

# Analysis Of Indicators Of Physical Development Of Adolescents In Various Regions Of The Republic Of Uzbekistan With Different Environmental Pollution

Ilyasova G.K.

Associate Professor of the Department of Sports Management, Institute for Retraining and Advanced Training of Physical Education and Sports Specialists

**Abstract:** The influence of environmental factors on the growth rate of a child's body is quite clearly traced. Among these factors are nutrition and vitamin provision, physical activity and emotional stress, acute and chronic diseases, the influence of climatic and geographical conditions, etc. At the same time, environmental factors can slow down or accelerate growth processes, but in general the growth trend is quite stable, it obeys the law of growth conservation.

## Keywords:

Children's health is formed under the influence of a complex of biological, natural-ecological, social factors, as well as the conditions of upbringing and education. The environment, nutrition, physical activity, lifestyle have a significant impact on children's health, the processes of child growth [1, 2]. Physical development of a child as a set of various indicators (length, weight, shape, strength, etc.) characterizing his growth and development is determined by a complex of hereditary and social factors. To study the physical development of children and adolescents, a unified method for measuring the human body and its parts has been developed. All anthropometric indicators can be divided into two groups: basic (body length, body weight, chest and head circumference) and additional (other anthropometric indicators, for example, leg length, head height, etc.).

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According to a number of researchers, one of the most objective criteria for assessing a person's health is the level of his physical development. A special place in determining the degree of physical development is given to a person's constitution. The ecological environment in which children are located affects their physical, cognitive and socio-emotional development throughout their lives, from the prenatal period to adulthood. Taking this into account, the data available today are insufficient to fully determine the adverse effects of individual environmental factors, in particular toxins and pollutants, on the physical development of children.

Analysis of the main anthropometric indicators at the time of examination makes it possible to assess the physical condition of the child, in dynamics - the rate of physical development. In this case, the features of the body build, the state of the musculoskeletal system, the degree of puberty, etc. are taken into account. Physical development is analyzed by comparing individual or group indicators with average data (standards) characteristic of the corresponding age and gender of the child.

The value of indicators of a child's physical development can be explained by a number of arguments. For many chronic childhood diseases, there are no specific symptoms related to the early stage of the disease, so impaired physical development is one of the first signs of trouble and serves as an indication for an in-depth examination of the child.

Impaired physical development of children and adolescents can be a consequence of insufficient nutrition, lack of necessary care, improper or harsh treatment of the child, etc. Impaired physical development can be caused by constitutional features, congenital or hereditary pathology of the developmental apparatus. Such children have imperfect mechanisms of adaptation and anti-infective protection, for example, underweight of a child can be accompanied by a higher frequency of minor developmental anomalies.

Any deviations of anthropometric indicators from the norm at the birth of a child can become one of the reasons for a decrease in immunological resistance, increasing the likelihood of the disease in the first year of life by two times, and the likelihood of death - by 4 times. All factors characterizing the growth and development of a child's body can be conditionally divided into genetic and environmental.

### Material and methods

Somatometric indicators are among the main ones, most often used in assessing children's health. The literature describes the results of changes in these indicators under the influence of various environmental factors.

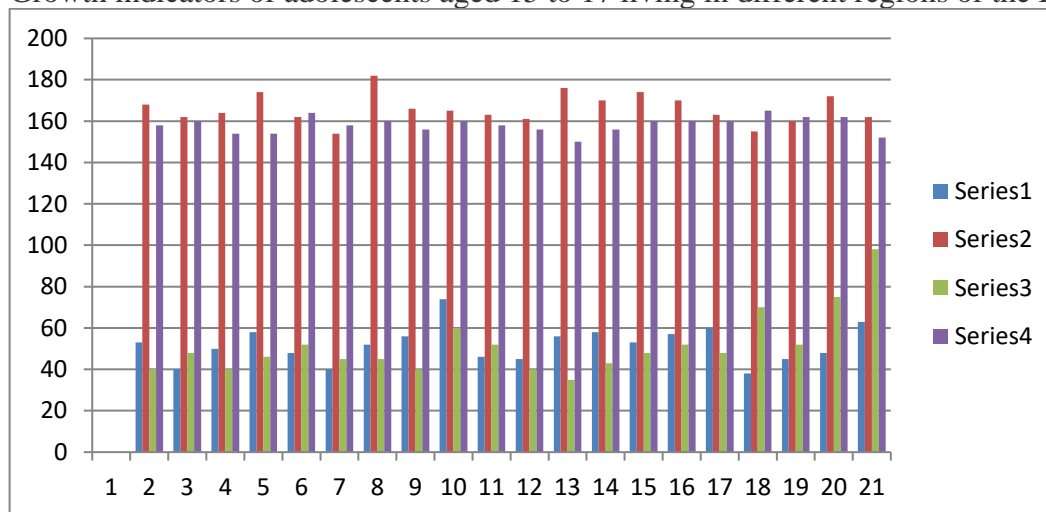
In accordance with the objectives of the study, 150 adolescents (15-17 years old) of the 1st health group were examined, living in different subjects of the Republic of Uzbekistan in terms of environmental pollution, in particular in the cities of Kogon, Bukhara

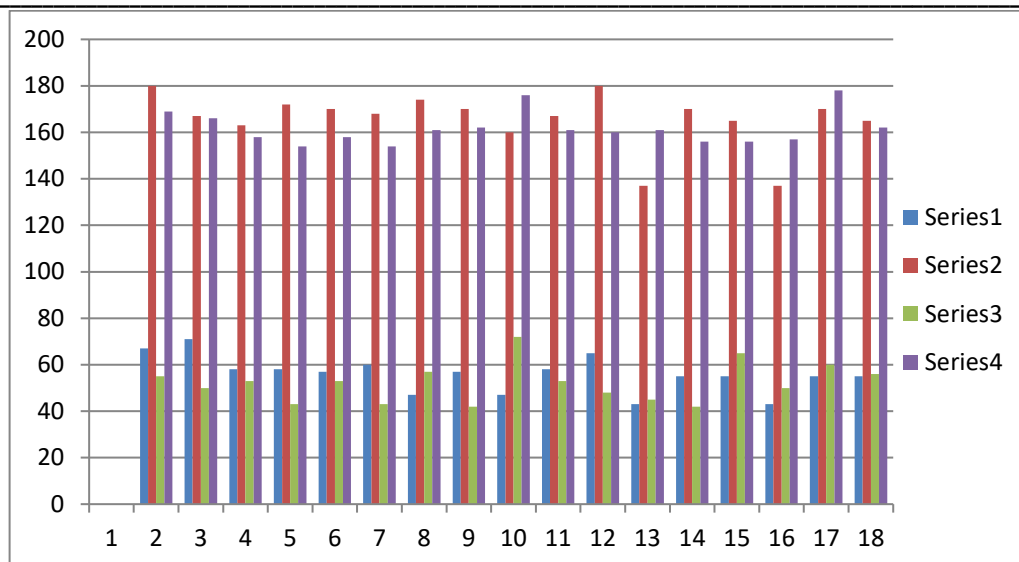
To study the morphofunctional state and features of sexual maturation of the body of adolescents aged 15-17, well-known methods of anthropometry and physiometry were selected. The studies were carried out in the same 10 educational institutions of Bukhara. The institutions were selected from among those in which the children, class teachers and parent committees approved their participation in the study and meet the requirements of biomedical ethics.

### Results of the study and their discussion

There is very little data on the physical development of children growing up in the subjects of the Republic of Uzbekistan with different levels of environmental pollution, and there are also not enough studies documenting the impact of environmental conditions.

Growth indicators of adolescents aged 15 to 17 living in different regions of the Bukhara region





As is known, there are two periods of increasing body growth rate: the first occurs between the ages of 4 and 7, the second – at a later period: 10-11.5 years for girls and 13-15 years for boys. The first increase in growth rate is called the half-growth spurt, the second – the pubertal spurt. A significant increase in body weight in boys and girls is observed during puberty. During this period (from 10 to 15 years), girls have more body weight than boys, and from the age of 14, the rate of body weight increase in boys is higher. Boys experience the most intensive weight gain between the ages of 4-5 and 11-14. Girls experience the most intensive weight gain between the ages of 4-5 and 10-11.

The body weight and height of adolescents aged 15 to 17 living in different parts of the Bukhara region were taken as anthropometric indicators. The average values adopted by the Ministry of Health of the Republic of Uzbekistan were used as control parameters. For each measurement, 50 measurements were taken. The minimum and maximum values of body weight for age and 15-year-old boys living in the Bukhara and Gijduvan districts and in the city of Kogon are above the norm (the highest - 174, 145 cm). At the age of 15-17 years, the growth forces are quite obvious, that is, from 145 to 174 cm above this standard height. The body height of boys at 15 years old is normally 54.8 kg, the body height of teenage boys during this period is normal (the highest is 75.35 kg). For girls in the Bukhara district, the body height was 170 cm. During this period, the age norm for teenage girls' height (the highest is 170, 145 cm). It was 161.2 cm. The height of 15-year-old girls is normally 55.2 kg, the current age norm for body height for girls (the highest is 70, 38 kg). For girls, the growth rate has slowed. By age 15, the same rate of decline is seen in all areas studied.

Official statistics and scientific research data indicate that negative trends in changing demographic indicators in the Republic of Uzbekistan, including the health status of the child population, persist.

The data obtained during the study allowed us to establish that the physical development of adolescents living in the Republic of Uzbekistan is uneven in different regions. According to the available factual data, the presence and impact of chemical and environmental pollutants is associated with growth, especially with the growth of children and adolescents.

The most pronounced changes are noted in anthropometric indicators, especially in height, at 15 and 14 years of age.

The most sensitive to the impact of unfavorable environmental conditions are the physical development indicators of girls aged 15–17, which demonstrates the feasibility of conducting further research in this age and sex group. The uneven growth and development of children in different Bukhara region must be taken into account when drawing up and using physical development standards and conducting physical education classes. Thus, we call for the development of a holistic, interdisciplinary and multi-level approach based on the bioecological model to study the impact of the environment on the physical development of children and adolescents. It is necessary to develop modern standards for the physical development of children in the form of centile series, tables of sigma deviations and regression scales for children of different sexes and ages. It is advisable to continue the study of various indicators of physical development in children and adolescents in rural areas and cities of Bukhara. Such an approach will allow us to more effectively consider

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the impact of the physical environment on the physical, cognitive and socio-emotional development of children living in different regions.

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