

## Body Membranes & Skin

### 1. Classification of Membranes

#### 1. Epithelial Membranes

1. general comments
  1. epithelial + connective
  2. thus really simple organs
2. types
  1. cutaneous
    1. keratinized, stratified, squamous, epithelium
    2. underlying dermis (dense, fibrous connective tissue)
    3. dry
  2. mucous
    1. epithelium on loose connective tissue (*lamina propria*)
    2. lines all body cavities open to exterior
    3. variable cell types
    4. many, but not all secrete mucus
  3. serous
    1. simple squamous on top of thin layer of areolar connective tissue
    2. parietal & visceral

#### 2. Connective tissue membranes

1. synovial membranes
  1. all connective, no epithelia
  2. cushioning
  3. lubrication

### 2. Integumentary System

#### 1. components

1. skin
2. derivatives
  1. sweat & oil glands
  2. hair & nails

#### 2. functions

1. protective
  1. mechanical
  2. chemical
  3. pathogens
  4. UV
  5. thermal damage
  6. dessication
  7. heat loss/retention
  8. provides information
    1. touch
    2. pressure
    3. temperature
    4. pain
2. metabolic
  1. excretion of urea & uric acid
  2. synthesis of vitamin D

#### 3. structure

1. epidermis
  1. five strata
    1. basale (germinativum)
      1. rapidly dividing
      2. increase in keratin as move externally
      3. melanocytes here
    2. spinosum
    3. granulosum
    4. lucidum
    5. corneum
      1. dead!
      2. 20 - 30 cell layers!
  2. avascular
  3. fig.
2. dermis
  1. papillary layer
    1. dermal papillae
    2. capillary loops supply epidermis
    3. pain & pressure receptors (Meissner's corpuscles)
    4. fingerprints
  2. reticular layer
    1. vessels
      1. nutrients, oxygen, etc.
      2. temperature homeostasis
    2. glands
    3. deep pressure receptors (Pacinian corpuscles)
    4. phagocytes
    5. collagen fibers
    6. elastic fibers
  3. fig.

#### 4. color

1. cyanosis
2. redness
3. pallor
4. jaundice
5. bronzing
6. bruises

#### 5. appendages

1. cutaneous glands (all exocrine)
  1. sebaceous (oil)
    1. common
    2. sebum
      1. lubricant
      2. antibacterial
    3. acne
    4. seborrhea - overactivity, => cradle cap in infants
  2. sweat (sudoriferous)
    1. eccrine
      1. water
      2. salts
      3. vitamin C
      4. N<sub>2</sub> wastes
      5. lactic acid
      6. (heat)
    2. apocrine
      1. localized
        1. axillary
        2. genital
      2. empty into hair follicles
      3. fatty acids & proteins
      4. "musk"

#### 2. hair & follicles

1. insulation
2. protection
3. root in follicle

#### 3. nails

1. nonliving
2. scalelike
3. grow from matrix
4. S. basale is nail bed

#### 6. homeostatic imbalances

1. fungi
2. Staphylococcus
  1. boils
  2. impetigo
3. Herpes
4. contact dermatitis
5. psoriasis
6. burns
7. cancer
  1. ABCD rule
    1. asymmetry
    2. border irregularity
    3. color
    4. diameter

#### 7. developmental aspects

1. to birth
  1. lanugo - lose by 7th month
  2. vellus
  3. vernix caseosa "varnish of cheese"
2. aging
  1. thinning of skin
  2. loss and cross-linking of elastin & collagen
    1. note: accelerated by UV damage
  3. alopecia: thinning of hair