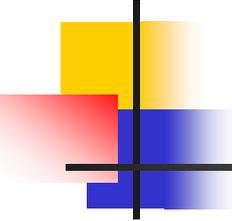


Integumentary System

Anatomy & Physiology (Review)

- Separates internal & external environment
- Considered an organ
- Two layers
 - Outer epidermis
 - Inner dermis

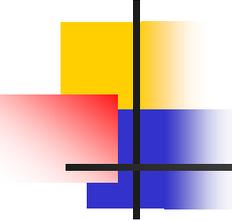




Integumentary System

Anatomy & Physiology (Review)

- Functions
 - Protection
 - Barrier against outside
 - Against dehydration
 - Body temperature regulation
 - Cutaneous sensation
 - Metabolic functions
 - Blood reservoir
 - Excretion



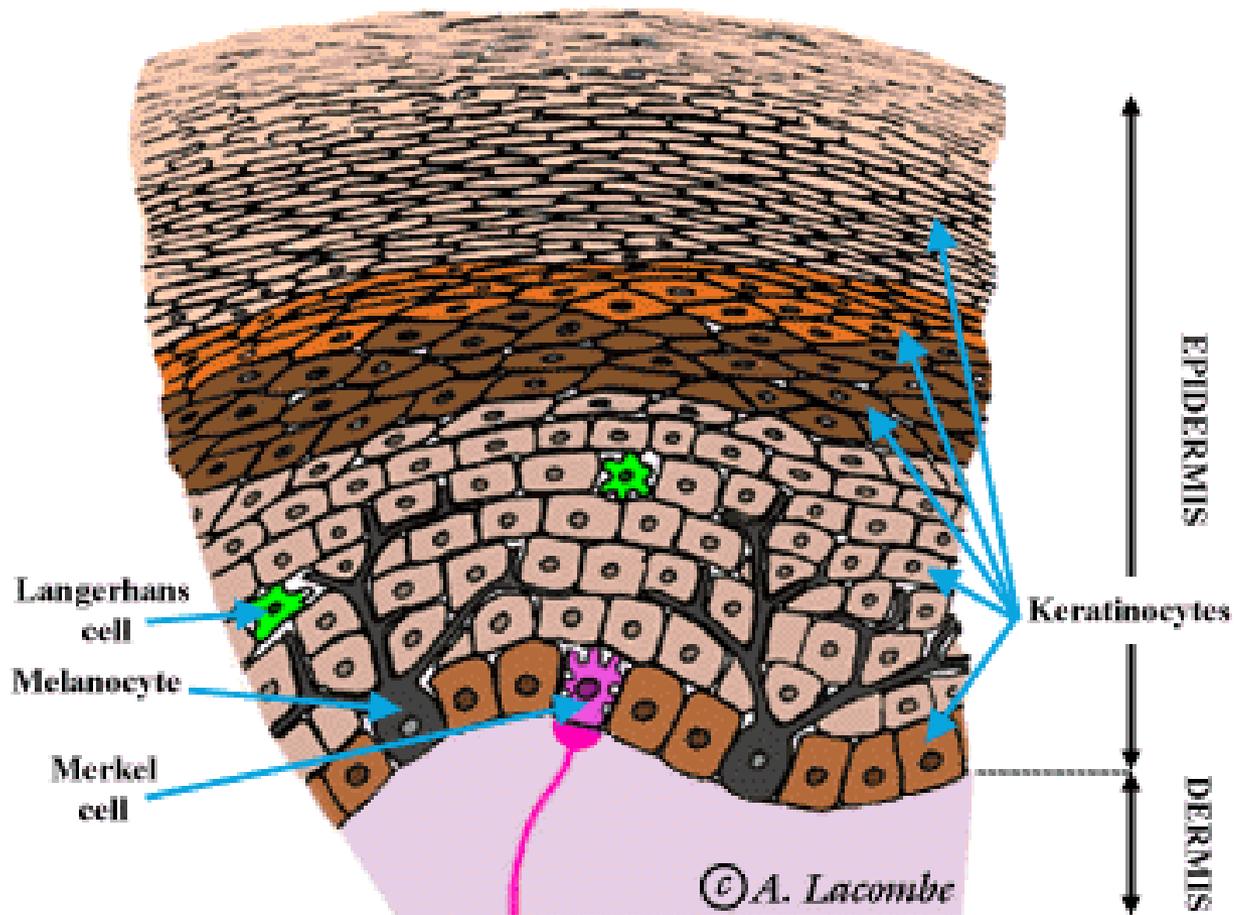
Integumentary System

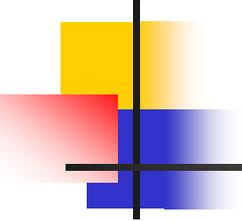
Epidermis

- Keratinized stratified squamous epithelium
- Thickness
 - 0.07 - 0.12 mm over most body
 - 0.8 mm on palms
 - 1.4 mm on soles
- Surface layer
 - Consists of dead cells
 - Rich in keratin

Integumentary System

Cells of Epidermis





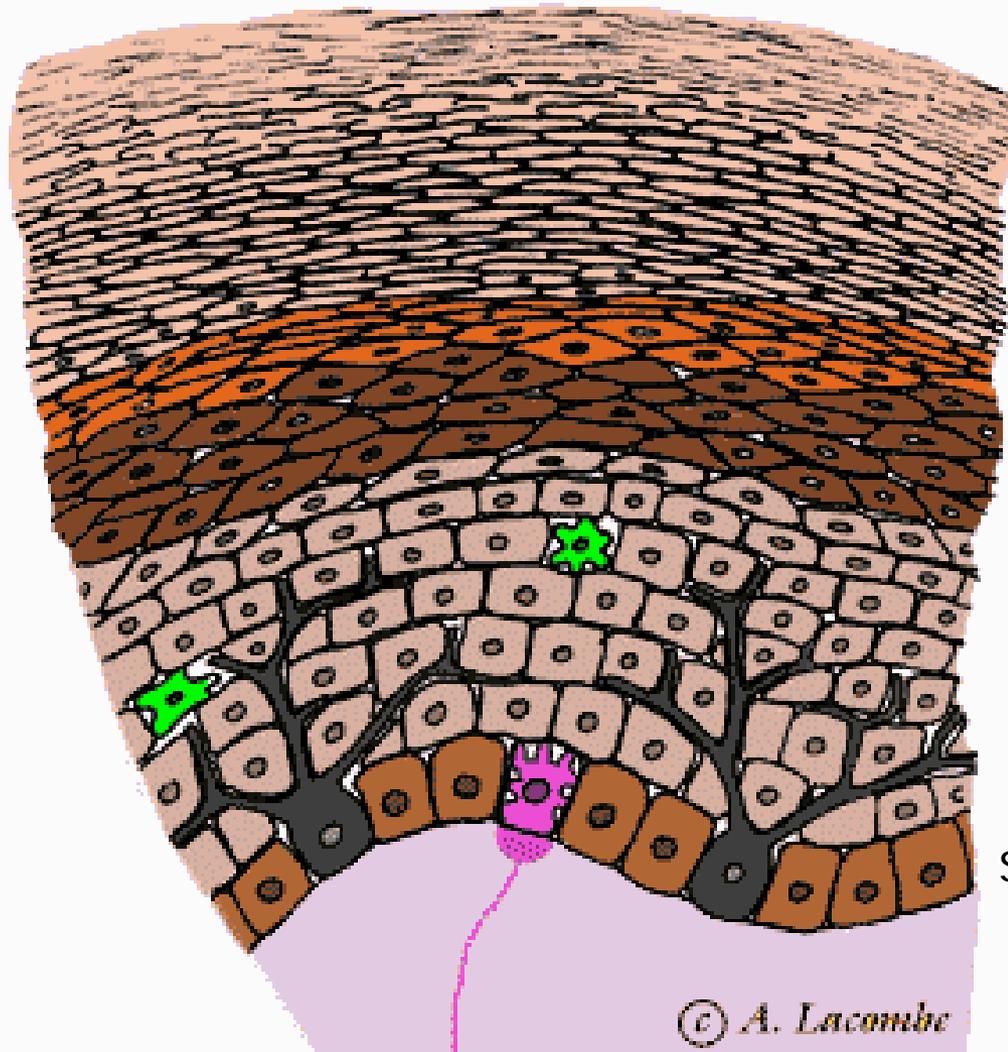
Integumentary System

Cells of Epidermis

1. Keratinocytes
 - Make up most of epidermis
 - Produce keratin
2. Merkel cells
 - Sensory receptors for touch
3. Melanocytes
 - Synthesize melanin
4. Langerhans cells
 - macrophages

Integumentary System

Layers of Epidermis



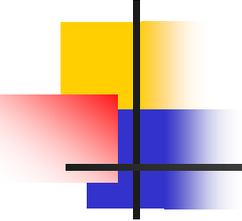
Stratum corneum

Stratum lucidum

Stratum granulosum

Stratum spinosum

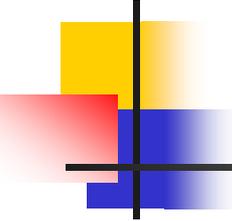
Stratum germinativum



Integumentary System

Layers of Epidermis

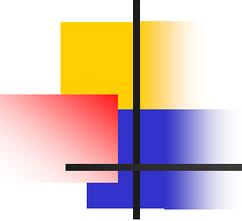
- Stratum basale (stratum germinativum)
 - Deepest layer
 - Consists of one row of cuboidal to columnar cells
 - 10 –25% cells are melanocytes
 - Occasional merkel cell



Integumentary System

Layers of Epidermis

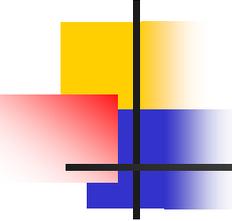
- Stratum spinosum
 - 8-10 layers thick
 - Contain keratinocytes
 - Contain thick bundles of filaments
 - Resist tension
 - Langerhans' cells
 - Scattered among keratinocytes
 - Most abundant in this layer



Integumentary System

Layers of Epidermis

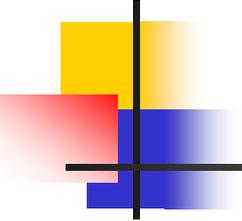
- Stratum granulosum
 - Keratinization process begins
 - Cells begin to die
 - Contain granules
 - Precursor of keratine



Integumentary System

Layers of Epidermis

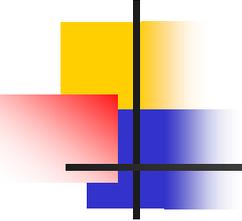
- Stratum lucidum
 - Only found thickened areas
 - Sole of feet
- Stratum corneum
 - Outermost layer
 - Composed of dead, flat, keratinized cells



Integumentary System

Dermis

- “True skin”
- Composed of fibrous connective tissue
 - Fibroblasts – individual cells
 - Produce collagen
 - Very strong
 - Bulk of dermis
 - Produce elastin
 - Capable of recoil
 - Allow dermis to stretch



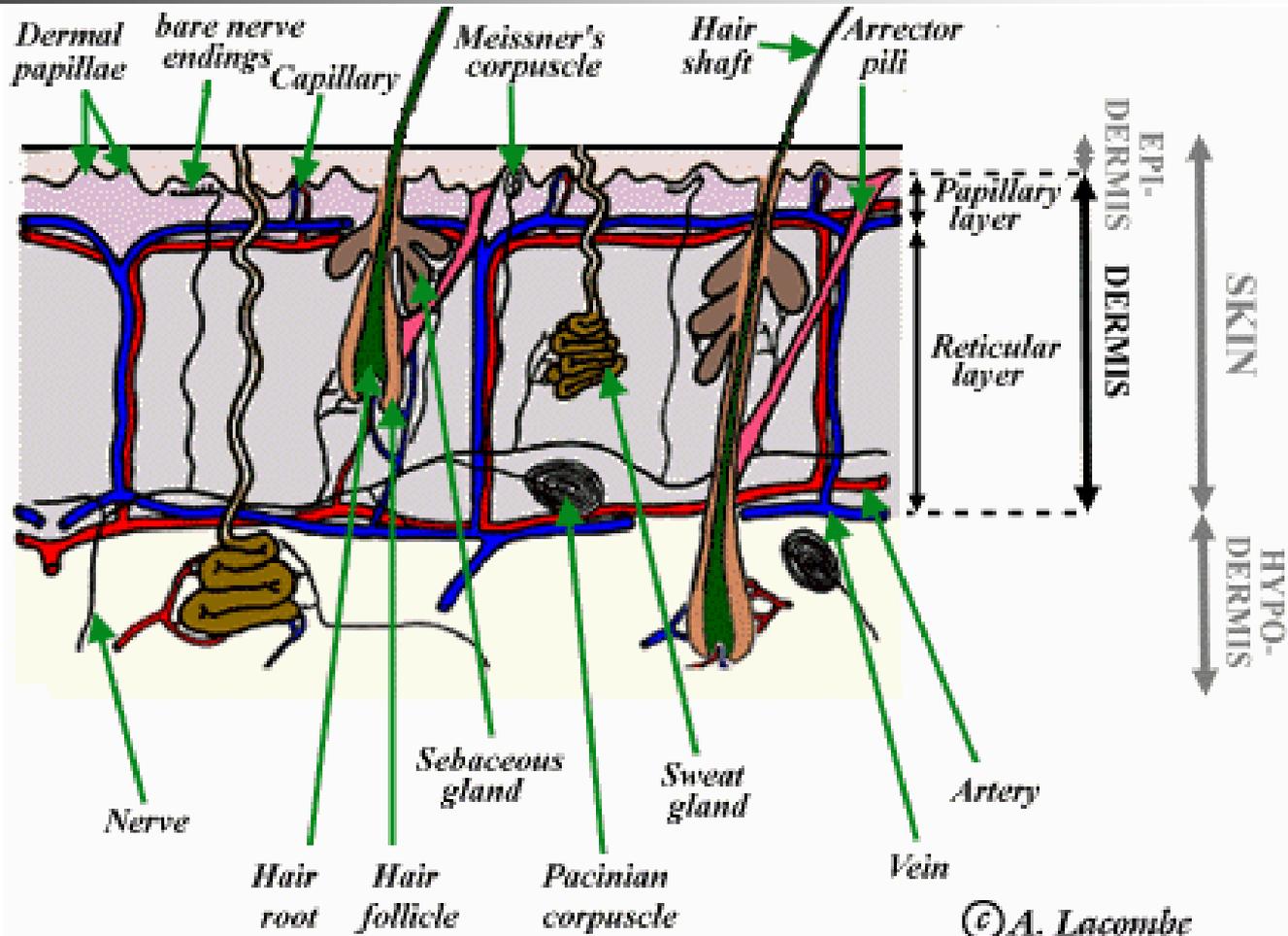
Integumentary System

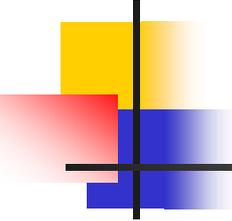
Dermis

- Contain
 - Hair
 - Nail follicles
 - Glands
 - Nerve endings
 - Blood vessels

Integumentary System

Dermis

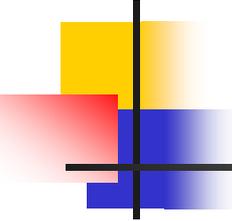




Integumentary System

Dermis

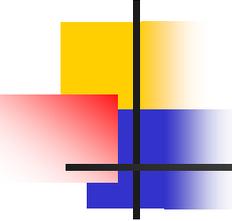
- Composed of two layers
 - Papillary layer
 - Outer layer
 - Closest to epidermis
 - Contain capillaries
 - Nourish the stratum germinativum (basale)
 - Make fingerprint
 - Reticular layer
 - Deepest & thickest layer
 - Provide strength & elasticity
 - Rich supply of blood vessels, nerves & sensory endings



Integumentary System

Appendages

- Hair
- Nails
- Receptors
- Sebaceous glands
- Sweat (sudoriferous) glands
- Blood vessels



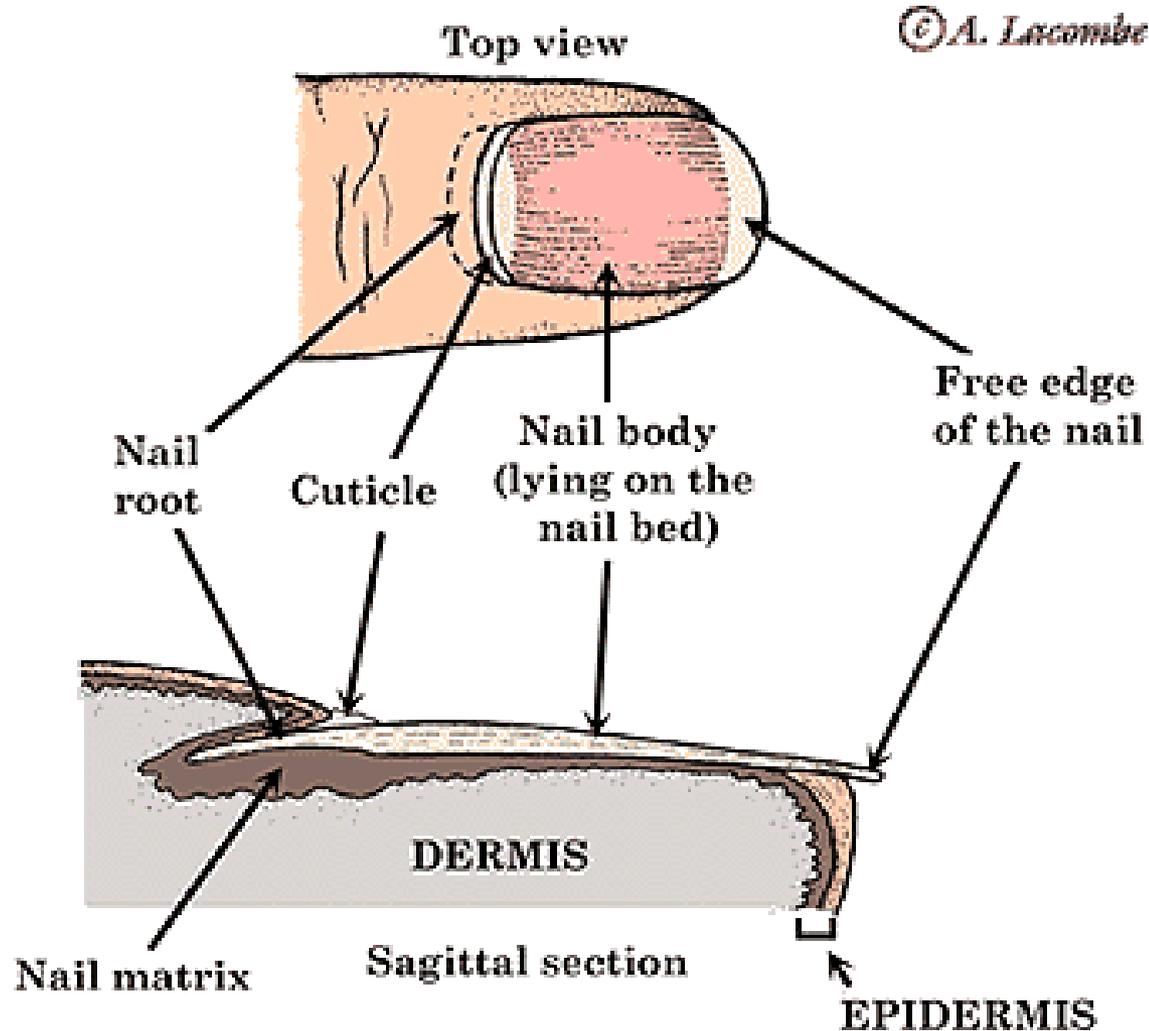
Integumentary System

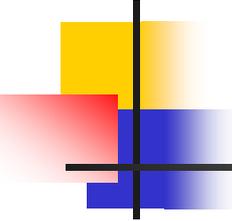
Appendages - Hair

- Develops in follicles
- Hair root
 - Located at base of follicle
 - Undergoes mitosis to produce hair shaft
- Function
 - Protection
- Growth = ~ 5 inches/year

Integumentary System

Appendages - Nails

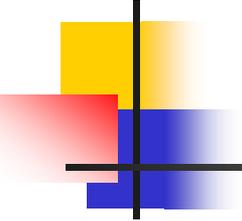




Integumentary System

Appendages - Nails

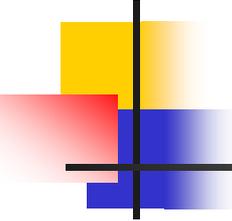
- Composed of 3 regions
 - Nail root
 - Continuous mitosis – new cell production
 - Old cells die – form visible nail
 - Nail body
 - Visible portion
 - Free edge
 - Extends past the fingertip



Integumentary System

Appendages - Receptors

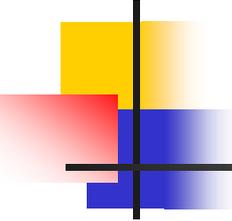
- Sensory receptors
 - Located in dermis
 - Allow for cutaneous sense of feel
- Pain receptors
 - Free nerve endings
- Encapsulated nerve endings
 - Specific for touch, pressure, temperature



Integumentary System

Appendages – Sebaceous Glands

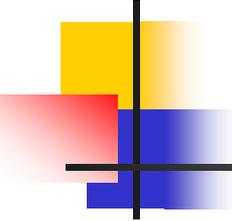
- Secrete sebum
 - Oily product
 - Natural skin cream
- Ducts open into hair follicle or certain areas of skin
- Ceruminous glands
 - Modified sebaceous glands
 - Secrete cerumen



Integumentary System

Appendages – Sudoriferous Glands

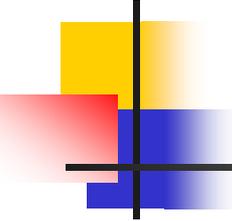
- Sweat glands
- Two types
 - Apocrine
 - Eccrine
- Ceruminous glands
 - Modified sweat glands
 - Secrete cerumen (ear wax)



Integumentary System

Appendages – Blood vessels

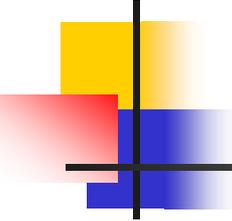
- Provide tissue nourishment
- Arterioles
 - Maintain body temperature
 - Constriction in cold
 - Dilatation in heat



Integumentary System

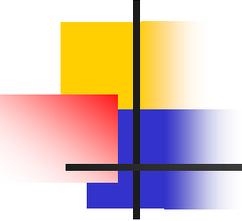
Appendages – Subq Tissue

- Between dermis & muscle
- Composed of areolar connective & adipose tissue
- Contain numerous WBC
 - Destroy pathogens entered in broken skin
- Cushions bones
- Provides insulation
- Store site for excess nutrients



Aging

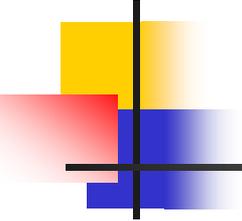
1. Cell division slows
2. Skin becomes thinner and more fragile
3. Collagen and elastin fibers deteriorate
4. Sebaceous and sweat glands decrease activity
5. Less subcutaneous fat
6. Hair follicles become inactive
7. Melanocytes die



Nursing Assessment

Health History

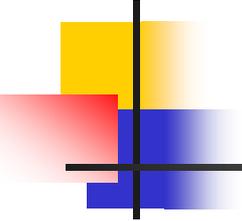
- Primary or secondary problem?
- Refer to Table 50 – 1 (Williams & Hopper, pg 940)
- WHATSUP



Nursing Assessment

Physical Assessment

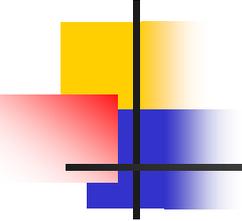
- Involves entire skin, hair, nails, scalp & mucous membranes
- Normal findings
 - Skin intact with no abrasions
 - Smooth, dry, well hydrated, warm
 - Firm, elastic skin turgor
 - Color - fleshtone



Nursing Assessment

Physical Assessment

- Inspection
 - Color
 - Pallor
 - Erythema
 - Jaundice
 - Cyanosis
 - Brown color



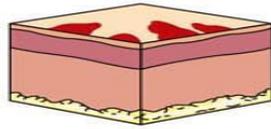
Nursing Assessment

Physical Assessment

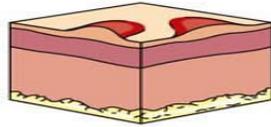
- Inspection (cont.)
 - Lesions
 - Change or injury
 - Primary
 - Initial reaction to disease process
 - Secondary
 - Changes occurring in primary lesion
 - Due to trauma, infection etc.

PRIMARY LESIONS**Macule:**

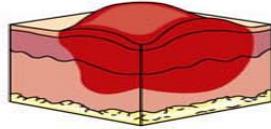
Flat, nonpalpable change in skin color, with different sizes, shapes, color; usually smaller than 1 cm. (e.g. rubella, scarlet fever freckles)

**Papule:**

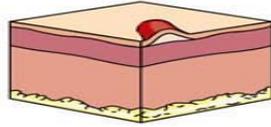
Palpable solid raised lesion that is less than 1 cm. in diameter due to superficial thickening in the epidermis. (e.g. ringworm, rosea, wart, mole)

**Nodule:**

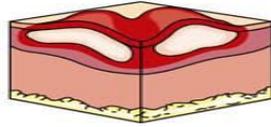
Solid elevated lesion that is larger and deeper than a papule (e.g. fibroma, intradermal nevi)

**Vesicle:**

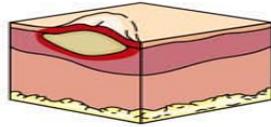
A small, blister-like raised area of the skin that contains serous fluid, up to 1 cm. in diameter (e.g. poison ivy, shingles, chicken pox)

**Bulla:**

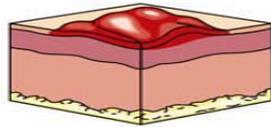
A fluid-filled vesicle or blister larger than 1 cm. (e.g. burns, contact dermatitis)

**Pustule:**

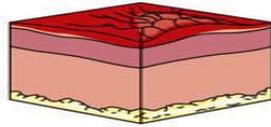
Small elevation of skin or vesicle or bulla that contains lymph or pus (e.g. impetigo, scabies, acne)

**Wheal:**

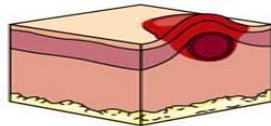
Round, transient elevation of the skin caused by dermal edema and surrounding capillary dilatation; white in center and red in periphery. (e.g. hives, insect bites)

**Plaque:**

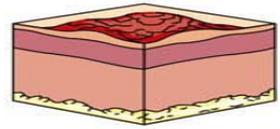
A patch or solid, raised lesion on the skin or mucous membrane that is greater than 1 cm. in diameter (e.g. psoriasis)

**Cyst:**

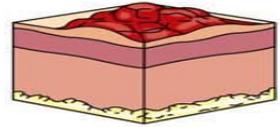
A closed sac or pouch which consists of semisolid, solid, or liquid material (e.g. sebaceous cyst)

**SECONDARY LESIONS****Scales:**

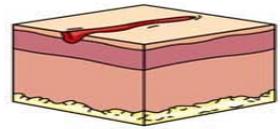
Dry exfoliation of dead epidermis that may develop as a result of inflammatory changes (e.g. very dry skin, cradle cap, psoriasis)

**Crusts:**

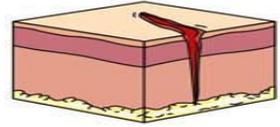
A scab formed by dry serum, pus, or blood (e.g. infected dermatitis, impetigo)

**Excoriations:**

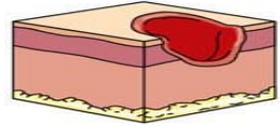
Traumatized abrasions of the epidermis or linear scratch marks (e.g. scabies, dermatitis, burns)

**Fissure:**

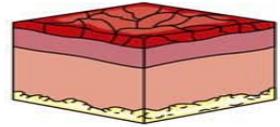
A slit or cracklike sore that extends into dermis usually due to continuous inflammation and drying (e.g. athlete's foot, anal fissure)

**Ulcer:**

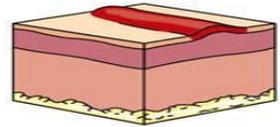
An open sore or lesion that extends to the dermis (e.g. pressure sores)

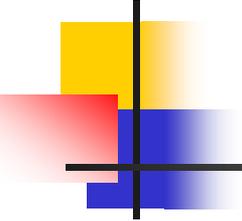
**Lichenification:**

Thickening and hardening of skin from continued irritation such as intense scratching looks like surface of mass.

**Scar:**

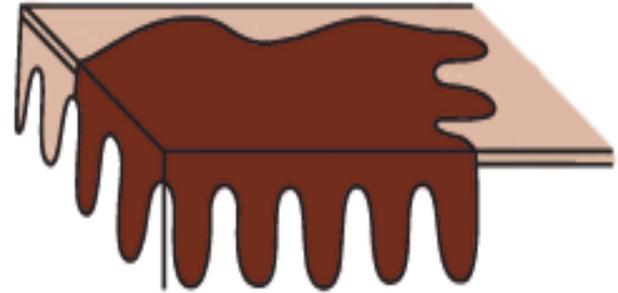
A mark left in the skin due to fibrotic changes following healing of a wound or sore or surgical incision.

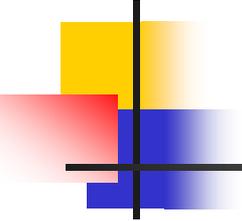




Macule

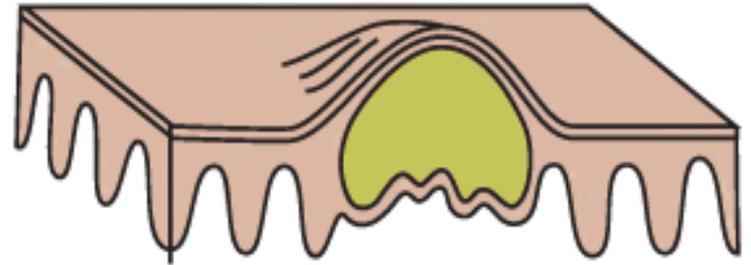
- A flat, nonpalpable change in skin color with different sizes, shapes, color; usually smaller than 1 cm.

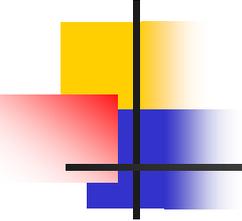




Papule

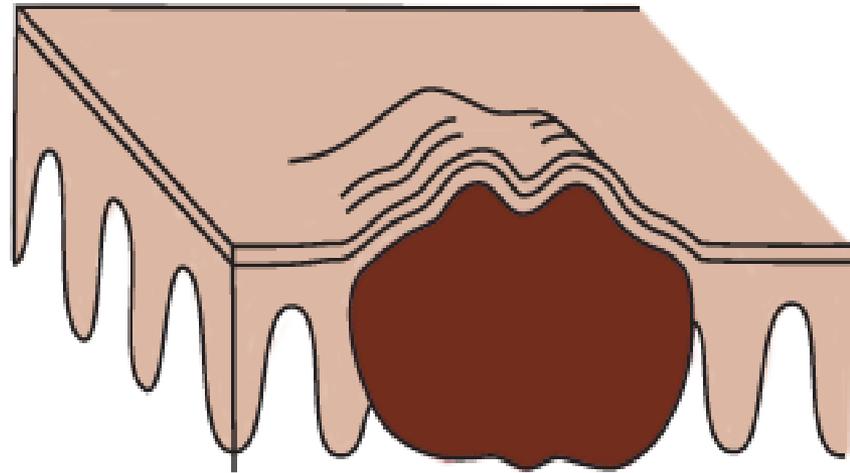
- Palpable solid raised lesion that is less than 1 cm. In diameter due to superficial thickening in the epidermis.

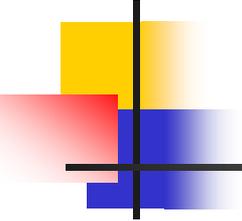




Nodule

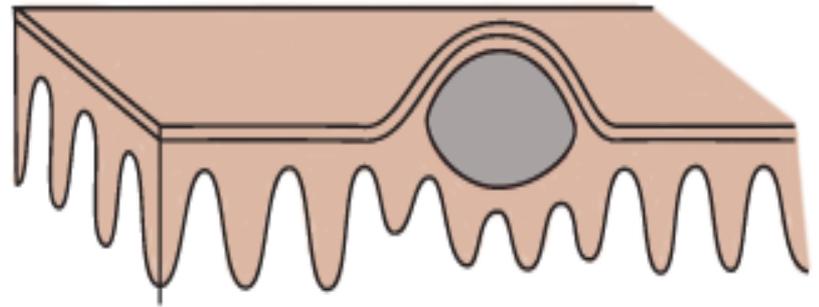
- Solid elevated lesion that is larger and deeper than a papule.

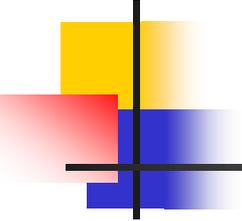




Vesicle

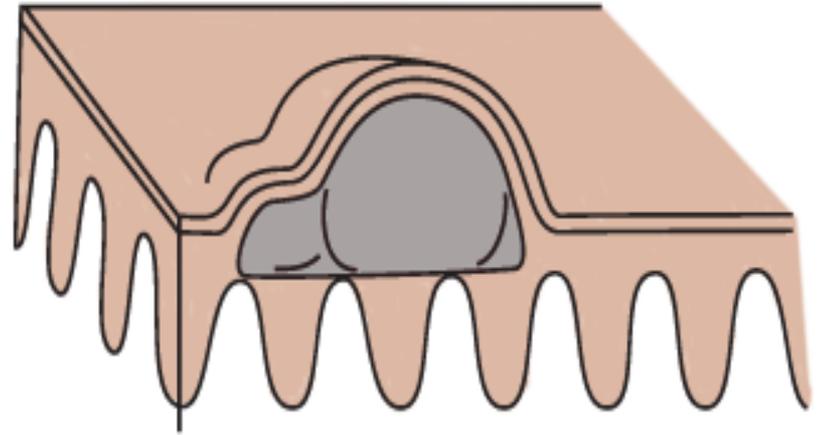
A small, blister-like raised area of the skin that contains serous fluid, up to 1 cm. in diameter

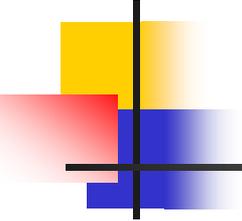




Bulla

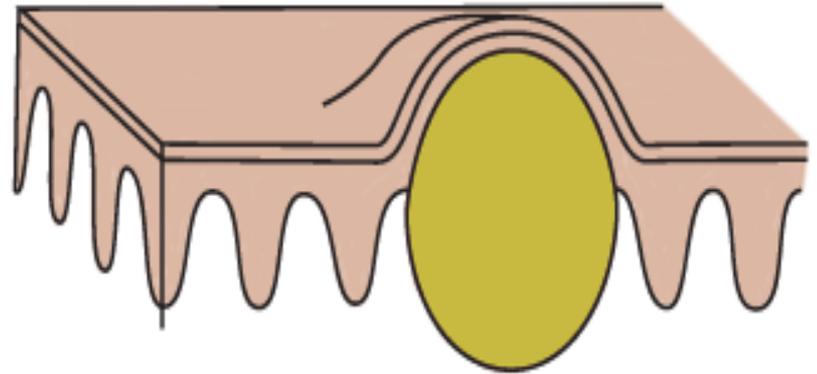
A fluid-filled vesicle
or blister larger than
1 cm. in diameter





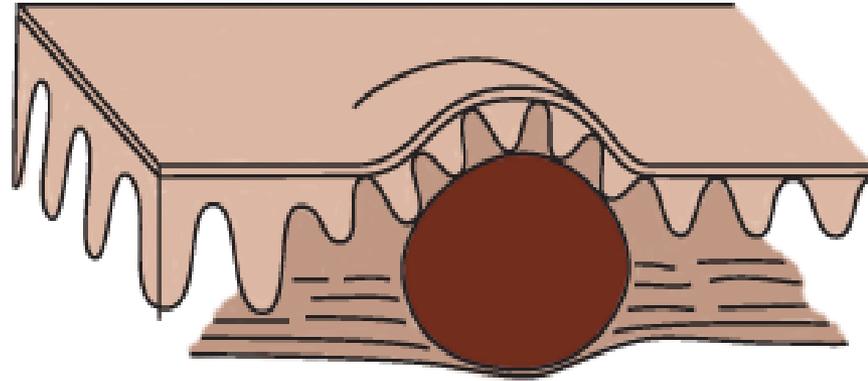
Pustule

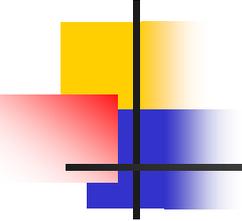
- Small elevation of skin or vesicle or bulla that contains lymph or pus.



Wheal

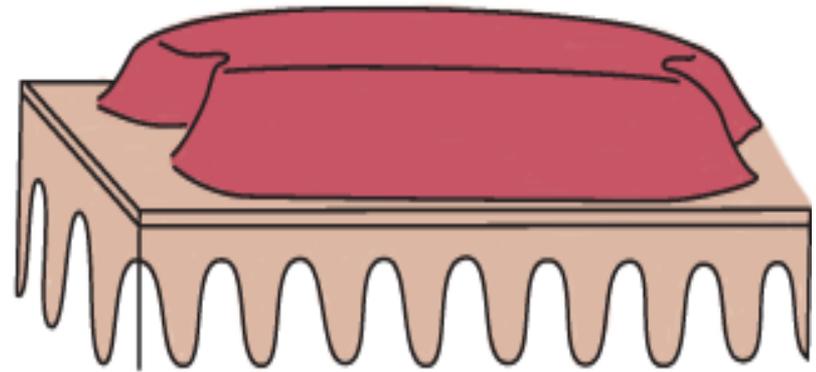
- Round, transient elevation of the skin caused by dermal edema and surrounding capillary dilatation; white in center and red in periphery.

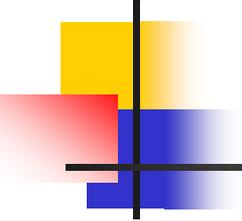




Plaque

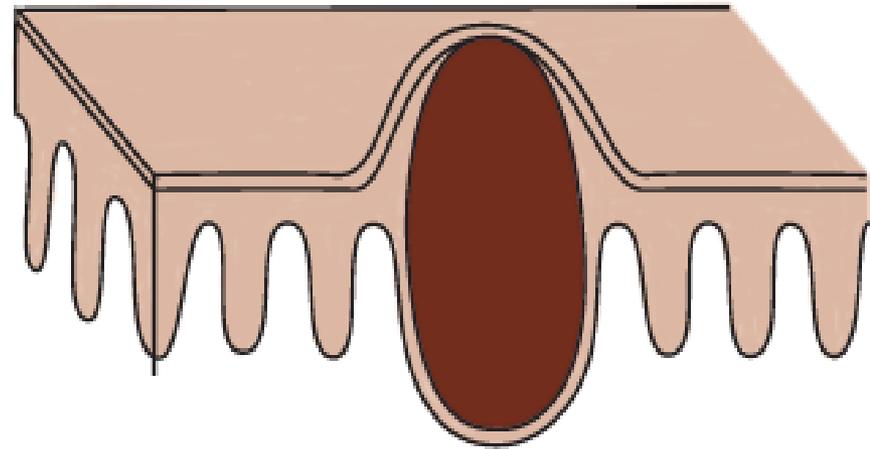
- A patch or solid, raised lesion on the skin or mucous membrane that is greater than 1 cm. in diameter.

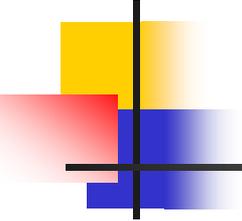




Cyst

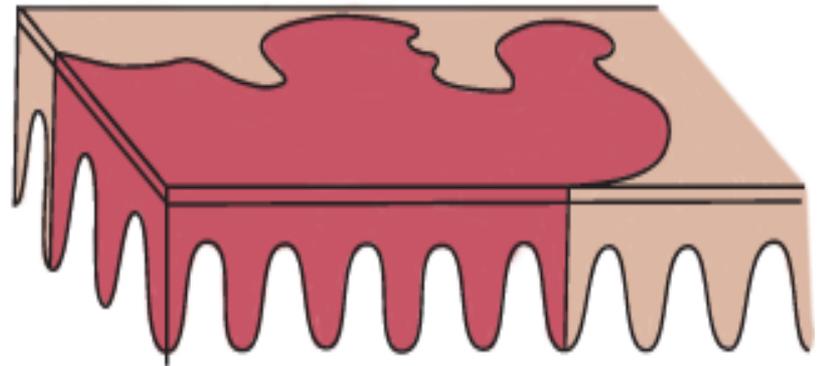
- A closed sac or pouch which consists of semisolid, solid, or liquid material.

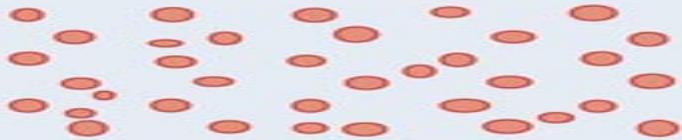




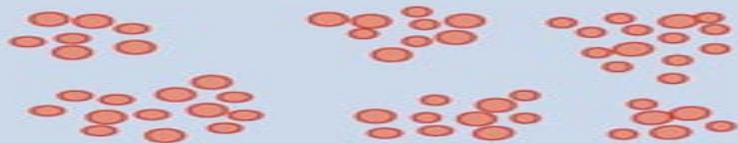
Patch

- A small, flat, circumscribed area distinct from the surrounding surface in character and appearance.

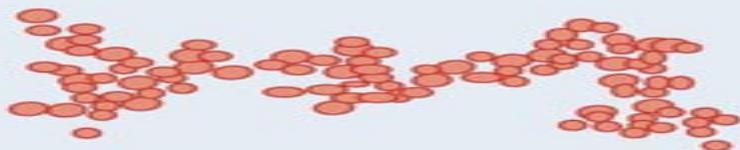




Discrete
Individual lesions are separate and distinct.



Grouped
Lesions are clustered together



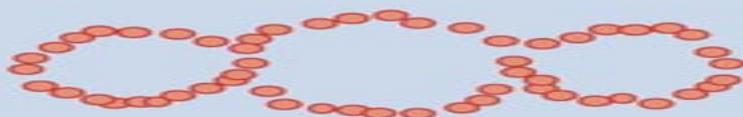
Confluent
Lesions merge so that discrete lesions are not visible or palpable.



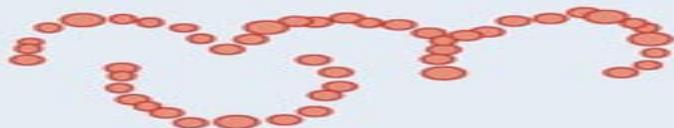
Linear
Lesions form a line.



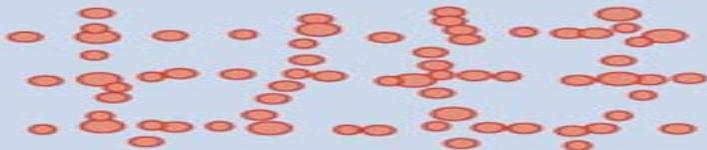
Annular (circular)
Lesions are arranged in a single ring or circle.



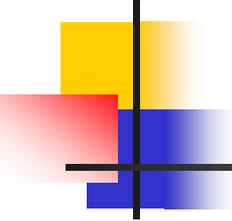
Polycyclic
Lesions are arranged in concentric circles.



Arciform
Lesions form arcs or curves.



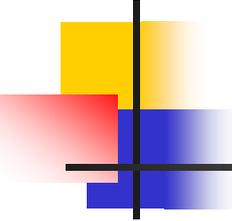
Reticular
Lesions form a meshlike network.



Nursing Assessment

Physical Assessment

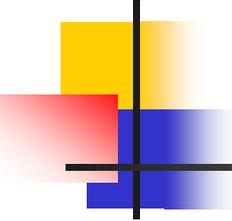
- Inspection (cont.)
 - Moisture/dryness
 - Edema
 - Buildup of tissue fluid
 - Vascular markings
 - Petechiae
 - Ecchymosis
 - General integrity & cleanliness



Nursing Assessment

Physical Assessment

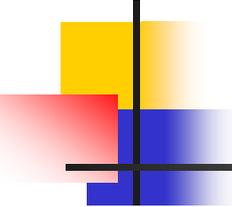
- Palpation
 - Temperature
 - Use back of hand (dorsum)
 - Lesions
 - Use fingertips
 - Skin turgor
 - Measure skin elasticity
 - Tenting – indicates poor skin turgor



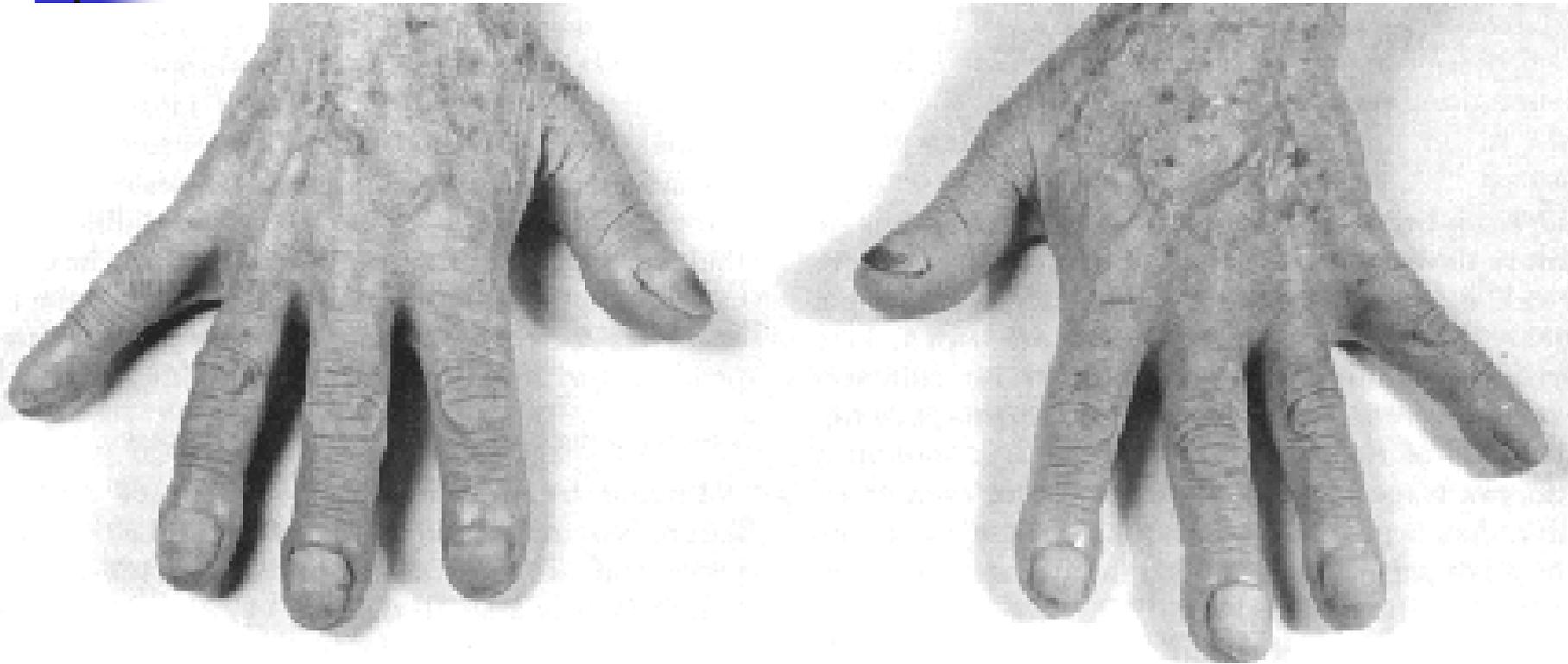
Nursing Assessment

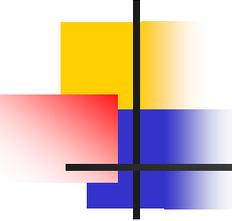
Physical Assessment

- Palpation (cont.)
 - Edema
 - Assess for tenderness, mobility, consistency
 - Hair distribution
 - Color, quantity, thickness, texture
 - Terminal hair
 - Vellus hair
 - Nails
 - Color, shape, texture, thickness, abnormalities



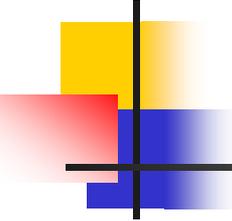
Clubbing of fingernails





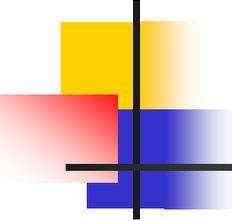
Diagnostic Tests

- Culture
- Biopsy
 - Punch
 - Shave
 - Incisional
- Wood's light examination
- Skin testing
 - Scratch
 - Patch



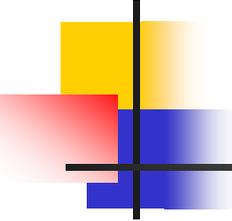
Therapeutic Measures

1. Open, wet dressings
 1. ↓ inflammation
 2. Removes d/c
 3. Keeps wound clean
2. Balneotherapy
 1. H₂O & NSS
 2. Colloidal baths
 3. Tar baths



Therapeutic Measures

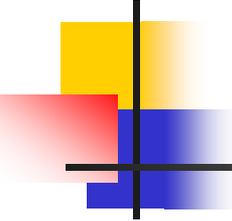
1. Topical medications
 1. Lotions
 2. Ointments & creams
 3. Powders
 4. Gels
 5. Pastes
 6. Topical corticosteroids
 7. Intralesional therapy



Therapeutic Measures

- Dressings

- Enhance absorption & prevent evaporation of topical meds
- Promote moisture retention
- Reduce pain & itching
- Types
 - Occlusive
 - Gauze or cotton cloth
 - Transparent (OpSite, Tegaderm)
 - Hydrocolloid drsgs



Wound Healing

- First intention
 - Edges approximated
- Second intention
 - Granulation
- Third intention
 - Surgical closure