NOVATEUR PUBLICATIONS
JournalNX- A Multidisciplinary Peer Reviewed Journal
ISSN No: 2581 - 4230
VOLUME 11, ISSUE 11, November – 2025

FEATURES OF GROWTH OF CHILDREN 7-9 YEARS OLD IN THE CONTEXT OF SCHOOL EDUCATION

F. A. Ibragimov,
D. I. Sadikova
Andijan State Medical Institute

Abstract
The article focuses on age-related changes in height among children aged 7 to 9 years, representing a key cohort of early school age. The study analyzes the patterns and rates of linear growth, as well as gender-based differences. Growth reference standards and the importance of their application in medical monitoring of schoolchildren are discussed. The findings indicate that growth intensity is closely associated with the level of physical activity and academic workload. Episodes of growth deceleration may be considered early indicators of stress on adaptive mechanisms and a potential risk factor for the development of functional disorders in schoolchildren.

Keywords: Height, children aged 7–9 years, early school age, physical development, growth rates, physical activity, academic workload.

Introduction

Relevance of the study

The period of primary school age is one of the key stages of the child's physical development [2, 6, 8, 11, 13, 20]. At this time, intensive growth of the body continues, the main morphofunctional systems are formed and improved, adaptation to new conditions of educational activities takes place [1, 4, 5, 9, 16, 21]. Admission to school is accompanied by a change in the daily routine, an increase in mental load and a decrease in the volume of motor activity, which can affect the growth rate and general health of children [3, 10, 12, 15, 18, 19].

The anthropometric growth index is widely used as a simple and informative criterion for assessing the level of physical development [7, 9, 10, 14, 17]. Analysis of growth dynamics in schoolchildren allows you to identify the features of individual development, timely detect deviations and develop preventive measures aimed at strengthening the health of children.

The study of the growth indicators of students aged 7-10 is of particular importance, since this age interval is characterized by pronounced heterogeneity in growth rates and differences between boys and girls [1, 4, 5, 9, 16, 19, 20, 21].

The Purpose of the Study

To assess the indicators of physical development of growth of primary school children in the educational process in a comprehensive school.

Material and research methods:

Boys and girls of grades 1, 2, 3 of school No. 31 of the city of Andijan, Andijan region, were examined. A total of 246 students were examined, of which 134 were girls and 112 were boys. Measurements were taken at the beginning of the school year, in the middle and towards the end of the school year.

Parametric methods of anthropometric indicators statistics were used: arithmetic mean (M), its error (m), mean square deviation (σ), coefficient of variation were calculated.

Statistical significance of differences was assessed by Student's t-test. The critical significance level was assumed to be 5%.

Study results:

The analysis of anthropometric indicators showed a significant increase in the length and weight of the body in all examined children during the school year, which corresponds to typical age-related growth patterns.

An interagency comparison at the beginning of the school year revealed that the body length of girls exceeded the average age values by 2.57 cm at 8 years old, by 3.66 cm at 9 years old and by 0.58 cm at 10 years old. In boys, the excess of standards was more pronounced: by 2.53 cm at 7 years old, 5.07 cm at 8 years old, 3.97 cm at 9 years old and 6.56 cm at 10 years old. Only girls 7 years old showed a lag behind the age standard by 1.14 cm.

Table 1 Age-related growth changes in schoolchildren from 7 to 9 years old

Age	Boys		Girls	
	start of school year (cm)	end of school year (cm)	start of school year (cm)	end of school year (cm)
7 years	117,4+0,5	125,4+0,86	115,8+0,5	123, 6+0,65
8 years	124,8+0,76	128,2+0,35	125,4+0,43	128,5+0,34
9 years	128,6+0,33	136, 4+0,74	128,7+0,6	134,7+0,8

It was found that the most intense growth jump is observed in children 7 years old, which is associated with the passage of an important stage of age-related development and high sensitivity to external environmental factors.

The results of the assessment of the physical development of children showed that the body length indicators in students are distributed as follows: 46.2% of children had average values (51.1% of girls and 42.4% of boys), higher than average indicators were found in 38.5%, and lower than average values - in 15.3% of the surveyed.

Analysis of the distribution of body length values by age groups revealed the following features. At the age of 7, half of the boys (50%) had indicators corresponding to the average age norm, while among girls this indicator was only 29.4%. At the same time, 41.2% of girls had values below average, which significantly exceeded the proportion of boys with a similar level of development (16.7%).

Table 2 Distribution of body length indicators of children 7-9 years old compared to standards

Age	sex	Regulatory growth range (cm)	Average (%)	Above average (%)	Below average (%)
7 years	boys	117–122	50.0	33.3	16.7
	girls	115–121	29.4	29.4	41.2
8 years	boys	124–129	50.0	31.3	18.7
	girls	120–128	75.0	6.2	18.8
9 years	boys	129–134	50.0	33.3	16.7
	girls	130–134	50.0	50.0	0.0

At the age of 8, most girls (75%) were characterized by average body lengths, among boys this figure was 50%. At the same time, the proportion of boys with growth above average exceeded the same indicator for girls by 18.8%, which indicates a greater severity of accelerated physical development among boys of this age group.

At age 9, equal proportions of boys and girls (50% each) had average growth rates. In the second half of the sample, girls had values above the age norm, while among boys this level was observed only in 33.3%.

The assessment of children's growth made it possible to determine the growth rate of anthropometric indicators during the school year. It was revealed that boys had an average increase of 7 years: +8.0 cm; 8 years: +3.4 cm; 9 years: +7.8 cm; in girls, the average increase was 7 years: +7.8 cm; 8 years: +3.1 cm; 9 years: +6.0 cm. The most intensive growth was observed in 7 and 9 years, which corresponds to the age periods of activation of somatic development processes. The lowest rates were noted at 8 years, which may be due to individual characteristics of growth rates and an increase in educational and adaptation loads.

Comparison with age standards showed that at the beginning of the school year, the largest proportion of deviations occurred in girls 7 years old and boys 9 years old. By the end of the school year, some children overcame the initial lag, but there were still cases of a decrease in indicators relative to the normative range.

Conclusions:

1. It is shown that the intensity of growth is closely related to the level of physical activity and the mode of study load. Episodes of growth retardation can be considered as early signs of tension of adaptation mechanisms and as a risk criterion for the formation of functional deviations in the body of schoolchildren.
2. The results of the study emphasize the need for a systematic approach to maintaining the health of children during the learning period. The creation of favorable conditions for the educational environment contributes to maintaining the optimal functional state and full growth of schoolchildren.

References

1. Bianba B., Norbu N., Basang C., et al. Anthropometric measures of 9 to 10 year-old native Tibetan children living at 3700 and 4300 m above sea level and Han Chinese living at 3700 m// Medicine. 2015; 94(42):e1516.
2. Fink G., Rockers P.C., Sudfeld C.R. Childhood growth, schooling, and cognitive development// Journal of Child Health. 2023; 14(1): 45–54.
3. Ibragimov F.I., Sadikova D.I., Kosimkhodjiev M.I. Age-related changes in anthropometric indicators of the body of children// "Journal of science-innovative research in Uzbekistan", Volume 3, Issue 02, 2025. P. 289-293
4. Ibragimov F.I., Sadikova D.I., Kosimkhodjiev M.I. Mintaqaviy antropometrik baholash – sog'lom millat garovi (adabiyotlar sharhi)// "Problems and solutions of scientific and innovative research" Universalconference. Volume 02, Issue 02, 2025. P. 104-105.

5. Ibragimov F.I. et all Bolalarning jismoniy rivojlanishini individual baholanishi//“Problems and solutions of scientific and innovative research” Universalconference. Volume 02, Issue 02, 2025. P. 160-161.
6. Goodwin E.T., Richards J. Growth faltering and failure to thrive in children//American Family Physician. 2023;107(6):623–632.
7. Hsiao Y.C., Chen M.L., Chou M.C. Growth velocity among school-age children in relation to body mass index// Journal of Pediatric Research. 2021; 8(2):76–83.
8. Hoang N.T.D., Nguyen P.K., Phuong L.H. Anthropometric status among 6–9-year-old school-going children in rural areas in Hai Phong City// International Journal of Pediatrics. 2018; 6(4):112–118.
9. Singh T.S.K. Anthropometric measurements in school-going children// International Journal of Life and Biomedical Research. 2024;2(3):1–5.
10. World Health Organization (WHO). Growth reference data for 5–19 years. WHO; 2020. 100 p.
11. Иванова Т.П. и др. Антропометрические характеристики детей младшего школьного возраста крупного промышленного региона// Современные проблемы науки и образования. 2017; 6: С.108–112.
12. Карандашева В.О., Баранова И.А. Региональные нормативы антропометрических показателей детей и подростков Магаданской области// Проблемы социальной гигиены, здравоохранения и истории медицины. 2022; 30(3): С. 171–176.
13. Козлов А.И., Мкртчян А.Г. Антропометрические показатели физического развития и пищевого статуса в практике отечественной гигиены// Гигиена и санитария. 2019; 98(2): С. 123–128.
14. Мартинчик А.Н., Батурин А.К., Кобзарь В.В. Ретроспективная оценка антропометрических показателей детей России в 1994–2012 гг. по стандартам ВОЗ//Гигиена и санитария. 2015; 94(5): С. 33–37.
15. Панасюк Т.В. Гигиеническая оценка физического развития детей школьного возраста//Вопросы школьной и университетской медицины и здоровья. 2020; 2: С. 21–26.
16. Пивоварова Е.В. Рост и развитие детей 7-10 лет в условиях современного образовательного процесса// Педиатрия. 2021; 100(6): С. 45–50.
17. Рожков В.А., Федорова Л.С. Динамика роста детей младшего школьного возраста в зависимости от режима учебной нагрузки// Здравоохранение Российской Федерации. 2018; 62(4): С. 207–212.
18. Сафаров Ш.К. Физическое развитие учащихся младших классов Узбекистана: региональные особенности// Медицинский вестник Узбекистана. 2022; 1. С. 60–64.
19. Струкова Е.Н. Физическое развитие детей: методические рекомендации для школ// Москва: Академкнига; 2016. 112 с.
20. Фролова И.С. Возрастные нормы роста и веса детей 6–11 лет// Санкт-Петербург: СпецЛит; 2019. 156 с.