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DEPARTMENT : PHYSICIAN ASSISTANT

COURSE NAME : ANATOMY

UNIT : SENSE ORGANS

TOPIC : SKIN



SENSE ORGANS



- Sensory Organs provide us with data for perception, and it is the physiological capacity of all living organisms.
- Five sense organs are equipped in the human body. Those organs provide us with first-hand information about our external or internal world.



The names of those organs are stated below

- Eye: perceives vision.
- Ear: perceives sound.
- Skin: perceives touch, temperature, roughness.
- Nose: perceives smell.
- Tongue: perceives taste.



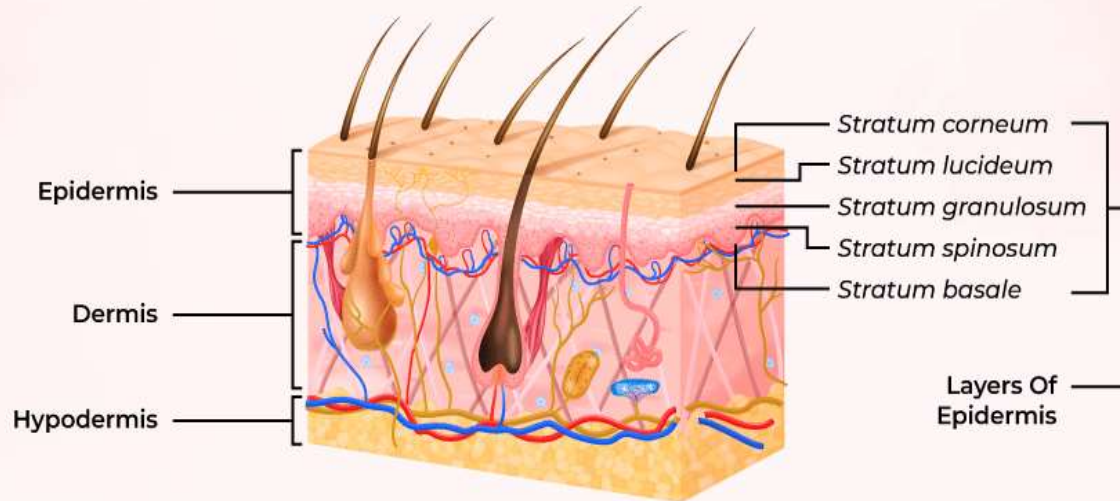
SKIN



- Skin is the outermost layer covering the entire external surface of the body. There are many structures and glands derived from the skin. It protects us from microbes and the elements and regulates body temperature.
- The skin is not just a simple covering of our body but one of the most active organs, functioning in numerous ways. It belongs to the integumentary systems of our body. It contains hair follicles that anchor the hair strands into the skin.



Layers of the Skin





LAYERS OF SKIN



The structure of the human skin consists of three layers:

- Epidermis
- Dermis
- Hypodermis



EPIDERMIS



- The epidermis is the outermost layer of the skin. In some places, the epidermis becomes thick and hard like on the palms, soles, and especially on heels. It is devoid of blood vessels in all places.
- The epidermis prevents germs and bacteria from entering and causing infections inside our bodies. It forms new skin cells. It contains melanin which provides color to the skin.



Epidermis is sub-divided into following layers

- Basal cell layer
- Spinous cell layer
- Granular cell layer
- Stratum Corneum



BASAL CELL LAYER



- It is the innermost layer of the skin epidermis, and contains small round cells called basal cells.
- Here, new cells are formed continuously by active cell division, and push older cells towards the skin surface, where they eventually shed.
- Basal cell layer is richly supplied with blood vessels which promotes active growth of cell.



SPINOUS AND GRANULAR LAYER



- As older cells are pushed away towards the surface, their shape and size starts to vary and they form next layer called spinous layer. Above this layer lies granular layer.
- Since the cells moved away from the blood supply, they start to die resulting in the formation of a protein called Keratin.



STRATUM CORNEUM



- This consists of the outermost layer of the epidermis. Stratum Corneum, consisting of dead cells, is also called “horny layer” as the cells are toughened like an animal’s horn.
- These cells contain keratin in abundance and gives rigidity to the skin.



EPIDERMAL CELLS TYPES



The Epidermis cell contains 3 main cell types:

- **Keratinocytes:** These are the main cell types of epidermis and originate in the basal layer. They produce keratin, and forms water barrier by secreting lipids.
- **Melanocytes:** These cell produce melanin pigment which provide protection against harmful sun rays. Melanocytes are located in the basal layer.
- **Langerhans:** These specialized cells forms part of the body's immune system and provide protection against foreign particles



DERMIS



- The dermis is the inner thick middle layer of connective tissue. It is tough and flexible.
- The dermis in our skin is very thick on the palms and soles, and very thin in other places as in the eyelids.
- The dermis layer of the skin contains other structures- blood vessels, sensory organs, sweat glands, etc.



- There are some more sense receptors in the deeper parts, which are concerned with the sensations of heat, cold, pain, and pressure.
- In the dermis blood vessels provide nutrients to the epidermis, keeping layers of skin healthy.
- The sweat glands present in the dermis releases sweat through skin pores. Thus, regulating the body temperature.



HYPODERMIS



- The hypodermis is the innermost layer of the skin. The fats in the hypodermis protect the bones and muscles from injuries when we fall.
- It is made of subcutaneous fats, blood vessels, tissues, and nerve cells.
- It provides contouring and shaping.



- The fat in hypodermis acts like a shock absorber or padding which protects the body's muscles from hot, cold, and trauma.
- It is also important for body temperature regulation. The layer becomes thin with age.
- This layer is also used for injections in some medications.



SKIN DERIVATIVES



- Hair
- Nails
- Sebaceous glands
- Mammary glands
- Sweat glands



APPLIED ANATOMY



- Leukoderma
- Albinism
- Acne
- Measles
- Melanoma
- Lupus
- Wart



ASSESSMENT



- What all are the Layers of Skin ?
- What all are the Skin Derivatives ?