

АНГЛИЙСКИЙ ЯЗЫК ДЛЯ МЕДИКОВ

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Студенту без шпаргалки никуда! Удобное и красивое оформление, ответы на все экзаменационные вопросы ведущих вузов России.

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АНГЛИЙСКИЙ ЯЗЫК ДЛЯ МЕДИКОВ

1. History of medicine

Medicine is among the most ancient of human occupations. It began as an art and gradually developed into a science over the centuries. There are 3 main stages in medicine development: Medicine of Ancient Civilizations, Medicine of Middle Ages and Modern Medicine.

Early man, like the animals, was subject to illness and death. At that time medical actions were mostly a part of ceremonial rituals. The medicine—man practiced magic to help people who were ill or had a wound. New civilizations, which developed from early tribes, began to study the human body, its anatomic composition. Magic still played an important part in treating but new practical methods were also developing. The early Indians, e. g., set fractures and practiced aromatherapy. The Chinese were pioneers of immunization and acupuncture. The contribution of the Greeks in medicine was enormous. An early leader in Greek medicine was Aesculapius. His daughters, Hygeia and Panacea gave rise to dynasties of healers (curative medicine) and hygienists (preventive medicine). The division in curative and preventive medicine is true today. The ethic principles of a physician were summarized by another Greek, Hippocrates. They are known as Hippocrates Oath.

The next stage of Medicine's development was the Middle Ages. A very important achievement of that time was the hospital. The first ones appeared in the 15–th century in Oriental countries and later in Europe. Another advance of the Middle Ages was the foundation of universities during 13–14–th centuries. Among other disciplines students could study medicine. During 18–th century new discoveries were made in chemistry, anatomy, biology, others sciences. The advances of that time were invention of the stethoscope (by Rene Laennec), vaccination for smallpox, discovery of anesthetics and development of immunology and scientific surgery. The next century is rise of bacteriology. Important discoveries were made by Louis Pasteur and Robert Koch. The development of scientific bacteriology made possible advances in surgery: using antiseptics and control of wound infection.

Medicine in the 20–th century made enormous contribution in the basic medical sciences. These are discovery of blood groups and vitamins, invention of insulin and penicillin, practice of plastic surgery and transplantation.

New words

medicine – медицина

human – человеческий

occupation – занятие

to develop – развивать

science – наука

civilization – цивилизация

Middle ages – Средние века

modern – современный

animal – животное

illness – заболевание

death – смерть

discovery – открытие

blood – кровь

2. Cell

The cell is a smallest independent unit in the body containing all the essential properties of life. Many types of human cells can be grown in test tubes after being taken from the body. Cells which are functionally organized are often grouped together and operate in concert as a tissue, such as muscle tissue or nervous tissue. Various tissues may be arranged together to form a unit called organ as the kidney, liver, heart or lungs. Organs often function in groups called organ systems. Thus the esophagus, stomach, pancreas, liver and intestines constitute the digestive system.

Cells are characterized by high degree of complexity and order in both structure and function. The cell contains a number.

Of structures called cell organelles. These are responsible for carrying out the specialized biochemical reactions characterizing each. The many chemical reactions taking place in a cell require the establishment of varied chemical microenvironment.

Carefully controlled transport mechanisms along with highly effective barriers – the cell membranes – ensure that chemicals are present in the proper region of the cell in appropriate concentration.

The cell membranes of a mixture of protein and lipid form its surroundings.

Membranes are an essential component of almost all cells organelles. The membrane allows only certain molecules to pass through it.

The most visible and essential organelle in a cell is the nucleus, containing genetic material and regulating the activities of the entire cell.

The area outside of the molecules is called the cytoplasm. Cytoplasm contains a variety of organelles that have different functions.

New words

cell – клетка

independent – независимый

unit – единица

body – тело

all – все

lipid – жир

microenvironment – микроокружение

muscle – мышечный

nervous – нервный

digestive – пищеварительный

life – жизнь

human – человеческий

together – вместе

tissue – ткань

organ systems – системы органов

to function – функционировать

to contain – содержать

membranes – мембраны

protein – протеин

nucleus – ядро

cytoplasm – цитоплазма

different – различный

3. Tissue

A tissue is a group of cells working together to do a special job. A histologist is one who specializes in the study of tissues. The cells, of which the tissues are made, contain from 60 to 99 % water. Chemical reactions that are necessary for proper body function are carried on much more readily in a water solution. The water solution and other materials in which the tissues are bathed is slightly salty. It must be mentioned that an insufficiency of tissues fluid is called dehydration and an abnormal accumulation of this fluid caused a condition called edema.

Tissue classification: The 4 main groups of tissues are:

- 1) epithelial tissue forms elands, covers surfaces and lines cavities;
- 2) connective tissue holds all parts of the body in Place. This can be fat, cartilage, bone or blood. Blood sometimes is considered a sort of tissue, since it contains cells and performs many of the functions of tissues. However; the blood has many other unique characteristics;
- 3) nerve tissue conducts nerve impulses all over the body;
- 4) the muscle tissue is designed for power—producing contractions.

The surface of the body and of the tubes or passages leading to the exterior and the surface of the various cavities in the body are lined by cells which are closely approximated to each other; thus have a small amount of intercellular substance. This lining cellular layer is called epithelium. The nature and consistency of intercellular substance, the matrix, and the amount and arrangement of fibers furnish the basis for the subdivision of connective tissue into three main groups: connective tissue proper, cartilage and bone. In connective tissue the intercellular substance is soft; in cartilage it is firm, yet flexible and elastic; in bone it is rigid due to the deposition of calcium salt in the matrix. In multicellular organisms certain cells developed to a high degree the properties of irritability and conductivity. These cells form the nervous tissues.

The nervous system of higher animals is characterized by the multiplicity of cellular forms and intercellular connections and by the complexity of its functioning.

Muscle tissue is composed of elongated cells which have the power of contracting or reducing their length. This property of contraction is ultimately a molecular phenomenon and is due to the presence of protein molecules. The following three types of muscle tissue occur in the body.

Smooth muscle tissue is found in sheet or tubes forming the walls of many hollow or tubular organs, for example the bladder, the intes tines of blood vessels. The cells forming this tissue are long spin dles with a central oval nucleus.

Striated muscle tissue is composed of cylindrical fibres often of great at length in which separate cells cannot be distinguished. Many small nuclei are found in the fibres lie just under the surface. Cardiac muscle resembles striated muscle in its structure, but smooth one in its action.

New words

liquid – жидкость

epithelial – эпителиальный

layer – слой

muscle – мышца

body – тело

flexible – гибкий

elastic – эластичный

nucleus – ядро

smooth – гладкий

fibre – волокно

cardiac – сердечный

4. Epidermis

The integument consists of the skin (epidermis and der—mis) and associated appendages (sweat glands, sebaceous glands, hairs, and nails). Considered the largest body organ, the integument comprises approximately 16 % of total body weight. It is a highly specialized organ that functions to protect the body from injury, desiccation, and infection. It also participates in sensory reception, excretion, thermoregulation, and maintenance of water balance.

Epidermis is the outermost layer of the integument. It is a stratified squamous epithelial layer of ectodermal origin.

Layers of the epidermis from deep to superficial consist of four strata. Stratum basale (stratum germinativum) is a proliferative basal layer of columnar—like cells that contain the fibrous protein keratin. Stratum spinosum is a multilaminar layer of cuboidal—like cells that are bound together by means of numerous cytoplasmic extensions and desmosomal junctions.

Stratum granulosum consists of flat polygonal cells filled with basophilic keratohyalin granules. Viewed at the electron microscopic level, these cells also contain numerous membrane—coating granules. Stratum corneum is the superficial stratum of dead cells and consists of several to many layers of flat, anucleated, and cornified (kera—tinized) cells. In the epidermis of the palms and soles, a thin, transitional zone of flat eosinophilic or pale—staining anucleated cells may occur as the stratum lucidum. This layer is found only in regions with a thick stratum cor—neum.

Cells of the epidermis: keratinocytes are the most numerous and are responsible for the production of the family of keratin proteins that provide the barrier function of the epidermis.

Melanocytes are derivatives of neural crest ectoderm. They are found in the dermis and are also scattered among the keratinocytes in the basal layers of the epidermis. These dendritic cells produce the pigment melanin in the form of melanosomes that are transferred to keratinocytes.

Langerhans cells are dendritic cells but are members of the immune system and function as antigen—presenting cells. They have also been found in other parts of the body, including the oral cavity and lymph nodes.

Merkel cells are found in the basal epidermis and appear to function in concert with nerve fibers that are closely associated with them. At the electron microscopic level, their cytoplasm contains numerous membrane—bound granules that resemble those of catecholamine—produ—cing cells.

New words

epidermis – эпидермис dermis – дерма weight – вес to protect – защищать injury – рана

cytoplasmic – цитоплазматический

level – уровень

flat – плоский

palm – ладонь

thick – толстый

pigment – пигмент

melanin – меланин

nerve – нерв

5. Dermis

Dermis is a connective tissue layer of mesodermal origin subjacent the epidermis and its basement membrane. The dermis—epidermal junction, especially in thick skin, is characterized by numerous papillary interdigitations of the dermal connective tissue and epidermal epithelium. This increases the surface area of attachment and brings blood vessels in closer proximity to the epidermal cells. The epidermis, like epithelia in general, is devoid of blood vessel. Histologically, dermis consists of two identifiable regions.

Papillary layer, associated principally with the dermal papillae, is the most superficial layer. It consists of a loosely packed, irregular meshwork of collagen fibrils that contain fine blood vessels and nerve endings.

Reticular layer is the deeper dermal layer and consists of coarse collagen bundles intertwined with elastic fibers in a gel matrix. This layer is a typical dense irregular connective tissue.

HYPODERMIS: this layer of loose vascular connective tissue is infiltrated with adipocytes and corresponds to the superficial fascia of gross anatomy. However, since it contains the deepest portions of the cutaneous glands and hairs, it is also an important part of the skin. The hypodermis fastens the skin to underlying muscles and other structures.

New words

dermis – дерма connective – соединительный membrane – мембрана junction – соединение
to be characterized by – характеризоваться чем—to numerous – значительный
to increase – увеличивать

surface – поверхность area – площадь epidermal – эпидермальный thick – толстый skin –
кожа

papillary – папиллярный devoid – происходит meshwork – ячеистая сеть coarse – грубый
bundle – связка interwine – сплетаться bring – приносить to consists of – состоять из to contain
– содержать collagen – коллагеновый adipocyte – жировая клетка

6. Cutaneous appendages

Cutaneous appendages are all derivatives of the epidermis.

Eccrine (merocrine) sweat glands are simple, coiled, tubular glands that are widely distributed over the body. Secretory portions are tightly coiled and consist of a single layer of columnar—like pyramidal cells.

Duct portions, composed of two cuboidal cell layers, are corkscrew—shaped and open onto the epidermal surface. These glands are important in thermal regulation.

Control of the eccrine glands is mainly by the innervation of cholinergic fibers.

Apocrine sweat glands are also simple, coiled, tubular glands but are much less abundant in their distribution than eccrine glands. They can be found in the axillary, areolar, and anal regions.

Secretory portions of these glands are composed of a single layer of cuboidal or columnar cells. They are larger and have a much wider luminal diameter than eccrine sweat glands. Myoepithelial cells surround the secretory cells within the basement membrane and contract to facilitate secretion.

Duct portions are similar to those of eccrine sweat glands but open onto hair follicles instead of onto the epidermal surfaces.

Functions of these glands in humans is not at all clear. Specialized apocrine glands in the ear canal (ceruminous glands) produce a secretion in conjunction with adjacent sebaceous glands to form the protective earwax (cerumen). Control of the apocrine glands is hormonal and via the innervation of adrenergic fibers. These glands do not begin to function until puberty.

Sebaceous glands are simple, branched holocrine acinar glands. They usually discharge their secretions onto the hair shaft within hair follicles. These glands are found in the dermis throughout the skin, except on the palms and soles.

Secretory portions consist of peripherally located, flattened stem cells that resemble basal keratinocytes. Toward the center of the acini, enlarged differentiated cells are engorged with lipid. Death and fragmentation of cells nearest the duct portion result in the holocrine mechanism of secretion.

Duct portions of sebaceous glands are composed of stratified squamous epithelium that is continuous with the hair cat and epidermal surface.

Functions involve the lubrication of both hairs and cornified layers of the skin, as well as resistance to desiccation.

Control of sebaceous glands is hormonal. Enlargement of the acini occurs at puberty.

Hairs are long, filamentous projections consisting of dead keratinized epidermal cells. Each hair derives from an epidermal invagination called the hair follicle, which possesses a terminal hair bulb, located in the dermis or hypodermis, from which the hair shaft grows. Contraction of smooth muscles raise the hairs and dimple the epidermis («goose flesh»).

Nails, like hair, are a modified stratum corneum of the epidermis. They contain hard keratin that forms in a manner similar to the formation of hair. Cells continually proliferate and keratinize from the stratum basale of the nail matrix.

New words

cutaneous – кожный

appendage – покров

tubular – трубчатый

pyramidal – пирамидальный

surface – поверхность

thermal – тепловой

innervation – иннервация

7. Matter

Matter is anything that occupies space, possesses mass and can be perceived by our sense organs. It exists in nature in three, usually inter convertible physical states: solids, liquids and gases. For instance, ice, water and steam are respectively the solid, liquid and gaseous states of water. Things in the physical world are made up of a relatively small number of basic materials combined in various ways. The physical material of which everything that we can see or touch is made is matter. Matter exists in three different states: solid, liquid and gaseous. Human senses with the help of tools allow us to determine the properties of matter. Matter can undergo a variety of changes – physical and chemical, natural and controlled.

Конец ознакомительного фрагмента.

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