

FEATURES OF INDICATORS OF BODY MASS INDEX AND SPINE GROWTH IN CHILDREN 4-5 YEARS OLD LIVING IN URBAN AND RURAL CONDITIONS IN THE KHOREZM REGION

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Abstract:

The article examined 280 boys and girls 4-5 years old living in the city of Urgench and in the Shavat district of the Khorezm region, part of the Southern Aral region. Anthropometric studies of body weight, growth and length of the spine in children were conducted and studied. According to the results of the anthropometric survey, differences in the results of the anthropometric survey of boys and girls 4-5 years old living in rural and urban areas were analyzed. Based on these studies, the physical development of boys and girls 4-5 years old living in urban areas was superior to the physical development of boys and girls 4-5 years old living in rural areas.

Keywords: anthropometric indicators, vertebral column, Southern Aral Sea region.

Introduction

The most important condition for improving the health of children and adolescents is to identify and study the characteristics of their growth and development [5].

Anthropometric studies are of particular importance in the medical examination of children and adolescents, it allows children and adolescents to determine their development over time in accordance with certain age and physical requirements for development. In addition, anthropometric examination helps to identify pathological changes in the growth and physical development of children and adolescents, as well as to prevent the development of many diseases [6].

The concept of "physical development" is interpreted differently by different authors. P. I. Bashkirov noted that the concept of "physical development" is a unit of morphological and functional properties of an organism [3].

According to Levin V.N., the concept of "physical development" is the state of functional, physiological indicators and the health of the body. Vladovsky V. G. characterizes the concept of "physical development" by the sum of morphofunctional signs of the degree of age-related biological development of the organism [4].

When determining the level of physical development of children and adolescents, the body mass index (Quetelet index) is most often used. Using this indicator, we determine the level of physical development of adolescent children [9, 10, 11].

Normal growth and development of the spine play an important role in the physical development of children and adolescents. As the child grows up, the growth and development of the spine is accompanied by an increase in its length, size and mass, and the cartilaginous parts of the spine are replaced by bone. The transition of the child's body to an upright position leads to the formation of

physiological bends of the spine. The transition to the vertical position of the child leads to an increase in the volume of the spine from top to bottom [1, 7, 8].

In the first years of life, the development of the spine is so intense that even after a short period of time, certain changes occur in the structure of the spine. Therefore, E.V.Ulrich, A.Y.Mushkin believes that it is necessary to pay attention to the age-related features of the normal development of the spine [2, 8].

Khorezm region of the Republic of Uzbekistan is one of the most environmentally unfavorable regions of the Southern Aral Sea region. The deterioration of the environmental situation in the Southern Aral Sea region has not been left without its impact on the health of children and adolescents. Conducting medical examinations of children and adolescents living in these climatic conditions will help prevent various diseases. The study of the processes of physical development in children living in different geographical zones, as well as in urban and rural conditions, is of great importance for improving human ecology and health promotion. Based on the above, the purpose of our study was a comprehensive study of the level of physical development based on anthropometric indicators of children 4-7 years old living in urban and rural conditions of the Khorezm region.

The data obtained were statistically processed using the Microsoft office Excel 2010 software package on a Pentium IV computer.

Materials and Methods

Practically healthy children aged 4-7 years living in rural and urban areas of Khorezm region, Republic of Uzbekistan were selected for vertebrometric and anthropometric research. A total of 320 children were examined, including 81 girls and 76 boys in the family polyclinic No. 3 of the city of Urgench and 85 girls and 78 boys in the family polyclinic No. 52 of the Shavatsky district. The study was conducted using anthropometry. To assess the weight-height ratios in the study, Kettle weight-height indices (body mass index – BMI) were used. When measuring the length of the spinal column, a centimeter tape was used. The data obtained were recorded in the form "Anthropometric medical examination" approved by the Academic Council of the TMA of the Urgench branch (protocol No. 430 November 2019).

Results and Discussion

The results of the survey showed that the body weight of boys 4-7 years old living in the city of Urgench is on average 24.7 kg, the body weight of girls 4-7 years old is on average 23.6 kg. The body weight of boys 4-7 years old living in the Shavatsky district averaged 23.0 kg, the body weight of girls 4-7 years old averaged 22.5 kg. The body length of 4-7-year-old boys living in the city of Urgench is 112.4 cm, the body length of 4-7-year-old girls averages 111.9 cm. The body length of boys 4-7 years old living in the Shavatsky district averages 107.4 cm, the body length of girls 4-7 years old averaged 111.6 cm.

Body mass index – BMI for boys 4-7 years old living in the city is on average 25, for girls 4-7 years old living in the city is on average 24, for boys 4-7 years old living in rural areas BMI is on average 19.7, for girls 4-7 years old living in rural areas BMI is on average 17.6 (Fig.1.1., 1.2.).

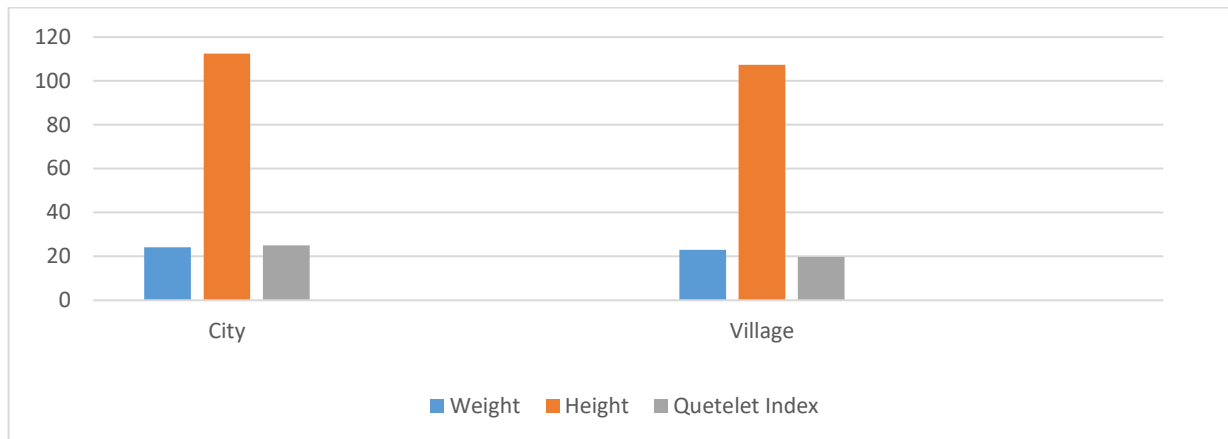


Figure 1.1. Body mass index in boys aged 4-7 years (BMI).

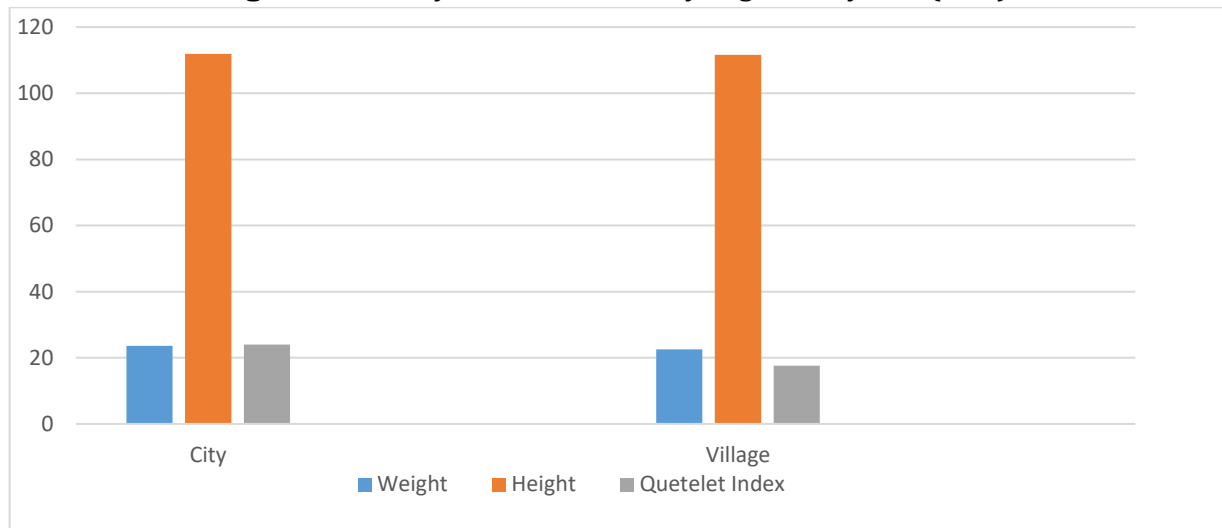


Figure 1.2. Body mass index in girls aged 4-7 years (BMI).

The total length of the spinal column of 4– 7-year-old boys living in the city averages 36.6 cm, 4- 7-year-old girls living in the city averages 35.4 cm. The total length of the spinal column of 4– 7-year-old boys living in rural areas averages 35.8 cm, 4- 7-year-old girls living in rural areas averages 34.7 cm (Fig.2.).

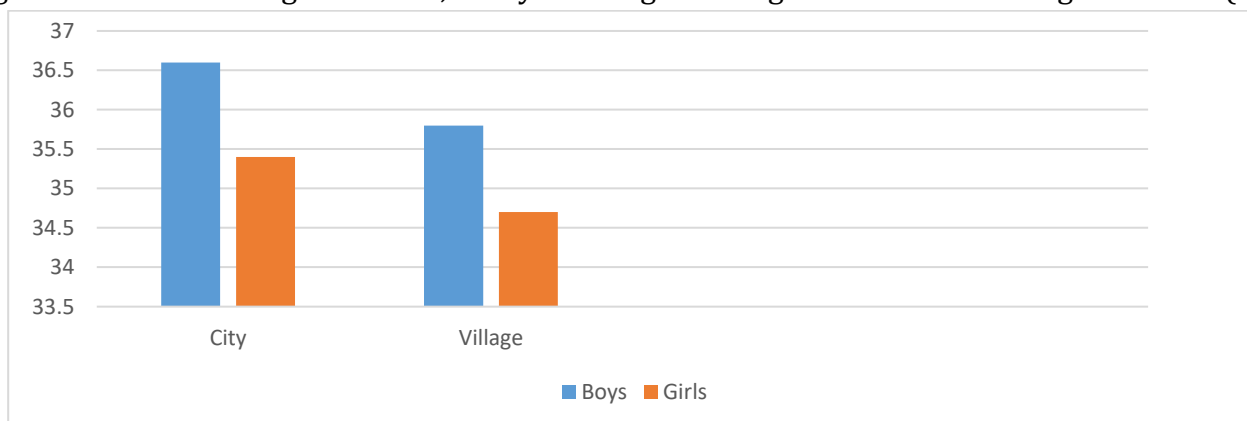


Fig. 2. The total length of the vertebral column in children 4-7 years old.

Of those selected for the study, practically healthy children living in the city, 84 of them are organized, 73 are not organized. Practically healthy children 4-7 years old, living in rural areas, 78 of them are organized, 95 are unorganized (Fig. 3).

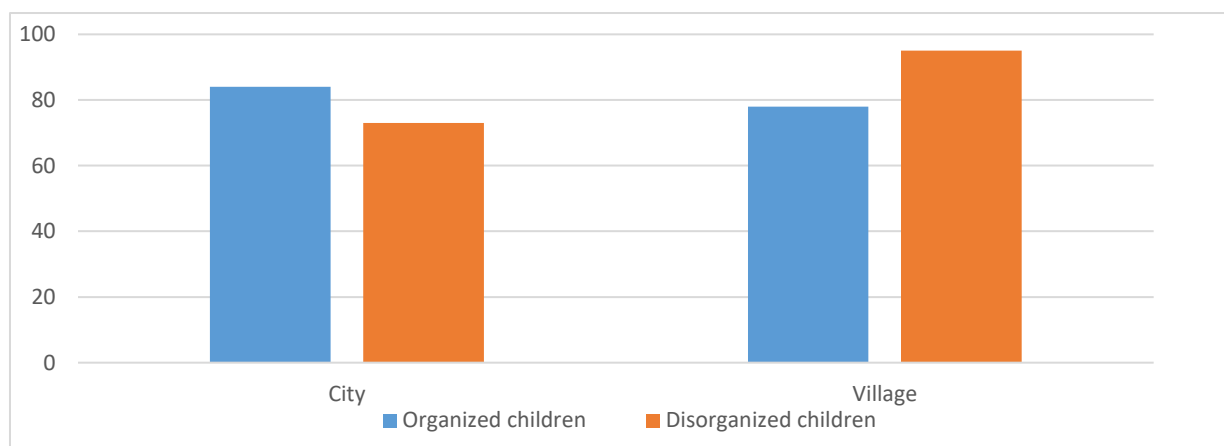


Fig. 3. Distribution of children depending on the coverage of educational activities: Organized and not organized.

Conclusion

Thus, the body weight of boys 4-7 years old living in the city is 1.7 kg more than the body weight of boys living in rural conditions. The average body length of 4-7-year-old girls living in the city is 0.3 cm longer than the body length of girls living in rural conditions. The average length of the spinal column in boys 4-7 years old living in the city is 0.8 cm longer than in boys 4-7 years old living in rural conditions. The average length of the vertebral column in girls 4-7 years old living in the city is 0.7 cm longer than the length of the vertebral column in girls 4-7 years old living in rural conditions. Of the 157 children aged 4-7 living in the city of Urgench, 84 children are organized - 53%, and 33 children are unorganized - 46.4%. Of the 163 children aged 4-7 living in rural conditions, 78 children are organized - 47.8%, and 95 children are unorganized - 58.2%. Such a difference between anthropometric indicators in children aged 4-7 years was associated with the distribution of children depending on the coverage of educational activities (organized and unorganized). The data obtained can be used to assess the quality of health and physical development of children.

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