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MORPHOMETRIC FEATURES OF ANTHROPOMETRIC PARAMETERS OF ADOLESCENTS LIVING IN THE CITY OF BUKHARA ENGAGED IN ATHLETICS

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ABSTRACT

Studies were conducted to study the anthropometric indicators of the body of children engaged in gymnastics, as well as the functional capabilities of the cardiovascular system of children aged 10-16 years living in the city of Bukhara. The assessment was carried out using centile tables with the determination of the harmony of physical development. The survey was conducted in the first half of the day, since during this period the studied indicators are most stable during the day. At the time of the study, the children were practically healthy. The assessment of physical development indicators was carried out according to centile scales, which is currently considered the most optimal and generally accepted way to assess physical development.

KEYWORDS: *Anthropometric Studies, Gymnastics, Bone, Blood Pressure, Cardiovascular System.*

INTRODUCTION

It is well known that one of the direct indicators of health, most reflecting the balance of the body with the environment, is physical development. The close connection between the state of health and physical development is especially pronounced during the school period, which determines the relevance of studying the pace of physical development. With prolonged exposure to negative factors, such as poor nutrition, physical inactivity, pronounced intensification of the educational process, which is expressed in an increase in the volume and complexity of the educational material and the number of lessons per day, leads primarily to disharmonious physical development, and thus to a decrease in the number of absolutely healthy children.

In **this regard**, the purpose of this work was to study the anthropometric indicators of the body of children engaged in gymnastics, as well as the functional capabilities of the cardiovascular system (CCC) of children aged 10-16 years living in the city of Bukhara. The assessment was carried out using centile tables with the determination of the harmony of physical development.

Materials and methods of research

The research was conducted on the basis of the Bukhara school, which included 92 students aged 10-16 years engaged in gymnastics, including 48 girls and 44 boys. The survey was conducted in the first half of the day, since during this period the studied indicators are most stable during the day. At the time of the study, the children were practically healthy. The physical development of schoolchildren was assessed according to the following criteria: body weight, body length, chest circumference (OGC), blood pressure (BP) and heart rate (HR). Further, the obtained data were analyzed and compared with the normative indicators, which are given in centile scales [1,3,5,6]. The measurement of total body size was carried out according to the generally accepted anthropometric method: body weight was determined using medical scales, a wooden height meter was used to measure body length, the chest circumference was measured using a centimeter tape. Blood pressure and heart rate were measured using an automatic tonometer, at rest on the right hand in a sitting position.

The assessment of physical development indicators was carried out according to centile scales, which is currently considered the most optimal and generally accepted way to assess physical development. Centile scales are a description of the frequency fractions of the distribution of the range of variation of features, absolutely independent of the mathematical distribution. Accordingly, these scales are more universal. They are convenient for mass preventive examinations of children, for identifying groups with "borderline" values and possible pathological deviations of signs. According to these scales, the values characteristic of half of healthy children of this sex and age are taken as the norm - in the intervals of 25-50-75 cents. The attention groups, that is, with borderline states, include children who fit into the range of 3-10 th centiles and 90-97 th centiles, and the group that requires additional examination, since this is a reflection of an obvious pathology-children with signs that go beyond the 3rd and 97th centiles. For a more complete description of the assessment of physical development, its integral assessment - harmony is used.

The conclusion about the harmony of the child's development is given based on the results of anthropometric measurements and the corresponding centile corridors in the centile tables: harmonious with a lag behind the age standards, if the data of the examined child are within 3-10 centiles; harmonious and age-appropriate, if all anthropometric indicators are within 25-75 centiles; harmonious with an advance of age, if the results obtained correspond to 90-97 centiles.

The results of our research have shown that the body length of boys who are engaged in gymnastics for 10 years exceeds similar indicators. Whereas at the age of 11, these indicators fully correspond to the parameters. At the age of 12 and 13, there is a jump in growth, about a year later than in girls. Most likely, this is due to the earlier entry of girls into the puberty period. At the age of 14, 15 and 16, the body length is within the normative limit. Our studies on the body weight of boys have shown that at the age of 10, 13, 14 and years, they have a steady increase in weight, again, as in girls, this is mainly due to an increase in the mass of adipose tissue. However, this is observed in boys 2 times more often than in girls, which is also

confirmed by previous studies [1,2,4]. At the age of 13, there is a significant increase in the size of the chest circumference, but it still fits into the normative boundary. Apparently, this is due to the entry into the puberty period. Boys of 10, 11, 12 and 13 years have normal indicators of the size of the OGC, and at 14 and 16 years there is a tendency to outstrip the age norm.

It is known that the intensity of the educational load is one of the factors that determine the functional state of the CCC of schoolchildren, which is a universal indicator of the adaptive capabilities of the body [2,3]. Our comparative analysis of heart rate revealed that in a larger number of surveyed middle and high school students, this parameter was significantly higher than the proper indicator. A significant increase in heart rate in girls is observed at the age of 11, during the beginning of puberty. In boys engaged in gymnastics, this indicator is significantly higher than the norm is reflected in 13, 14 and 15 years. The study of blood pressure indicators revealed that the level of actually measured systolic and diastolic blood pressure is significantly higher than the proper indicator in most age groups. 58.2% of boys and 51.9% of girls had normal blood pressure. However, this trend is more evident during puberty. An increase in blood pressure at this time is considered as a physiological reaction aimed at maintaining blood supply at an optimal level with a rapid increase in height and body weight [1, 2,7]. In girls, the highest level of blood pressure, exceeding that of boys, is detected at 11, 12 and 14 years. In boys, these values were higher at 10, 13, 14, 15 and 16 years. The differences in the dynamics of indicators are due to different terms of the beginning of puberty. The results obtained indicate that the pronounced stress of the CCC and the mechanisms of regulation is more observed in boys than in girls. In this regard, the critical period of the functional state of the CCC is determined, in girls it is the age of 12, 13 and 14 years, and in boys it is the age of 13, 14 and 15 years. During this period, it is necessary to pay attention to the physical condition of the child, otherwise the increasing dysfunction of the CCC can lead to a pathological condition.

Thus, the conducted research has shown that over the past 10-15 years there is a clear trend of accelerating the physical development of gymnastics, accompanied by an increase in the load on the CCC, which must now be taken into account when working with this category of adolescents.

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