

SKIN AND FASCIA

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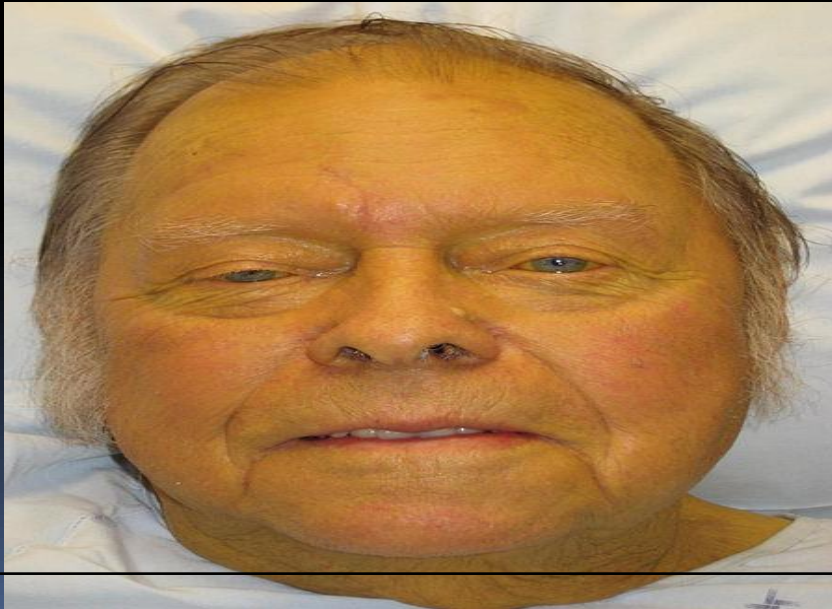


INTRODUCTION

1. SKIN
2. SUPERFICIAL FASCIA
3. DEEP FASCIA

Skin coloration

- Skin is the best indicator of general health
- Three skin pigments
 - Melanin
 - carotene
 - Hemoglobin

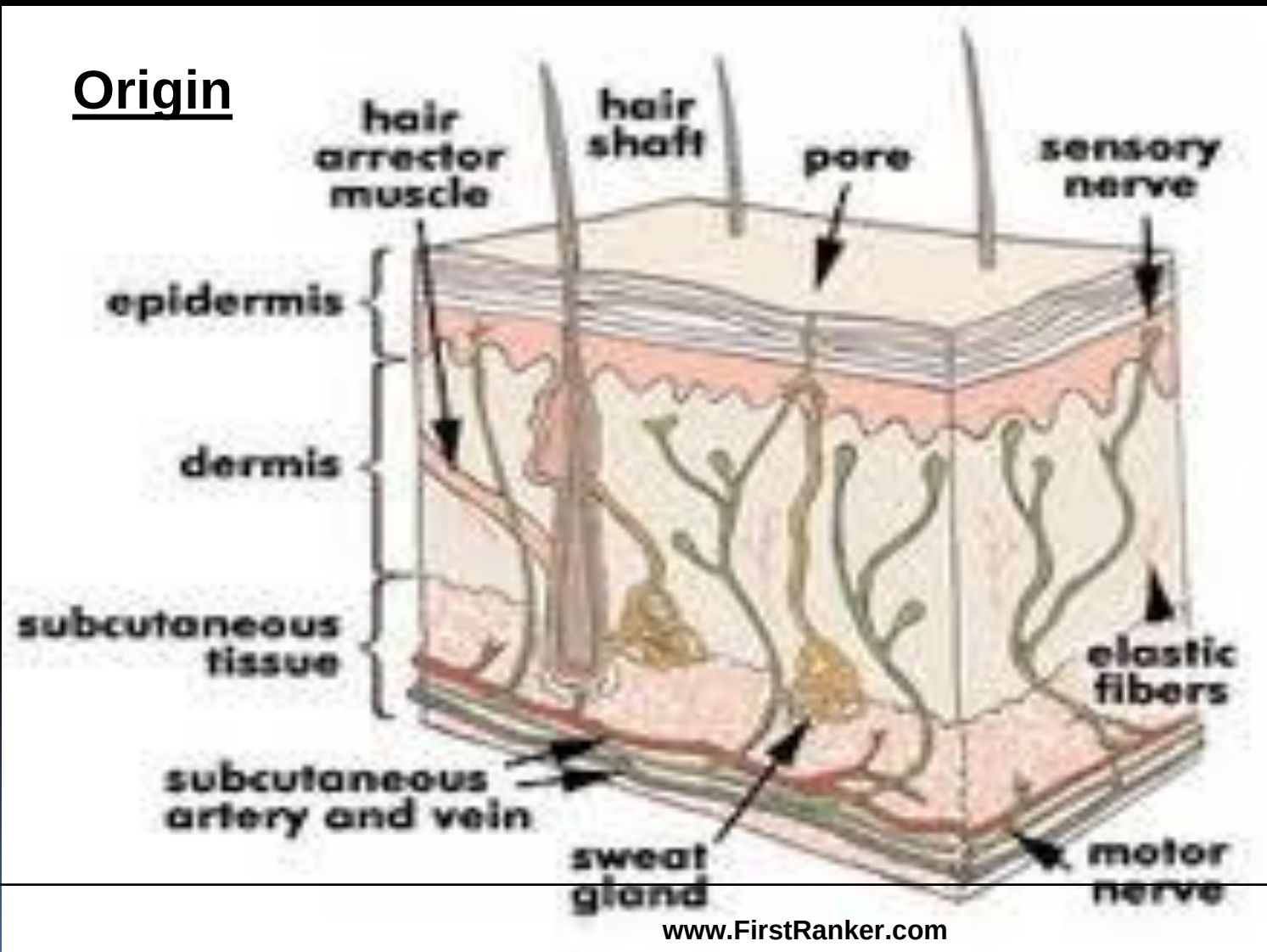


Functions of skin

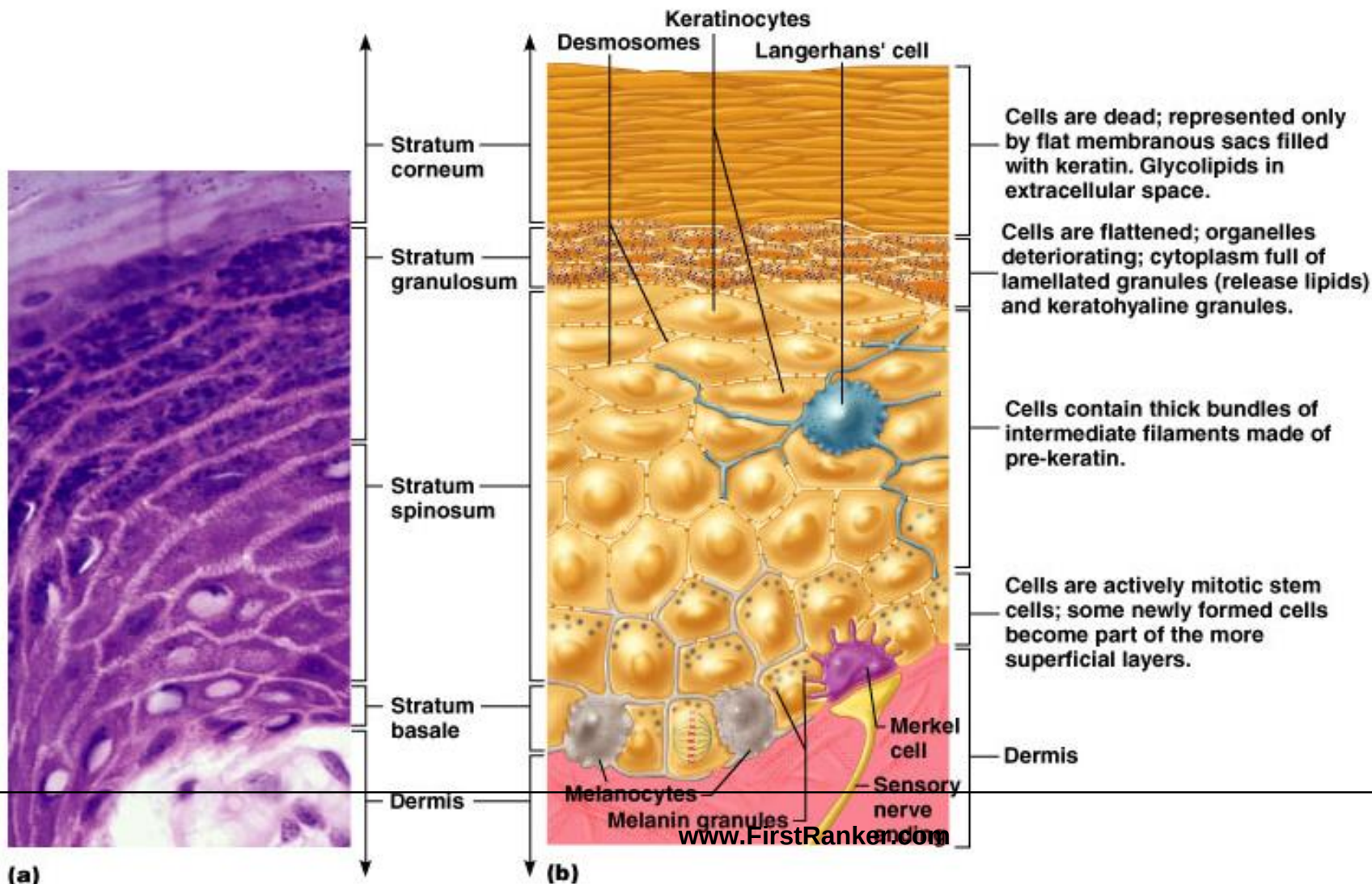
- Protection
 - Cushions and insulates and is waterproof
 - Protects from trauma, chemicals, heat, cold, bacteria
 - Screens UV
- Synthesis and storage of vitamin D
- Capable of absorption (drugs) and excretion (sweat)
- Regulates body temperature
- Prevents insensible water loss
- Sensory perception (nerve endings)
- Ability to regenerate

SKIN

Origin



EPIDERMIS





Layers of epidermis

Stratum Basale

- Lowest epidermal layer, near dermis
- Good nutrient supply
- Reproduces by mitosis
- Cuboidal, columnar in shape
- Moves to upper epidermis in 27 days

Stratum Spinosum

- Living cells
- Dividing
- 8-10 cells thick
- Polygonal in appearance

Cont...

Stratus Granulosum,

- Poor nutrient supply.
- Flatten layer of cells.
- 3-5 cells thick.
- No cell division.
- Keratin accumulates

Stratus Lucidum

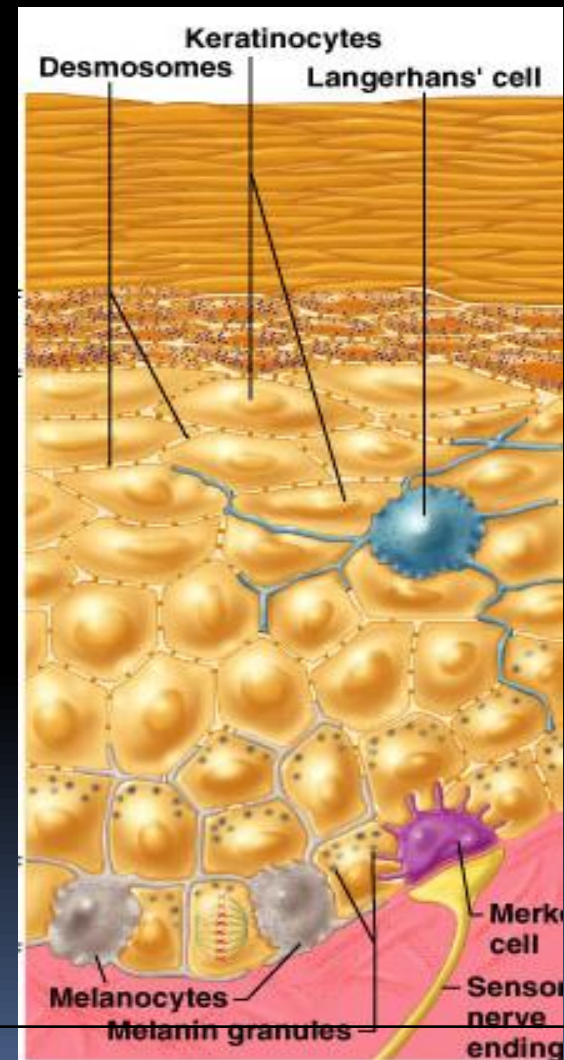
- Found only in very thick skin.
- Translucent.
- Highly keratinized.
- Dead cells

Stratum Corneum

- 25-30 cells thick.
- Cells are filled with keratin and hardened.
- Sloughed off
- Outer most layer of epidermis
- Keratinocytes

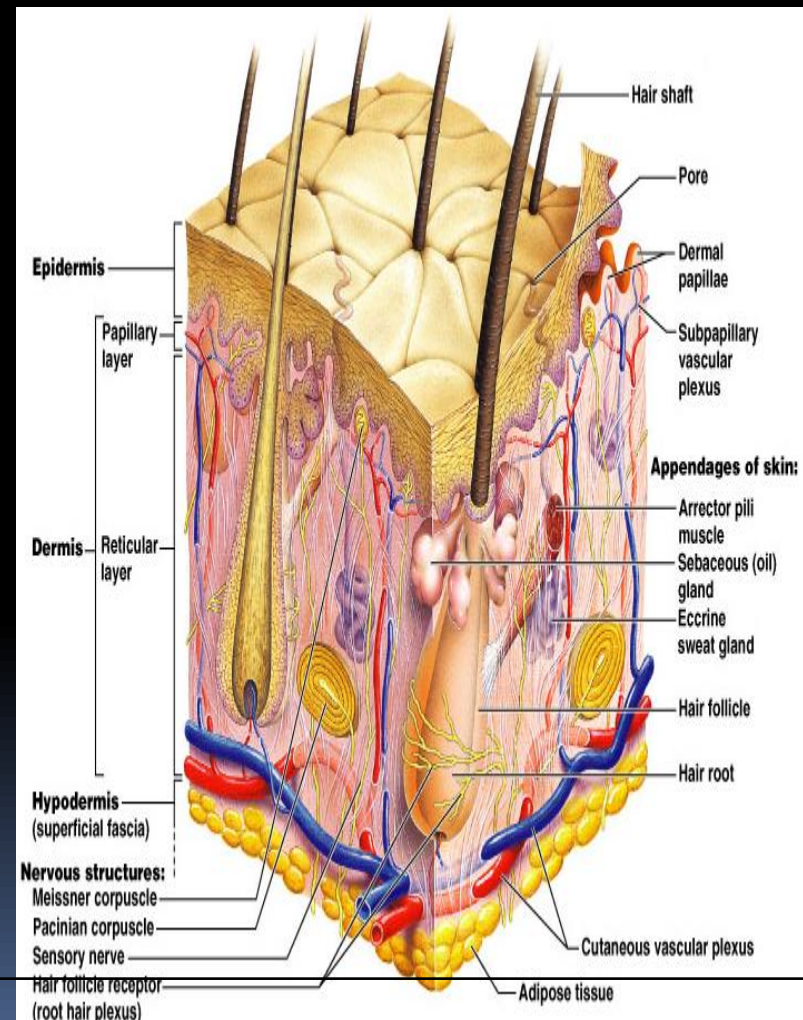
CELL TYPES IN EPIDERMIS

- **Keratinocytes** – produce keratin (tough fibrous protein)
- **Melanocytes** - Neural crest origin
- **Merkel cells** – Neural crest origin, associated with sensory nerve endings and specialized in the perception of light touch.
- **Langerhans cells** – Bone marrow origin, located in basal, spinous and granular layers, act as antigen-presenting cells.



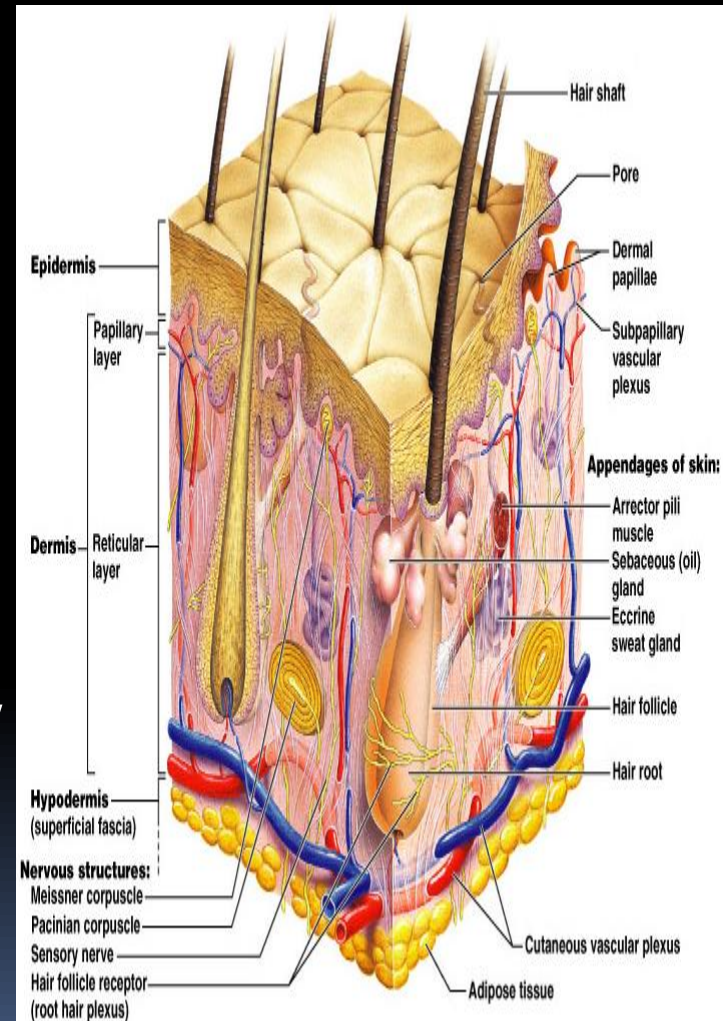
LAYERS OF DERMIS: Papillary layer

- Composed of loose areolar connective tissue.
- Fingerlike projections called *papillae*, that extend toward the epidermis.
- The papillae provide the dermis with a "bumpy" surface that interdigitates with the epidermis, **strengthening the connection** between the two layers of skin.



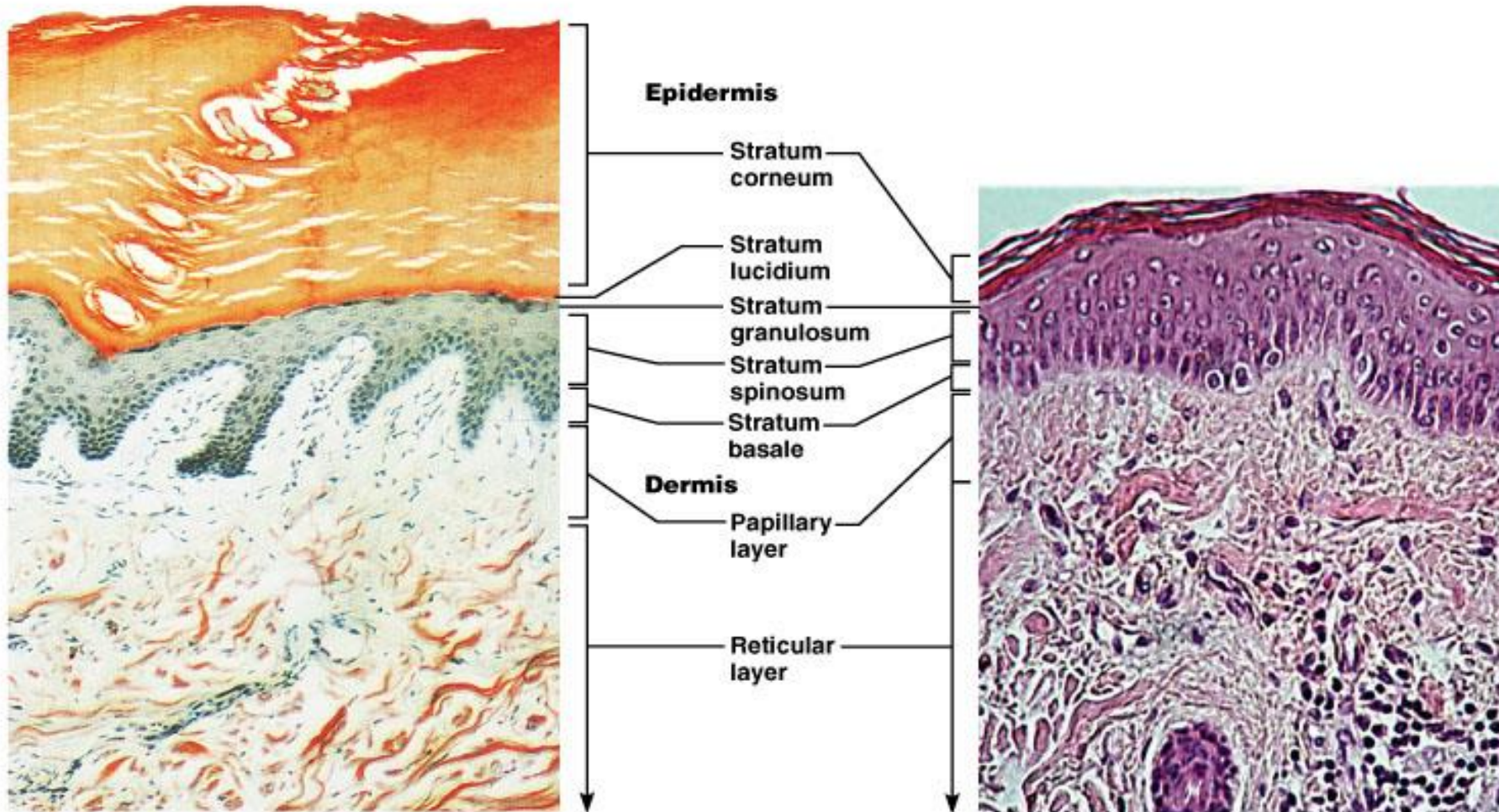
Reticular layers

- The reticular region lies deep in the papillary region and is usually much thicker contains the **skin appendages**
- It is composed of **dense irregular connective tissue**
- **Fibers:** are collagen, elastic and reticular, give the dermis its properties of strength, extensibility, and elasticity.
- **Cells:** fibroblasts, macrophages, mast cells, WBCs



THIN HAIRY SKIN

THICK NONHAIRY/GLABROUS SKIN

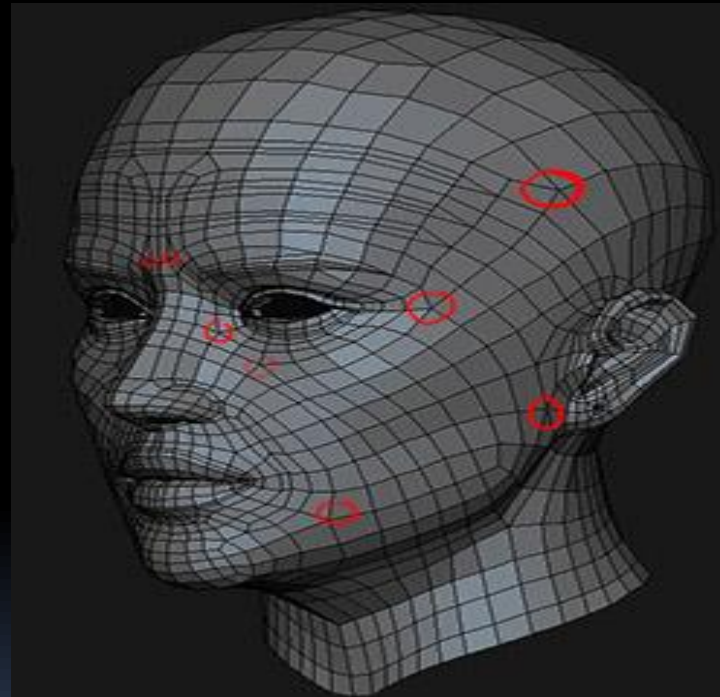


(a) Thick skin

(b) Thin skin

Surface tension lines/ skin creases

- Form a network of linear furrows which divided the surface into polygonal or lozenge shaped areas . These lines to some extent correspond to variations in the pattern of fibers in the dermis.



Tension lines/Cleavage lines/Langer lines

- These are tension lines of skin, due to the patterns of arrangement of collagen fibers in the dermis.
- These lines were first described by *Langer* in 1861 on cadaver.
- Tend to spiral longitudinal in the limbs and run transversely in the neck and trunk.
- At the elbow, knee, wrist and ankles are parallel to the transverse creases that appear when the limbs are flexed.



Skin incisions

- Skin incisions that are given parallel to the tension lines usually heal well with minimal scarring because of minimum disruption of collagen fibers.

Stretch marks in skin

- Damage to the collagen fibers in dermis due to over stretching as in pregnancy or abdominal enlargement.



Wrinkle lines

- Caused by contraction of underlying muscles, present perpendicular to their axis of shortening.
- On face, they are known as lines of facial expression, aging makes them permanent due to loss of skin elasticity.

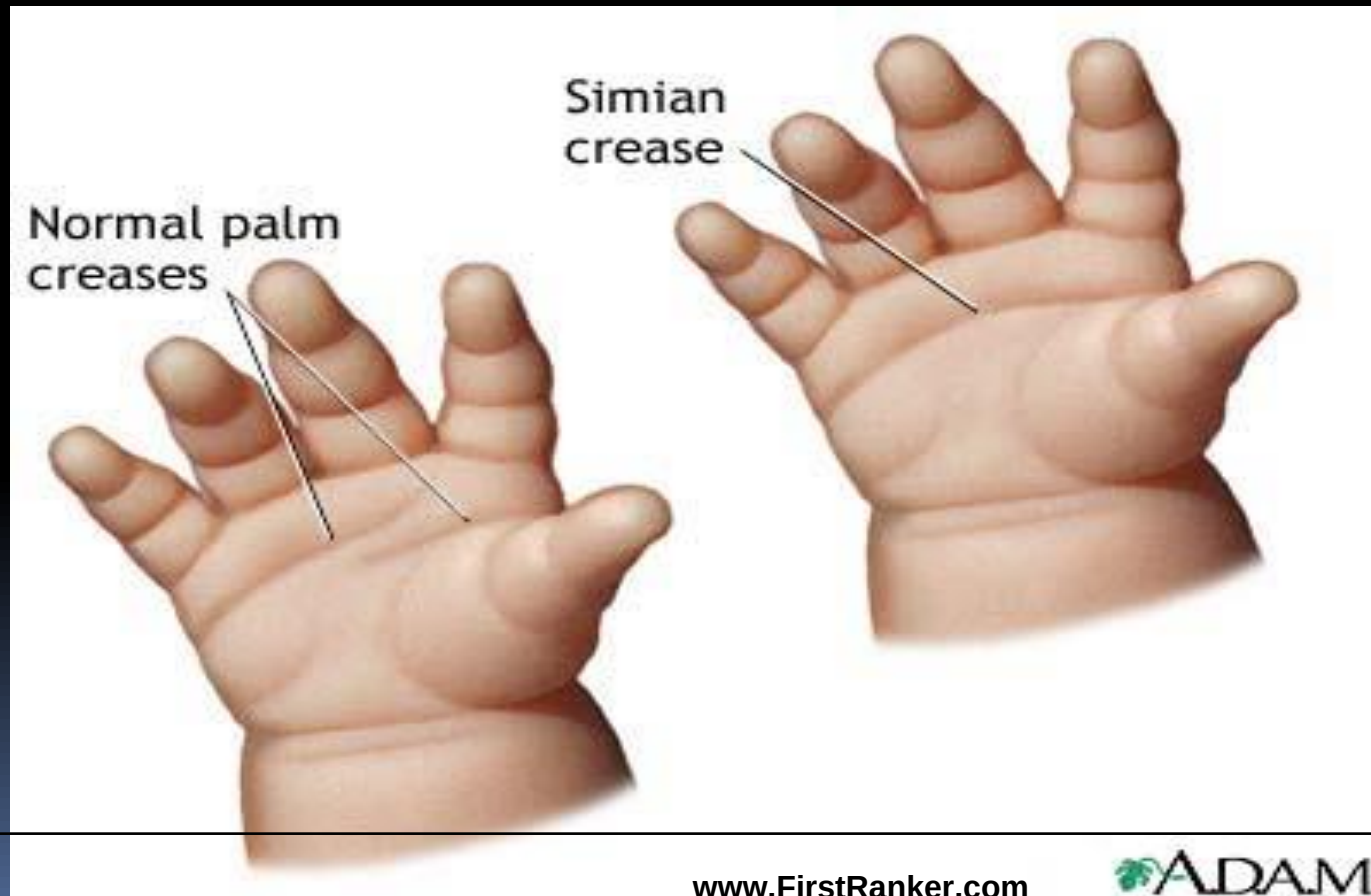


Flexure lines or joint lines

- Major markings found in the vicinity of synovial joints where the skin is attached strongly to underlying deep fascia.
- Prominent on the flexor surfaces of palms, soles and digits.
- Skin lines don't necessarily coincide with the underlying joint line.

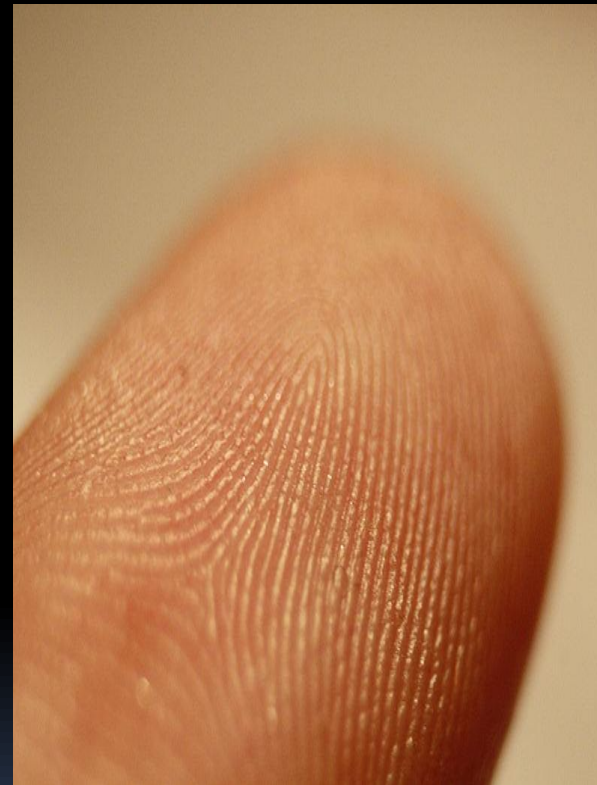


Flexure lines



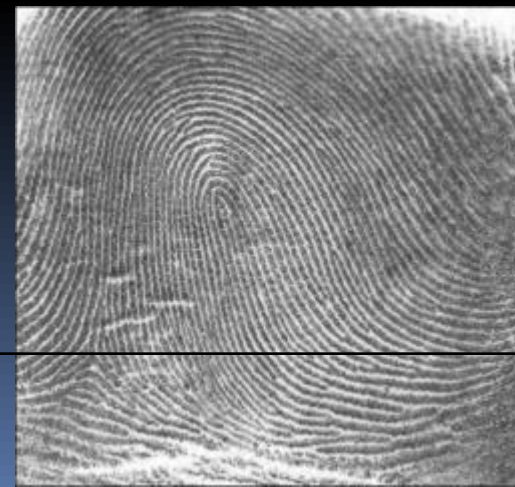
Papillary/epidermal/friction ridges

- A friction ridge is a raised portion of the epidermis on the fingers and toes, the palm of the hand or the sole of the foot.
- Are caused by the underlying interface between the **dermal papillae** of the dermis and the **interpapillary (rete) pegs of the epidermis**.
- along the summit of each ridge the **apertures of sweat ducts** open at regular intervals.
- **Dermis determines the developmental pattern of epidermis**

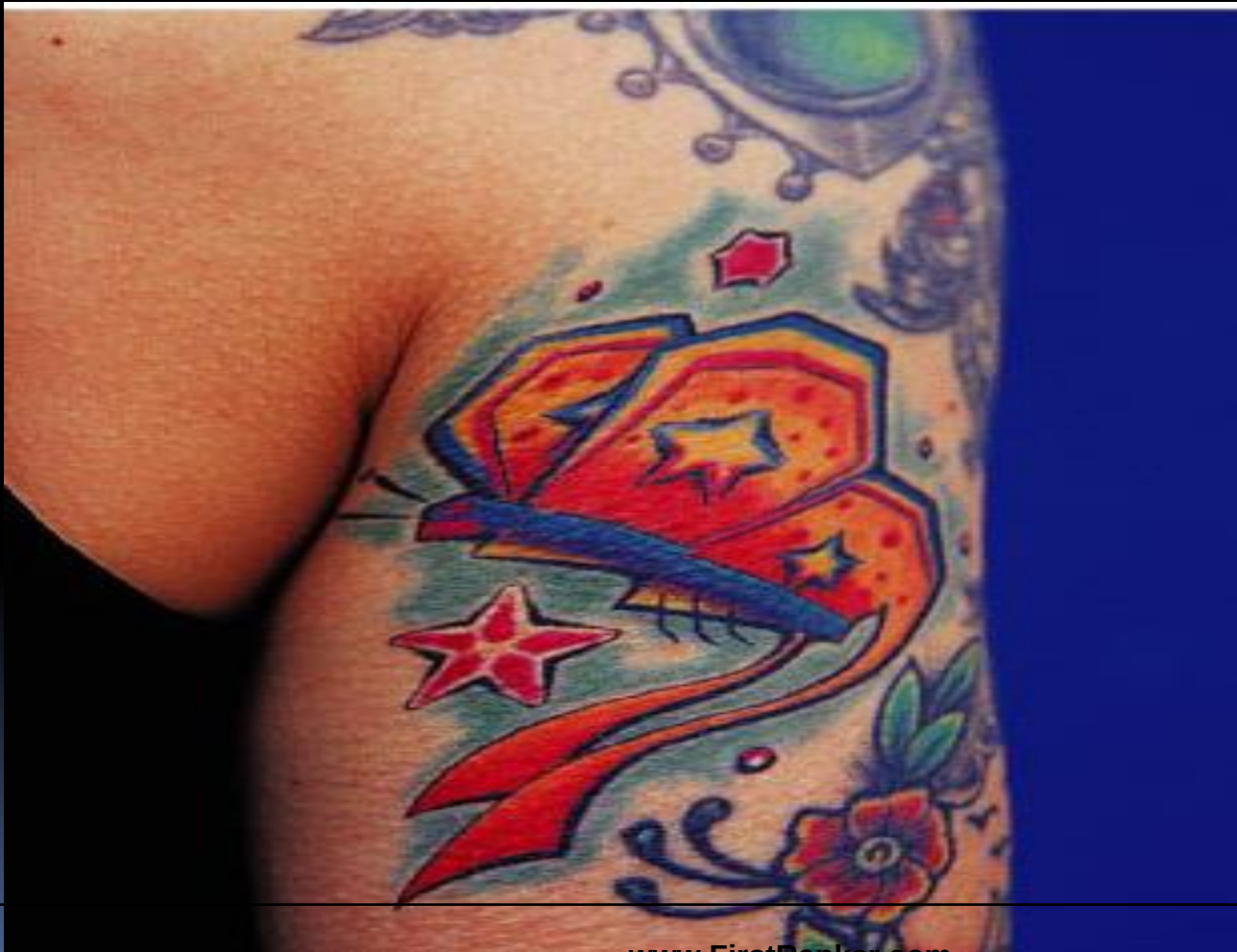


FINGER PRINT

- A **fingerprint** is an impression left by the **friction ridges** of a human finger
- This is genetically determined, unique to the individual, stable through out life & serves as a mean of personal identification.
- The analysis of ridge patterns by studying finger and foot prints is known as **dermatoglyphics**.

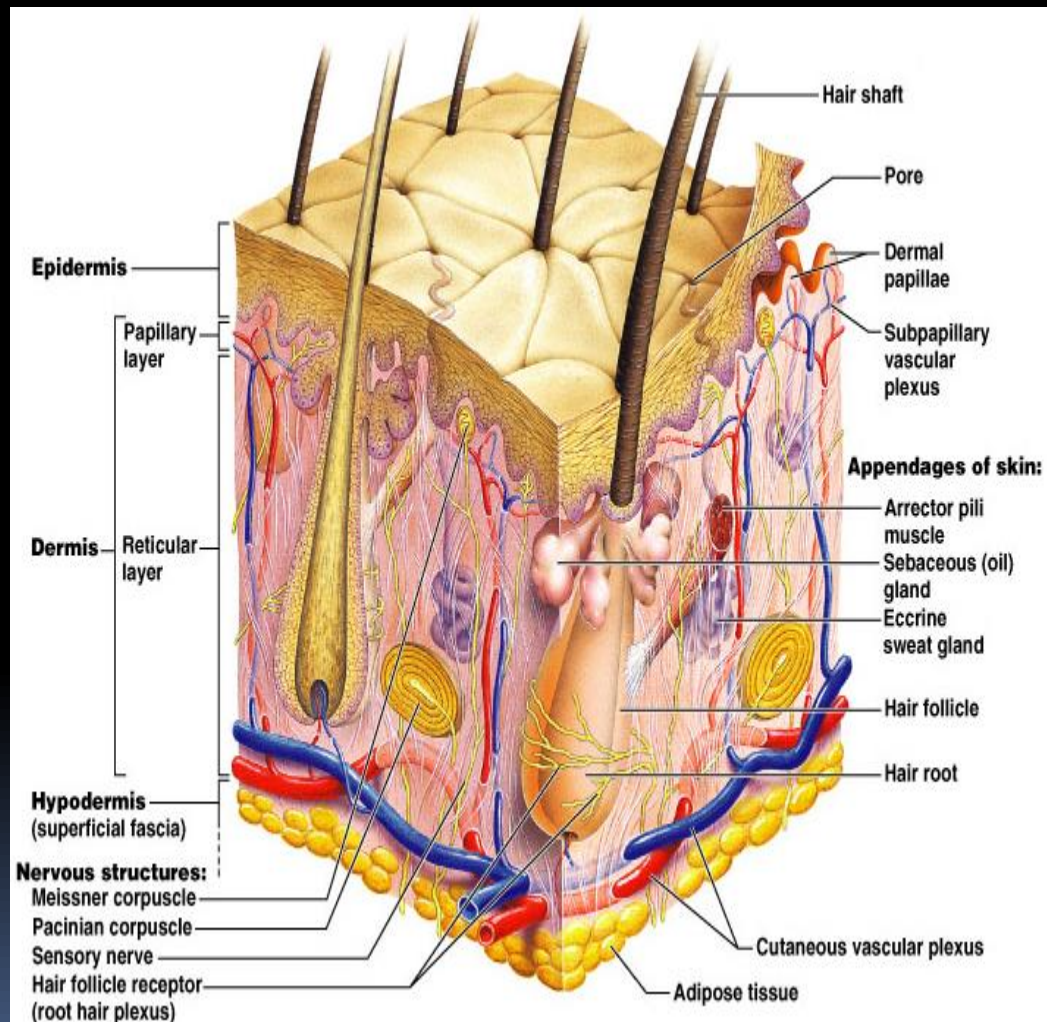


The dermis is the receptive site for the pigment of tattoos



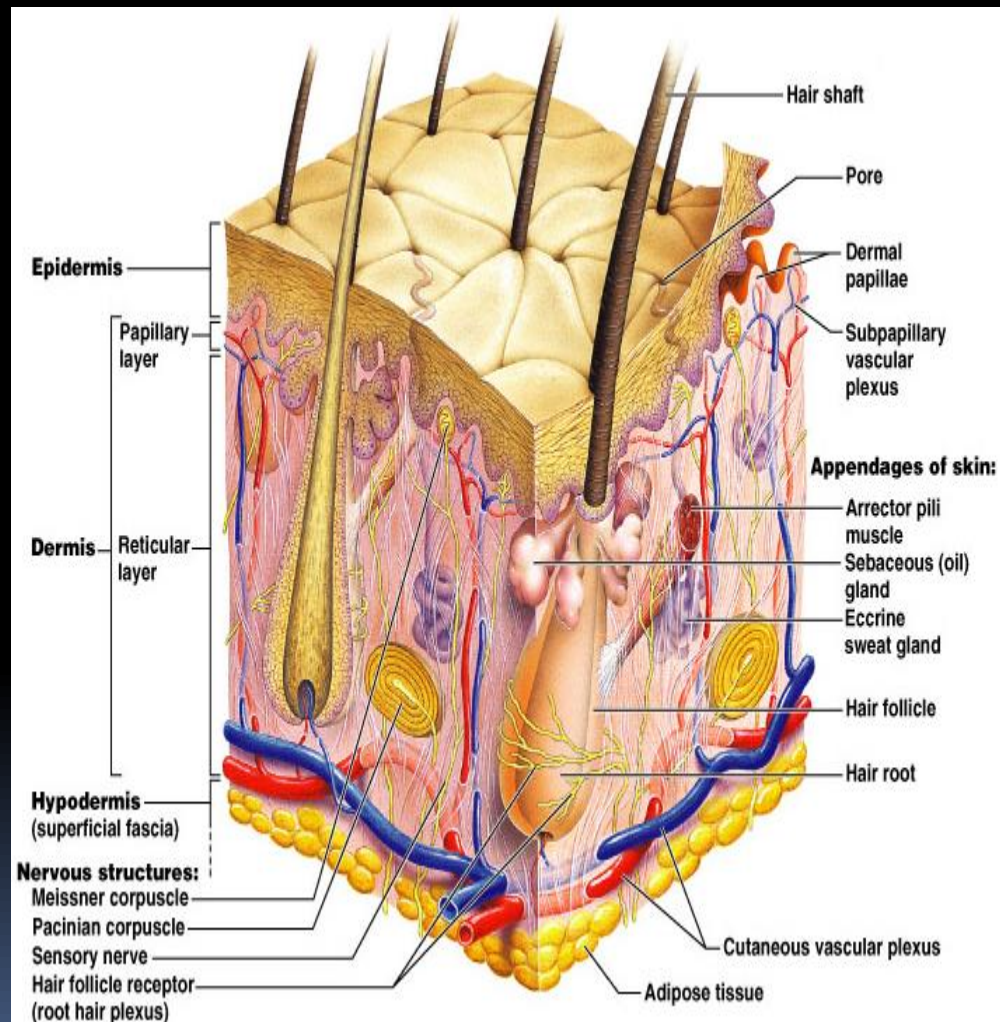
Cutaneous blood supply

The dermis contains horizontally arranged superficial and deep plexuses, which are interconnected via communicating vessels oriented perpendicular to the skin surface.



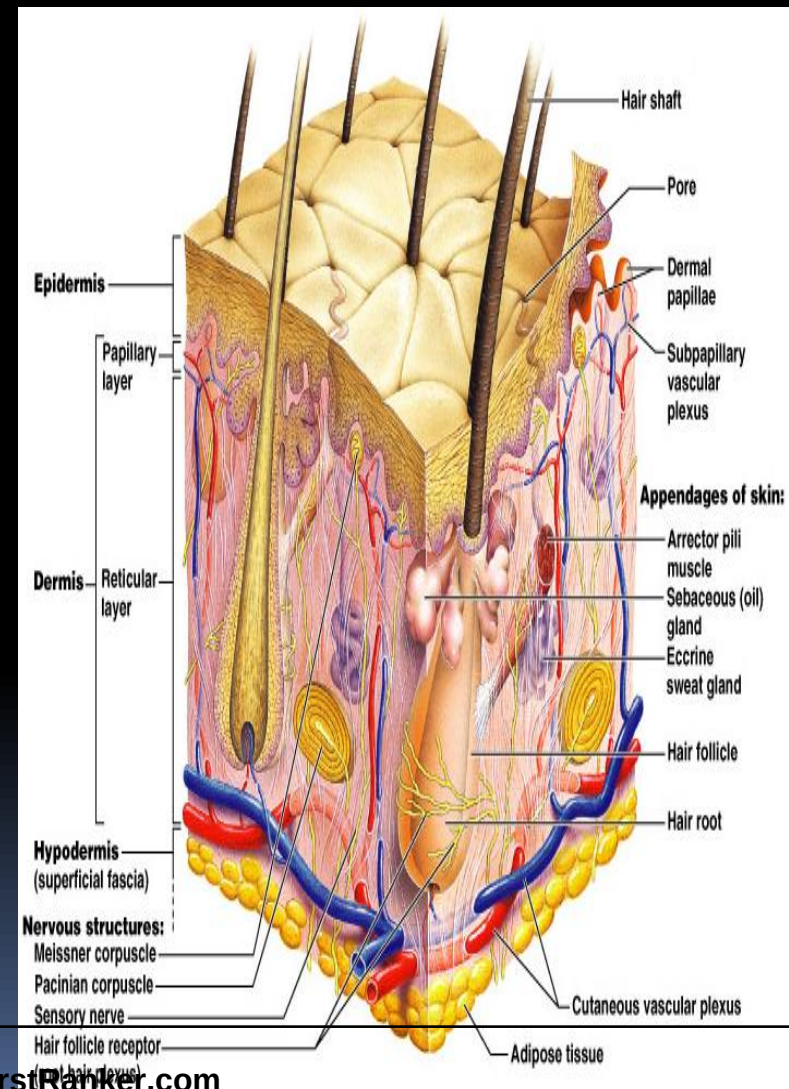
Lymphatics

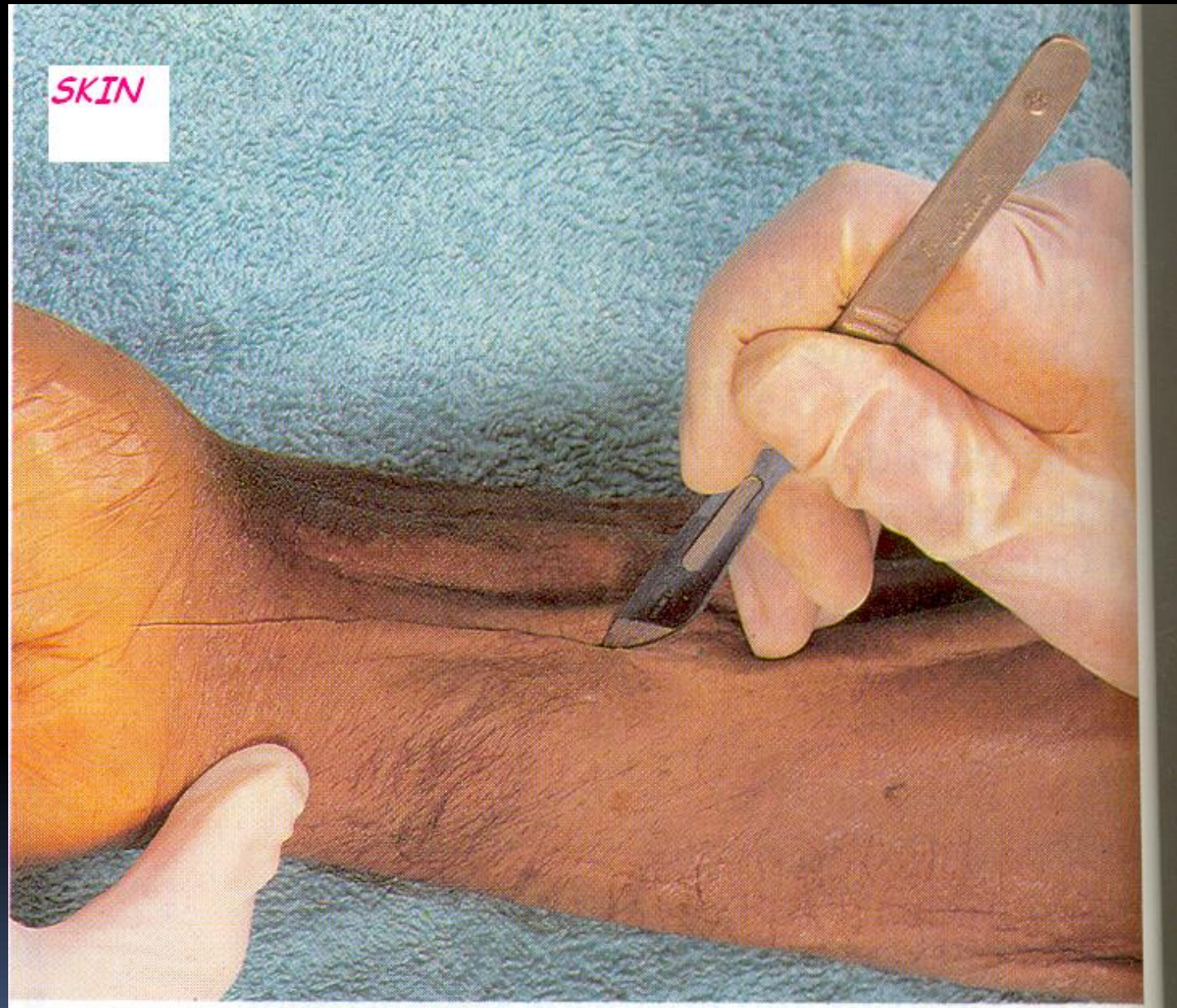
- Blind-ended lymphatic capillaries arise within the interstitial spaces of the dermal papillae. These unvalved, superficial dermal vessels drain into valved deep dermal and subdermal plexuses.



Skin Innervation

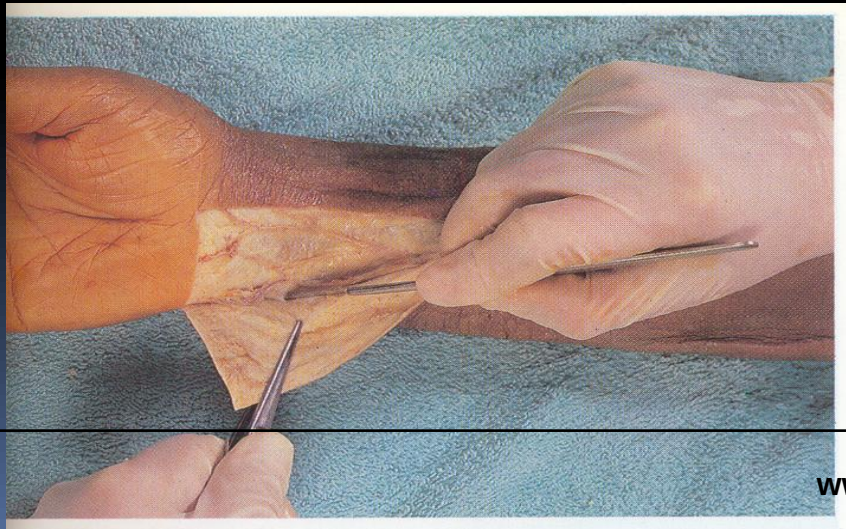
- **Free nerve endings** in the basal layer of the epidermis detect pain
- **Merkel cells** of the epidermis detect light touch.
- **Meissner's corpuscles** also detect light touch. These are found in the dermal papillae and are most concentrated in the fingertips.
- **Pacinian corpuscles** are found deep within the dermis or even in the subcutaneous tissue. These structures detect pressure.





Hypodermis/ superficial fascia

- Fibrous mesh filled with fat, connects the dermis to underlying layer of deep fascia
- Fat is absent in eyelids, pinna of ear, scrotum
- Muscle fibers are present in the subcutaneous tissue of scalp, face and scrotum



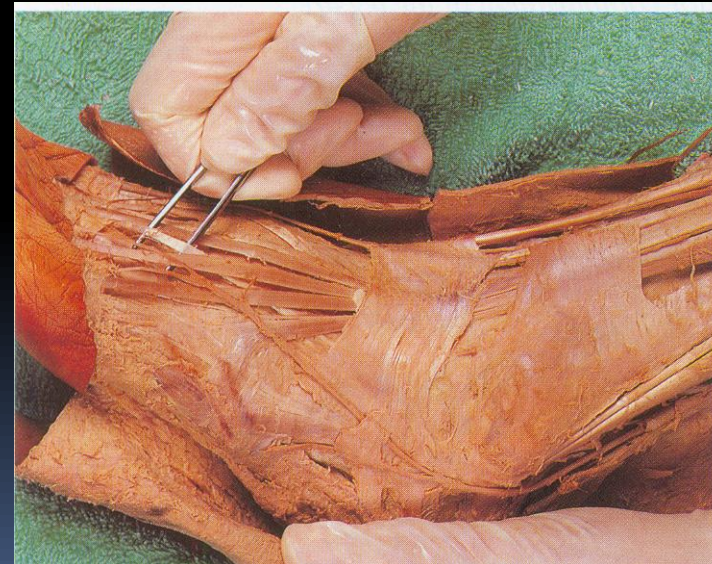
DEEP FASCIA

- Dense inelastic sheet or membrane, separates superficial fascia from underlying structures.
- It either invests or bind structures.
- Named according to the area of body it covers.

MODIFICATIONS:

Intermuscular septum

Retinacula



THANK YOU