

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, fibrous 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 latterly 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