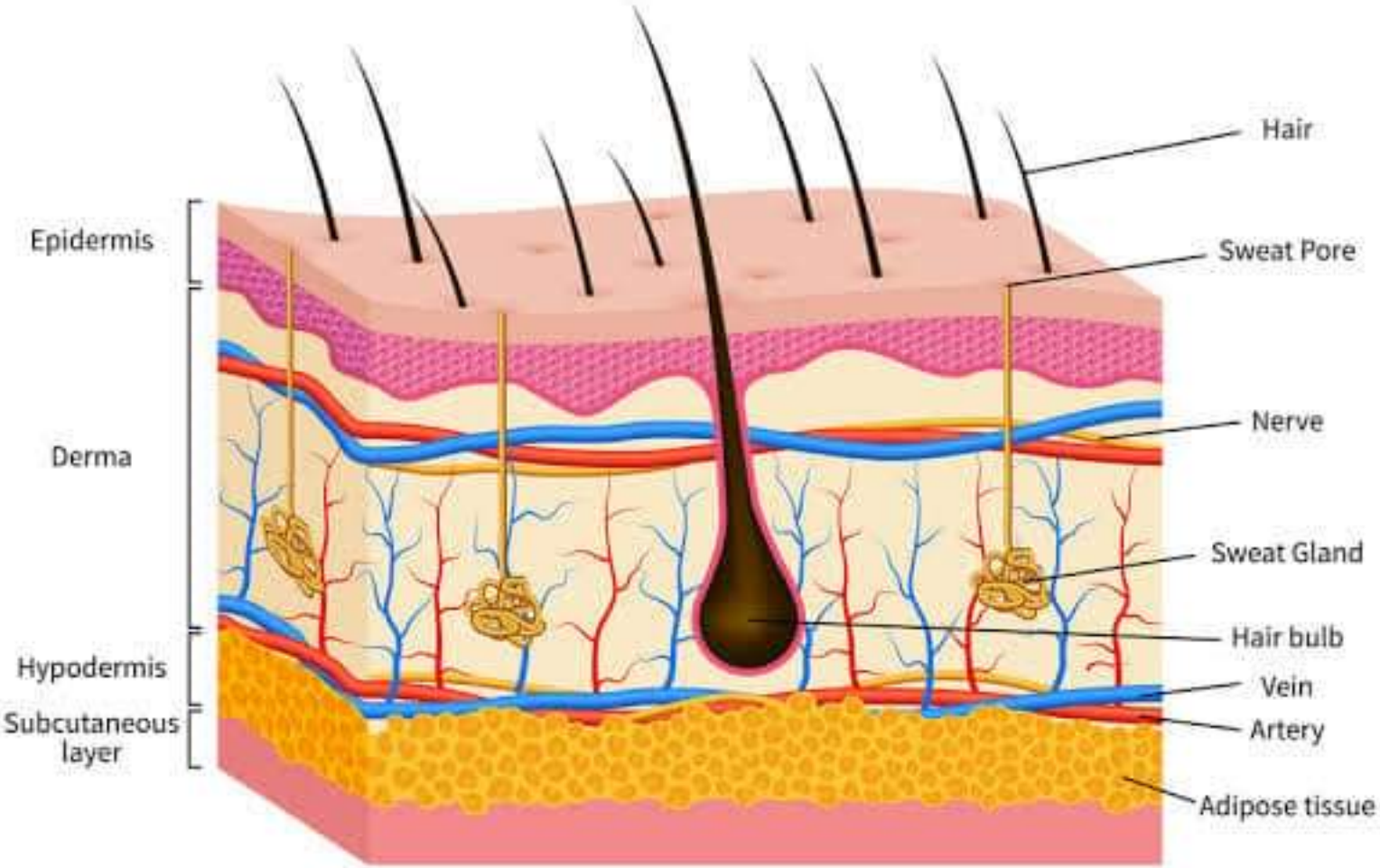
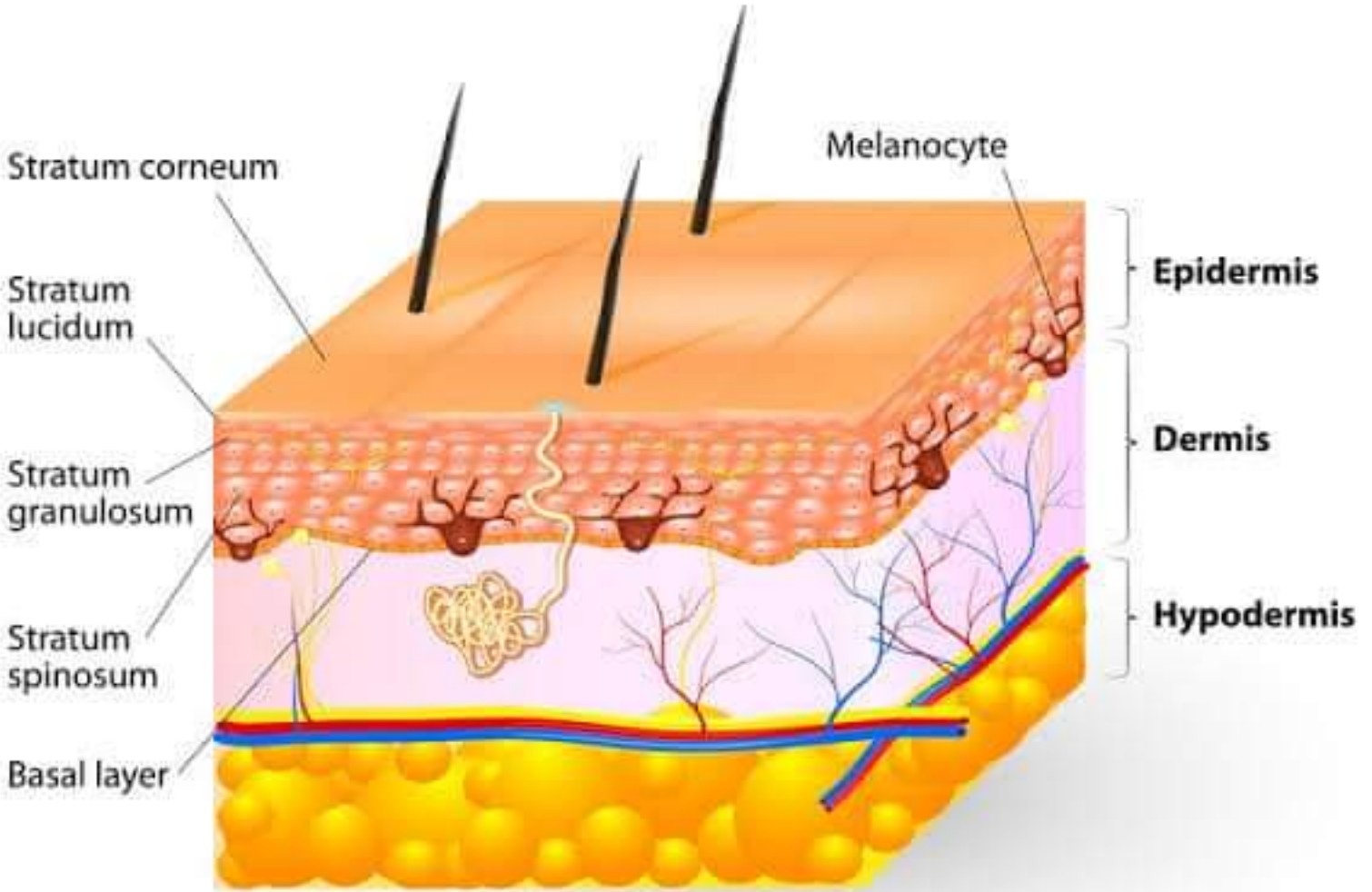
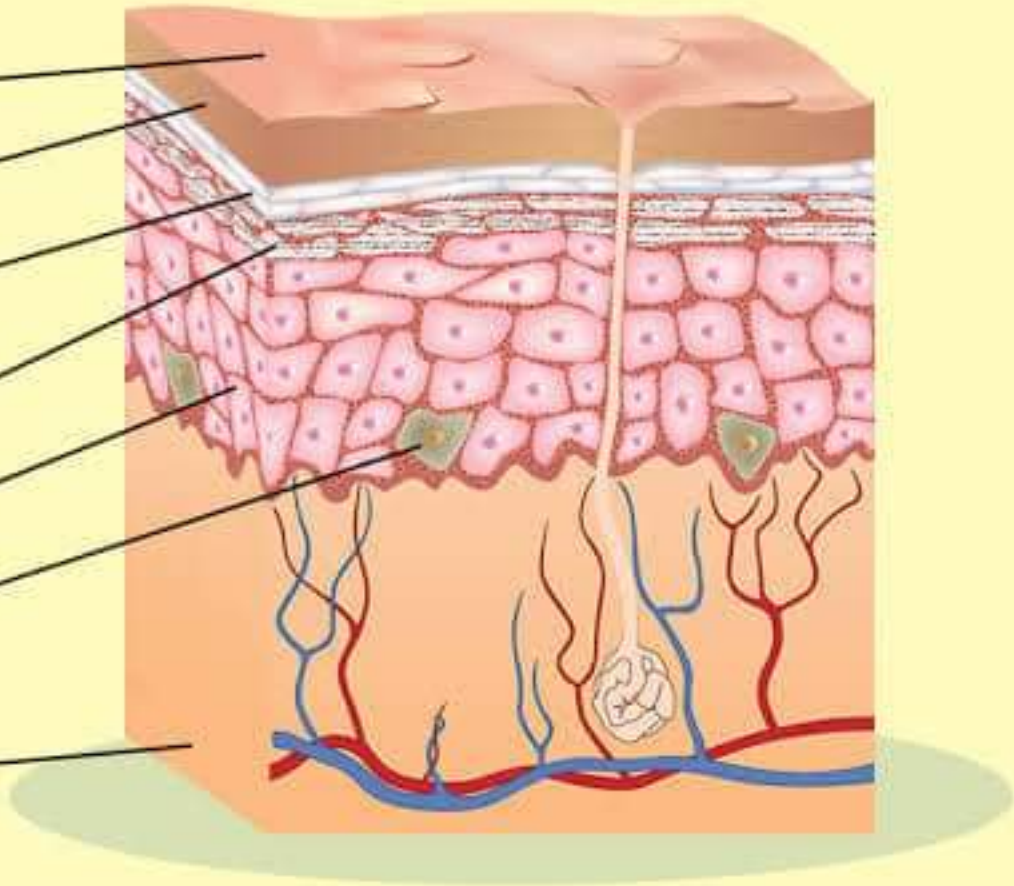
SKIN ANATOMY



THE LAYERS OF HUMAN SKIN

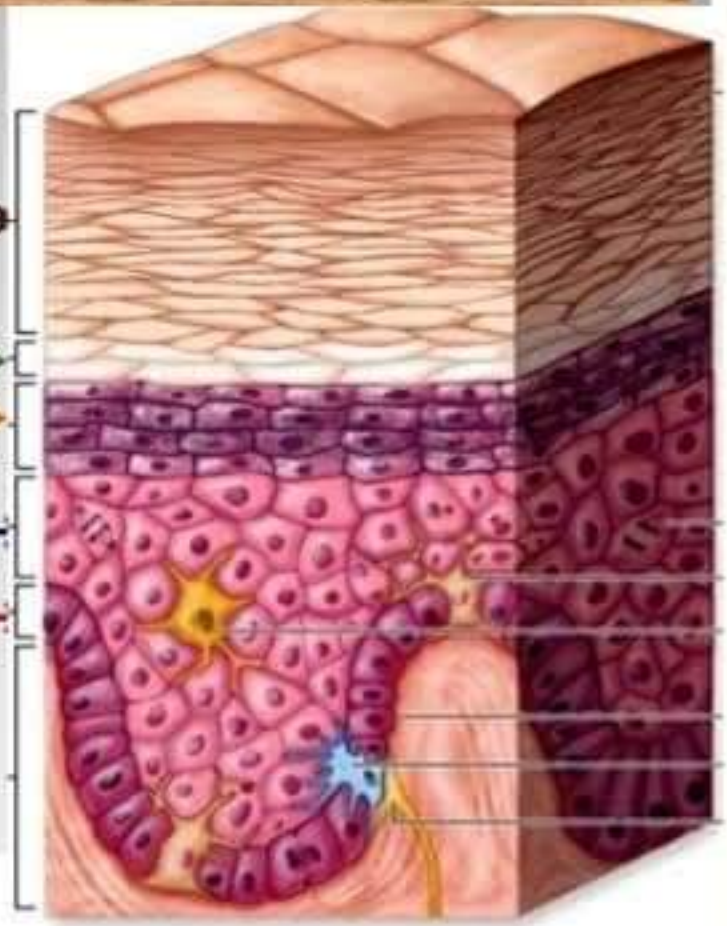


Anatomy of the Epidermis



Layers of the Epidermis

- **Stratum Corneum**
  - consists of 25 to 30 rows of dead cells, completely filled with keratin. Cells on this layers are continuously shed and replaced by cells from deeper strata. It serves as an effective barrier against light and heat waves, bacteria and many chemicals.
- **Stratum Lucidum**
  - usually not present on hairy skin, only the thick skin of the palm and soles has this layer. It contains intermediate substance that was formed from keratohyalin which continually transformed to keratin.
- **Stratum Granulosum**
  - develops keratohyalin – the precursor of keratin.
- **Stratum Spinosum**
  - tightly joins the lower and upper layer together.
- **Stratum Basale**
  - capable of continued cells division; produces stem cells that produce and multiply melanocytes and keratinocytes, which push up toward the surface and become part of the more superficial layer.



Structure of Skin

Epidermis - keratinised stratified squamous epithelium

- consist of 5 layers/strata

stratum corneum
stratum lucidum(thick skin only)
stratum granulosum
stratum spinousum
stratum basale (germinativum)

Dermis

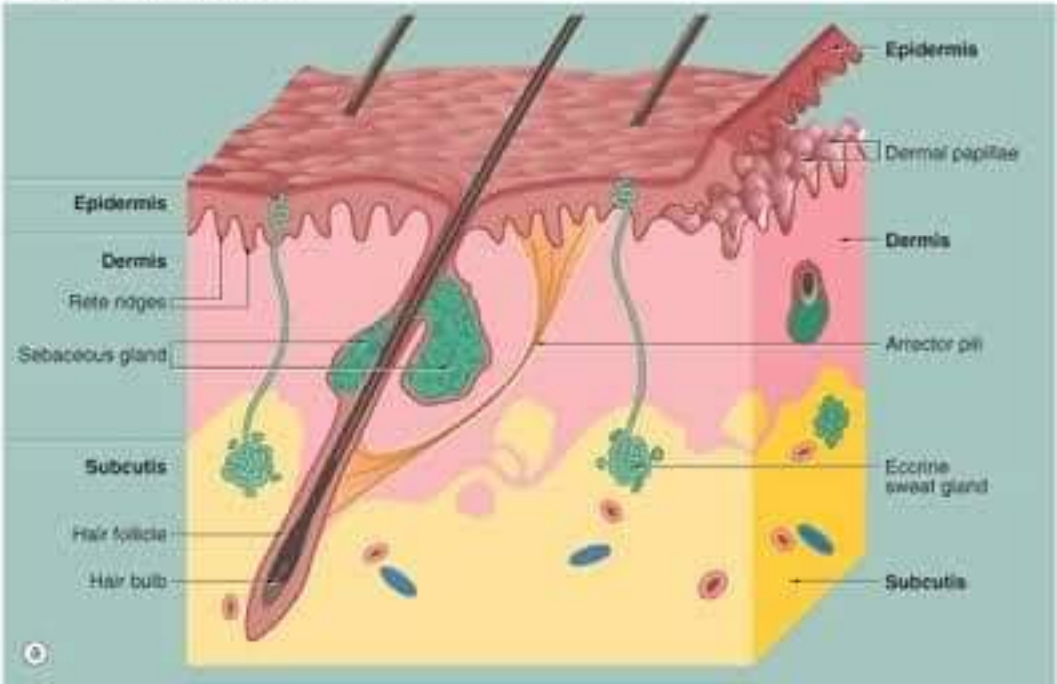
-dense connective tissue

- consists of two layers

Papillary dermis
Reticular dermis

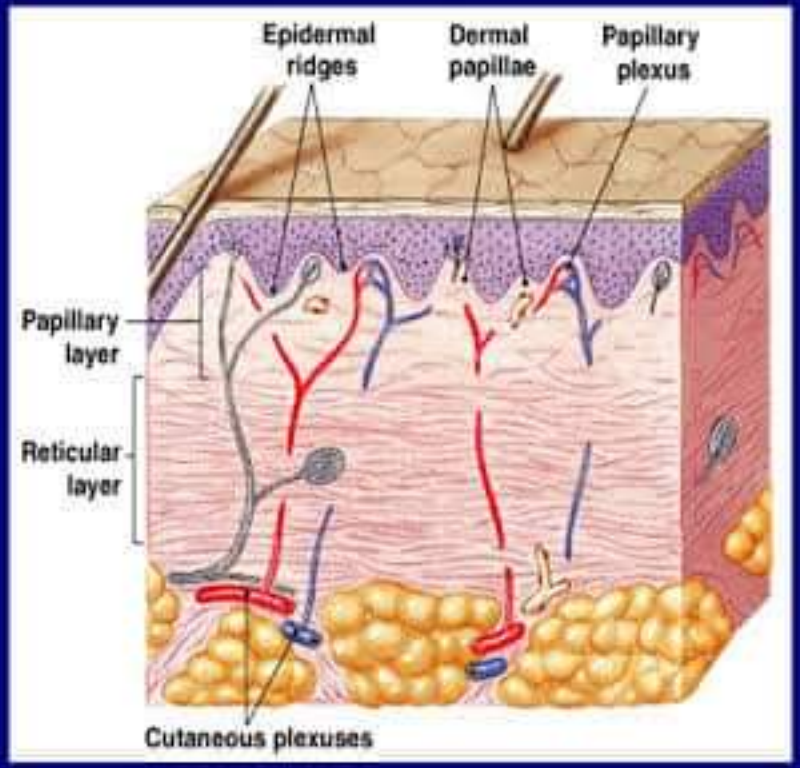
Hypodermis

-connective tissue and adipose tissue



Dermis

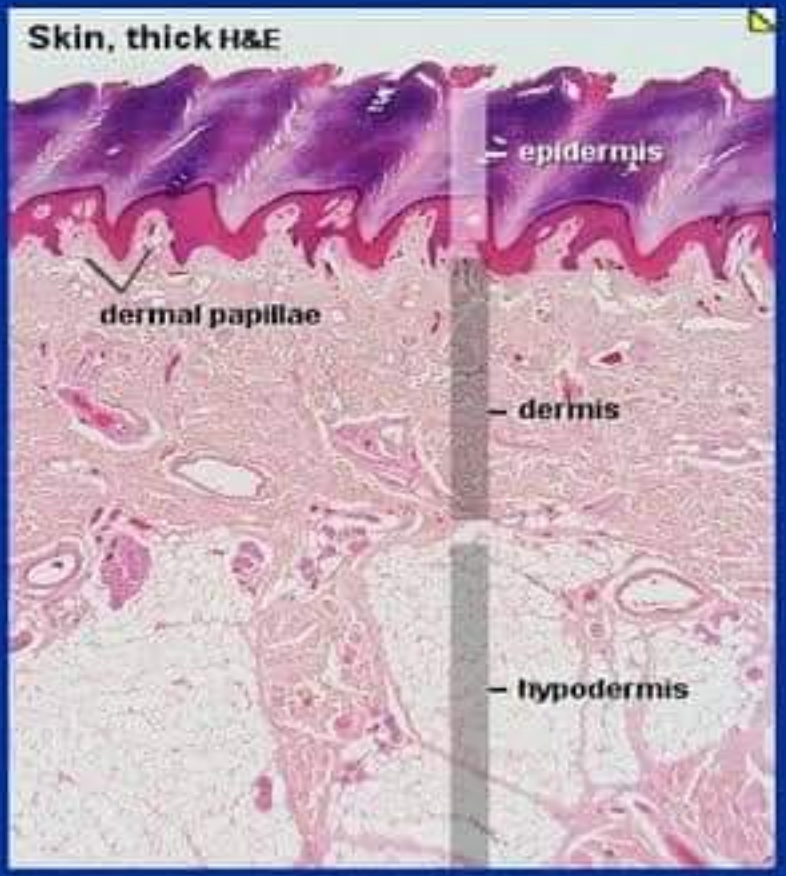
- Papillary layer:
  - Thin (20%)
  - Consists:
    - Areolar CT
    - Comprise dermal papillae
    - Capillaries, lymphatics, and sensory neurons
  - Function: feed epidermis
- Reticular Layer:
  - Thick (80%)
  - Consists:
    - Dense irregular CT
    - Elastic and Collagen fibers
  - Function: provide strength and flexibility



Skin Structure

The function of dermis:

- It provides nourishment to the epidermis and interact with it during wound repair.
- It gives the skin its strength elasticity, and softness.



Hypodermis

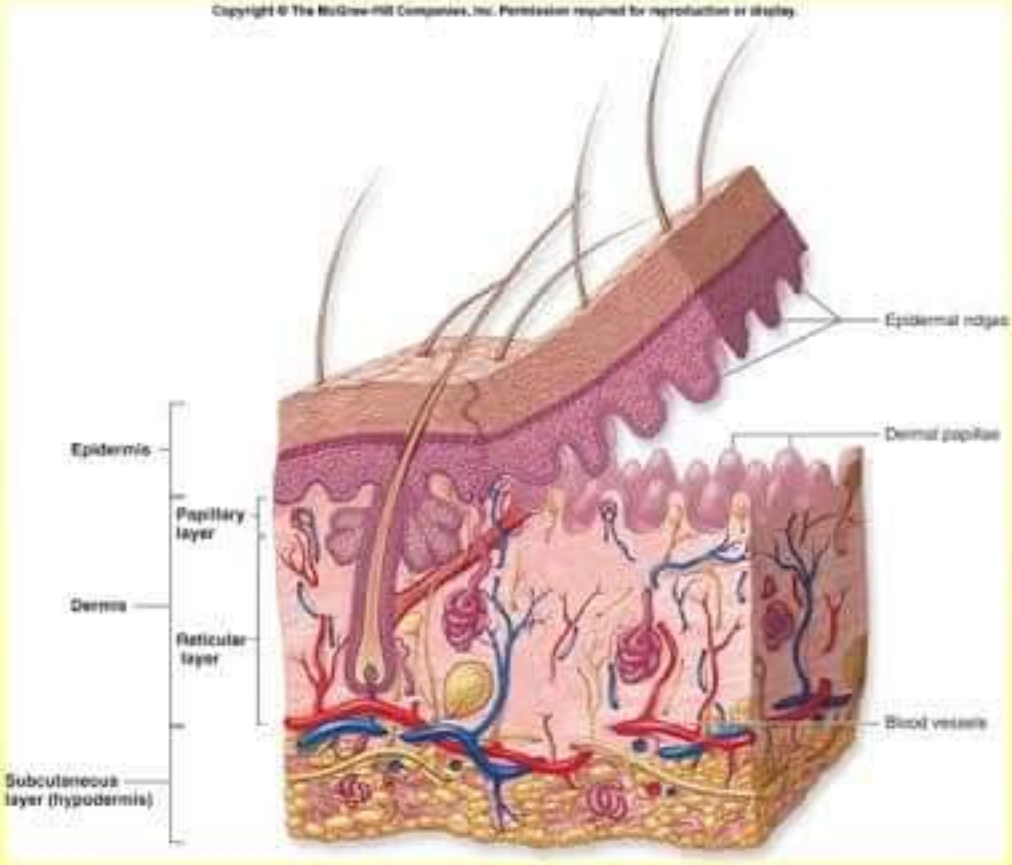
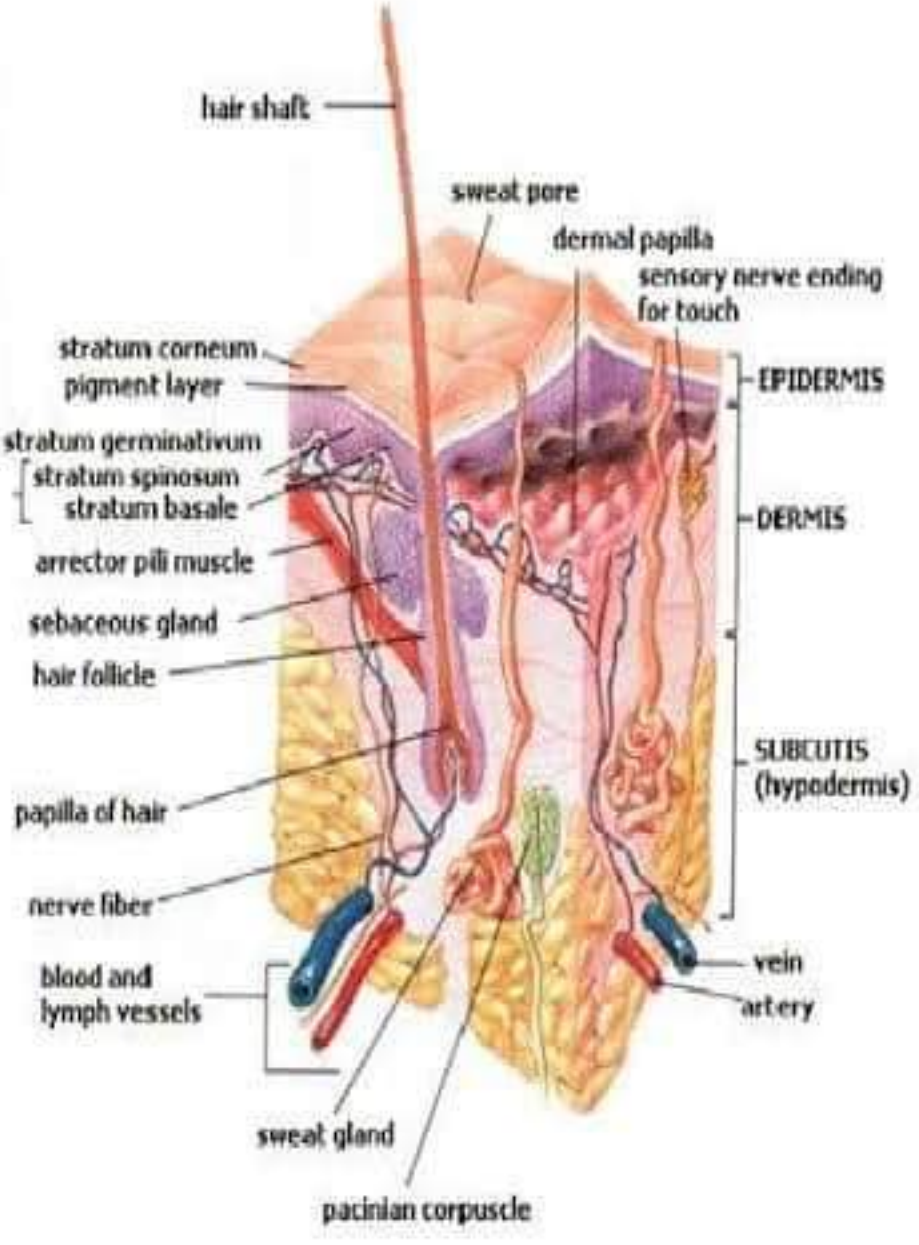


Fig. 5.6

- Skin rests on this, but not a part
- Also called
  - Subcutaneous tissue
  - Superficial fascia
- Consists of loose connective tissue
- Types of cells
  - Fibroblasts
  - Adipose (fat) cells
  - Macrophages
- Subcutaneous fat

Hypodermis

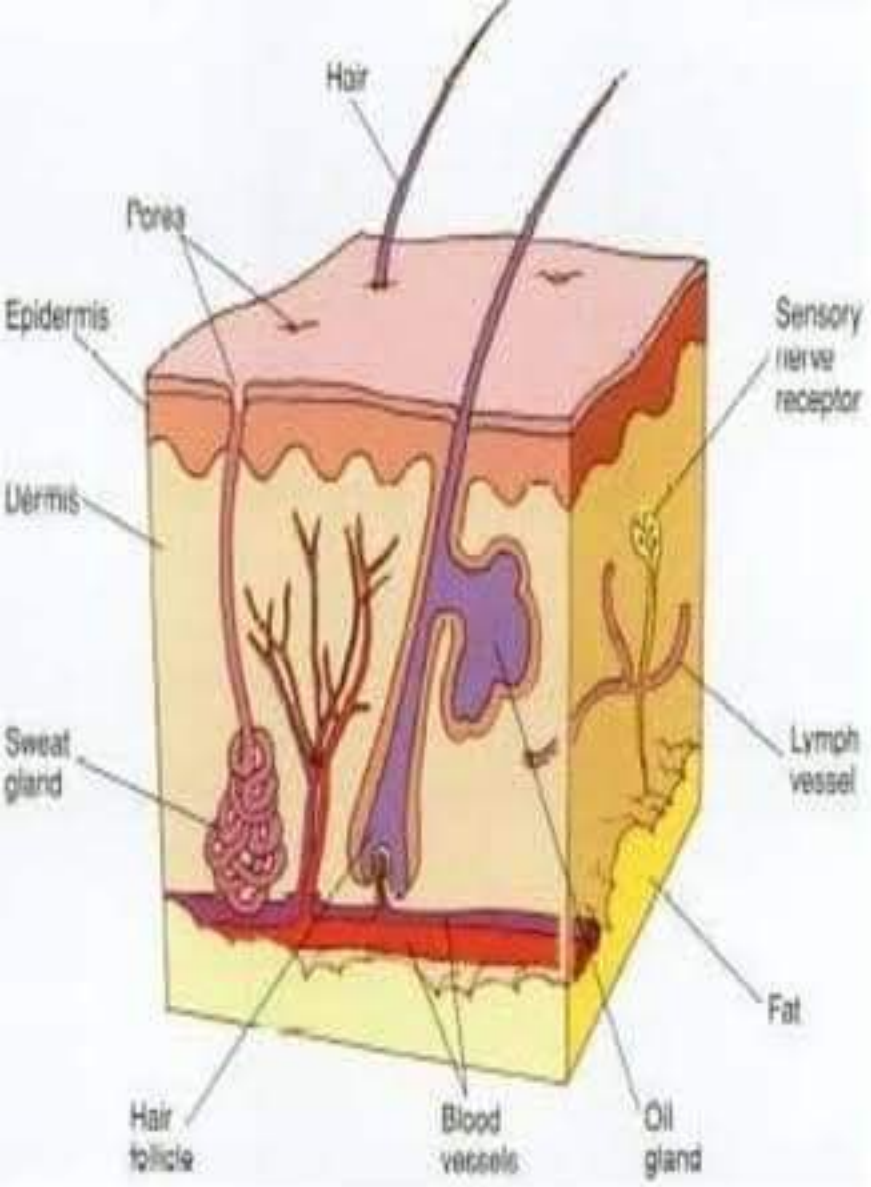
- Lowermost layer of the integumentary system in vertebrates.
- Used mainly for fat storage.
- Acts both as an insu-lator, conserving body heat, and as a shock absorber, protecting internal organs from injury.
- blood vessels, nerves, adipose tissues, lymph vessels, and hair follicles are found in this layer.



Functions of the Skin

There are 7 main functions of the skin and these are:

- Sensation
- Heat regulation
- Absorption
- Protection
- Excretion
- Secretion
- Vitamin D production



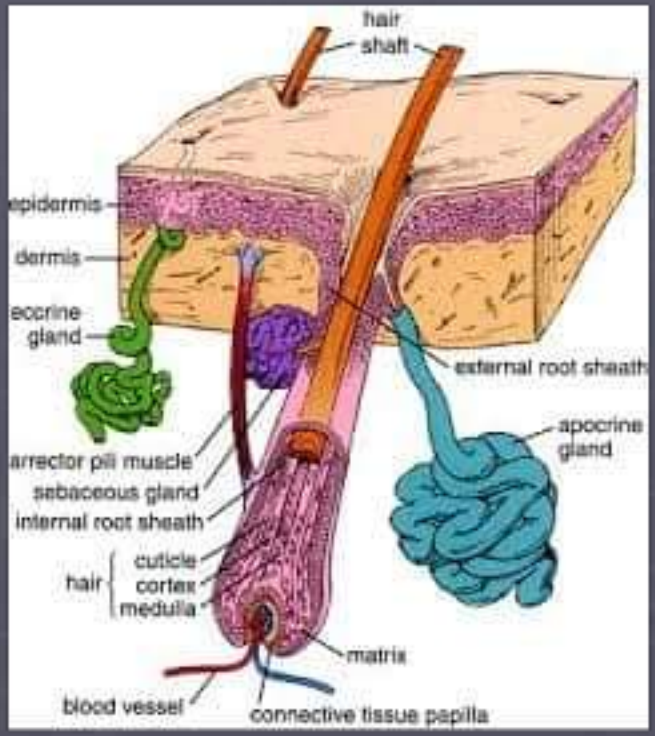
The functions of skin

- protection of the body from physical and chemical effects, ultraviolet, microbes
- prevention of water loss
- regulation of body temperature
- In *hot conditions*, capillaries in the skin dilate and radiate heat.
- The same capillaries constrict in *cold conditions* to prevent heat loss

Skin Appendages

These appendages come from the epidermis and help maintain the body's homeostasis.

- Cutaneous glands
  - Sebaceous glands
  - Sweat glands
- Hair
- Hair follicles
- Nails

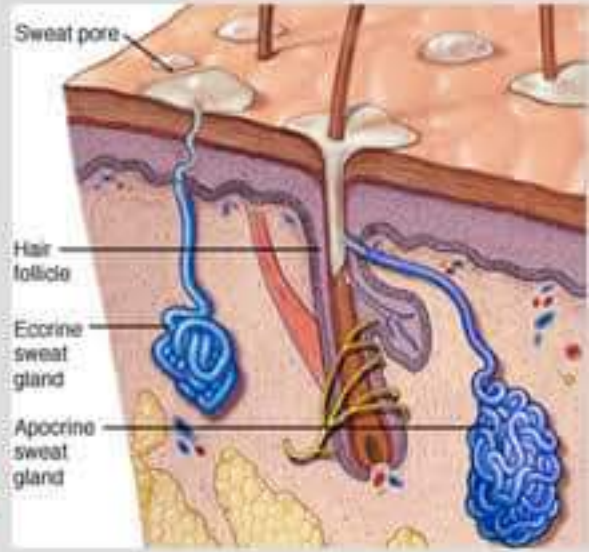


Sweat Glands

Two Types

- Eccrine Sweat Glands
  - Are the most common and are found all over your body
    - Hands, feet, arms, legs, forehead
  - End at skin pores
  - No oil produced

- Apocrine Sweat Glands
  - Only found in 3 places:
    - Armpits, and the anal-genital area
  - Usually end at the hair follicles
  - A little oil produced



Sebaceous Glands

- Secrete whole dead cells
  - The cells hold an abundance of fat
  - When the cells reach the surface of the skin they burst open and die
    - An oily secretion is left on the skin called **sebum**