INTERNATIONAL JOURNAL ON HUMAN COMPUTING STUDIES

www.journalsresearchparks.org/index.php/IJHCS e-ISSN: 2615-8159|p-ISSN: 2615-1898
Volume: 03 Issue: 2 March-April 2021

The Concept of The Management of Body Functions and Their Properties. Organism and environment

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Annotation: An organism is a unit of the organic universe that can live independently, be self-governing, and respond to various changes in the external environment as a whole. ” The body should be thought of as a whole, not as a collection of parts or individual cells. All the organs, systems, and functions of a complex organism are constantly interacting with one another.

Keywords: Human, organism, cells, tissues, metabolism, physiological, tissue, biological, respiratory,

The human and animal body is a complex biological system made up of cells, tissues, organs, and functional structures. Some physiological textbooks published in Uzbek describe the organism as follows: unity. " The body should be considered as a whole, not as a collection of parts or individual cells. All the organs, systems, and functions of a complex organism are constantly interacting with one another.All this makes up a whole complex organism. As LM Sechenov puts it, "an organism cannot survive without a changing external environment that helps the organism to survive." This means that an organism can only survive when it interacts with the environment around it, and as a result of such interactions, it regenerates itself. No matter how complex the body is, all its tissues and organs work in close contact with each other. It is controlled by nerve and humoral (blood) pathways. That is why the human body, all its cells, tissues and organs are called one. A distinctive feature of different organisms is that their structures are organized in a certain way and differ in their specific complexity. The human body, which has a complex organization, is a single whole, in which all the structures, cells, tissues, organs, and connective systems are in harmony and subordinate to the whole, whole organism. Every biological reaction that the body adapts to or changes in its vital functions is due to physiological functions. Sensitivity to the external environment is a characteristic of all organisms and is highly developed in humans. While positive and negative influencers act in a certain sequence over a long period of time, their use always results in the same physiological function, depending on the type of influencer.Any physiological function of a cell, tissue, organ, or organism is the result of phylogeny and ontogeny, because during development, each structure develops its own functions, which vary in quantity and quality. Therefore, it is clear that the formation of various physiological functions is associated with the influence of external and internal (genetic) factors of the organism. The diversity of physiological functions and adaptations depends on the metabolism (metabolism) and its regular changes depending on the influence of the environment, because metabolism is a necessary condition of life and a basic function of a living organism. As a result of the cessation of metabolism, the cytoplasm of the organism is destroyed, the chemical compounds are broken down and never return to their previous state. All physiological functions include growth, development, reproduction, nutrition and food digestion, respiration, secretion and excretion of life activity wastes, movement, reactions that occur in response to changes in the external environment, and so on. . Homeostasis is a complex of coordinated reactions of the organism, a means of maintaining a

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constant internal environment. According to the Russian scientist R.K. , the continuity of the gastric juice reaction, etc.). It should be noted that the composition, physicochemical and biological properties of the internal environment are not absolute, but relative and variable.This continuity is achieved due to the continuous work of several organs and tissues: changes in the composition and physicochemical properties of the internal environment under the influence of changes in the external environment and as a result of the vital activity of the organism. due to the uninterrupted performance of the tissues. Even a slight violation of homeostasis leads to pathology, so the determination of body temperature, blood pressure, composition, physicochemical and biological properties, and similar relatively constant physiological parameters is of great importance for the diagnosis (diagnosis) of man. the absorption of food from the external environment, its change in the body, its digestion, the release of the formed residual substance into the external environment is called metabolism. As a result of chemical, mechanical and thermal changes in the organic matter in food, it is converted into potential energy. Due to the energy generated, tissues and cells work, cells multiply, obsolete components of the joint are renewed, and the young organism grows and develops. It is this energy that keeps a person's body temperature constant. Metabolism goes through two closely related processes: assimilation and dissimilation. These are also called anabolism and catabolism. The transfer of nutrients to cells is called assimilation or anabolism. As a result of this process, the components of your cell are renewed, they multiply. The younger the body, the more active the assimilation process. This ensures the growth and development of the young organism. The breakdown of obsolete components of cells is called dissimilation or catabolism. As a result, energy is generated and this energy is used for the assimilation process.Residues from the dissimilation process are excreted through the separation organs (carbon dioxide, water, nitrogen residues, etc.). Thus, the processes of assimilation and dissimilation in the human body continue to be interrelated. In healthy adults, these two processes are in equal balance. In a young organism, the process of assimilation is predominant, resulting in growth and development. In the elderly, the process of dissimilation is predominant. Excitability is the ability of certain cells and tissues (nerves, muscles, glands) to respond quickly to various stimuli. Such cells and tissues are called excitatory, and their ability to respond to stimuli is called excitatory. The minimum force that causes an impact to act is the excitability. This minimum force of impact is called the impact threshold. The greater the minimum force of the impact required to generate the reaction, i.e., the higher the impact threshold, the faster the excitation will occur and vice versa. The lower the threshold, the later the excitability occurs. For excitatory cells have the ability to respond to the effects of stimuli, they have a special physiological process - excitation occurs. Excitement is a complex tissue-like biological reaction that occurs as a result of physical and chemical processes and functional changes. During excitation, the bioelectrical processes of the cell membrane change, the cell changes from a state of physiological rest to a physiologically active state specific to that cell: the muscle contracts, the gland cell secretes, and nerve impulses appear. In eye cells, the biopotemolas are always different between the cytoplasm and the external environment, that is, on both sides of the cell surface membrane. The cell membrane is thus polarized (polarized) —the inner surface is negatively charged relative to the outer surface.This difference in potentials is called the membrane potential. That difference amounts to a few tens of millions. Any organism and all its cells are susceptible, that is, they respond to changes in their

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structure, active activity, increase or decrease in activity when the external environment is affected or disturbed. Changes in the structure of an organism and cells in response to various influences are called biological reactions, and the effects that produce and produce them are called influences or stimuli. Humans have developed a special type of reactions - reflexes. The reactions that take place in the body in response to the action of the sensory nerve endings-receptors are called reflexes. A nerve cell is called a neuron. Neurons are divided into: 1) sensory or receptor neurons, 2) executive or effector neurons, and 3) contact neurons. Different receptors are adapted to sense stimuli that are adequate for them. There are the following types of receptors: 1) mechanoreceptors: a) tactile-type tactile receptors; b) those that sense elongation and compression - pressoreceptors and baroreceptors; c) sound vibration sensors - phonoreceptors: 2) acceleration sensors - accelerator receptors or vestibuloreceptors; 3) chemoreceptors sense the effects of certain chemicals; 4) thermoreceptors sense changes in temperature; 5) osmoreceptors sense changes in osmotic pressure. Receptors that sense external influences: sound vibrations. Receptors that sense light, smell, taste, temperature, and tactile receptors are located close to the surface of the body and are called external receptors. Receptors that sense changes in the body's internal environment, organs, and function are called interoreceptors.Receptors in skeletal muscle - proprioceptors - are also interreceptors. These barriers, in which nerve cells travel from the periphery (various parts of the body) to the central nervous system, are directed to the center. As a result of exercise, the body loses large amounts of water through sweat glands and kidneys. Therefore, the viscosity of the blood increases and therefore the functioning of the cardiovascular system becomes more difficult. During muscle work, the number of leukocytes in the blood increases and myogenic leukocytosis is observed. It was first studied by A. Yegorov that its level depends on the type of physical education. There are three phases of myogenic leukocytosis: Phase 1 is called lymphocytic leukocytosis. It is characterized by an increase in the number of leukocytes in the blood (10 thousand one mm3 in the blood) and an increase in lymphocyte count by 40-50%. Phase 2 (neutrophil phase 1) the total number of leukocytes reaches 12-18 thousand, and the number of neutrophils increases to 70-80; of which young neutrophils account for 2% and rod-shaped neutrophils for 10-15%, but the total amount of lymphocytes decreases to 15-20% and the amount of eosinophils to l-2%. During this phase, the activity of blood-forming zones in the bone marrow increases, from which a large number of leukocytes are formed. In phase 3 (neutrophil phase II) the amount of leukocytes in the blood increases further, reaching 20-50 thousand lm in the blood; young neutrophils increase by 3-4%, rod-shaped neutrophils by 20-30%, but the amount of lymphocytes decreases by 3-10%, and eosinophils are temporarily absent from the blood. Thus, intense exercise changes the function of the muscles. At the same time, there are morphological changes in the blood. The lymphocytic phase of myogenic leukocytosis is observed first, followed by the I and II neutrophil phases. Myogenic leukocytosis is a complex, multi-stage process with long and regenerative periods. According to some reports, after long and intense exercise (for example, in a marathon), the total number of leukocytes does not return to normal for 2-3 days and nights.

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