SKIN STRUCTURE

Skin is the largest organ of the human body.

Its anatomical structure consists of three layers: epidermis, dermis and subcutaneous tissue.

Epidermis

It is the outermost layer of the skin. It consists of cells tightly arranged next to each other (keratinocytes), in overlapping layers, which enables the skin to change shape during movements. Layers of squamous epithelium that form the epidermis connect to the dermis through the papillae. These cells are constantly formed in the divisionally active, innermost reproductive layers of the epidermis: basal cells (stratum basale) and spinous cells (stratum spinosum). They move as subsequent generations of keratinocytes appear. During this passive journey significant changes take place in them – they undergo keratosis, dehydration, their metabolism gradually weakens and finally stops. The proteins of living cells of the epidermis are transformed into the so-called scleroproteins – fibrous proteins, keratin, resistant to chemical impact and insoluble in water. Dead cells of the stratum corneum exfoliate. Among basal layer cells, there are melanocytes and Langerhans cells. The epidermis is the most biologically active layer – it performs many functions, including – thanks to the presence of keratin – the protective function; thanks to melanin – it protects against ultraviolet radiation. The epidermis, acting as an outer shell, protects the body against the penetration of microorganisms. The deepest layer of the epidermis has the ability to create new cells that replace the exfoliated ones. This layer also contains dye-producing cells, so-called melanocytes, which are responsible for skin pigmentation.

Dermis (cutis/corium)

It is made of strong connective tissue interspersed with capillaries. The papillary layer that borders on the epidermis contains fibroblasts that produce fibers and cells of the immune system: histiocytes, mast cells, lymphocytes. In the network of elastic collagen fibers, there are strands of blood and lymphatic vessels, as well as numerous nerve endings. Within this structure, there are also sweat and sebaceous glands. All components are loosely arranged in the intercellular basal substance, whose structural framework is formed from numerous collagen, reticular and elastic fibers. Collagen fibers are the main building component of the skin, constituting about 72% of its dry matter. They are characterized by extensibility and resistance to mechanical injuries. The condition of the fibers determines the appearance of the skin – while aging, as well as under the influence of environmental factors, including ultraviolet radiation, they become fragile. It is manifested by the loss of firmness and of youthful appearance. Elastic fibers form a network that wraps around collagen fibers. They are very extensible (up to 50%); they are responsible for the skin's extensibility and resilience. They are built from amino acids, and spaces between them are filled with amorphous glycoprotein substance. Reticular fibers form a mesh in the papillary layer around the blood vessels, etc.

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Subcutaneous tissue (subcutis)

It is primarily made of fat cells of various sizes grouped in the so-called fat lobules. In addition, there are blood vessels, lymph vessels and nerve fibers. It performs support functions and protects against mechanical injuries. It is also the energy storage of the body. Subcutaneous tissue has different thicknesses in different parts of the body, and, in some cases, it does not exist at all, e.g. on the eyelids.

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