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BIOLOGICAL ASPECTS OF HUMAN ADAPTATION TO ENVIRONMENTAL CONDITIONS

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ABSTRACT

The article is devoted to the biological aspects of human adaptation to environmental conditions. The article also discusses natural conditions and human adaptation to them, desert, desert, mountain, land, north, south, sea, hills and life around it, relations between man and nature, technological processes and their negative impact on the environment, preservation of the ecosystem, biological environment and life in it, lifestyle in cold and hot climates, biological adaptation, social adaptation, environmental hazards and methods of their prevention, healthy lifestyle and environment, natural resources and their rational use, preservation of living and inanimate nature - such questions how hands-on experience is also widely reported.

KEYWORDS: *Environment, nature, organism, ecology, biological environment, man, lifestyle, ecosystem, adaptation, biological adaptation, social adaptation, natural conditions, extreme conditions, technologies.*

INTRODUCTION

Throughout his life, a person is constantly exposed to a variety of environmental factors. Many of these factors, such as chemical compounds, are natural and necessary for normal functioning. So, a person cannot exist without oxygen, which is a necessary factor in life support. With a decrease in the oxygen content in the atmospheric air, there is a serious threat to life. Metabolic and physiological disorders of the body also occur when the partial pressure of natural gases in

the atmosphere, such as carbon dioxide, increases. According to N.A. Aghajanyan, Man regularly consumes various organic compounds and minerals: proteins, fats, carbohydrates, vitamins, trace elements, biologically active substances, water. All of them are necessary for the body, since they take part in the synthesis of various compounds, provide the ability to think, move, grow, adapt and neutralize harmful substances [1,66].

At present, the term "human ecology" denotes a complex of not yet fully delineated issues related to human interaction with the environment. The main feature of human ecology as an independent field of science is its interdisciplinary nature, since sociological, philosophical, geographical, natural science, medico-biological problems converge in it. Human ecology studies the laws governing the emergence, existence and development of anthropoecological systems, which are a community of people, which is in a dynamic relationship with the environment and thus satisfies its needs. Natural conditions are of great importance in determining the size of the anthropoecological system. The most numerous modern populations, uniting more than 80% of humanity, live on 44% of the land in the area of tropical forests and savannas, as well as in the temperate zone with shrubby vegetation or mixed forests. Drylands and desert zones, which account for 18% of the land area, are home to 4% of the population.

The main distinguishing feature of anthropoecological systems in comparison with natural ecosystems is the presence in their composition of human communities, which play a dominant role in the development of the entire system. Communities of people differ in the method of production of material values and the structure of socio-economic relations, on which the method of organizing labor, the volume and method of distributing the products produced among the members of the community depend.

Confirm that T.P. Bogdanets In the process of the existence of anthropoecological systems, the interaction of people and the natural environment is carried out in two main directions. First, there are changes in the biological and social indicators of individual individuals and the community as a whole, aimed at meeting the requirements of the environment for a person. Secondly, the restructuring of the environment itself is carried out to meet human requirements and is influenced by environmental factors. Their diversity can be conditionally subdivided into two large groups - natural and social [2,42]:

- Natural factors. This includes factors of animate and inanimate nature. In accordance with this, biotic and abiotic factors are distinguished. Abiotic environmental factors include the air environment, atmospheric pressure, light radiation, magnetic fields, ambient temperature, meteorological factors, etc.

- Social factors. Social factors in the life of a modern person are very diverse. Recently, anthropogenic factors, especially soil, air and water pollution, have become of great importance. Traditionally, social factors are considered various types of work, living conditions in cities and villages.

Human adaptation is one of the key concepts in human ecology, as well as in many other disciplines (physiology, anthropology, medical geography, sociology, ethnography, etc.). Adaptation of a person to a new environment for him is a complex socio-biological process, which is based on a change in the systems and functions of the body, as well as habitual behavior. This is a two-way process: a person not only himself adapts to the new ecological

situation, but also adapts this situation to his needs and requirements, creates a life support system, which includes food, housing, clothing, transport, infrastructure, etc.

According to N.S. Dezhnikova, the mechanisms of human adaptation. are very different, therefore, in relation to human communities, they distinguish [3,51]:

- Biological adaptation;
- Social adaptation;
- Ethnic adaptation

Each person is an individuality, therefore environmental and socio-economic adaptations are complemented by psychological ones. Individual and group adaptations of a person, in contrast to biological adaptations of plants and animals, provide, along with the survival and reproduction of offspring, the fulfillment of social functions, the most important of which is labor.

According to N.N. Moiseeva, biological adaptation of a person is an evolutionary adaptation of the human body to environmental conditions, expressed in a change in the external and internal characteristics of an organ, function or the whole organism to changing environmental conditions [4,129]. In the process of adaptation of an organism to new conditions, two processes are distinguished - phenotypic adaptation, or individual adaptation, which is more correctly called acclimatization, and genotypic adaptation, carried out by natural selection of useful traits.

They can develop not only in natural (Arctic, highlands), but also in anthropogenic habitats. So, immigrants from the temperate climate zone, arriving to work in the Arctic or Antarctica, are greeted by a harsh climate, atmospheric phenomena unusual for mid-latitudes, a sharply reduced number of microorganisms in soil and air, life in relatively small, crowded collectives. As a rule, such people upon arrival in the Arctic for a long time experience painful conditions and sensations that intensify, for example, when the polar day and night change. They are manifested in an increase in blood pressure and an increase in the pulse rate, which are then replaced by a decrease in pressure (sometimes to the level of 70/30 mm Hg) and a decrease in the pulse rate. These phenomena, designated by some researchers as meteoneurosis, are accompanied by a drop in working capacity.

According to research by Yu. N. Smirnov, the described situation is reflected in the recommendations of hygienists, limiting the duration of work for newcomers to the Arctic. So, at temperatures down to -30 ° C and a wind speed of 4-8 m / s, the main staff of the polar station can work in the open air full time, while newcomers - no more than 1 hour. In polar explorers, the number of leukocytes in the blood is usually reduced to level 3000-3500 in 1 mm3. During the period of change in the composition of winterers upon contact with new arrivals, as a rule, an almost universal incidence of colds and intestinal diseases is observed [5, 49].

Signs of fatigue and even exhaustion of the nervous system are revealed - working memory deteriorates, the reliability of a person's work decreases, and the duration of the latent period of motor reactions increases. Adaptations are created in relation to factors of both the natural and the built environment, so they are not only ecological, but also socio-economic in nature. In modern society, we can observe the strengthening of the role of social adaptation.

According to the research of P.M. Baevsky, social adaptation is the process of active adaptation of an individual (a group of individuals) to the social environment, manifested in the provision of conditions conducive to the realization of his needs, interests, life goals [6,55]. Also, social adaptation includes adaptation, first of all, to the conditions and nature of work (study), as well as to the nature of interpersonal relations, ecological and cultural environment, leisure conditions, and everyday life. The process of social adaptation is closely related to the process of socialization of the individual, the interiorization of social and group norms. Due to the biosocial nature of man, his adaptations to living conditions are partly biological, but mainly social in nature.

In short, social adaptation is to urban and rural conditions, to various types of labor and professional activities, demographic processes are studied. The body's response to stress is considered. Recently, the issues of adaptation to anthropogenic factors, including environmental pollution, have become especially acute. If you carry out extensive scientific research on the formation of a rational attitude towards the environment, then many negative factors that threaten the environment and the environment can be prevented.

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