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TO STUDY THE STATE OF THE EXTERNAL RESPIRATORY SYSTEM IN TEENAGERS LIVING IN THE TASHKENT REGION

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Abstract:

The article presents the results of a study of the external respiratory system and cardiovascular system in adolescents living in the Republic of Uzbekistan. It was found that adolescents have some excess of the level of indicators in the functioning of the adaptive respiratory system.

Keywords: Uzbekistan, blood circulation, environmental conditions, adaptation

The health of the younger generation is a fundamental basis for the formation of the health potential of adults, is an important indicator of the country's well-being and a factor in national security. In this regard, the study of adaptation processes and their mechanisms in a growing child's body to various types of activity is one of the important tasks of modern physiology (Zayneev, 2008). It is known that the beginning of school education leads to a sharp increase in physical activity in children. Various types of loads, in turn, cause a sharp increase in oxygen consumption in the nervous and muscular systems of the child's body. The necessary levels of minute respiratory volume can be ensured only in the case of the presence of an appropriate functional reserve and maturity of the mechanisms of respiratory regulation, which ensures the economization of the functioning of the respiratory system. There are a significant number of factors influencing the development of a child's body, among which we can highlight socio-economic and environmental conditions. Low standard of living, environmental pollution, increased mental stress against the background of hypokinesia, age-related psychophysiological restructuring of the body, increased physical activity that does not correspond to the individual characteristics of children and adolescents, etc. - all of the above can have an adverse effect on the health of children, as well as cause irreparable harm to it, changing its stability and causing undesirable restructuring of body functions. This problem is most acute in adolescence, since the puberty period is accompanied by rapid growth of the entire body and endocrine restructuring. In adolescence, all reserves of the body are directed to growth, development and formation of functions. Therefore, there is a need to study the features of the functioning of the body at different stages of its biological development. Currently, the environmental conditions of the Southern Aral Sea region (including the Republic of Karakalpakstan) have significantly worsened in recent years. According to a number of experts (Abdirov et al., 1993; Yeshanov, 2001; Mambetkarimov, 2005), the health of the population continues to deteriorate significantly in a number of indicators. The greatest changes occurred in the health indicators of children, who, due to the imperfection of the body's defenses, are the first among other groups of the population to react to the unfavorable environmental situation in the region (Mambetkarimov, 2005).

The main objective of the study is to study the impact of dynamic load on the external respiratory system of adolescents in the Republic of Uzbekistan.

The age-adolescent period is characterized by smooth changes in morphofunctional indicators, where an increase in reserve and functional indicators is observed. This age is considered the peak of the effectiveness of the "children's" organization of physiological functions, as well as the diversity of options for the individual organization of energy metabolism. The peculiarity of physiological shifts occurring in the respiratory system under static stress, quickly occurring fatigue make them an important object for study, especially in the process of adaptation of schoolchildren of adult classes

The results of scientific work indicate that the degree of interaction with environmental factors, the adaptation of children and adolescents to changing conditions are determined by the achieved level of morphofunctional development of a growing organism. Successful solution of many theoretical and practical issues of hygiene of children and adolescents is impossible without comprehensive consideration of the patterns of growth and development of the child's body, since harmonious, age-appropriate development and normal level of functions, first of all, characterize the health of the child [86].

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Kuchma V.R. (2000) believes that the sanitary and epidemiological well-being of the population, including children, contains 2 main components: health status and the state of the environment, in which there is no harmful effect of environmental factors on a person and favorable conditions for his life are provided. It is known that the ability of school-age children to perform their inherent social functions, such as educational, work and sports activities, is determined by the level of development they have achieved.

The cardiorespiratory system of the human body is one of the most important physiological systems, determining both the mental and physical performance of children and adolescents in ontogenesis and during adaptation to various types of activities. The study of the dynamics of external respiration and cardiovascular system indicators of the younger generation for various types of loads during the school year seems to be very relevant at the present time. The cardiorespiratory system, which provides oxygen to the body's cells, is one of the most important physiological systems that determines both the mental and physical performance of children in ontogenesis and during adaptation to educational activities. Many questions concerning the role of adaptation with cardiovascular system and external respiration of schoolchildren at different stages of puberty during physical activity of increasing intensity, remain still unstudied, which as a result does not allow us to identify the significance of physiological systems in the adaptive reactions of schoolchildren at different levels of puberty. Despite numerous studies on the problems of studying the adaptive systems of modern children, however, a number of issues have not been discussed, or have not been considered comprehensively, in a narrow range of ontogenesis. In recent years, most of the works of modern researchers are devoted to the physical development of children (Makhmudov et al., 2001; Maturazova, 2008), and much less are presented the results of complex functional studies (Abramovskikh, 2007).

The aim of the work was to study the reactions of external respiration of schoolchildren aged 15-17 years at different stages of puberty. The peculiarity of physiological changes occurring in the respiratory system under static stress, and rapidly occurring fatigue make them an important object of study, especially in the process of adaptation of senior schoolchildren. The study of the dynamics of external respiration and cardiovascular system indicators of senior schoolchildren to various types of loads during the school year seems to be very relevant at the present time.

Educational and physical activity is accompanied by a mismatch between the intellectual and physical components of loads, an increase in the intensity of educational programs, and the emergence of "school hypokinesia". All these factors cause the formation of long-term passive adaptation in children, the emergence of functional shifts in the state of the systems of the child's body [3]. The beginning of schooling leads to a sharp increase in psycho-emotional and physical stress in children and adolescents, in connection with which various types of loads (psychoemotional and physical) cause a sharp increase in oxygen consumption in the nervous and muscular systems of the child [3]. The peculiarity of physiological changes occurring in the respiratory system under static stress, rapidly occurring fatigue make them an important object for study, especially in the process of adaptation of younger schoolchildren. The study of the dynamics of external respiration and cardiovascular system indicators of younger schoolchildren to various types of loads during the school year seems to be very relevant at the present time.

MATERIALS AND METHODS OF RESEARCH

We analyzed retrospective indicators of adolescents born and living in various regions of the Republic of Uzbekistan. All the examined adolescents are native residents of the Tashkent region who did not suffer from any chronic diseases and were not ill with anything two months before the examination, the children we examined were divided into age groups: I-15 years old, group II-group 16 years old, III-group 17 years old.

MATERIAL AND METHODS

A total of 80 children studying in senior classes of secondary schools located in Almalyk and Bostanlyk district of Uzbekistan were examined. The dosed physical load was set on a bicycle ergometer with magnetic braking and was 1.0 watt per 1 kg of the child’s body weight, the duration of the work was 5 minutes, the frequency was 60 rpm.

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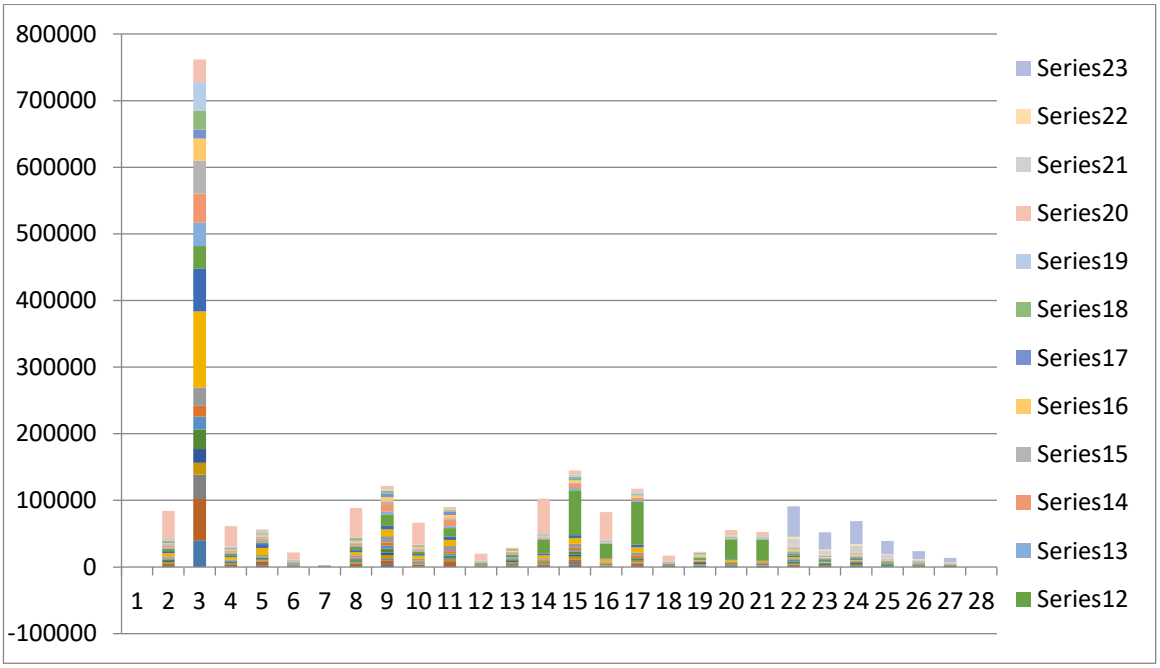

Dynamics of diseases of the external respiratory system of adolescents aged 15-17 years living in the regions of Tashkent (per 100 thousand children).

A retrospective analysis of primary and chronic diseases of the external respiratory system among the population of the Tashkent region made it possible to determine the corresponding patterns in their dynamics and structure. Clinically, acute upper respiratory tract infections in children are manifested by cough, diffuse dry and moist rales of various sizes in the lungs, fever, symptoms of intoxication, rhinitis, redness, and swelling of the throat. X-ray examination does not have specific signs for this disease, usually an increase in the pulmonary pattern, expansion and non-structurality of the lorneys of the lung in the absence of infiltrative and focal shadows in the lung tissue is determined.

In the Tashkent region in 2019-2023, the incidence of acute diseases of the upper respiratory tract was noted, especially in the Bekabod district. In 2021, the total number of children with acute upper respiratory tract infections was 51,240.6 people (per 100 thousand children).

As a result of the study, we found that the incidence rate of children and adolescents in cities and towns was 66.8 percent, in the central regions of the districts, which significantly exceeds the incidence rate of children living in rural areas. This can be explained by the deterioration of the environmental situation in many cities and the increase in the number of cars in the central regions of the country and industrial emissions into the atmosphere, an increase in the use of household chemicals by the population and other factors. According to statistics obtained from K.Ch. Nurmamatova, the dynamics of common respiratory diseases in the regions of Uzbekistan is defined as relatively high in the region, in the industrial regions of the republic, relatively high incidence rates are observed. and the average indicator in the republic is 1.3 - 1.4 times [2,3].

CONCLUSIONS

Breathing disorders are a pressing problem among schoolchildren. Based on the survey, the following factors were identified that cause the development of disorders:

1. Chronic diseases of the respiratory and cardiovascular systems. The function of external respiration is closely related to the function of the circulatory system: with insufficient external respiration, the cardiovascular system works harder and vice versa.
2. The presence of bad habits (smoking). Nicotine leads to the development of pathological changes in the respiratory system (damage to the mucous membrane, destruction of surfactant, decreased elasticity and extensibility of the lungs), which in turn causes a decrease in respiratory parameters.
3. A sedentary lifestyle and physical inactivity lead to functional changes in the cardiovascular and respiratory systems. At the same time, systematic physical activity improves neurohumoral regulation of respiration; the respiratory system begins to work in concert with other body systems. According to WHO, human health is 50% dependent on lifestyle.

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