



“बेटी बचाओ, बेटी पढ़ाओ”

## JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

### Faculty of Pharmaceutical Science

**Faculty Name** - JV'n Sajal Agarwal  
(Assistant Professor)

**Program** - Semester / Year

**Course Name** -

**Session No. & Name** - 1.1 ..... (Name of the Session)

#### Academic Day starts with –

- Greeting with saying ‘**Namaste**’ by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**.

### UNIT-II

#### TOPIC- INTEGUMENTARY SYSTEM

**SKIN**-Skin is the largest organ in the body occupying almost 2m<sup>2</sup> of surface area thickens of 2mm. Skin has 3 main parts. These are the epidermis, dermis and hypodermis.

**Epidermis** is the outer layer of the skin that is made of stratified squamous epithelium. It has no blood supply. Epidermis contains 4-5 strata. These are

stratum corneum, lucidum, granulosum, spinosum and basale, Stratum corneum is the outer, dead, flat, Keratinized and thicker layer.

Stratum lucidum is next to stratum corneum. It consists of flat, translucent layers of cells. This stratum found in thick skin only.

Stratum granulosum lies just below stratum lucidum. The cells in this layer are in the process of keratinization.

Stratum spinosum: next down to stratum granulosum. The cells in this stratum have a poly-hydral shape and they are in the process of protein synthesis.

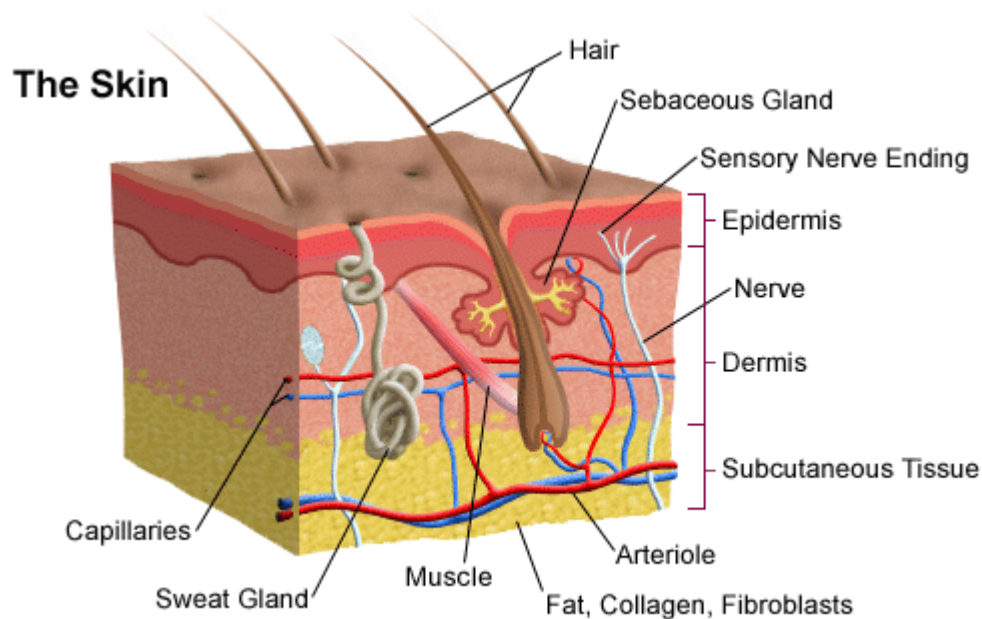
Stratum basale rests on the basement membrane, and it is the last layer of epidermis next to stratum spinosum. Stratum basale together with stratum spinosum constitute stratum germinativum.

**Dermis / true skin/** a strong, flexible, connective tissue mesh work of collagen, reticular and elastic fibers. Most part of the skin is composed of dermis. Dermis contains papillary and reticular layers. Papillary layer is next to stratum basale of the epidermis. It contains loose connective tissue with in the bundles of collagenous fibers. It also contains loose capillaries that nourish the epidermis. In some areas papillary layer have special nerve endings that serve as touch receptors (meissner's corpuscles). Indentations of papillary layer in the palms and soles reflected over the epidermis to create ridges.

**Reticular layer:** next to papillary layer. It is made of dense connective tissue with course of collagenous fiber bundles that crisscross to form a storma of elastic network. In the reticular layer many blood and lymphatic vessels, nerves, fat cell, sebaceous (oil) glands and hair roots are embedded. Receptors of deep pressure (pacinian corpuscles) are distributed through out the dermis.

**Hypoderms:** it is found beneath the dermis. It is a subcutaneous layer (under the skin). Hypodermis is composed of loose, fibrous connective tissue, which is richly supplied with lymphatic and blood vessels and nerves. Hypodermis is

much thicker than dermis. With in it coils of ducts of sudoriferous (sweat) glands, and the base of hair follicles.



### **Functions of Skin**

1. Protection: against harmful microorganisms, foreign material and it prevents excessive loss of body fluid.
2. Temperature regulation: with the sweat, heat leaves the body
3. Excretion: Small amount of waste products from the body such as urea
4. Synthesis: By the action of UV. Vitamin D is synthesized in the skin. Vitamin D is necessary for absorption calcium from intestine.
5. Sensory reception: it contains sensory receptors of heat, cold, touch, pressure, and pain.

### **Color of the skin**

Skin's color is determined by 3 factors

1. The presence of melanin a dark pigment produced by specialized cell called melanocyte

2. The accumulation of yellow pigment carotene.
3. The color of blood reflected through the epidermis

\* The main function of melanin is to screen out excessive ultraviolet rays. \* All races have some melanin in their skins although the darker races have slightly more melanocyte. The person who is genetically unable to produce any melanin is an albino.

## **Glands of the Skin**

Glands of the skin are the sudoriferous and sebaceous glands.

- **Sudoriferous /sweat/ glands**

Eccrine glands are tiny, straightforward coiled tubular glands that are found almost everywhere on the body, with the exception of nail beds, vulvar lip borders, and penis points. Over the palms and soles, there are many eccrine glands. The hypodermis contains their secretory component. They secrete a whitish, watery fluid called sweat that contains sodium chloride, neutral lipids, albumin, urea, and lactic acid. Its excretion aids in controlling body temperature.

## **Apocrine**

Armpits, the shadowy area surrounding the nipples, the outer lips of the vulva, the anal and vaginal regions all have odorous apocrine glands. Compared to eccrine sweat glands, they are larger and located deeper. At puberty, an apocrine sweat gland starts to function. Stress, especially sexual activity, affects how they react. The apocrine glands of the female breasts have become adapted to secrete and release milk instead of sweat. The ceruminous glands in the outer ear canal are also apocrine skin glands.

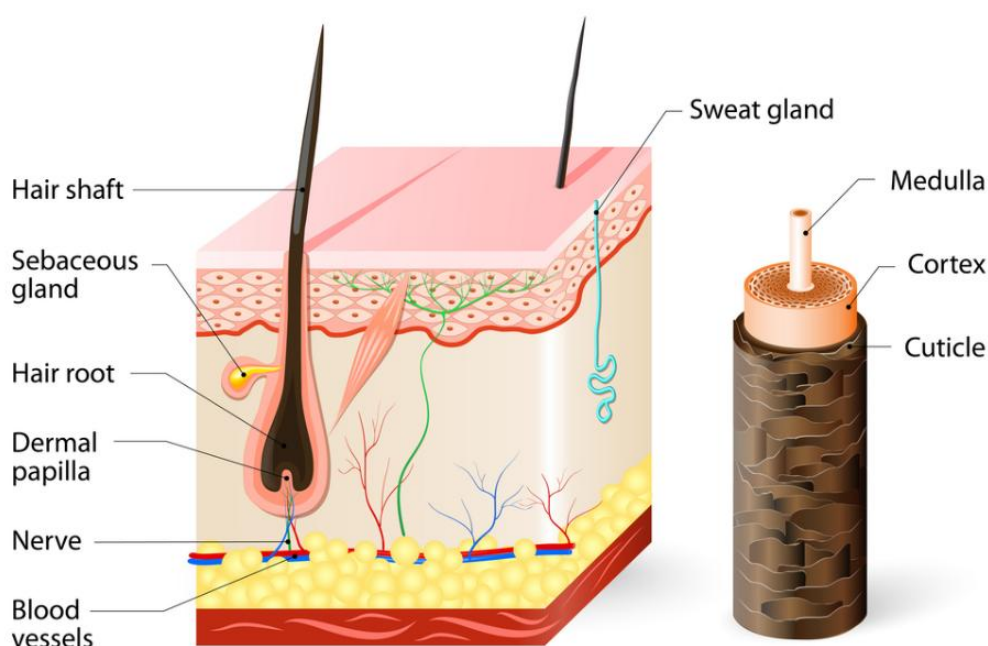
## Sebaceous (Oil) glands

Simple branched alveolar glands known as sebaceous glands are located in the dermis. Lubrication and protection are their primary purposes. They are linked to the oily secretion known as sebum and hair follicles. It is a completely lipid-based semi-fluid material. It serves as a permeability barrier, an emollient (skin softener), and an antibacterial and antifungal agent. There are glands of this kind all throughout the body, with the exception of the palms and soles. Sebum overproduction can cause acne vulgaris, which can expand the gland and clog the pore.

## Hair

The cells that make up hair are keratinized strands that grow from the epidermis. It is regarded as a skin appendage because it grows from the skin. Except for the lips, tip of the penis, inner lips of the vulva, and nipples, it covers the entire body.

## HAIR ANATOMY



## **Function**

Insulation against cold in scalp

- Against glare in eye brows
- Screen against foreign particles (eye lashes)
- In the nostrils trap dust particles in the inhaled air
- Protect openings from foreign particles.

## **Nail**

Like hair, nails are variations on the epidermis. They are created from tough keratin. The dorsal surface of the distal segment of the fingers and toes is where the flat, cornified plates that make up nails are located. The proximal portion of the nail, known as the lunula, is white in color because the capillaries beneath are shielded by a thick layer of epithelium. Nail has a root and a body. The root is covered by the skin, while the body is exposed. The nail's free edge extends over the tips of the fingers at its conclusion. Hyponychyem is the epithelial layer that covers the forehang nail. The nail is supported by the nail bed, an epithelial layer of skin. The matrix is the thicker layer of skin beneath the nail root, where fresh cells are produced. Weekly nail growth is 0.5 mm. The developing nail is first covered by eponychium, which are very thin layers of epidermis. Our toes and fingers are shielded by our nails. It also enables us to pick up and hold objects while using them as scratching tools.

- University Library Reference-
- Human Anatomy And Physiology by Ross and Willson.
- Online Refrences-
- <https://www.google.com/url>
- <https://www.google.com/url?sa=i&url=https%3A%2F%2Frejuvenatehairtransplant.com>
- Academic Day ends with-  
National song' Vande Mataram'