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THE INFLUENCE OF PHYSICAL ACTIVITY ON THE PHYSICAL DEVELOPMENT OF SCHOOLCHILDREN

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Abstract. *Research has shown that physical activity in school-age children has a positive impact on their physical development, particularly during adolescence. Girls aged 11-15 who participate in sports exhibit significantly higher body mass and height measurements compared to their inactive peers. For boys, the most pronounced effects of physical activity are seen in height measurements during the early school years (ages 7-10), indicating that physical activity is especially important for stimulating linear growth in the early stages of school age. It has been established that regular physical exercise contributes to accelerated somatic development during puberty.*

Keywords: *physical development, sports activity, schoolchildren.*

Introduction. The physical development of young children is one of the key indicators of their health and plays a crucial role throughout their lives. The level of physical development, degree of biological maturation, and functional state of a child's body directly reflect their overall health status, exerting a significant influence on the processes of growth and development [2, 3, 5, 7].

Modern medicine emphasizes the necessity of regular monitoring of physical development, viewing it as an indicator of the ecological situation and sanitary-hygienic conditions of the environment [1, 6]. Based on data regarding children's physical development, it is possible to create scientifically grounded preventive measures and technologies aimed at preserving health, taking into account the age-related and morphofunctional characteristics of children [4].

Physical activity plays a key role in the healthy growth and development of children and adolescents. Consequently, studying the extent to which regular sports activities influence the physical parameters of schoolchildren across various age groups is a pressing issue in hygiene. It is crucial to understand how systematic physical exercise can affect the height, body weight, and body mass index (BMI) of children and adolescents, as these indicators are closely linked to the overall health and physical well-being of the growing organism.

Materials and methods of research. The study was conducted in educational institutions of Tashkent city: schools No. 64, 71, and 302. Both girls and boys were examined. Body mass, height, and body mass index (BMI) were studied in groups of schoolchildren who regularly engaged in sports and those not involved in regular sports activities.

Statistical processing of the obtained data was carried out using Microsoft Excel 2016. Mean values (M), standard deviations (±σ), and standard errors (±m) were calculated. To assess the significance of differences between groups, Student's t-test for independent samples was used.

The purpose of the study was to assess the impact of systematic sports activities on the physical development of schoolchildren aged 7 to 15.

Results and discussion. Recent studies emphasize the importance of regular physical activity for the harmonious development of children and adolescents. As part of this work, an analysis of schoolchildren's somatometric indicators (height, body weight, BMI) was conducted, taking into account age, gender, and level of sports activity. This approach allowed for a more in-depth assessment of the impact of physical exercise on physical development. The results are presented in Table 1.

Table 1.

Body weight, height, and body mass index indicators among schoolchildren who engage in sports and those who do not

Age, years old	Schoolchildren engaged in sports			Schoolchildren not engaged in sports			Credibility	
	M	±m	σ	M	±m	σ	t	$p <_{2-5}$
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Body weight, kg								
Girls								
7-10	28,91	0,9	7,55	28,84	0,73	7,64	0,06	-
11-15	52,29	1,94	12,84	45,42	1,11	10,14	3,08	0,01
Boys								
7-10	33,37	0,9	8,59	30,62	1,18	9,78	1,23	-
11-15	48,48	0,97	14,61	49,81	1,2	13,79	1,33	-
Standing height, cm								
Girls								
7-10	130,81	0,97	8,19	131,51	0,87	9,15	0,53	-
11-15	160,89	1,82	12,04	153,85	0,96	8,82	3,43	0,001
Boys								
7-10	136,63	0,86	8,26	132,43	1,16	9,66	2,62	0,01
11-15	157,72	0,83	12,52	160,19	1,07	12,31	2,47	0,05
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Body mass index								
Girls								
7-10	16,67	0,33	2,8	16,49	0,29	3,11	1,0	-
11-15	19,99	0,5	3,3	19,05	0,36	3,3	1,56	-
Boys								
7-10	17,63	0,31	2,99	17,16	0,43	3,57	0,9	-
11-15	19,18	0,26	3,96	19,24	0,37	4,26	0,44	-

Research results have shown that girls aged 11-15 who regularly engage in sports have significantly higher body mass and height indicators compared to their peers who do not participate in sports. The average body mass in this group is 52.29 kg versus 45.42 kg in non-athletes ($p < 0.01$). A similar difference was observed in height: 160.89 cm for active girls and 153.85 cm for inactive girls ($p < 0.001$). These differences confirm that systematic physical activity contributes to accelerated somatic development during puberty.

In boys, this tendency is less pronounced. In the 7-10 age group, the body weight of physically active boys is 33.37 kg, while for inactive ones it is 30.62 kg; however, no statistically significant difference was found. At the same time, the differences in height are more noticeable: physically active boys have an average height of 136.63 cm compared to 132.43 cm for their peers without regular physical activity ($p < 0.01$). This may suggest a greater influence of physical activity on growth during primary school age.

Regarding body mass index (BMI), no significant differences were found between active and inactive children, regardless of gender and age. For example, among girls aged 7-10 years, the BMI is 16.67 in the active group and 16.49 in the inactive group, while in the 11-15 year age group, the differences are also negligible. A similar pattern is observed among boys. This may indicate that physical activity contributes to maintaining an optimal ratio of muscle and fat mass without significant fluctuations in BMI.

Conclusion:

1. Regular physical activity has a positive impact on children's physical development, particularly during adolescence. Girls aged 11-15 who engage in sports demonstrate significantly higher body mass and height measurements compared to their inactive peers.
2. The most pronounced effect of physical activity in boys is observed in growth indicators, especially during primary school age (7-10 years). This may suggest that physical activity is particularly crucial for stimulating linear growth in the early stages of school age.
3. Body mass index (BMI) does not show significant differences between active and inactive children, which indicates the normalization of muscle and fat mass ratio in physically active schoolchildren without sharp fluctuations in body mass.
4. Physical activity plays a key role in the formation of harmonious somatic development, not causing excessive weight gain, but rather contributing to the optimal physical condition of children and adolescents.
5. The obtained data indicate the need to include regular physical education activities in the daily routine of schoolchildren as an effective measure for strengthening health and full physical development.

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