

Integumentary AKA Skin



Introduction

- Skin comprises the largest organ system in the body
- Weighs approximately 17 Kg
- Takes up 2.0 square meters

Functions

- Regulates body temp.
- Acts as an excretory organ
- Stores chlorides
- Manufactures vitamin D which is essential for the mineralization of bones and teeth
- Serves as the most extensive and varied of the sense organs – high concentration of sensory receptors, especially where this is critical – lips, finger tips

The Envelope

- Prevents the loss of essential host constituents or the entry into the host of toxic physical, chemical and microbiotic agents
- Properties go beyond a mere envelope
 - Is waterproof and prevents the evaporation and escape of tissue fluids
 - Becomes thick when subjected to rough treatment
 - Fastened down where most likely to be pulled off
 - Has friction ridges to lessen slippage – e.g., finger tips

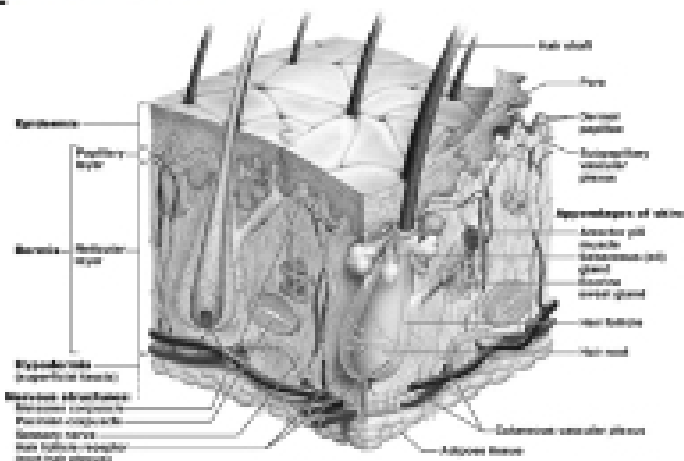
Anatomy

- Non-Homogeneous
- Large differences in form, color, and consistency in various parts of the same body
- Three distinct types of tissue – epidermis, dermis, and subcutaneous

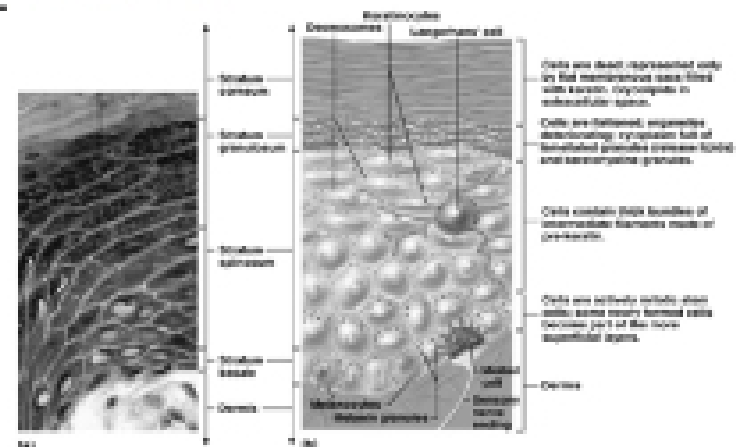
Epidermis

- Ectodermal embryonic origin – two basic layers – superficial and deep
- Two main cell types are Melanocytes or pigment cells and Keratinocytes or epithelial cells
- Superficial layer is called the **Stratum Corneum**
 - Dead layer, less than 1 micrometer thick
 - Consists of several strata of dry, flattened, scaly cells without visible nuclei
 - The surface cells are perpetually being rubbed away and replaced by cells from the next layer – the **Germative** layer

Epidermis



Epidermis



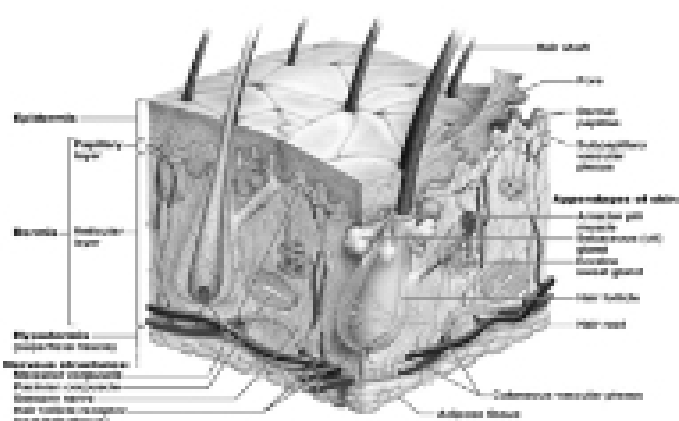
Germative Layer

- AKA Basal Layer
- This layer is living
- Cell division occurs here and the cells biochemically and functionally mature as they ascend through the more superficial layers
- Elapsed time from the cell division to shedding is at least 4 weeks – in abnormal states such as psoriasis = may turn over in 4 days

Dermis

- Has a mesodermal embryonic origin, similar to CT
- Primarily made up of collagen, elastin, and reticulin fiber
- Dermis accounts for 5% of body mass
- The outer aspect of dermis nearest to the epidermis is called the **papillary dermis** – rich in nerves, vessels, and various sensory receptors

Dermis



Dermis

- The deeper dermis is called the **Reticular Dermis** that contains the cutaneous vascular network
- These vessels subserve the thermoregulatory functions
- Also, there are more neuroreceptors and lymph glands

