Notes for Friday September 13, 2002
Outline
• Body cavities & membranes
• The Integumentary System
• Structure: epidermis & dermis

Body Cavities
• Internal spaces that protect viscera
• Open & closed body cavities
• Closed:
  —DORSAL
  —VENTRAL

Closed cavities - Fig. 1.9
• Dorsal
  —Cranial (Brain)
  —Vertebral (spinal cord)
• Ventral
  —Thoracic (lungs & heart)
  —Abdominopelvic (digestive, urinary & reproductive organs)

Open cavities
• Spaces open to the external environment. E.g.:
  —Nasal cavity; respiratory tract, urinary tract etc.

Epithelial membranes
• Mucous membrane (mucosa):
  —Lines open cavities
  —Secretions lubricate linings
  —Cilia help move
• Serous membranes (serosa):
—Line closed cavities & cover viscera
—Protect, cushion & prevent friction

**Serosa**

- Parietal (lines cavity)
- Visceral (covers organ)
- Separated by a space filled with serous fluid
- Parietal & visceral pleura
- Parietal & visceral pericardium
- Parietal & visceral peritoneum

**Problems w/serous membranes.**

- Pleurisy
- Pericarditis
- Peritonitis

**Integumentary System**

- Skin (an organ) + accessory structures => system
- Dermatology (derm=skin)
- Skin = 2 sq. meters/4-5 kg.

**Functions**

- Protection = physical barrier
- Thermoregulation
- Perception of stimuli
- Excretion/perspiration
- Synthesis of vitamin D
- Immunity

**Structure Figure 5.1**

- Epidermis
• Dermis
• (hypodermis=subcutaneous)

**Epidermis**
(outer skin)

• Function: PROTECTION
• Structure: keratinized stratified squamous epithelium

**Cells of the epidermis Figure 5.2**
• Keratinocytes: produce keratin
  => protect & repel water
• Melanocytes: produce melanin
  => protect from UV & provide skin color
• Merkel cells: sensitive to touch
• Langerhans cells: phagocytotic

**Layers of the epidermis Figure 5.3**
• Stratum basale = stratum germinativum:
  Basal stem cells: MITOSIS
  Merkel cells
  Melanocytes

• Stratum spinosum:
  —Keratinocytes, Langerhans & melanocytes (processes)

• Stratum granulosum:
  —Keratinization:
    Waterproofing & hardening
    Cell contents die

• Stratum lucidum: palms & soles
• Stratum corneum:
  —thickness depends on location
  —cells continuously shed (dander)
barrier - water, microbes

- Psoriasis = increased cell division

**Dermis Figure 5.1**

- Connective tissue highly vascularized
- Papillary layer (1/5th dermis)
  - Areolar connective tissue
  - Dermal papillae - increase surface area
  - Capillaries & nerve endings

- Reticular region
  - Dense irregular connective tissue
  - Collagen & elastic fibers
  - Blood vessels
  - Nerves
  - Glands (sweat & sebaceous)
  - Hair follicles

**Hypodermis**

- Attaches skin to underlying structures
- Areolar & adipose tissue
- Not part of the skin