

Integumentary System

Apparently there is no chapter/section for this in the book?

Integument

- the skin and all accessory structure (hair, feathers, scales)

Skin

- The largest vertebrate organ
- major part of the integument system

Vertebrate integument and derivatives

Functions

- Protection from abrasion
- protects against water loss
- barrier to disease causing pathogens
- protection from UV light
- temperature regulation
- contains sensory receptors
- excretion (limited)

Vertebrate Integument

- skin and all other accessories
- skin is the largest organ of vertebrates
- skin consists of 2 layers
 - epidermis
 - dermis

Epidermis

- outer layer
- nutrients diffuse into the epidermis from the dermis
- stratified squamous epithelial cells

Cell types

- langerhans cells
 - defensive cells
- Melanocytes
 - produce pigment melanin
 - skin coloration
 - protect from UV light
- Merkel cells
 - touch receptors
- Keratinocytes
 - primary cell type
 - produce insoluble protein Keratin
 - amount of keratin increases from the inside to outside
 - keratin fill cytoplasm and impairs nutrient diffusion, cell dies

Dermis

- Inner layer of skin
 - thinner than epidermis
- highly vascularized
- contains:
 - sensory structures
 - vessels
 - nerves
 - glands
- Origin of hair/scales/feathers in vertebrates
- Sensory structures
 - Meissner's corpuscles
 - light touch
 - Pacinian corpuscles
 - deep vibrations

Sweat Glands

- temperature regulation
- produce sweat (primarily water)
 - evaporating cooling
 - release of waste ions
- 2.5 million on the body
- release of heat

Sebaceous Glands

- all over body, except palms and soles
- large on face, neck, and upper chest
- produce sebum
 - lubricates and soften hair and skin
 - water proofing in aquatic mammals

Hypodermis

- subcutaneous layer
 - below the dermis
- not a layer of the skin
- contains much adipose (fat) tissue
- females have thicker layer of adipose tissue than males

Function

- body contour
- insulation
- support the skin

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