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COMPARATIVE ASSESSMENT OF THE PHYSICAL DEVELOPMENT OF STUDENTS ACCORDING TO THE MAIN SOMATOMETRIC INDICATORS

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Abstract
This article defines thecomparative assessment of the physical development of students according to the main somatometric indicators of school, lyceum and college students.

Keywords: somatometric indicators, physical development, body weight, height, comprehensive assessment.

Introduction

As already mentioned, physical development is the leading criterion for the health of the younger generation and reflects the changes taking place in the social, economic, environmental and hygienic conditions of their lives. In the context of an increase in non-traditional teaching methods, the formation of educational institutions of a new type, the intensification of the educational process, and increased workload, physical development may be more informative, indicating the influence of these factors.
Physical development was assessed according to local standards developed for children and adolescents (63,64) measurements were carried out at the beginning and end of the academic year for 3 years.
Adolescents were divided into 5 growth groups: correspondence of height to their body weight within ±1□-harmonious development; a deviation above or below 1.16 was regarded as disharmonious development; above or below 2.1□ - as sharply disharmonious.
When studying the physical development of adolescents of the studied groups, we set the following tasks:
the main somatometric indicators of adolescents aged 15-17 studying in schools of various types;
to assess the level and harmony of the physical development of the studied groups of adolescents.

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Material and Method

The study and analysis of the main indicators of physical development in adolescents studying in educational institutions of various types made it possible to identify certain trends.

The results of the study showed (Table 1) that in the groups we studied, the body length of the subjects at the age of 15 and 16 did not differ.

Table 1. Comparative indicators of the body length of students from different educational institutions (beginning of the school year), M±m

Age, years	Height, cm			authenticity	
	school	lyceum	college	R_{sh-l}	R_{sh-k}
young men					
fifteen	164.96±1.19	164.96±1.29	-	-	-
sixteen	168.35±1.49	168.25±1.25	-	-	-
17	169.90±1.20	168.70±1.14	-	-	-
girls					
fifteen	157.63±0.81	157.17±1.10	157.67±0.88	-	-
sixteen	160.99±0.49	161.97±0.87	158.55±0.97	-	<0.05
17	161.89±0.90	162.23±0.90	159.03±0.85	-	<0.05

Whereas at the age of 17 it is somewhat higher among teenagers-boys of the school than among their peers-lyceum students, but the difference is not statistically significant. Attention is drawn to the fact that the difference in height between 16 and 17-year-old boys studying in an academic lyceum (0.5 cm) is less pronounced than in students of a general education school (1.6 cm). The same trend was found in indicators of the development of the body length of girls of a comprehensive school and lyceum. But the indicators of standing growth among girls in the 16-17-year-old age period, studying in a vocational college, are lower than those of their school and lyceum peers ($P < 0.05$).

In table-1 shows the average standing growth of adolescents aged 15-17, registered at the end of the school year. As can be seen from the table, in the age aspect, there is a positive trend, regardless of the gender of the surveyed adolescents.

Standing height indicators at the end of the academic year are slightly higher among girls aged 16-17 studying at a general education school and lyceum than among their college peers (the difference is not statistically significant).

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Table 2. Comparative indicators of the body length of students from different educational institutions (end of the academic year), M±m

Age, years	Height, cm			authenticity	
	school	lyceum	college	R_{sh-l}	R_{sh-k}
boys					
fifteen	165.73±1.10	165.42±0.91	-	-	-
sixteen	169.43±1.41	168.19±1.38	-	-	-
17	170.90±1.17	169.30±1.27	-	-	-
girls					
fifteen	158.93±0.79	157.73±0.99	158.33±1.12	-	-
sixteen	161.13±0.47	161.96±0.83	158.93±0.85	-	-
17	162.00±0.84	162.32±0.92	159.90±1.01	-	-

Analysis of the research results revealed that the growth of boys aged 15-17 at the beginning of the school year increased by 4.9 cm for school students and 3.7 cm for lyceum students, at the end of the school year - by 5.2 cm and 3.9 cm - respectively. The height of girls aged 15 to 17 at the beginning of the school year increased by 4.3; 5.1 and 1.4 cm, respectively, for students of the school, lyceum and college. At the end of the academic year, the ratio was the same: 3.1; 4.6 and 1.6 cm.

Thus, the smallest increase in body length over a 3-year period of study was observed in girls of a vocational college.

When comparing the values of body weight indicators of adolescents studying in different educational institutions, it was found that the absolute values of weight in lyceum boys are somewhat higher than in students of general education schools. At the same time, college girls at the age of 16-17 have slightly higher body mass indicators than school and lyceum peers, but the difference is not statistically significant (Table 3)

The study of the age dynamics of body weight at the end of the school year among students revealed the same trend as at the beginning of the school year. Differences in body weight in all age and sex groups at the end of the academic year are also statistically unreliable (Table 4).

An analysis of the indicators of body weight gain by years showed that for young men of an educational school, the increase from the 1st to the 3rd year of study was 6.9 kg, for lyceum students, the increase was 1.5 times lower, i.e. 4.6 kg. During the studied age period, college girls experienced a more pronounced increase in body weight - by 3.9 kg versus 0.6 kg in schools and -1.7 kg in lyceum. In our opinion, this is due to the specifics of the profession obtained in a vocational college (seamstress-minder), associated with a working posture sitting for a long time

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Table 3. Comparative indicators of body weight of students from different educational institutions (beginning of the academic year), M± m

Age, years	Weight, kg			authenticity	
	school	lyceum	college	R sh-l	R sh-k
boys					
fifteen	50.33±1.21	52.69±1.52	-	-	-
sixteen	54.43±1.06	56.25±1.48	-	-	-
17	57.20±1.04	57.30±1.50	-	-	-
girls					
fifteen	51.97±1.55	51.62±1.78	49.75±1.15	-	-
sixteen	52.04±0.79	53.12±1.27	52.40±1.08	-	-
17	52.53±0.85	53.28±1.36	53.60±1.14	-	-

Table 4. Comparative indicators of body weight of students from different educational institutions (end of the academic year), M± m

Age, years	Weight, kg			authenticity	
	school	lyceum	college	R sh-l	R sh-k
boys					
fifteen	52.27±1.03	53.36±1.35	-	-	-
sixteen	55.33±1.03	56.81±1.43	-	-	-
17	58.41±1.05	57.80±1.14	-	-	-
girls					
fifteen	52.70±1.38	52.80±1.63	50.18±1.01	-	-
sixteen	52.34±0.78	53.07±1.35	52.63±1.19	-	-
17	53.50±1.01	53.39±1.29	54.10±1.17	-	-

Chest circumference from 15 to 17 children (Table 5, 6) in school boys at the beginning of the school year increased from 76.13 ± 1.02 to 79.09 ± 1.20 cm; in the boys of the lyceum from 78.21±1.25 to 82.74±1.1 cm. At the same time, the growth for this age period in the boys of the school and the lyceum was 3.0 and 4.5 cm, respectively - at the beginning and by 3.5 and 4.6 cm at the end of the school year. For girls studying at school and lyceum, the OGK increased by 1.1 cm over the 3-year period of study and by 3.6 cm at the college the maximum increase over the study period was observed in college girls - 2.3 cm, against 1.4 and 1.1 cm, respectively, in school and lyceum.

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Table 5. Comparative indicators of OGK among adolescents studying in different types of educational institutions (beginning of the academic year), M± m

Age, years	WGC, cm			authenticity	
	school	lyceum	college	R_{sh-l}	R_{sh-k}
young men					
fifteen	76.13±1.02	78.21±1.25	-	-	-
sixteen	77.7±1.21	81.84±0.75	-	<0.01	-
17	79.09±1.20	82.70±1.11	-	<0.05	-
girls					
fifteen	81.72±1.05	81.35±1.31	82.73±0.79	-	-
sixteen	81.84±0.54	82.08±0.94	84.37±0.75	-	-
17	82.84±0.72	82.47±1.02	85.00±1.02	-	-

Table 6. Comparative indicators of body weight of students from different educational institutions (end of the academic year), M± m

Age, years	WGC, cm			authenticity	
	school	lyceum	college	R_{sh-l}	R_{sh-k}
young men					
fifteen	76.93±0.81	78.56±1.09	-	-	-
sixteen	78.70±0.99	81.69±1.08	-	<0.05	-
17	8098±0.94	83.20±1.13	-	<0.05	-
girls					
fifteen	81.67±1.04	81,471,37	82.73±0.79	-	-
sixteen	82.38±0.60	82.41±0.73	84.37±0.75	-	-
17	83.04±0.79	82.60±0.9	85.00±1.02	-	-

Result

Differences in OGK in all age-sex groups are not statistically significant, with the exception of young men aged 16-17 years old at the lyceum school (P<0.05-0.01). It should be noted that at the age of 15-16 years, due to the intensive development of the mammary glands, the values of OGK were large in girls.

Analyzing the dynamics of the main somatometric indicators by age periods, it can be noted that the largest increase in body length and weight gain occurs between 15 and 16, and the least between 16-17 is the same.

In accordance with the standards of physical development of children and adolescents aged 7-17 in the republic (63), we conducted an individual assessment of the physical development of students according to well-known gradations, as a result of which it was found that 70.2% of school students had an average level of physical development, then as in the lyceum there were 68.9% of such people, and in the college 76.7%. Above average and high level of development in the school was 14.3%. in lyceum 15.9%, in college 5%. Students who are lagging behind in physical development, having

indicators below average and low, respectively, amounted to 15.5% in the school; 15.2% in lyceum and 18.3% in college.

Thus, an individual assessment of the physical development of the surveyed groups of students showed that most of them had an average level of development, while the level above the average and high was recorded relatively rarely among college teenagers, and below the average and low, on the contrary, the most often.

Applying a comprehensive assessment of physical development in adolescents aged 15-17, we noted that 81% of school students had a harmonious physical development, the rest had a disharmonious development due to a lag in weight and OGK - 12.4% and 6, 6% - excessive fat deposition . In 77.9% of the lyceum students, physical development was harmonious, in 15.8% - disharmonious development was noted due to lack of body weight and low, not corresponding to height, indicators of OGK; excess body weight was in 6.3% of students. A somewhat different picture was noted among students of a vocational college. Among them, the smallest number of harmoniously developed ones was noted (74.9%); whose disharmonious physical development was characterized mainly by overweight (11.7%), general retardation of physical development (5%), underweight and low levels of OGK (8.4%).

Thus, among college students, excess body weight occurred almost 2 times more often than among peers studying at school and lyceum. According to the literature, deviations in physical development in schoolchildren are formed to a lesser extent due to excess body weight, the share of which is on average 5.6 %. At the same time, the proportion of high school students with underweight (underweight) has increased to 19.3% in recent years. According to the data obtained, adolescents aged 15-17 with harmonious development prevailed among students of a general education school, and in a vocational college there were significantly fewer of them. A greater number of tall children were in lyceums and schools.

Analysis of the results obtained allowed us to state that the body length of adolescents at the age of 15 did not differ (the initial level of physical development in students of different types of educational institutions is the same). while at the age of 16-17 there was some difference in this indicator (for girls studying at school and college, the differences are significant). apparently, one of the reasons may be the conditions and mode of training. A significantly high rate of body weight gain was established in boys of a general education school compared to lyceum students and a significant increase in body weight over the studied age period in college girls compared to their school and lyceum peers; -17 years of school and lyceum; there was an increase in the proportion of adolescents with a disharmonious level of physical development among students of a vocational college due to overweight, i.e. in a general education school,

the proportion of males of asthenic physique is higher than in lyceums, while college girls have a hypersthenic body type.

Conclusion

From the above, the following can be done:

1. The level of physical development was different in adolescents aged 16-17, studying in different educational institutions, while the initial level of physical development was almost the same.
2. For students of a general education school, a more harmonious development is characteristic in comparison with students of a vocational college, where adolescents with disharmonious development due to excess body weight and lyceum students, in whom disharmonious development was noted due to underweight and low, not corresponding to height, predominated. , WGC indicators.
3. It can be assumed that one of the reasons for age-related changes in the main indicators of physical development is a complex of environmental factors, including educational and training workload, which manifests itself in an increase in the proportion of adolescents with low body length indicators, and an increase in the proportion of adolescents with disharmonious development due to excess body weight, characteristic, to a greater extent, for students of a vocational college.

According to a number of scientific hygienists who conducted research, the criteria for physical development according to somatometric data cannot be considered quite sufficient for a real assessment of the state of health. First of all, physiological indicators should be considered essential, including the functional state of the nervous, cardiovascular, motor - muscular and respiratory systems. In this regard, our research was aimed at studying changes in the functional parameters of the leading systems of the body in order to identify the impact of the training load on the adolescent body.

References

1. 1.Kamilov R.T., Kamilov A.A. Standards for physical development of children and adolescents aged 7 to 17 living in cities and villages: Methodological recommendations.-Tashkent, 1998,-75p.
2. Kamilova R.T. Standards for determining the body size of schoolchildren and adolescents of school age in Uzbekistan, standards of activity and level of biological development of the organism: Methodological manual.- Toshkent , 1999.-38p.