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ANATOMICAL STRUCTURE OF THE HUMAN ORGANISM

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Annotation: Medical science, hygiene science and physiology science tasks, anatomical science departments, microscopic anatomy, macroscopic anatomy, about dolichomorphic people, about mesomorphic people, about brachymorphic people, anatomical levels, frontal or coronal level, sagittal level, median level, transversal level, oblique level.

Key words: Medicine, anatomy, hygiene, physiology, surgery, diagnostics, anatomical levels, dolichomorph, brachymorph, mesomorph, microscopic, macroscopic,

Аннотация: Медицинская наука, задачи науки гигиены и физиологии, кафедры анатомических наук, микроскопическая анатомия, макроскопическая анатомия, о долихоморфных людях, о мезоморфных людях, о брахиморфных людях, анатомические уровни, фронтальный или корональный уровень, сагиттальный уровень, срединный уровень, трансверсальный уровень, наклонный уровен.

Ключевые слова: Медицина, анатомия, гигиена, физиология, хирургия, диагностика, анатомические уровни, долихоморф, брахиморф, мезоморф, микроскопический, макроскопический.

Introduction

As humanity develops science and medicine, diseases are also developing. Their treatment, prevention and protection of the organism from them are the main tasks of medical sciences. We use anatomy, hygiene, physiology and other sciences to study the body. The science of hygiene studies the effect of various factors on health in the body. It performs the function of maintaining a healthy lifestyle, preventing diseases, creating a clean and healthy environment, as well as studying individual and public hygiene. The science of physiology studies the activities of various systems and organs in the body. It is a scientific field aimed at understanding the normal functioning of the human or animal body, its physiological functions, and the interrelationships between organs and systems. General physiology of the body: It studies all physiological processes occurring in the human or animal body, that is, the functions necessary for vital activity (for example, respiration, blood circulation, digestion, etc.).

The most important of these is the science of anatomy.

ISSN: 2692-5206
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Anatomy is the branch of biology that studies the structure of an organism and the relationships between its parts. Anatomy studies the internal and external structure of a human or other animal, the location, shape, and function of organs, systems, and tissues.

Anatomy is usually divided into two main sections:

1. Microscopic anatomy is the branch of anatomy that studies the cellular and tissue structure of organisms using a microscope. This field studies structural features at the microscopic level, that is, the microstructures within cells, tissues, and organs. Microscopic anatomy is also called histology, because it studies the structure and functions of tissues.

Microscopic anatomy includes the following basic concepts:

A cell is the basic structural and functional unit of an organism. It has structures such as a cell membrane, cytoplasm, and nucleus, and their interaction controls various processes in the organism. Tissues - are groups of cells that have the same function and structure. Tissues are usually divided into 4 main types:

• Epithelial tissue - covers the internal and external surfaces of the body.

• Muscle tissue - tissue that performs movement.

• Nervous tissue - tissue that transmits nerve impulses.

• Connective tissue - supports and protects the structure of the body.

• Organs - structures that have a specific structure and perform a specific function. For example, the heart, lungs, liver, etc.

To study microscopic anatomy, special microscopes (optical microscopes, electron microscopes) and microscopic methods (stains, histological sections) are used. This field studies the structure of an organism, which is of great importance not only in medicine, but also in biology, pharmacy and other scientific fields. Macroscopic anatomy (or gross anatomy) is a branch of anatomy that studies the structure of an organism on a large scale, directly visible to the naked eye. This branch studies organs, systems and their mutual arrangement, shape and function, that is, the internal and external structure of the organism is analyzed not microscopically, but at a level visible to the naked eye.

Macroscopic anatomy is divided into the following main areas:

• The study of the structure of all organisms (general macroscopic anatomy) - this is the study of the general structure of a person or other animal, including the interconnection and arrangement of their organs and systems.

• Regional anatomy - studies the structure of a specific part of the body, such as the head, neck, chest, or arms and legs. This section focuses on analyzing how different organs and structures are located in relation to each other.

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• Systematic anatomy - studies the structure of the body by system (for example, the cardiovascular system, the muscular system, the nervous system, etc.). The components of each system, their functions, and their interconnections are analyzed.

The science of gross anatomy is usually studied using autopsies, physical examinations, X-rays, computed tomography (CT), and other imaging techniques. This science is widely used in medicine, zoology, anthropology, and other biological fields, as it is important in understanding the structure of the body and diagnosing diseases. The human body is a living organism consisting of complex, interconnected structures and systems. The human body contains structural and functional units of various levels, which, working together, ensure vital activity. The basic concepts of the human body are as follows:

• Cell - the basic structural and functional unit of the human body. Each cell carries out all the vital processes of the organism, such as nutrition, respiration, aging, etc. The cell consists of a nucleus, cytoplasm and cell membrane.

• Tissue - a group of cells that perform the same function and have the same structure. There are 4 main types of tissues in the human body:

• Epithelial tissue - covers the outer surface of the organism and the surfaces of internal organs.

• Muscle tissue - a tissue that performs movement. It is divided into three types: skeletal, cardiac and abdominal muscles.

• Nervous tissue - conducts nerve impulses, forms the nervous system.

• Connective tissue - connects and supports cells. For example, bone, adipose tissue, and blood.

Organs - structures that perform a specific function and consist of interconnected tissues. For example, the heart, liver, lungs, kidneys, etc. Each organ performs its specific function and contributes to the functioning of the entire organism. The various systems of the body are interconnected and work to achieve a common goal. The human body has the following main systems:

• Cardiovascular system - provides blood circulation, delivers oxygen and nutrients to the body.

• Nervous system - transmits nerve impulses and controls the body.

• Muscular system - provides movement.

• Endocrine system - controls the biological processes of the body through hormones.

• Digestive system - digests food and removes substances necessary for the body.

• Respiratory system - brings oxygen into the body and removes carbon dioxide.

ISSN: 2692-5206
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• Urinary system - maintains the balance of fluids and waste products in the body.

• Immune system - protects the body from agents that cause diseases.

• Nervous and endocrine systems

In the human body, the nervous system is responsible for the rapid transmission and control of nerve impulses, while the endocrine system is responsible for the control of long-term processes using hormones. These systems interact and help balance various functions of the body.

Nutrition and energy

The human body needs energy and nutrients to carry out its activities. These processes are carried out through nutrition and metabolism. Nutrients enter the body through the digestive system, supply the blood, and deliver energy and nutrients to the cells. Respiration and excretion. The human body takes in oxygen and releases carbon dioxide through the respiratory system. It also removes excess water and waste from the body through the urinary system, thereby maintaining the internal balance of the body.

The immune system - protects the body from pathogens (bacteria, viruses) and other harmful agents. It is important in the body's fight against diseases and in the management of inflammatory processes.

The reproductive system ensures the process of human reproduction. In men and women, these systems produce sex cells (sperm and eggs) and carry out the process of fertilization. The human body is a very complex system, each system has its own function, and their interaction ensures vital processes. These systems are inextricably linked to each other, ensuring the healthy and efficient functioning of the body. All people can be affected by diseases in the same way. Their internal organs are also the same, but they differ from each other in body size, height, and weight. They are divided into 3 groups according to these differences.

Dolichomorph is an anthropological concept of the body structure of people, which describes individuals with a tall, narrow, thin body. The main characteristics for people with the dolichomorph type are as follows:

• Height: Dolichomorph people are usually tall.

• Body shape: The body is narrow, thin, with a long chest.

• Head structure: The head is usually narrow, the face may be longer than the width.

Body dimensions: In the initial form, they usually have long arms and legs, and very rarely short or wide bodies. People with the dolichomorph type may be typical of peoples living in hot climates, usually close to the equator, because their body structure helps them lose heat faster. The dolichomorph structure also develops depending on social and biological factors, as well as environmental conditions.

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People with the mesomorph type are people of average height, with well-developed muscles and a hard, athletic body. The main characteristics of people with the mesomorph type are:

• Height: Mesomorph people are usually of average height or slightly tall.

• Body: Their body has a good ratio of muscle to fat. Such people have well-developed muscles and their body dimensions are often symmetrical.

• Chest and waist: People with the mesomorph type may have a wide chest and a rather narrow waist.

• Body fat: They burn fat easily and have more muscle mass. The body fat content is usually lower and the body shape is straight and athletic.

• People with the mesomorph type usually enjoy physical activity and have a naturally favorable structure for developing muscle mass.

Brachymorph is an anthropological concept that describes the body structure of people, in which people are characterized by having a wide, massive and strong body structure. The main characteristics of brachymorphs are as follows:

• Height: Brachymorphs are usually of average or short height, but they often have a wider and stronger body.

• Body shape: They have a wide body, well-developed muscles, and a strong and sturdy bone structure. They may have a broad chest and muscular arms.

• Body fat: Brachymorphs may have more body fat, but they are strong and massive, with most of the body fat being mixed with muscle.

Body dimensions: They are massive, short, with broad shoulders and a wide chest. The waist is usually wide. Brachymorphs are generally considered to be well-adapted to cold climates, as their body structure helps them retain heat. People with this type often have great strength and endurance, and can perform well in strenuous physical activities. Brachymorph structure is mainly found in people with narrow, wide and massive body shapes.

Dividing people into such types helps to individually approach them and advise them based on their body parameters, and makes it easier for medical professionals to maintain their health and diagnose their diseases. In addition, there are anatomical planes in humans that are used to diagnose diseases, describe the interconnected parts of body parts, and clearly and consistently show the internal organs of the body. Every medical professional should know them. In addition, there are anatomical planes in humans that are used to diagnose diseases, describe the interconnected parts of body parts, and clearly and consistently show the internal organs of the body. Every medical professional should know them. And they are as follows:

• The frontal or coronal plane is a vertical plane that divides the body into the front and back parts. This plane divides the body into the front (anterior) and back (posterior) parts.

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• Sagittal plane is a vertical plane that divides the body into right and left halves.

• This plane divides the two sides of the body and describes movement along the length of the body.

• Median plane (or midline) is located in the middle of the sagittal plane and passes through the exact symmetrical middle of the body. It usually begins at the center of the head and neck and continues down the body.

• Transverse or horizontal plane is a horizontal plane that divides the body into upper and lower halves. This plane divides the upper and lower parts of the body and organs.

• Oblique planes are alternating and diagonal planes of the body that are angled relative to other planes.

These planes are used in unconventional or specialized examinations, such as when depicting diagonal sections of the upper or lower body. Anatomical planes help to easily distinguish different parts of the body and understand their relationships. These planes are important in medicine, especially in surgery and diagnostic methods, because they allow for a clear representation of anatomy and illustrative anatomical sections. Anatomy is one of the main foundations of medical science for doctors. A thorough study of the structure of the human body and the functions of its organs is important for doctors to identify diseases, make diagnoses, and develop effective treatment methods. Anatomical knowledge is also necessary for the successful implementation of surgical procedures, assessing the condition of patients, and correctly using medical equipment. Anatomy allows doctors to understand normal and pathological states of the body, and to accurately determine the causes of diseases and their treatment methods. Therefore, anatomy is of great importance in improving the qualifications of every doctor, in the formation of his clinical skills. This science is important not only for doctors, but also for every person in maintaining and developing their health.

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