

# Chapter 8

## Integumentary System

### **Main Terms:**

Dermatology-

Cyanosis-

Dermatitis-

Melanin-

Albinism-

Agouti-

Shedding-

### **Functions**

Barrier

Protection of underlying structures

Prevents the body from drying out

Helps regulate and maintain body temperature

Receptors for sensations of heat, touch, cold, pressure, and pain

Disposing of waste products.

### **Body Heat**

*radiation* - the skin radiates heat in the form of infra-red rays and warms nearby objects

*conduction* - body heat is also transmitted by direct contact to objects in contact: e.g. clothing, the seat that one is sitting on or any objects being held

*convection* - air passing over the skin is warmed. This warm air rises and colder air is drawn in to take its place. This is why the wind-chill matters.

*evaporation* - sweat on the skin surface evaporates and as a result the skin surface is cooled; providing the surrounding air is less than 100% humid. The skin therefore influences fluid homeostasis

## **Skin Composition**

### Outside

#### **Epidermis**

*Stratum Corneum*- flat, lifeless cells, protection

*Stratum Lucidem*- clear layer, tightly packed cells, found in areas of rugged wear

*Stratum Granulosum*- cells contain granules, cells die in this layer, keratinization

*Stratum Spinosum*- cells shrink; draw apart, one of two cell layers thick

*Stratum Germinativum*- multiply constantly

Dermis dense, fiborous connective tissue, containing nerves

Hypodermis-, loose, areolar connective tissue, and adipose tissue

### Inside

## **Hair**

### **Types**

*Primary*- guard hairs, make up top coat, smooth appearance, allows rain to run off the animal

Ex: coarse manes, horse tails, feathering on dog tails

*Secondary*- wool hair, make up under coat, soft, thin, and wavy,

Ex: Sheep have wool hair

*Tactile*- thicker and longer than primary hairs, found most often on face, go deep in hypodermis and muscle layer, touch receptor

Ex: Cat whiskers

### **Arrangement**

*Simple* - each primary hair grows from a separate opening

Ex- cows and horses

*Compound*- two to five hair

Ex- dogs and cats

## **Glands**

*Apocrine sweat glands*- found through out the animal body, secrete strong smelling substance into hair follicle

*Endocrine sweat glands*- coiled tube structure in dermis, produces water sweat, found in limited areas like around nostrils

*Sabaceous glands*- secrete sebum (waterproofs the coat), increases the spread of sweat

*Circumoral*- around cat's lips

*Horn*- strong musk odor in female goats

*Anal sacs*- foul smelling and used to express territory marking

*Ceruminous glands*- modified sweat glands in the ear canal

## **Extensions of the Skin**

*Nail*-slightly curved form of the dermis

*Claw*- compressed laterally to form a sharp dorsal border

*Hooves*-animals with hooves are known as ungulates and the hoof is visible as the animal stands

*Dewclaws*- can be like miniature claws with no practical purpose

*Chesnuts*- hornlike protrusions above the carpus

*Ergots*- keratinized epithelium

*Horns*- permanent structure that protrudes from the skull and grows continuously after birth composed of keratinized epithelium

*Antlers*- protrudes from the skull and are shed and regrown composed of bone