

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

МАТЕРІАЛИ ІХ МІЖВУЗІВСЬКОЇ
НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ
КАФЕДРИ ІНОЗЕМНИХ МОВ

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THE SKIN

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The skin is our body's envelope, acting both as a protection and as a means of interacting with the outside world. Its structure is complex and divided into three layers: the epidermis, the outermost layer, the dermis, and the deepest, the hypodermis, each of which fulfils precise functions.

The skin is a complex organ - with each square centimetre of skin, on average 3mm thick, containing 10 hair follicles, 100 sweat glands, and up to 2,500 sensory cells as well as 3 metres of lymphatic and blood capillaries, 12 metres of nerve fibres, etc.

The epidermis is the skin's outer structure serving a protective function. It is the ultimate result of the keratinisation process and marks the final stage of a 4 to 6 week journey undertaken by the keratinocytes. Human skin is continually being renewed, in contrast with that of reptiles who moult. The desquamation of cells on the skin's surface should naturally be compensated for by renewal of the epidermis, a process undertaken by the keratinocytes. These possess two properties which successively come into action - the ability to actively divide and the ability to differentiate.

The keratinocytes divide in the skin's mitotic layer. The innermost part of the epidermis, this is made up of a single line of keratinocytes held together and to the underlying dermis by desmosomes, a sort of "press stud" structure. Each keratinocyte divides to produce two identical daughter cells. One remains static in order to divide again while the other migrates to the upper layer, the differentiation layer, where it will undergo a number of morphological and biochemical changes. The melanocytes are dendritic cells only found in the deepest layer of the epidermis. Their function is to produce melanin, the pigment which gives the skin its colour, and to transfer it to the surrounding keratinocytes by means of cytoplasmic processes. Since they account for 5% of the cells in the epidermis, each melanocyte has to supply melanin to 35

keratinocytes.

Merkel cells (6-10% of the cells in the epidermis) situated between the keratinocytes in the renewal layer, remain in contact with a nerve ending. They can be isolated or grouped together in clusters called Merkel corpuscles. They serve as mechanoreceptors and are involved in the function of touch.

The dermis is 10 to 40 times thicker than the epidermis. At the junction with the epidermis, its surface bristles with fibrous, vascular and nervous projections - the dermal papillae.

The fibroblasts are the main cells in the dermis. They are essentially located in the dermal papillae close to the epidermis, and found only in very low numbers in the deep layers of the dermis known as the reticular dermis. They are specialised in producing two types of protein fibres, collagen and elastin fibres constituent of the extra-cellular matrix.

The reticular dermis accounts for the greater part of the dermis. On this level, the elastin and collagen fibres are multidirectional, whereas in the dermal papillae the elastin fibres are mainly oriented perpendicular to the skin surface.

The hypodermis is the innermost and thickest layer of the skin. It is essentially composed of a type of cells specialised in accumulating and storing fats, known as adipocytes. These cells are grouped together in lobules separated by connective tissue.

Each day the skin suffers multiple attacks, whether physical or mechanical, from undesirable micro-organisms or the sun. In addition to its protective function, the skin also has a metabolic function, and a sensory function. Finally, in order to play these roles perfectly, it must maintain its integrity by repairing itself.

Hairs, sweat glands, sebaceous glands and nails are structures associated with the skin. They have their roots in the dermis or even in the hypodermis.

The skin is home to a variety of glands of which the main function is to synthesise substances which cool down the organism, protect the skin or make it more supple, lubricate the hair, or eliminate mineral elements or cholesterol.