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INFLUENCE OF ADVERSE ENVIRONMENTAL FACTORS IN THE PHYSICAL EDUCATION PROCESS ON THE HEALTH AND PHYSICAL DEVELOPMENT OF LYCEUM STUDENTS

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Summary

The article describes recommendations on the influence of environmental and environmental factors on the athlete's body, the necessary factors for the use of natural healing agents. The article provides information about the impact of a complex of environmental factors on the health indicators of lyceum students in various regions of the Republic of Karakalpakstan. Analysis of the results obtained for various ecological zones will allow us to consider in more detail the dependence of morbidity rates among the adolescent population of Karakalpakstan on the influence of environmental factors.

Key words

nature, environment, natural factors, ecology, organism, activity, health, physical activity.

Introduction. In recent years, in our country, systematic measures have been being taken to increase the environmental culture of the population, landscaping, protecting trees and shrubs, as well as to expand green areas. In particular, in the Decree of the President of the Republic of Uzbekistan dated May 15, 2025 № PP-184 "On the approval of the concept of increasing the environmental culture of the population for the period until 2030" specific tasks were identified.

This resolution defines the achievement of a number of target indicators. Including:

(a) formation of ecological culture among 3.3 million pupils of preschool educational organizations;

(b) strengthening environmental education and upbringing among 4.2 million students of general secondary education organizations, raising environmental culture;

(c) strengthening environmental education and upbringing among 400 thousand students of secondary specialized and vocational education organizations, raising environmental culture;

(g) raising environmental awareness among 1.9 million students of higher education institutions;

(d) Increased environmental awareness among 90% of employees of government agencies, enterprises, and institutions.

In order to protect against the negative impact of ecological threats in our country, the measures of the nationwide project "Green space" are constantly organized in all regions.

Ecology, as a field of science, establishes the laws of interaction between organisms and the environment. The negative impact of the environment on the state of the organism, the activity of its organs and systems, adaptability, activity, mobility, endurance, and working capacity includes the physicochemical and biological factors of environmental pollution, as well as neuropsychogenic effects. [5.71-72].

The ecology of sports and physical culture teaches human interaction with the environment in the context of physical activity and the changing conditions of the human environment. The importance of studying the ecology of physical education and sports for specialists in the field of physical education explains the modern requirements for organizing the training process under the constant influence of various ecological (endo and exogenous) factors on the athlete. [2.140].

Methods. Environmental, physiological (somatoscopy, cardio intervalography), statistical (dispersion and correlation analysis), factor and comparative methods of analysis were used

The study was attended by 150 students of academic lyceums of the Republic of Karakalpakstan at the age of 15-16, of which 86 boys (57%), 64 girls (43%). During the study, all students were practically healthy and had an average level of physical development

All adolescents participating in geographical testing were divided into two groups at the place of permanent residence. The territorial distribution of the examined children was not accidental. At the initial stage, the regions of the prison with different levels of environmental conditions were identified

Results. Protecting public health is a crucial task today. This, in turn, necessitates the study of the physiological mechanisms of population adaptation. In unusual ecological conditions, human communities are often subjected to extremely unfavorable natural and climatic factors.

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The adaptation of an organism to various ecological factors is a long historical process aimed at the formation of an ecological type that ensures its integrity and favorable living conditions. Therefore, assessing and forecasting the medical and biological condition of the population in an unfavorable living environment is an important task.

In recent years, environmental problems related to environmental pollution have become particularly acute. As is known, the environment is characterized by the presence of negative anthropogenic factors that can significantly impact public health and the potential for the development of certain diseases.

One of the necessary factors in engaging in physical education and sports is social conditions (at training camps, at home, at work, at school, etc.). A good psychological environment and high motivation contribute to high-level preparation for competitions, the development of moral and endurance qualities, the prevention of neuroses (overload, overtraining), and, as a result, successful participation in necessary competitions. Unfavorable socio-economic conditions, the situation in the team, lack of motivation (or lack of attention from team leaders) negatively affect health and the quality of participation in competitions. Developing competition and stressful situations lead to psychological decline, a decline in endurance, and, as a result, to failure in competitions. The conditions of residence of athletes should meet all sanitary and hygienic requirements (soundproofing, shower, bath, TV, etc.), the hotel should be located on a green platform or near the water (river, lake), be able to walk before bedtime and running at dawn. All this helps to reassure and normalize the psyche of the athlete

One of the training collections of athletes should be carried out in the same climatic and geographical zone as the competition zone. According to N.A. Agadzhanyana, A.I. Turkhanova, B.A. Shepderova, when changing 7-8 hour zones, the approximate indicator and performance quickly decrease within 2-3 days. then gradually restored and completely restored within 7-13 days. Therefore, athletes of the highest category arrive at the venue for competitions for participation in the Olympic Games or World Championships. Many athletes change the competition mode before the main starts depending on the time of the competition. Weather conditions also have a great influence on training and competitive activities, training and organization of athletes, as well as holding competitions. To organize the training process and purposeful implementation of competitive activity, it is necessary to use meteorological observations. Short-term observations give 80-90%, average-70-75%, and long-term-60-65% [6.125].

Environmental impact assessment on public health is important. In industrialized countries, especially in cities with adverse environmental conditions

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(solar radiation, dust storms, it was able, etc.), it is especially important to know about the effect of air pollution on people involved in physical culture and sports. Unlike the norms of water consumption and food, oxygen consumption is extremely important and cannot be reduced even in a short time. People do not have self -defense mechanisms from oxygen deficiency.

The human body makes high demands on the quality of air and the strength of its composition. The chemical composition and physical properties of air should provide compensatory physiological mechanisms of a person without tension and, moreover, without pathological changes in his health. The physical properties and quality of the air depend on the height above sea level, as well as on the economic and industrial activities of people. There are many pollutants in the atmosphere. Often there are dust, soot, particles of unburned coal, carbon monoxide, gold sulfur dioxide, gold sulfur vapors, nitrogen and hydrochloric acids, as well as resinny elements. Atmospheric pollution is understood to mean the atmosphere of gaseous elements and solid particles as a result of human and production activities, as well as the life of people and animals. It has been established that toxic substances that penetrate through the lungs are 80-100 times stronger than toxic substances entering the gastrointestinal tract. Therefore, to engage in roads (highways), near factories and factories, in the valleys located near industrial enterprises, and so on is prohibited. If roads (asphalt roads) are irrigated (in the morning and evening), then the percentage of air pollution is reduced. During large international competitions in cities with a contaminated atmosphere, special attention is paid to the purity of air

The experiment revealed a decrease in external respiration function in adolescents in technogenically polluted areas, which is more pronounced in the conditions of chemical air pollution. indicators of the functional state of the cardiovascular system are presented in Table 1.

Table-1.

Indicators of the functional state of the cardiovascular system of the examined adolescents (M ± m)

Environmental group	gender	Systolic blood pressure, mm Hg	Diastolic blood pressure, mm Hg	Heart rate, beats/ minute	Minute volume of blood circulation, liter/minutes	Hardware-software complex, score
Nukus city	M	120,6±2,15	76,8±1,61	76,7±2,14	4,8±0,14	1,62±0,04
	F	116,6±1,94	75,2±1,35	76,5±1,91	4,7±0,12	1,57±0,05
Chimbay	M	127,3±2,43	79,1±1,74	78,8±2,62	5,4±0,19	1,73±0,06*

district	F	117,2±2,41	75,1±2,75	74,7±1,41	4,9±0,15	1,65±0,06

Note: * – differences with control are statistically significant ($p < 0.05$).

As can be seen from the presented data, the group average values of systolic blood pressure in young men from experimental groups II and III are statistically significantly higher than those of their peers from the control group (I experimental group). When analyzing the group average values of diastolic blood pressure, a statistically significant increase was found in boys and girls from experimental group III and in boys from experimental group II; a significant decrease in boys from experimental group II compared to experimental group I. there is a tendency to increase the number of young men with arterial hypertension in the II, III experimental group compared to the control (1, 21; 3, 28 times, respectively).

When assessing the influence of environmental habitats on the health of students living in various areas of the Republic of Karakalpakstan, the following levels of effects on the body were identified: the level of air pollution (32, 4%) has the largest volume. According to the degree of exposure, the following factors are transport loads (5, 8%), the parameters of the geo are almost equal and are 2, 8%, in one of the last places - chemical pollution in settlements and the effects of adverse physical factors - occupies 2, 1%

Discussion. An analysis of the influence of geoecological factors on the health of students living in the Chimbai district of Karakalpakstan showed that the most contributions of the living conditions as pollution of atmospheric air (44, 5%) are made. The level of subsequent factors, such as the presence or absence of water bodies, is 14, 7%. The processes occurring in the hydrosphere affect 14, 2%. The health of students living in the central region, namely in the city of Nukus, is associated with a significant level of vegetation cover (14, 1%), as well as the low influence of air masses (13, 8%) throughout the year. Therefore, the quality of the vegetation cover, which least affects the formation of the health of adolescents living in this zone, is currently less susceptible to anthropogenic environmental effects due to a decrease in economic activity of the population.

Therefore, the organization of rational nutrition of athletes should be based on environmental and hygienic principles. The use of products with a high content of various trace elements can lead not only to a decrease in sports indicators, but also to a significant deterioration in health. Therefore, the team of the team must check the quality of the product, the place of production, the expiration date and meet modern food requirements for athletes.

The practice of achieving high sports results shows that nutrition plays an important role in the Olympic Games, World Championships and other

competitions. The successful results of athletes depend on the quality of food, national factors (national cuisine), training and many other factors. Some teams at the world championships themselves brought food, water and cooks, which found their practical confirmation. This is extremely important, since, for example, the use of unknown food often leads to impaired work of the gastrointestinal tract. At the Olympic Games, athletes from many countries arrange events in places where familiar national dishes are being prepared. At the same time, the fluid regime is also necessary. In hot, wet climate, athletes should not limit fluid consumption.

The effectiveness of any functional systems also depends on weather conditions. For example, the wind blowing in front or from the north affects the increase or decrease in speed and energy consumption. In general, the exact data on the external environment to a certain extent increase the quality of training athlete and the organization of competitions, contributing to the solution of training and competitive efficiency.

As you know, for effective professional physical education and sports:

• knowledge of the environmental equilibrium of the human body with a strong (or insufficient) muscle load;

• the selection of means and methods of restoration of the health of persons involved in physical culture and sports;

• the acquisition of skills in choosing information criteria for evaluating human health with a wide range of answers to various influences of the ecological system and physical activity;

• knowledge of the mechanisms of cellular and molecular development of states that arise as a result of endoecological pathogenic factors and their impact on sports training;

• skillfully develop preventive measures in risk groups for the development of pathological changes (among athletes - excess training, injuries, etc.), taking into account the positive and negative impact of environmental factors;

• understanding of the features of the nutrition, metabolism and energy of people living in various natural and geographical areas, the features of adaptation to physical activity, taking into account the effects of natural cycles and meteorological factors on the human body and athlete;

• It is necessary to know the mechanisms of adaptation and recovery when joint exposure to natural, environmental and adaptogenic factors of the environment, as well as properly solve nutrition problems [8. 1884-1885].

Sports activity is accompanied by the work of all functional systems responsible for its implementation, and is a source of energy for muscle operation. The classification of physical exercises, the features of dynamic and static work, the

types of energy supply and others can say that the degree of change in the physiological functions necessary for the effective fulfillment of muscle load is determined by the degree of its activity

Thus, further analysis of the results obtained in various environmental zones allows you to consider in detail the dependence of the incidence of adolescents living in Karakalpastan on the effects of environmental factors.

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