

\* Integumentary  
System  
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A diagram consisting of two overlapping, semi-transparent rectangular planes. The left plane is a darker shade of red and contains the word 'Skin' in bold black text. The right plane is a lighter shade of red and contains the word 'Fascia' in bold black text. The planes overlap in the center, with the 'Fascia' plane appearing slightly behind the 'Skin' plane.

**Skin**

**Fascia**

## \* **Tissues of the body**

- \* □ **The tissue:** is a group of cells
- \* **which perform a specific function**
- \* □ **There are four basic tissues:**
  - \* **1.Epithelium**
  - \* **2.Connective tissue**
  - \* **3.Muscular tissue**
  - \* **4.Nervous tissue**

**Skin**

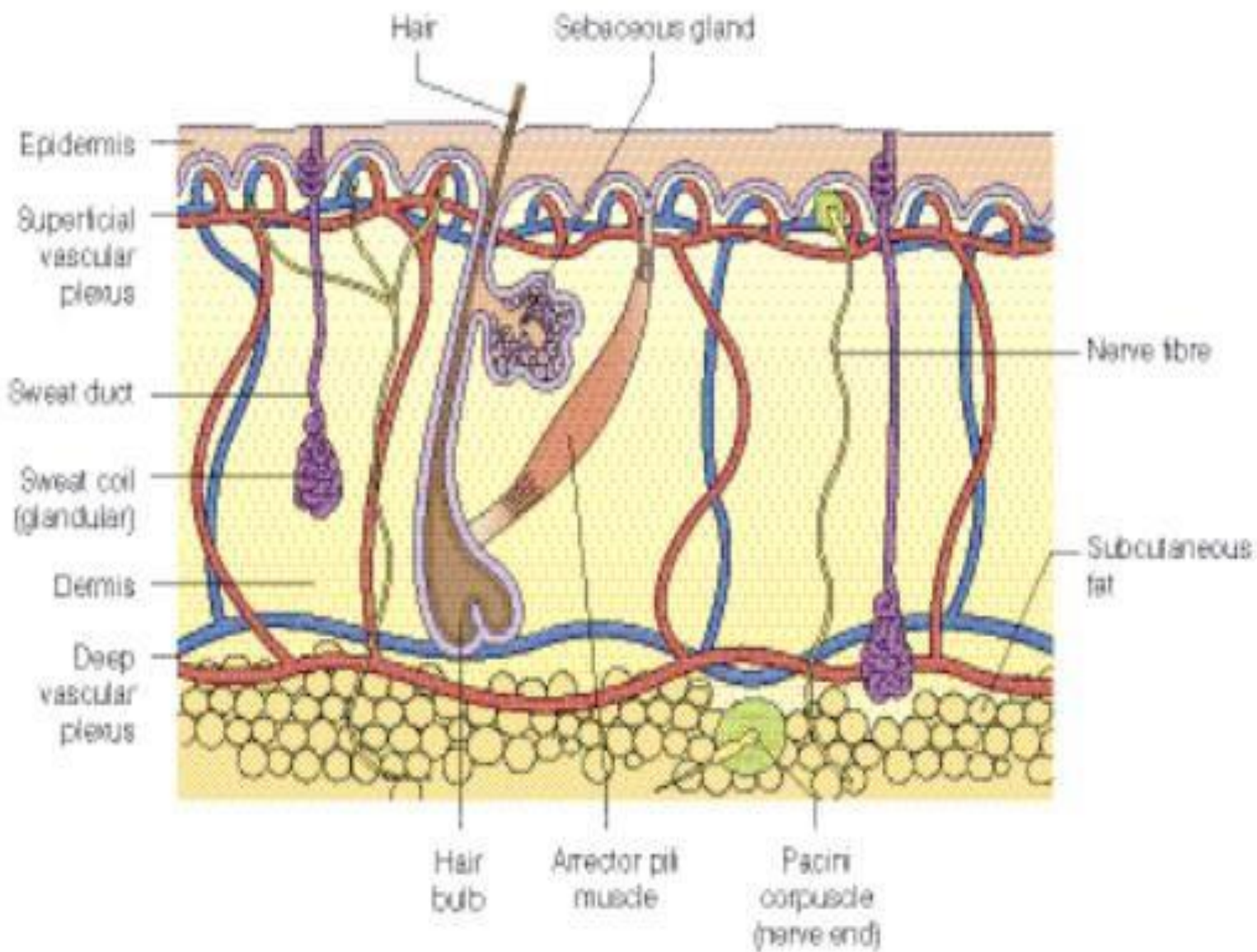
# Structure of the skin

**Superficial epithelial layer  
(epidermis)**



**Deep connective tissue layer  
(dermis)**

Deep to the dermis is the Hypodermis :subcutaneous tissue  
(superficial fascia)



## Epidermis

- Keratinized stratified squamous epithelium devoid of blood vessels
- Wear & tear occurs in superficial cells

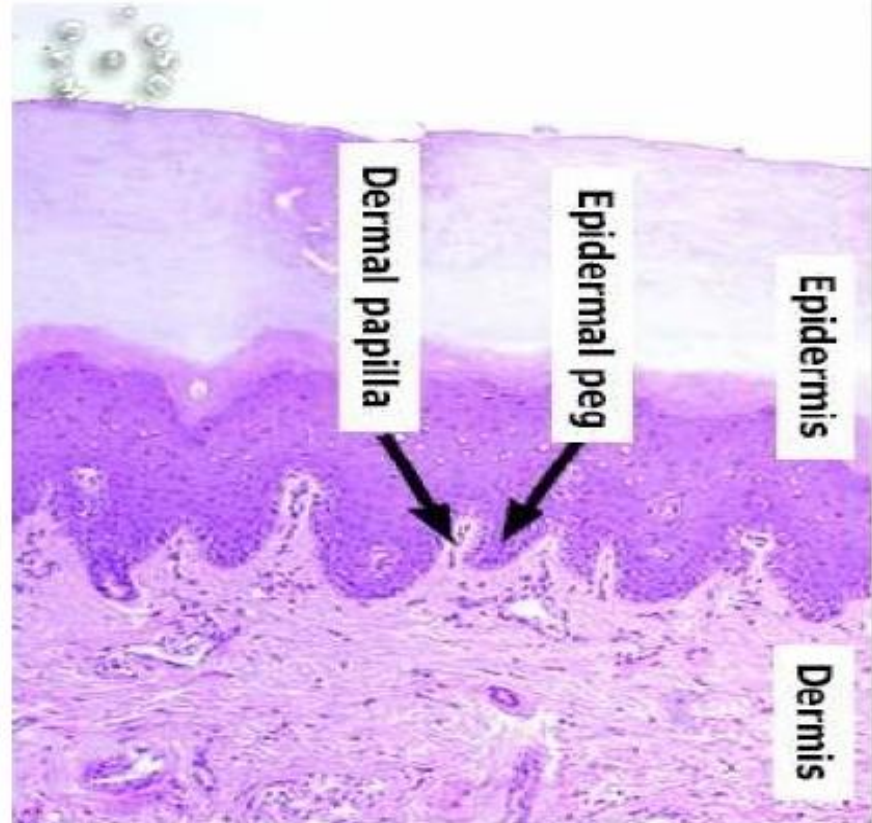
## Dermis

- Connective tissue containing (blood v. lymph v., sensory nerve endings, smooth m, hair follicles, sweat and sebaceous glands)
- In its deep part the collagen bundles are arranged in parallel rows



# Skin

- **Layers of skin**
- **Epidermis**
- *Five type of layers*
- **Dermis**
- *Two type of layers*
  
- **Dermal papilla** – conical projections of papillary layer of dermis into epidermis





# Epidermis

## Thickness:

The epidermis is generally thin except in :

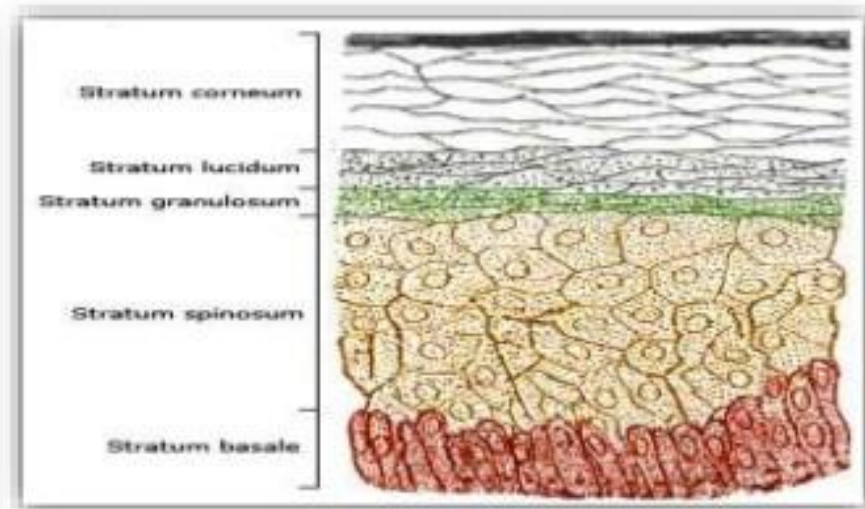
- The palms of the hand.
- The soles of the feet.

## Why?

To **protect** these parts and **withstand** friction, wear and tear that occurs in these regions.

# Layers of epidermis

- Stratum basale (the deepest layer)
- Stratum spinosum
- Stratum granulosum
- Stratum lucidum (only in thick skin)
- Stratum corneum (most superficial layer of epidermis)



# Dermis

- \* • Corium
- \* • Vascular layer of skin
- \* • Made up of connective tissue
- \* • Two layers:
  - \* – Superficial – papillary layer
- \* • Thin
- \* • 20%
- \* • Contains loosely arranged collagen fibers

\* Reticular layer:

\* – Thick

\* – 80%

\* – Composed of thick collagen bundles running

\* parallel to skin

# Functions of the Skin

- 1-Protection

- ☐ abrasion, invasion, water loss, UV protection

- 2-Vitamin D synthesis

- ☐ epidermal keratinocytes when exposed to UV light

- ☐ helps maintain health of skeleton by increasing absorption of  $\text{Ca}^{2+}$

- 3-Sensation

- ☐ receptors for heat, cold, touch, pressure, vibration and pain

- 4- Thermoregulation

- ☐ thermo receptors and sweat glands
- ☐ hypothalamus controls cutaneous arteries and sweat glands to retain or dissipate heat

- 5- Psychological and social functions

- ☐ appearance and social acceptance
- ☐ facial expression and nonverbal communication

# Langer's lines

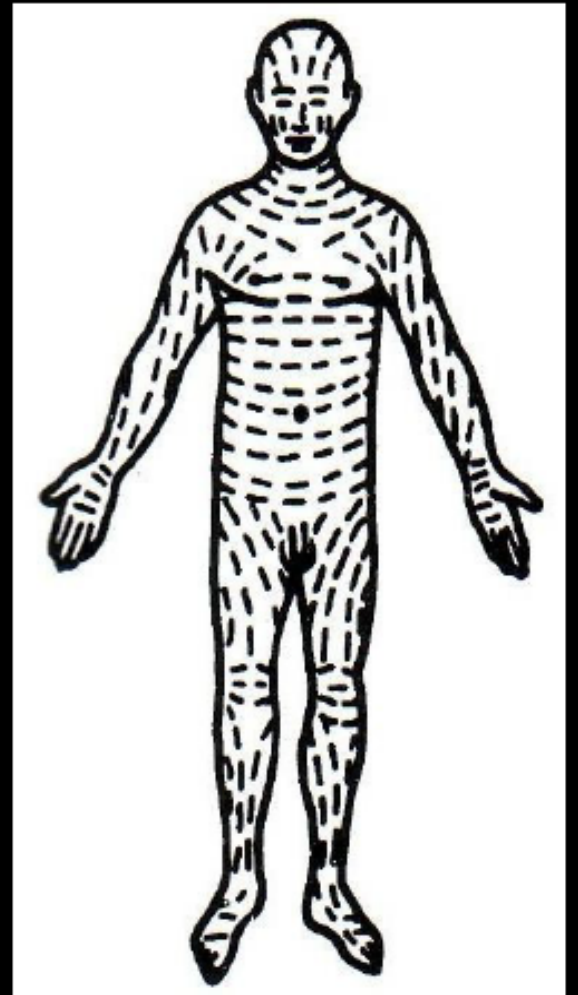
- The collagen fibers, arranged in parallel rows, called:

**Lines of cleavage (Langer's lines):**  
Tension lines

- The direction of the rows of collagen fibers in the dermis:

**It runs**

- **Longitudinally** in the limbs.
- **Circumferentially** in the neck and the trunk.





# Lines of cleavage

These lines are important to determine the **direction for an incision** (cut) during a surgery to avoid obvious scars.





- A surgical incision **along** or **between** these lines causes the minimum disruption of collagen so that the wound heals with a small scar.
- Conversely, an incision made **across** the rows of collagen makes a disruption resulting in the massive production of fresh collagen and the formation of a broad scar.