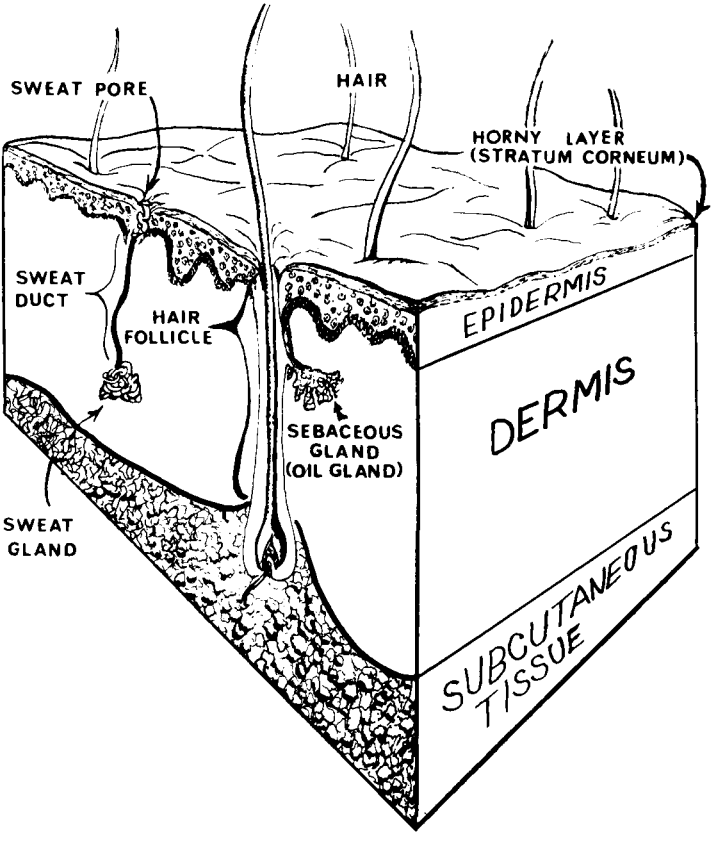
CHAPTER 2 DESCRIPTION OF THE SKIN

The skin is the largest organ of the body. It has the main duty of protecting people from damage by their environment.

The Epidermis (ep-i-der'-mis)

The epidermis is composed of two layers: the stratum corneum, also known as the horny layer, and an inner living layer. Injury to the epidermis does not cause bleeding (no blood vessels are located in this layer) or scarring. The sensation of itching occurs in this layer, but if the epidermis is scratched off, the itching ceases and pain ensues. Damage to the epidermis by ultraviolet light causes changes in the skin's color, such as light or dark spots, or the darkening familiar with suntan.



Principal Structures of the Skin.

THE STRATUM CORNEUM
(stra'-tum cor'-nee-um)

Just as our hair, fingernails, and toenails are constantly growing outward and being shed, so too is the superficial layer of the skin over the entire body being rubbed off and shed. This layer is the stratum corneum. It is composed of dead, tightly packed, horny cells which act as a barrier to protect the body against bacteria, fungi, and other harmful substances found in the environment. The stratum corneum varies in thickness, being very thin in the groin and many times thicker on the palms and soles. Even though this layer is constantly shedding, excessive rubbing and friction impair its protective function. In addition, prolonged contact with environmental factors, such as water, heat, sunlight, and chemicals, weaken the stratum corneum.

THE INNER LIVING LAYER

The inner living layer of the epidermis is about as thick as a sheet of paper. As its name implies, it is composed of living cells: those which constantly renew the stratum corneum and others, called pigment cells, which contribute to the skin's color.

The Dermis (der'-mis) or Cutis (cue'-tis)

The dermis is the supporting layer of the skin, giving it strength and flexibility. (Leather is made from this layer of animal skin.) It is composed mainly of a tough protein called *collagen (coll'-a-gen).* The dermis averages about one-eighth inch (3 millimeters) in thickness, and its total weight in the average person is about 10 pounds (4.5 kilograms). Throughout this layer are blood vessels, lymph vessels, and the nerves for touch, pressure, pain, and temperature.

Because of the presence of blood vessels, injury to the dermis can cause oozing and bleeding. The redness around an infected scratch results when the blood vessels dilate, and pale skin, following fright, ensues when the blood vessels contract.

The Hair Follicle (fol'-i-kl)

The hair follicle is actually a group of structures consisting of the hair shaft, the hair root, and a surrounding tubelike wall. The hair shaft is composed of tightly packed, dead cells which contain a hard protein. The only living part of a hair is the hair root, which is about one-third as thick as a sheet of paper. The opening of the hair follicle often is a weak spot in the skin defenses; it is a place through which bacteria may enter and cause infection.

The Sebaceous Gland (se-bay '-sush)

The sebaceous gland consists of a sac filled with living cells containing oil. It secretes an oil y substance, called *sebum (see'- bum)* into the follicle. Sebum reaches the skin surface through the follicle opening. What makes the skin soft, however, is the amount of water in the stratum corneum, not the amount of oil in the sebaceous gland.

The Sweat Pore, Sweat Duct, and Sweat Gland

The sweat gland is located near the bottom of the dermis. The sweat duct passes through the dermis and epidermis carrying the sweat through to the sweat pore located on the skin's surface.

Sweating is one of the ways the human body maintains its temperature. The body sweats and air evaporates the sweat from the skin's surface; consequently the skin is cooled.

In hot, humid areas, sweat (which is composed of water, common salt, and tiny amounts of other chemicals) pours off the skin without evaporating. Effective cooling of the body does not take place and large amounts of salt and water are lost. Heat cramps or heat exhaustion results, if lost water and salt are not replaced. Heat exhaustion can also occur, if for any reason, normal sweating cannot take place over large areas of the body surface.

The Subcutaneous Tissue (sub-cue-tay'nee-us)

Underlying the dermis is the subcutaneous layer consisting of fat cells. In addition, those large veins seen under the skin's surface are located in this layer. Subcutaneous tissue helps conserve the body heat. It varies in thickness over the body and, obviously, from person to person. Much of the swelling seen in infections occurs in this layer.