

INTEGUMENTARY SYSTEM

FUNCTION

- 1) Protection:
- 2) Secretion & Excretion:
- 3) Sensation
- 4) Temperature Regulation

STRUCTURE

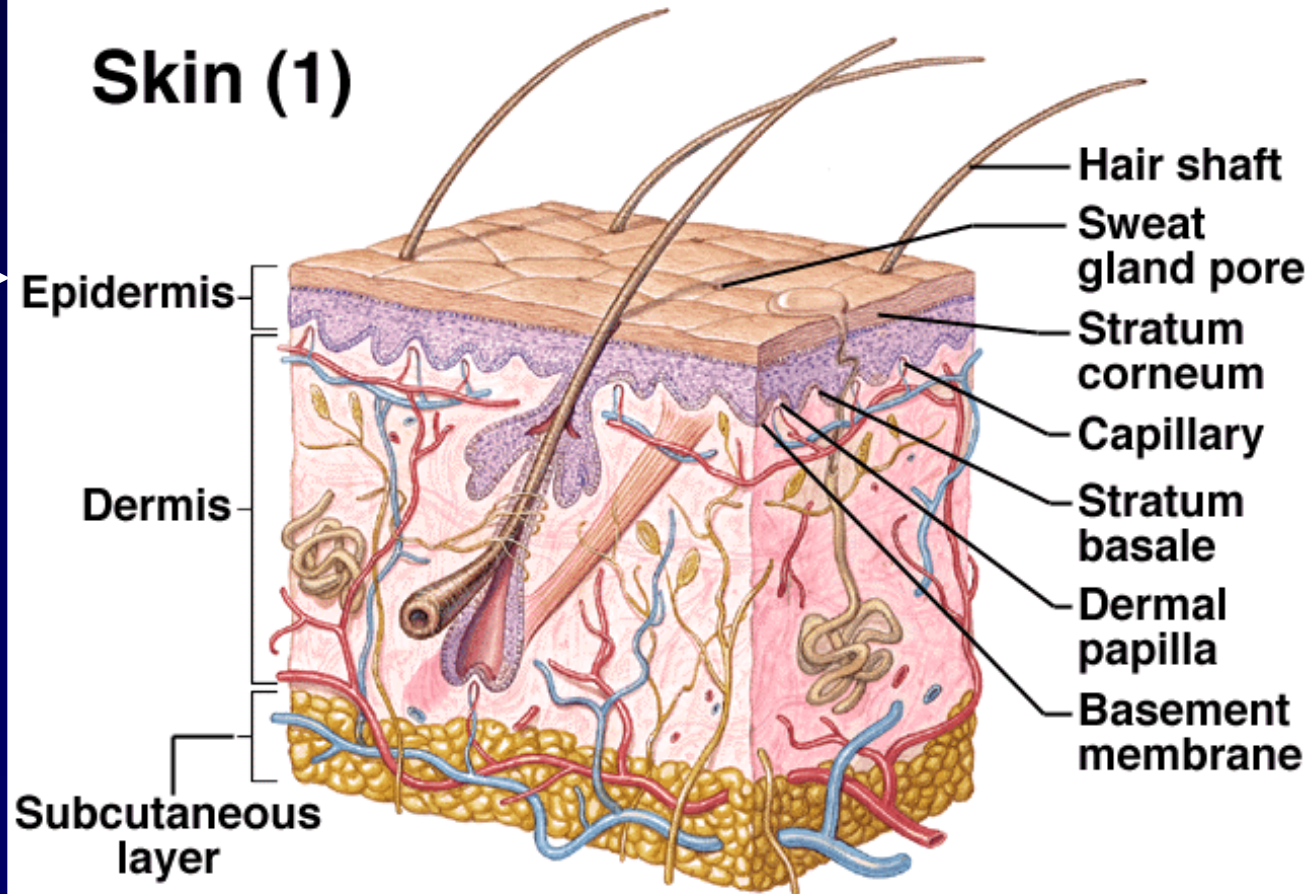
Layers: epidermis, dermis, *hypodermis*
(*subcutaneous*)

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Skin (1)

What type of epithelium is here?

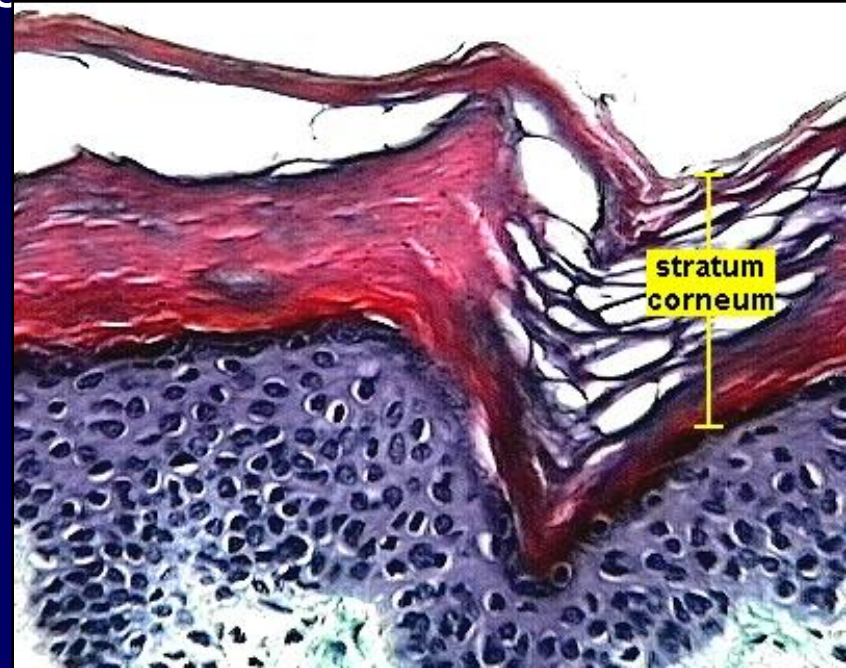
What type of C.T. is here?



1) Epidermis = top layer

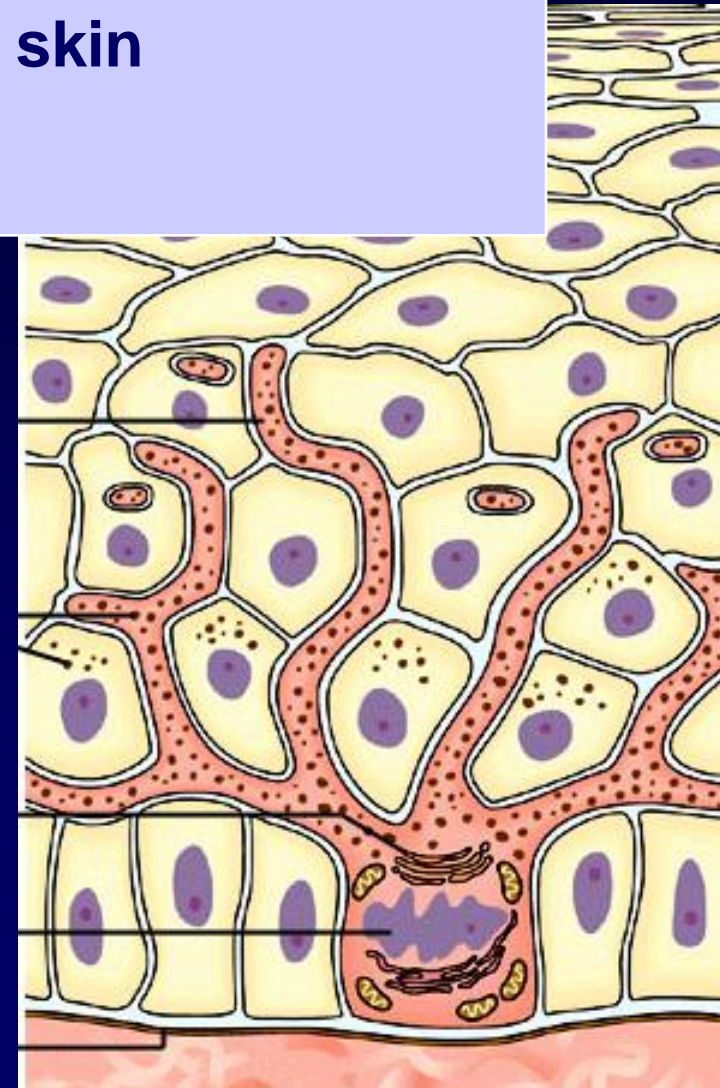
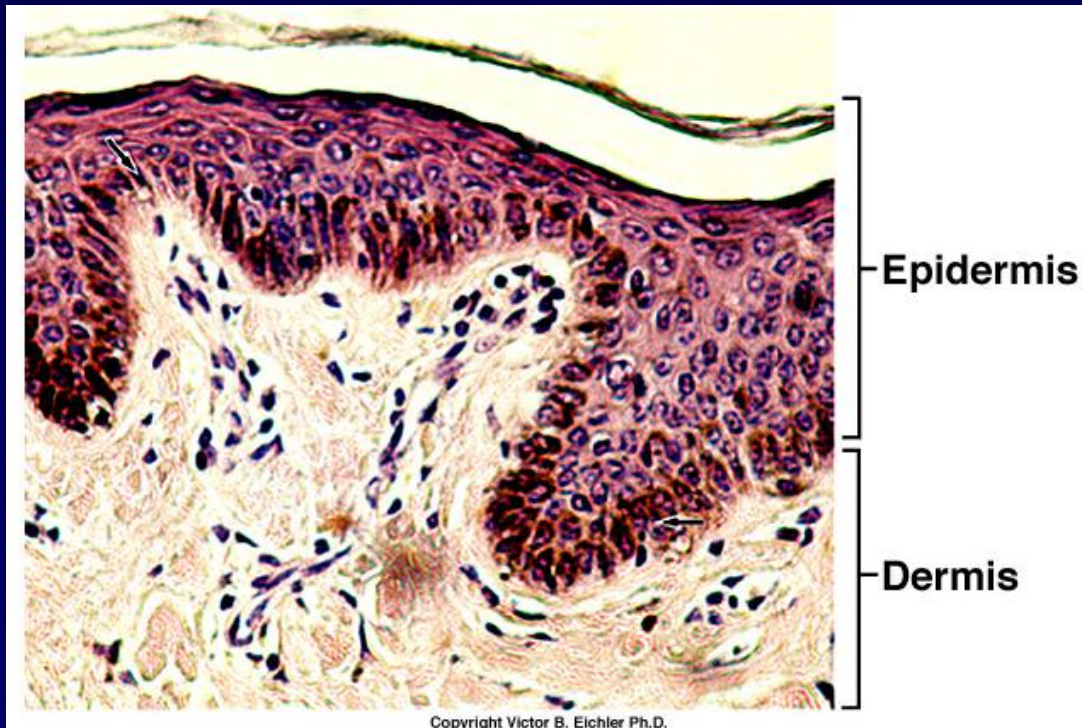
- stratified squamous epithelium
- no blood vessels
- cells are made in bottom layer (stratum basale)
- cytoplasm of older cells fills with protein (keratin) & they die
- tightly packed keratinized cells in top layer (stratum corneum)

Role: -protection
-maintain integrity
-reduce water loss



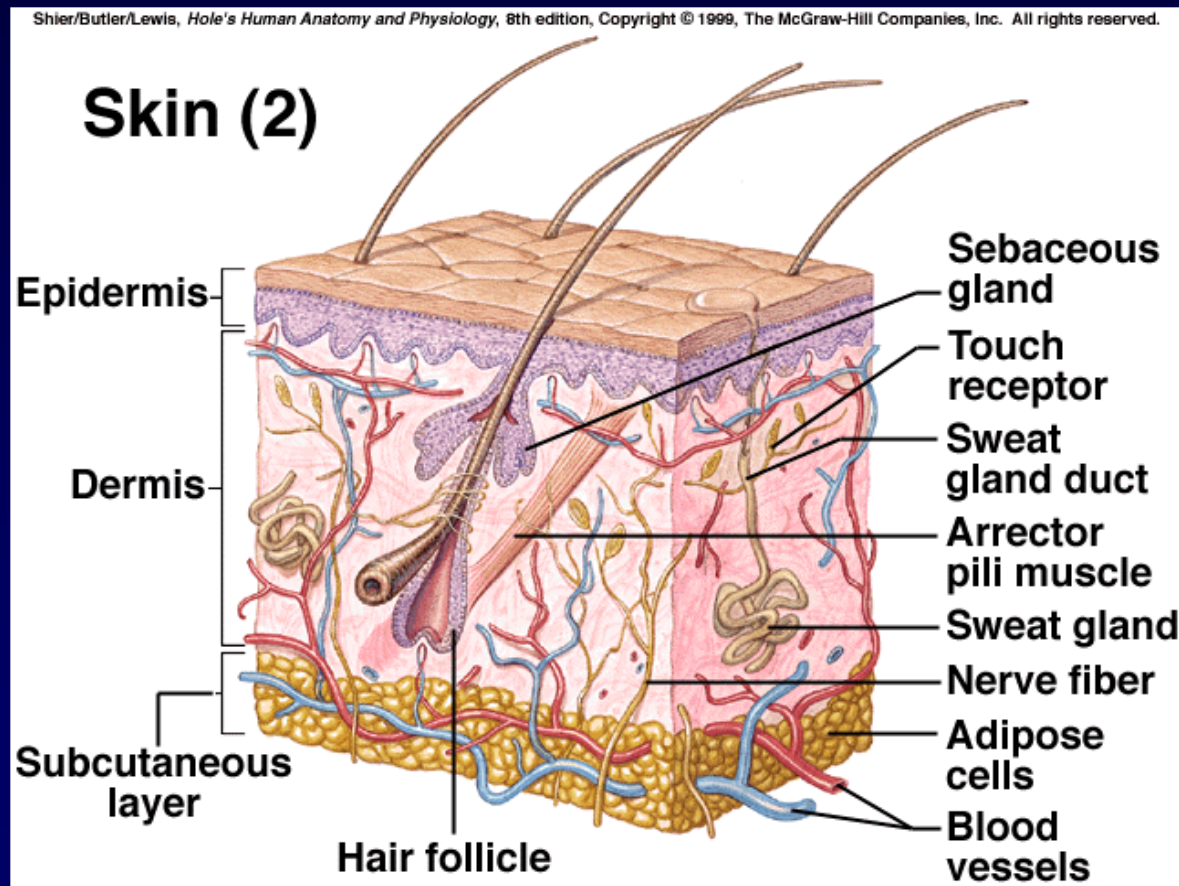
MELANOCYTES =

- specialized pigment cells in epidermis
- produce melanin
- absorb UV light & protect skin
- ?



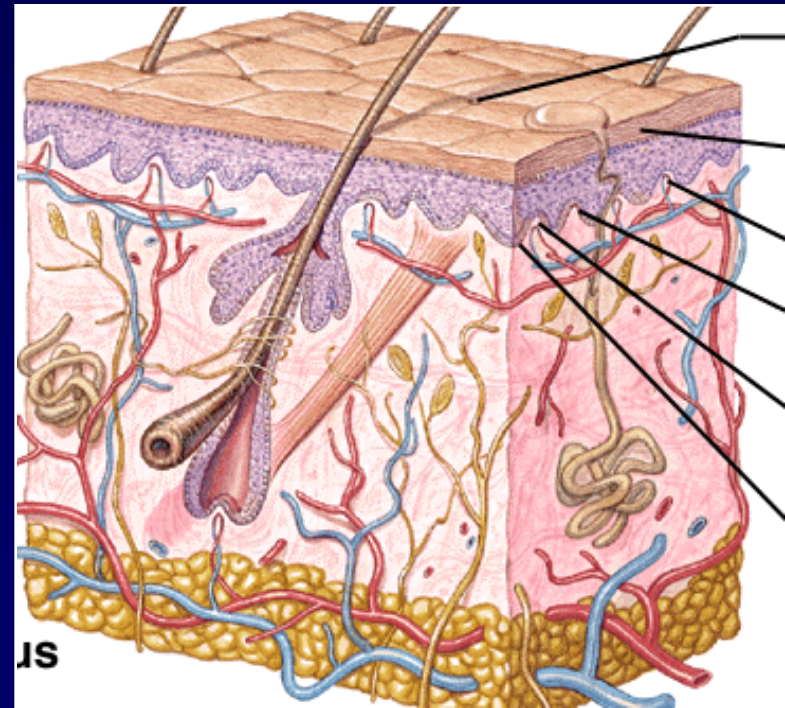
2) Dermis

-thickest layer (dense irregular C.T.)



2) Dermis

- blood vessels
- nerves
- sweat glands (*why is sweat important? what is in sweat?*)
- sebaceous glands (*why is sebum good for skin & hair?*)
- dermal papillae (*functions*)
- hair follicles

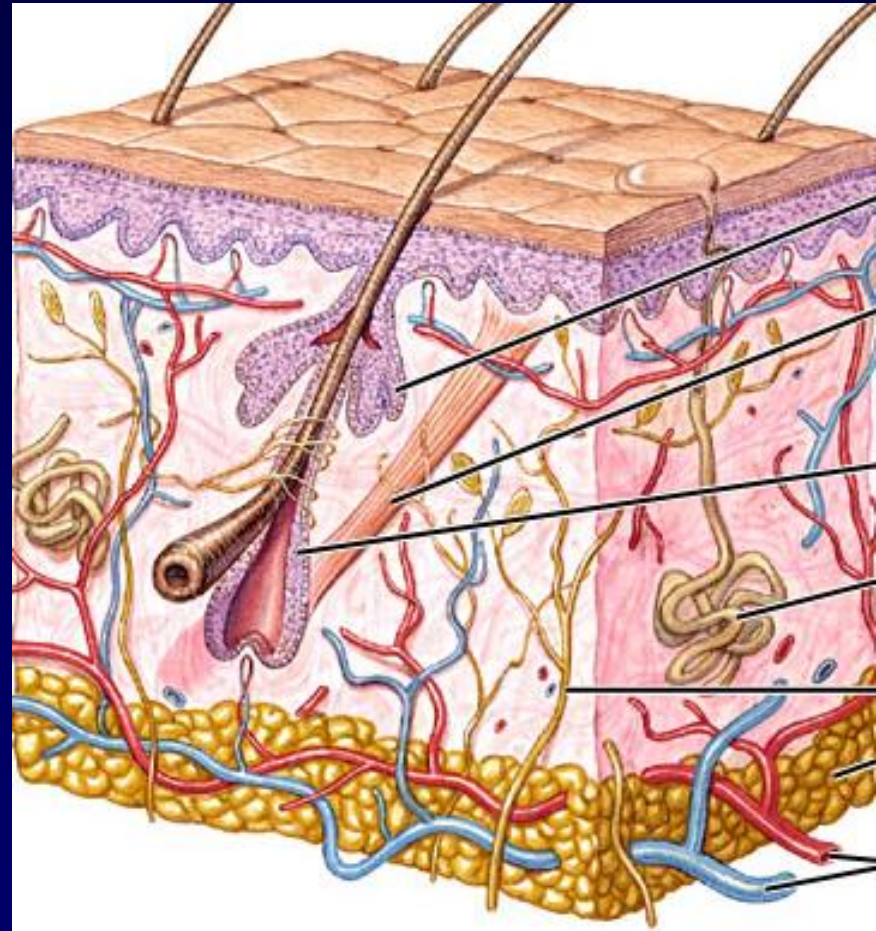


3) Subcutaneous layer (Hypodermis)

- not really a layer of the skin (under skin)
- rich in blood vessels and nerves
- adipose + areolar C.T.

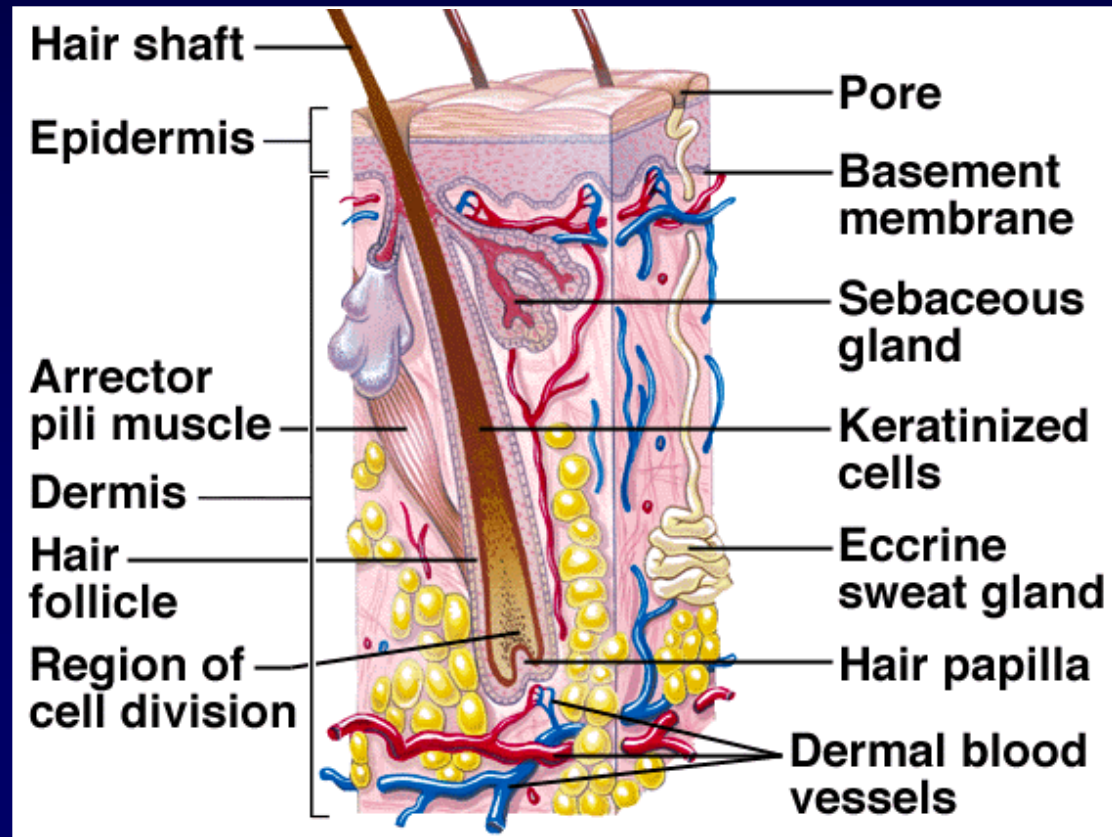
Functions: -

-



4) Accessory structures

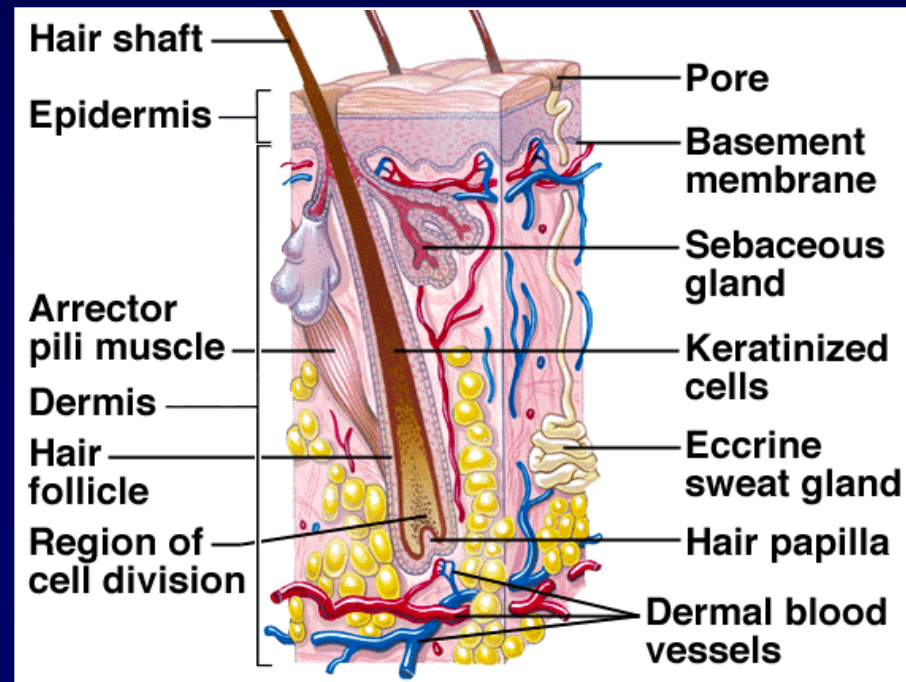
- blood vessels
- lymphatic vessels
- nerves
- hair
- nails
- glands



a) Hair

- “root” = located in dermis
- “shaft” = throughout dermis, epidermis & past keratin
- sebaceous glands
- arrector pili muscles (*what kind of muscle?*)

Hair Color: -melanin
-trichosiderin
-why gray?



- b) Nails**
- hardened epidermis
 - very hard keratin
 - *functions?*

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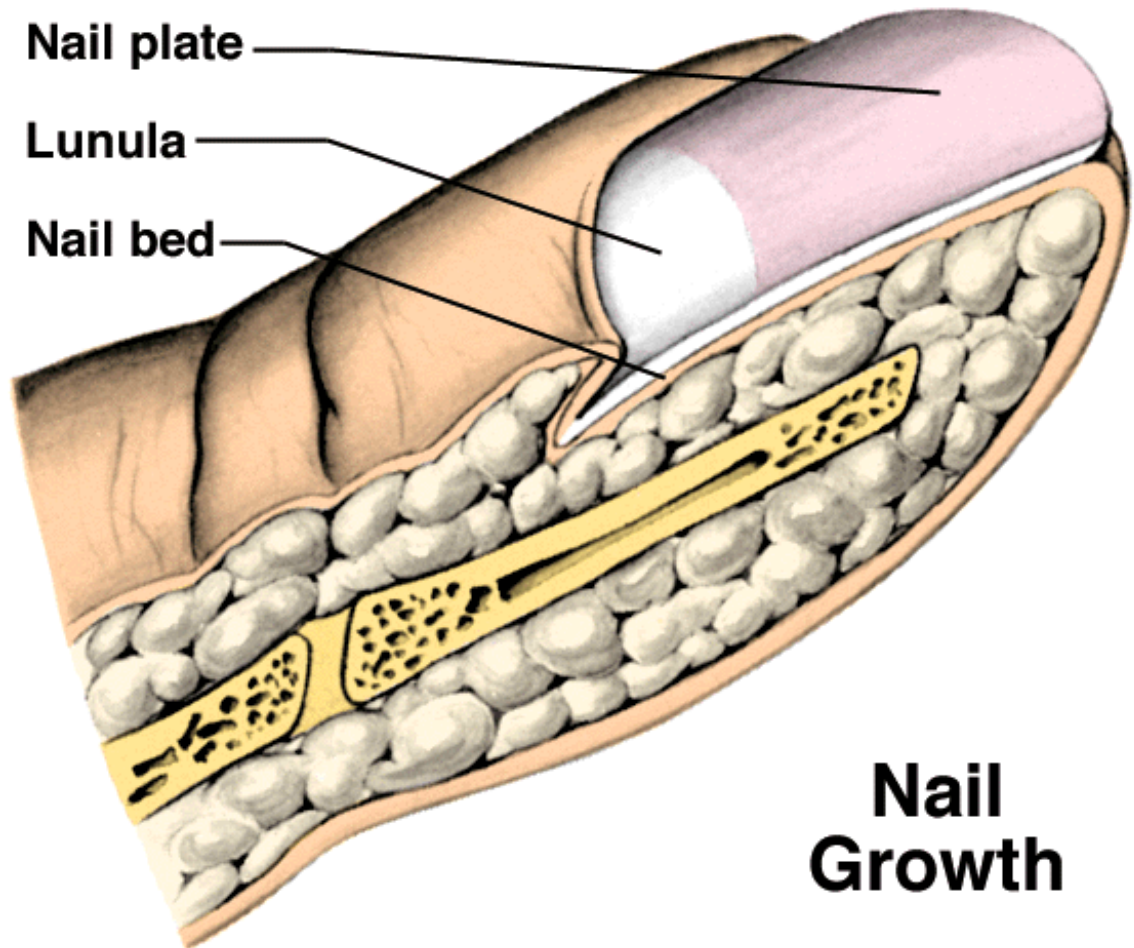


Fig 6.7

Nail Growth

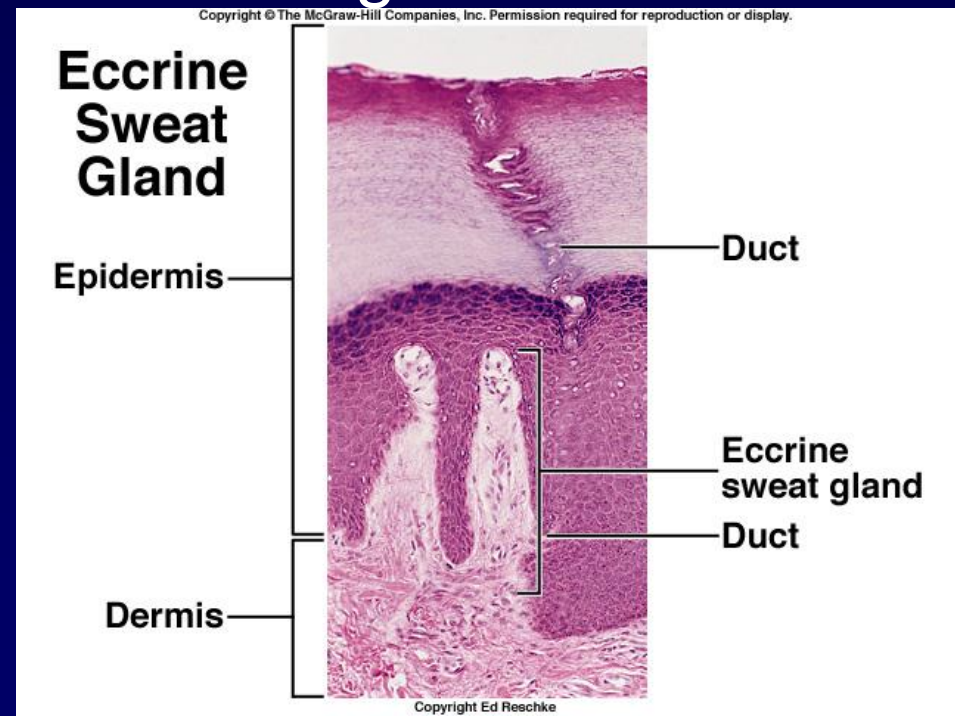
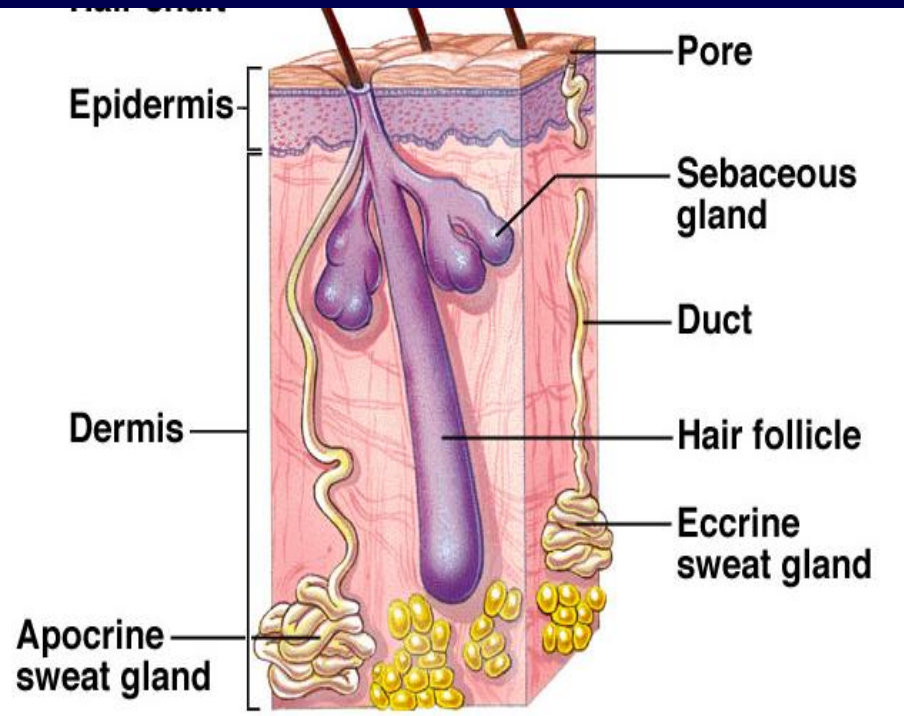
c. Exocrine Glands (have ducts)

i. Sweat Glands

eccrine - sweat glands found all over body

- H₂O, NaCl, some wastes

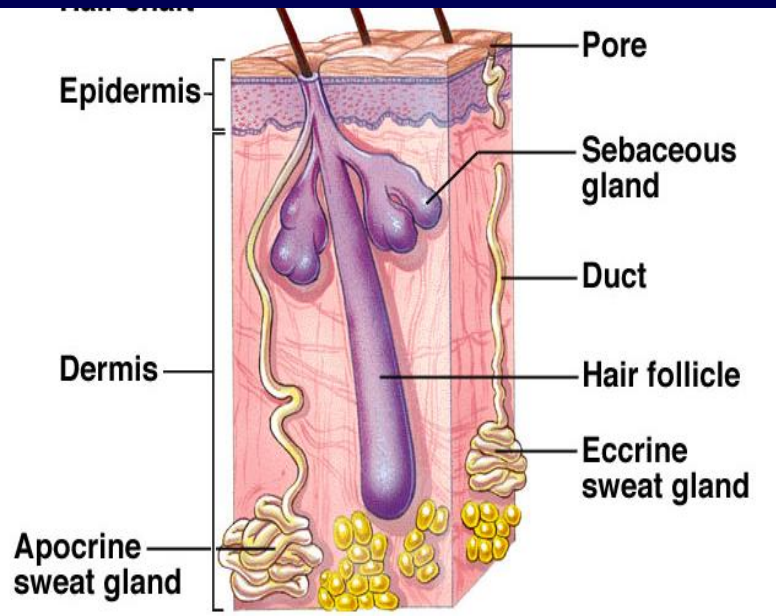
- temperature regulation



c. Exocrine Glands (have ducts)

i. Sweat Glands

- apocrine - most in axillary and groin regions
- connected to hair follicles
 - fluid contains organic molecules



c. Exocrine Glands (have ducts)

ii. Sebaceous Glands

iii. Ceruminous Gland

-wax producing

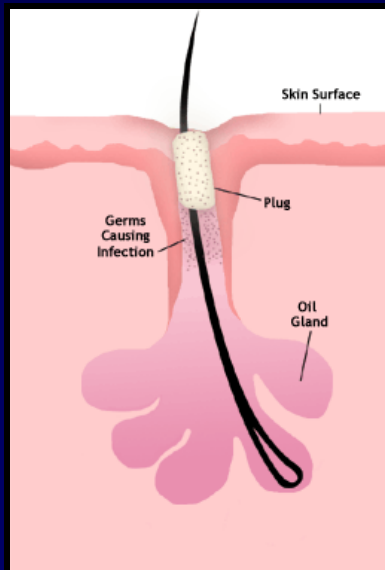
-found where?

SKIN COLOR

- 1) **albinism** – genetic abnormality, NO melanin
- 2) **carotene** – found in varying amounts
- 3) **cyanosis** – bluish/gray, low blood supply
- 4) Pink -
- 5) **jaundice** – yellow, poor liver function
- 6) Vitiligo -

SKIN DISORDERS

- 1) **Acne** – overactive sebaceous glands
(oil/**bacteria**)
- 2) **Impetigo** – **bacterial** infection, contagious
- 3) **Boil** – **bacteria** enters a hair follicle



Acne

Impetigo

Boil

SKIN DISORDERS

- 4) **Fungal** Infections - ringworm & athlete's foot
- 5) **Warts** - caused by **viral** infection
- 6) **Cold Sores** - *Herpes simplex virus*

SKIN DISORDERS

7) Burns

- a) 1st degree - epidermis damaged, red
- b) 2nd degree - epidermis destroyed, dermis damaged
 - blisters, fluid accumulation
- c) 3rd degree - epidermis & dermis destroyed
 - protective function is gone
 - damage/loss of nerve function
 - risk of death... *why?*
 - synthetic & cultured skin grafts

SKIN DISORDERS

- 8) **Wrinkles** - due to UV damage & age
 - elastin & collagen fibers deteriorate

SKIN DISORDERS

- 9) Skin Cancer** - 1 million new cases/year
- UV exposure

Cutaneous carcinomas: -arise from epithelial cells (basal or squar

Cutaneous melanomas: -arise at melanocyte
-more irregular and colorful

End of Integumentary System