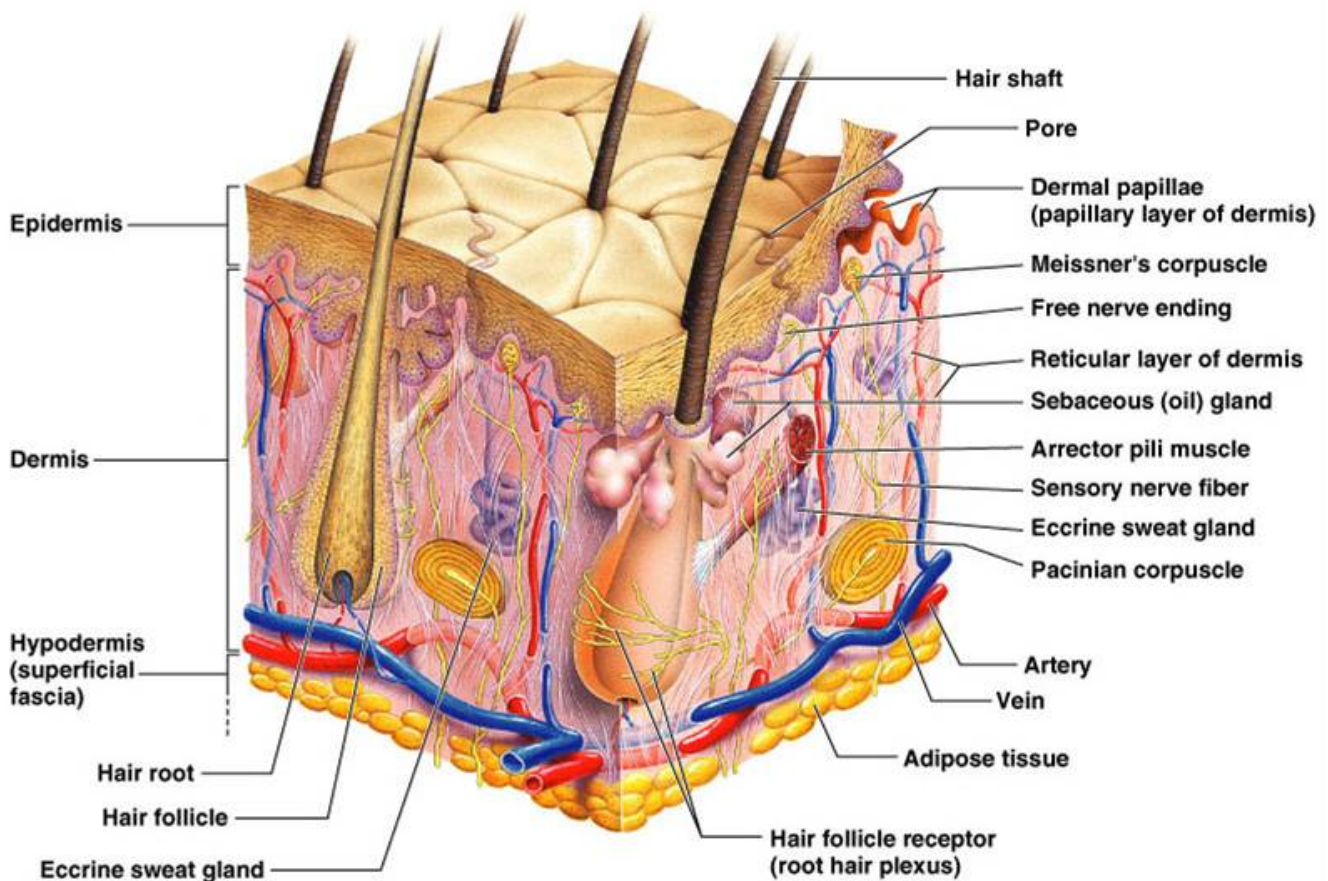


Integumentary System (Skin)



Structure: cutaneous membrane
(epithelial membrane)



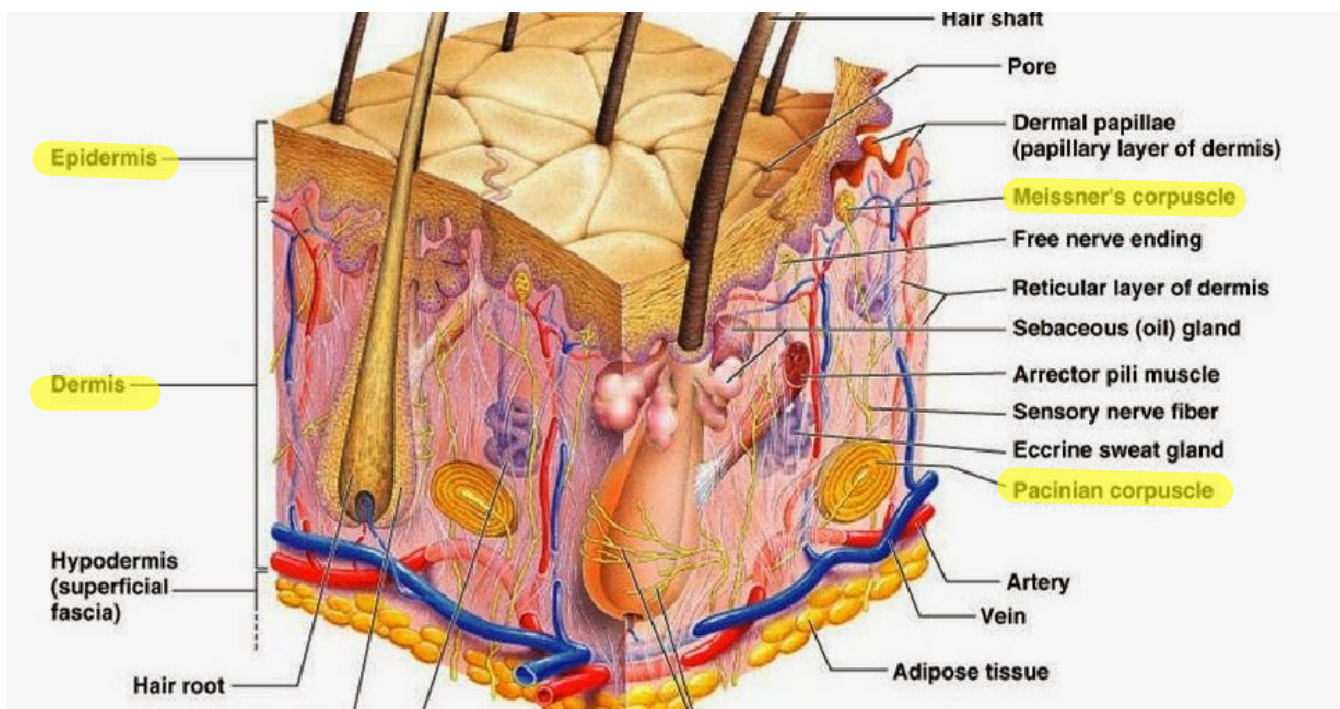
Copyright © 2004 Pearson Education, Inc., publishing as Benjamin Cummings.

Integumentary System (Skin)



Primary Function - Protection

- **Mechanical Damage (Bumps)**
 - › Keratinized cells toughen and waterproof epidermis
 - › Pressure receptors (Meissner and pacinian corpusels) alert nervous system

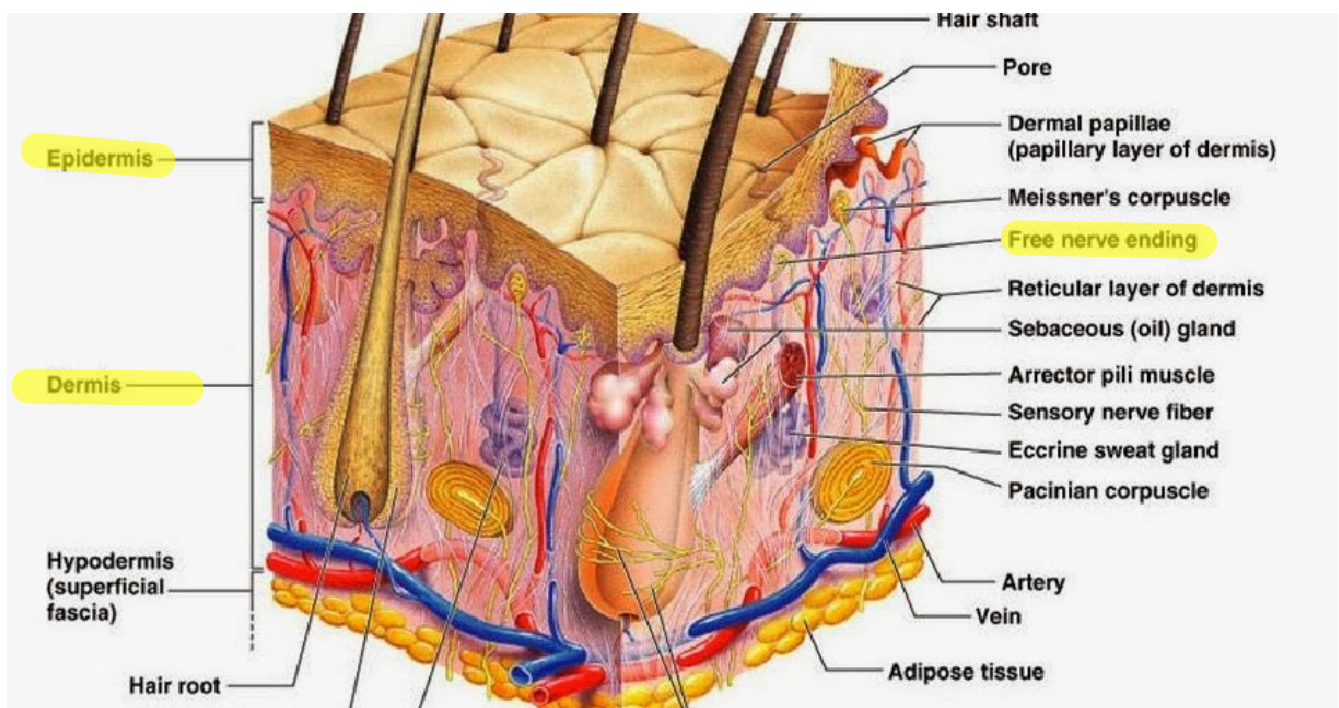


Integumentary System (Skin)



Primary Function - Protection

- Chemical Damage (Acids and Bases)
 - › Keratinized cells toughen and waterproof epidermis
 - › Pain receptors (free nerve endings) alert nervous system

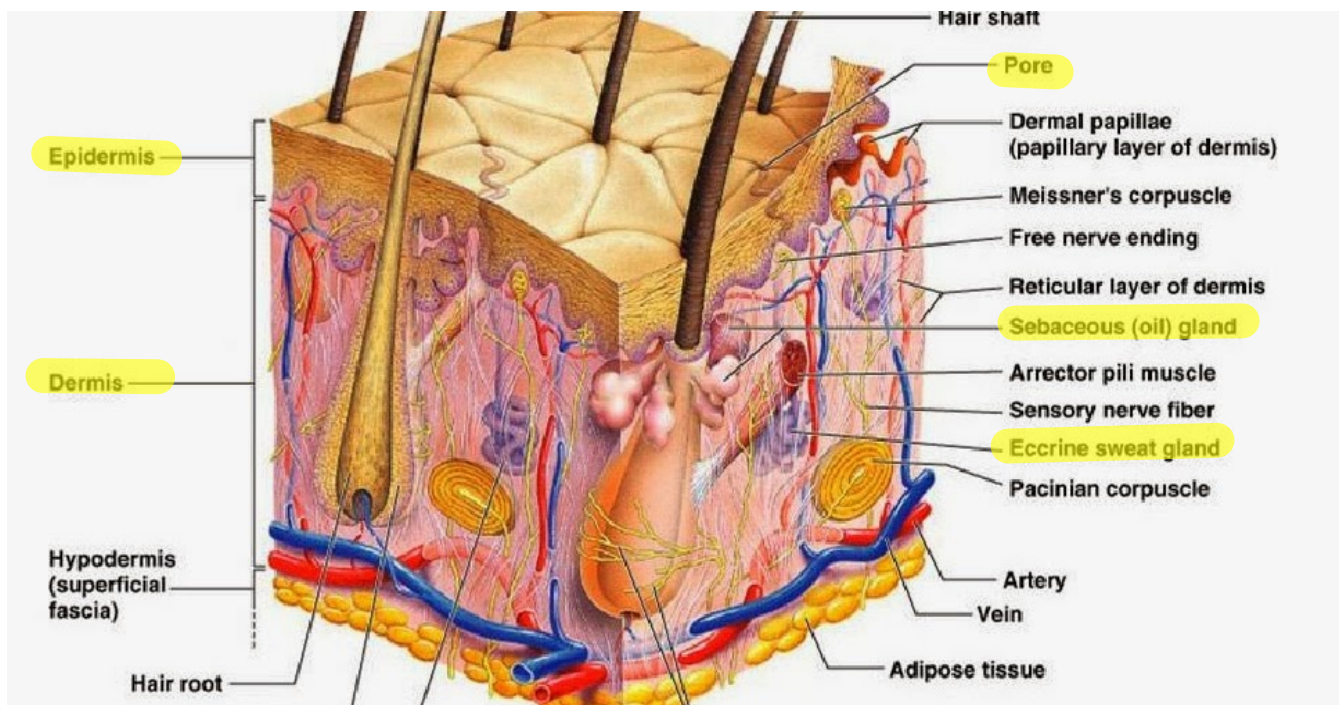


Integumentary System (Skin)



Primary Function - Protection

- **Bacterial Damage**
 - › Keratinized cells toughen and waterproof epidermis
 - › Skin secretions (oil and sweat) are acidic = kill bacteria
 - › Phagocytes ingest bacteria

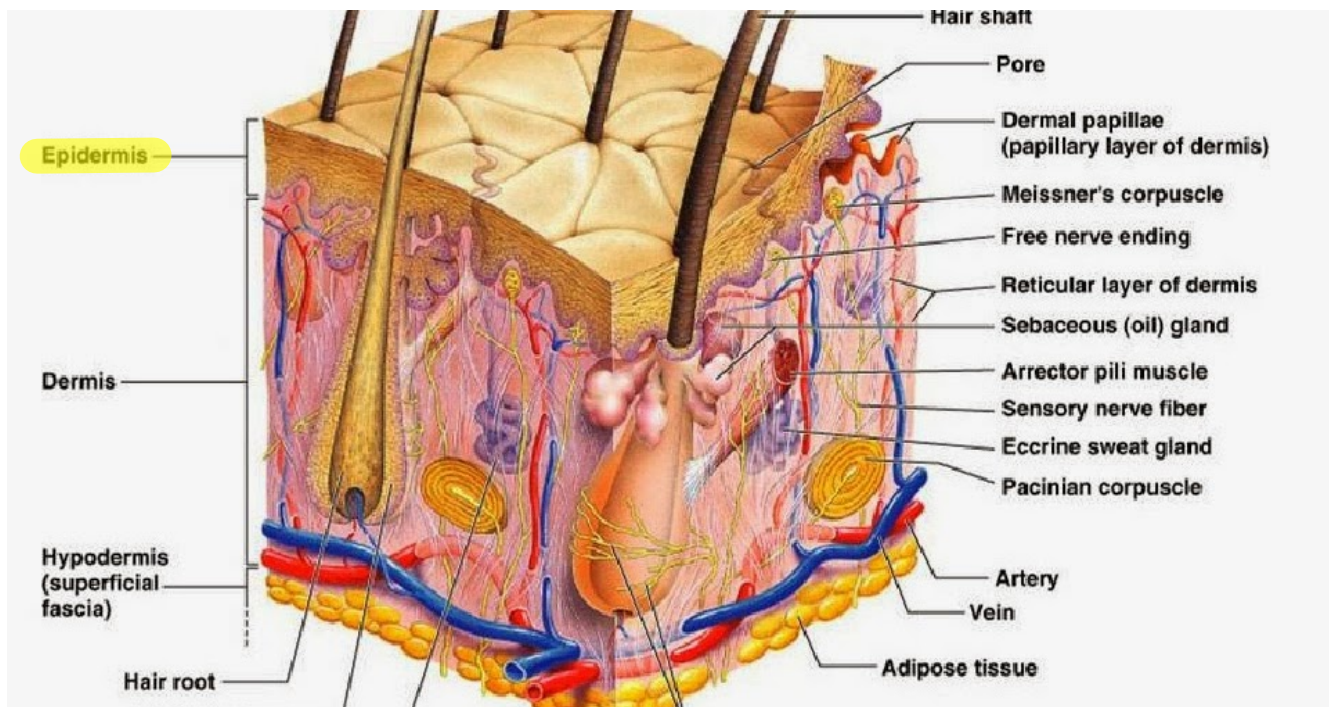


Integumentary System (Skin)



Primary Function - Protection

- Ultraviolet Damage (Damaging Effects of Sunlight)
 - › Melanin produced by melanocytes

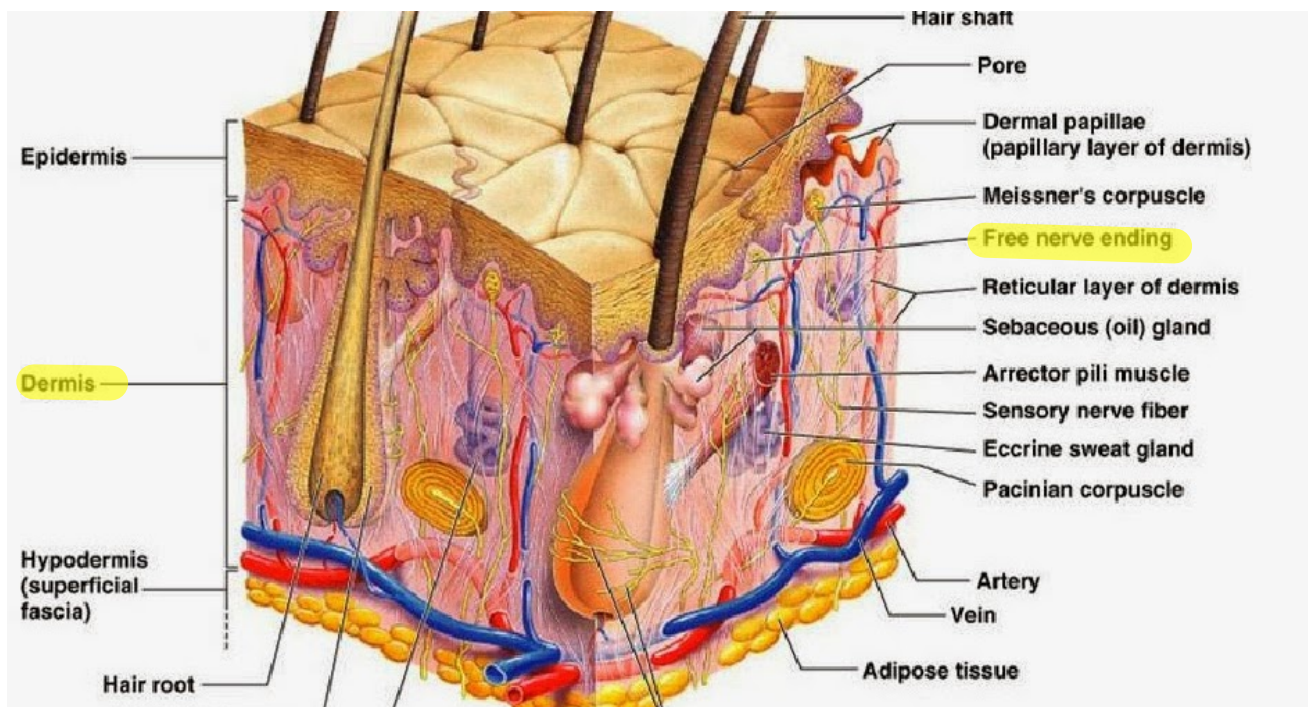


Integumentary System (Skin)



Primary Function - Protection

- Thermal Damage (Heat or Cold)
 - › Heat (Ruffini Corpuscles) / Cold (Krause Corpuscles) / pain receptors (Free Nerve Endings)

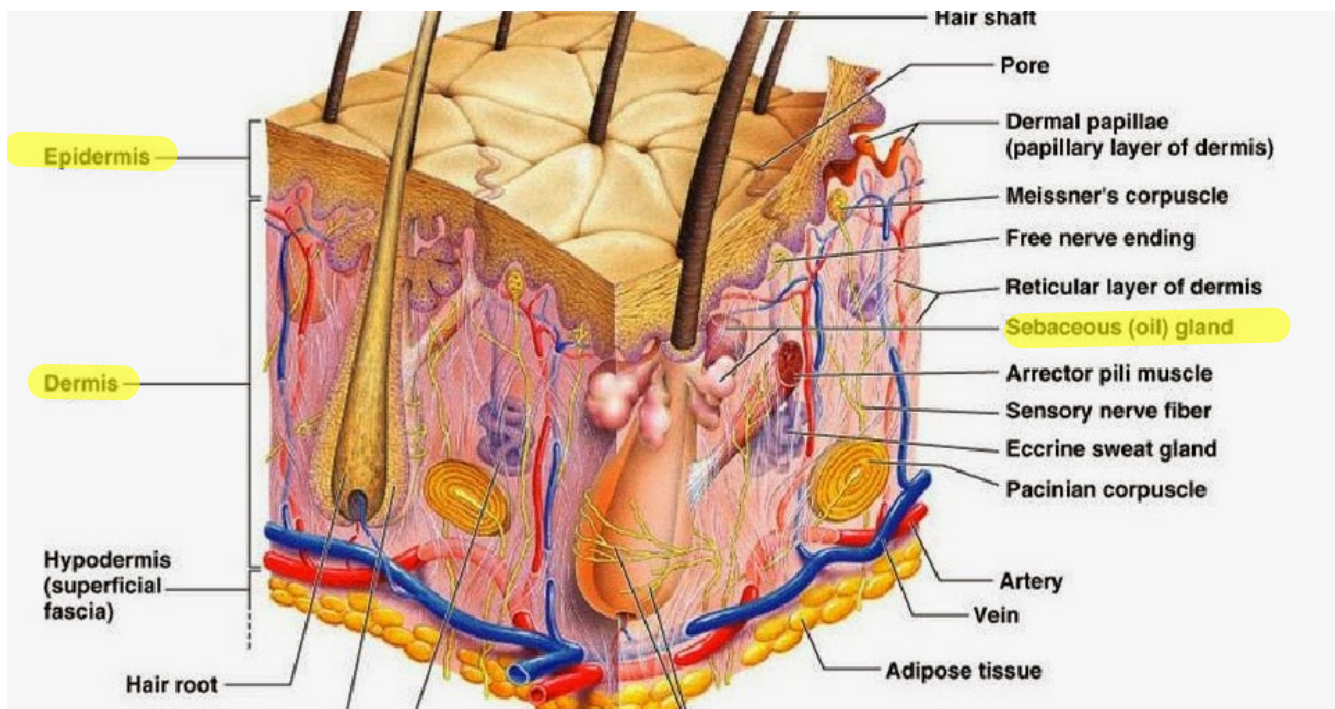


Integumentary System (Skin)



Primary Function - Protection

- Dessication (Drying Out)
 - › Keratin (waterproofing)
 - › Oil (Sebaceous Glands)

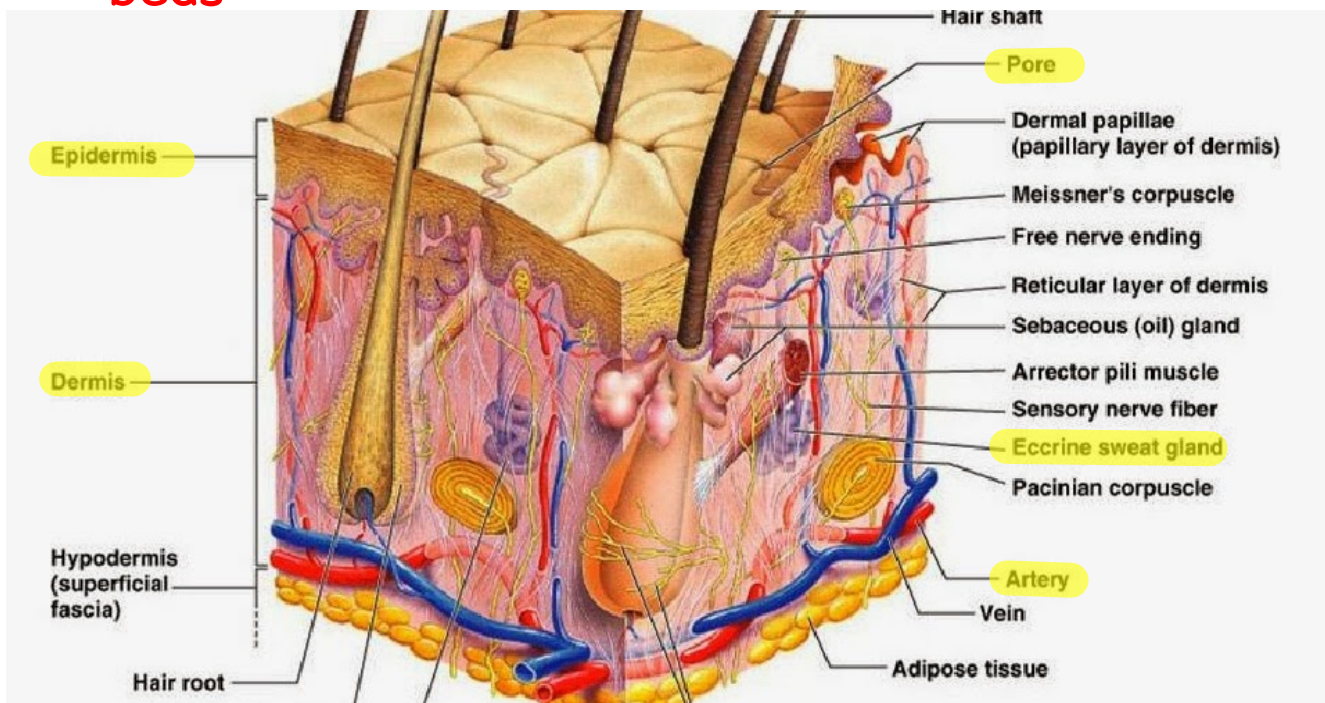


Integumentary System (Skin)



Additional Functions - Maintaining Internal Body Temperature

- Heat Loss
 - › Sweating (Suderiferous glands)
 - › Allowing blood to flush into skin capillary beds
- Heat Retention
 - › Not allowing blood to flush into skin capillary beds



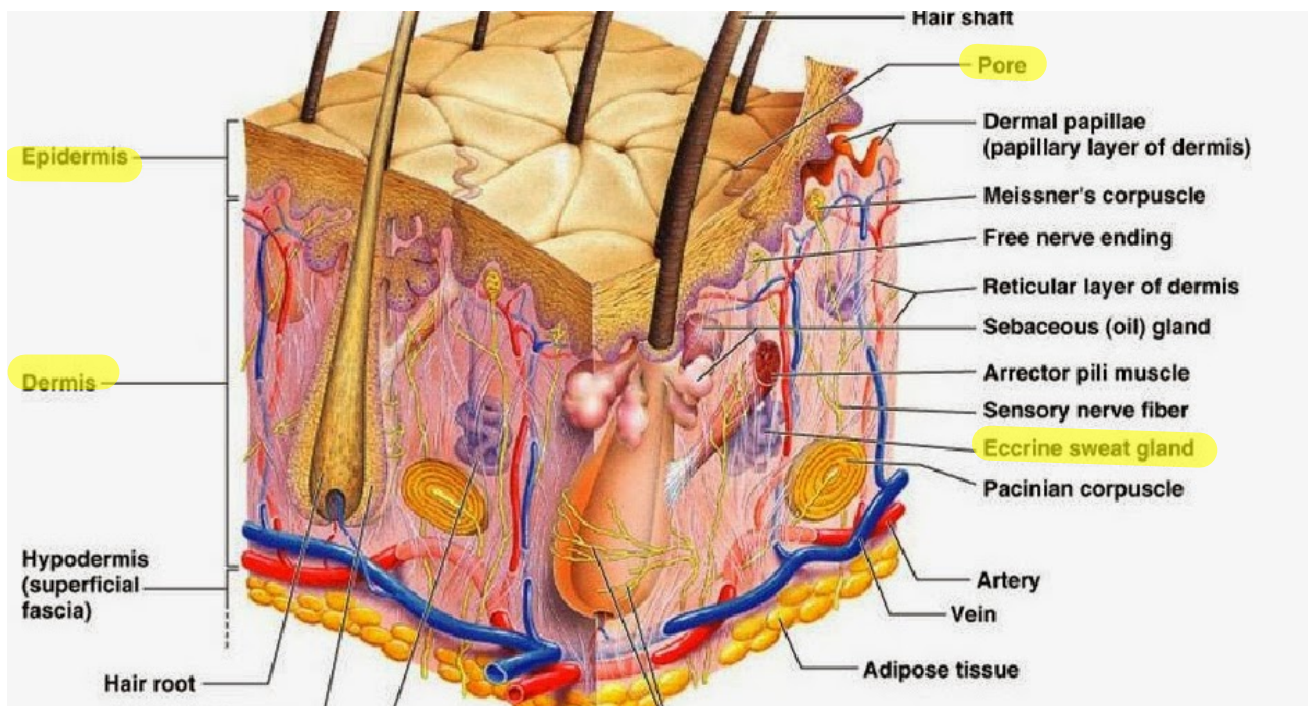
Integumentary System (Skin)



**Additional Functions - Excretion
of urea and uric acid**

Waste Excretion

> Sweating (Suderiferous glands)



Integumentary System (Skin)



Additional Functions - Vitamin D Synthesis

- Modified cholesterol molecules in skin converted to vitamin D by sunlight

