

LEVEL OF DEVELOPMENT OF THE PHYSICAL COMPONENTS OF SOCIAL ACTIVITY SCHOOLCHILDREN 10-11 YEARS CHILDREN SUMMER CAMP

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Annotation. *Purpose:* to determine the level of physical health of schoolchildren. *Material:* the study involved 146 children aged 10-11 years. *Results:* the questions of children's health issues such: the state of development of physical qualities, cardiovascular and respiratory systems, the ratio of children to their own health, interest in physical education means in terms of the Camp. The characteristic of the state of physical health and adaptive capacity of the organism respondents. Found that 50.7 % of children had low, 42.5% - the average, 6.8% - a high level of physical activity. Daily physical fitness - 11.0 % 2-3 times a week - 26.0 % once a week, 18.5%, and sometimes - 44.5%. The health camp prefer morning gymnastics 89.0 % of students ; hiking 67.1 % physical training on interest - 63.7%. *Conclusions:* the identified leading and lagging physical qualities in children studied age group. Dominant over the other physical properties were agility and strength of the abdominal muscles. By lagging physical qualities include strength of arm and leg flexibility. A significant amount of children surveyed are not able to fulfill the standards of the State tests of Ukraine for its age-sex groups on a positive assessment.

Keywords: social activity, physical fitness, physical education, physical health.

Introduction

Study of the socialization during the adolescent period, particularly in the context of the educational process, is the subject of many investigations of foreign and native scientists [11, 13, 9].

The motives of social activity, especially its formation and development during the adolescence are widely studied [9, 10, 5].

Analysis of the scientific papers [2, 8, 15] confirms our thoughts that physical education is a significant socializing factor which is able to create the conditions that meet the needs of society and its individual citizens related to biological and spiritual development, health and highly productive work.

One of the most important indicators of the child's life is the state of his health – a stable foundation for a successful today's and tomorrow's life. Therefore, this issue should be considered not only with the formation of motor experience of children, the development of their physical qualities, and above all with the effectiveness of health promotion, ensuring a high level of capacity for work and endurance with the help of physical education [6, 8]. The state of health is determined by four criteria: 1) the presence or absence of chronic diseases; 2) the level of the functional state of basic body systems; 3) the stages of resistance of the organism (stability, persistence), 4) the level of the achieved physical development and the degree of its harmony. [1].

Theoretical analysis and synthesis of the literature data on the problem of deterioration of the organism functional state of children testify that daily physical activity for children does not provide the optimal development of the fundamental physiological systems of the organism, and it does not create conditions for health promotion, and this fact determined the relevance of this work.

Research is performed in the context of research plan of the Vasiliy Stefanik Precarpathian National University.

Purpose, tasks of the work, material and methods

The goal of the study: To determine the physical health of 10-11 year-old children, their attitude to their own health and their interest in the means of physical culture at the recreational camp.

Organization of the study: The study was carried out in five camps of Ivano-Frankovsk region, "Smerichka" (uv. Mikulichin) "Edelveys" (uv. Mikulichin), "Druzhba" (c. Dolina), "Perlina Pridnestrovia" (v. Mikhalche, Gorodenka region), "Limnitsa" (v. Vestovaia, Kalush region). The study involved 146 of 10-11 year-old children.

Methods of the study: Pedagogical testing was carried out using a battery of tests, which basically was recommended by the state tests of physical fitness of the population of Ukraine and European sports council (EVROFIT TEST BATTERY) [11], taking into account that the age period of pupils of 5-6 classes is the most favorable for the development of mobility (boys and girls), endurance (boys and girls), speed (girls), strength (girls), speed-strength (girls) and moderate strength development and speed-strength (boys).

Medical and biological research methods were used to determine the physical development and functional state of the respiratory and cardiovascular systems. Anthropometric study of the participants of experiment was carried out by the standard tools according to the common unified methods [12, 16].

Results of the research

For the study of the formation of pupils' basic components of the healthy lifestyle in secondary schools, we developed the self-assessment questionnaire regarding children's readiness for saving attitude to their own health and the health of others. The questionnaire included three sets of questions: motivational value (questions 1-13), cognitive (questions 14-19) and behavioral (questions 20-25).

It was revealed that 52,1% of 10-11 year-old schoolchildren had a conscious motivation and the need for systematic sporting and recreational activities, as a means of health preserving; 39,7% were characterized by the

average level of motivation towards the saving attitude to their own health and only 12 people (8, 2%) did not consider it necessary to preserve their health since childhood.

Regarding sources of the necessary information about human health, the ways of its preserving and strengthening, all the schoolchildren said that the family was the main source of information concerning healthy lifestyle (100%); 92,5% indicated their teachers during teaching subjects of natural cycle as a source of information, a significant part of schoolchildren pointed to the Internet and specialized literature – 76,0% and 78,8% of schoolchildren respectively.

Thus the analysis of the responses to these questionnaire items testified to the certain level of participation of the family and society in the socialization of children.

According to our research, answering the question "What are the questions you would like to expand the information on saving attitude to the health?", schoolchildren put in the first place the questions about human hygiene (100%), food culture (93,8%), 89,0% of schoolchildren would like to know more about the recreational effects of physical training on the human body, 86,3% – about the negative impact of bad habits on human health (alcohol, smoking, drugs). Significantly lower percentage of schoolchildren (39,0%) would like to know more about the optimal day regimen and its effect on health.

Distribution of resources that contribute to health, in the opinion of 10-11 year-old schoolchildren, is shown in Table 1. In the first place schoolchildren unanimously put daily physical training as the means of health maintaining, in the second – the culture of food (63.0%), in the third – natural means of toughness (55.6%), which is closely correlated with the issues on which they would like to get more information ($r = 0,78; P < 0,05$).

Table 1

Distribution of means that contribute to health according to the survey of 10-11 year-old schoolchildren

Resources	Rating	% of schoolchildren, that put on the place		
		1	2	3
Motor activity (daily physical activity)	1	100,0	-	-
Food culture (mealtime, quantity, place of taking, compatibility)	2	-	53,4	9,6
Natural means of toughness (air, sun, water)	3	-	17,1	38,4
Hygiene products (washing, bathing, brushing teeth, etc.)	4	-	15,8	32,9
Daily intake of vegetables, fruits	5	-	-	4,8
Drinking regimen	6	-	-	5,5
Adherence to work and rest	7	-	13,7	-
Compliance with safety at home, on the roads, on the water	8	-	-	5,5
Sleep	9	-	-	3,4
Prayer	10	-	-	-
Other means (specify)	11	-	-	-

Unfortunately, such means of health maintaining as safety at home, on the roads and on the water, as well as adherence to work and rest had the lowest rating in the list of all possible means (7-9 positions). It should be mentioned that pupils do not consider prayer as a mean of health preserving.

Pupils noted that the most harmful to human health were drugs and alcohol – so thought 100.0% of the respondents, 75.3% knew about the mechanisms of negative effects of smoking on the human body.

All 10-11 year-old schoolchildren liked physical education, sports and health improvement training. However, in the studied age group was very low index of systematic daily activities – 11,0%; 2-3 times a week regularly trained only 26,0% of the pupils; once a week – 18,5%, sometimes – 44,5%, that is about half of the schoolchildren.

Answering the question "What's stopping you to be regularly engaged in physical culture?" schoolchildren put in the first place low awareness of the importance of physical training for health (73,3%), in the second place was lack of time (72,6%), in the third position – absence of an example to inherit from adults (parents, teachers, acquaintances, companions) (19,9%) and laziness (13,7%) . The lack of interest in physical education indicated 14,3% of the pupils, the attachment to the computer – 6,2%.

Particular attention is drawn to sporting and recreational activities, to which the pupils give the priority in the camps. Thus 89,0% of 10-11-year-old schoolchildren gave the priority to morning gymnastics, 67,1% – hiking, 63,7% – kinds of sport according to the interests. Significantly lower was the percentage of schoolchildren who would like to be engaged in sporting and outdoor games and swimming – 22,6%, 19,0% and 13,7% respectively.

Thus slightly more than half of the investigated contingent of 10-11 year-old pupils had high self-esteem of readiness to preserve health (52,1%), 39,7% rated their willingness to average and only 8,2% – to the low level. [5]

Moreover, health is determined by four criteria: 1) the presence or absence of chronic diseases; 2) the level of the functional state of the basic organism systems; 3) the stage of resistance of the organism (stability, persistence), 4) level of the achieved physical development and the degree of its harmony. In order to obtain objective information regarding this indicator we conducted the rapid assessment of physical health according to the methods of G. L. Apanasenko [1].

It was established that 39,5% of boys and 43,5% of girls of the studied age group were obese, 30,2% and 28,3% of boys and girls, respectively – the poor level of BMI, average – 18,6% and 6,5% of boys and girls respectively, 11,6% of girls and 10,9% of boys and girls were characterized by the exhaustion.

Thus, the optimal level of BMI had respectively 30,2% of boys and 28,3% of girls.

Results of hypoxic samples (Stange, Genchi) of boys – ($33,8 \pm 1,5$) s and ($14,9 \pm 0,9$) s respectively, and girls – ($32,9 \pm 1,2$) s and ($18,2 \pm 1,2$) s respectively – were below orientation indices given in the studies by V. B. Voinova [7].

The measurement results showed the highest level of performance for girls than boys in that age group. Thus, none of the 10-11 year-old boys had high or above average performance, while among girls – 30,4% ($P < 0,05$). Reliable was the difference of this indicator between boys and girls who had an average level – 39,5% against 21,7% for girls ($P < 0,05$). Below the average level had 14,0% of boys and 10,9% of girls. It follows that 46,5% of boys and 37,0% girls had low efficiency. This suggests that for the most children is characteristic the state of fatigue, and it is allowed to draw conclusions about the poor oxygen supply of the body and their general level of fitness, despite the fact that the age of 10-11 years – is the result of development of all organs and functional system that is characterized by high capacity of the cardiovascular and respiratory systems [9].

The most complete conclusions about the level of physical health of schoolchildren we can do on the basis of the complex assessment of the cardiovascular and respiratory systems and physical development. We considered the following basic indices: body mass index (BMI), life index (LI), power index (PI), Robinson index (RI) and time of resumption after 20 squats. The results are shown in Table 2

Table 2

Somatic health characteristics of 10-11 year-old schoolchildren

Indices	Measures, $\bar{x} \pm m_x$	
	boys	girls
Body length, cm	$145,0 \pm 1,3$	$148,3 \pm 0,8$
Mass index, kg	$37,5 \pm 1,4$	$38,5 \pm 1,1$
Body mass index, $\text{kg} \cdot \text{m}^{-2}$	$17,6 \pm 0,4$	$17,5 \pm 0,4$
HR, bpm^{-1}	$80,3 \pm 2,6$	$87,5 \pm 2,7$
ABP _{svst.} , mm Hg	$121,0 \pm 2,0$	$115,1 \pm 1,9$
ABP _{diastol.} , mm Hg	$75,4 \pm 0,9$	$68,6 \pm 1,3$
RI, c.u.	$101,3 \pm 1,8$	$101,3 \pm 3,7$
VC, ml	$2397,7 \pm 79,6$	$1884,8 \pm 54,5$
LI, $\text{ml} \cdot \text{kg}^{-1}$	$67,4 \pm 3,6$	$51,0 \pm 2,3$
Carpal dynamometry, kg	$25,6 \pm 0,9$	$17,9 \pm 0,6$
PI, %	$71,8 \pm 3,5$	$48,4 \pm 2,3$
Time of resumption after 20 squats, s	$92,4 \pm 3,6$	$95,5 \pm 4,0$
Adaptation potential by R. M. Baievsky AP _B , conventional units (c.u.)	$2,06 \pm 0,06$	$2,01 \pm 0,05$

Consequently, during the examination of healthy 10-11 year-old children, we registered normal heart rhythm with HR ($80,3 \pm 2,6$) bpm for boys and ($87,5 \pm 2,7$) bpm for girls in 79,8% of examined children. Slow heart rate had 4,5% of examined children, heart rate of these children was on average ($50,8 \pm 1,6$) bpm. In 15,7% of children we registered an accelerated heart rate with HR ($114,9 \pm 2,8$) bpm, that is confirmed by the research [3, 12].

Endurance factor (EF) that characterizes the fitness of the circulatory system, was determined by the ratio of the HR indices to the value of pulse pressure. The standard value of EF – 1,6 with the weakening of the function of cardiovascular system EF increases and with its strengthening – reduces. Characterizing EF indices, it was found that in 43,8% of cases they correspond to the standards in 40,4% of children endurance coefficient indicates the weakening of heart, which is the sign of a very poor state of fitness of the circulatory system of 10-11 year-old schoolchildren, in 15,8% – on reinforced.

Adaptation potential (AP_B) pointed to the unsatisfactory state of the cardiovascular system of younger schoolchildren. Among 10-11 year-old pupils there were only 8 children (9,1%) with satisfactory adaptation and 49,4% had stress adaptation mechanisms. We should note the high percentage of children with poor adaptation (21,3%) and with the breakdown of adaptation mechanisms (20,2%).

The level of functional state (LFS) of circulatory system was determined by the heart rate (HR) and blood pressure with regard to the age, weight and height. The assessment of LFS was conducted according to the scale: 0,375 and less – low; 0,376-0,525 – below average; 0,526-0,672 – average; 0,673-0,825 – above average, and more than 0,826 – high.

Consequently low and below average levels of the state of circulatory system had 25,8% of all schoolchildren, more than a third (33,7%) had a medium level, 32,6% – above average, and only 7,9% – high.

The important factor which shows the state of the cardiorespiratory system is VC. Average group value of derived index (life index) – (67,4 ± 3,6) ml/kg for boys and (51,0 ± 2,3) ml/kg for girls – respond to regulatory values. It should be mentioned that the part of boys with the below normal VC index was significantly lower than that of girls – 14,0% against 34,8% (P <0.05).

Results of the evaluation analysis of the level of physical health of 10-11 year-old pupils showed that indices of somatic health level of boys and girls were predominantly on below average and average stages (methods by G. L. Apanasenko) – 44,9% and 33,7% respectively. Proportion of children with low and above average level was insignificant – 10,1% and 11,2% respectively. It should be noted that there were no children with the high level of somatic health.

The most effective factor that affects the LFS is physical activity. Subjective assessment of attitude to physical activity was conducted by the questionnaire of assessing physical activity level by V. Velichko [4], objective characteristics of motor activity were determined with the help of steps measuring methods and testing of physical fitness level.

The level of motor activity (MA) of 10-11 year-old children in accordance with the questionnaire was mostly low (50,7 %) and average (42,5%) and the high level of MA had only 10 children (6,8%). The low level of MA was observed more frequently among girls (41 cases – 57,7 %), the average level of MA predominated among boys – 35 children (46,7 %). These data correlate well with the received indices of physical and functional state of schoolchildren. Low MA leads to the decrease in energy of the child's organism and this, in turn, to the excessive weight and deterioration of the functional systems [16].

Objective assessment of pupils' motor activity is their physical fitness. Test results are given in Table 3.

The received results showed the low level of force development of 10-11 year-old boys (53,3%), girls had the average level – 62,0%.

Table 3

Physical fitness indices of 10-11 year-old schoolchildren

Gender	Arm-pumping exercises	Standing long-jump, cm	Bench sit-up in 30 s	Bent suspension, s	Forward inclination of body, cm	Shuttle running 3x10 m, s
Statistical indicators ($\bar{X} \pm m_x$)						
boys	15,5 ± 1,4	138,3 ± 3,2	15,8 ± 0,6	11,0 ± 1,3	2,8 ± 0,3	9,2 ± 0,1
girls	7,0 ± 0,7	126,0 ± 2,4	15,2 ± 0,5	7,0 ± 0,5	4,1 ± 0,5	9,9 ± 0,1

However in this test the large percentage of children (25,3% of boys and 29,6% of girls) received "1" point. The study also testified that in this kind of testing the large scatter of results was observed – from 15 to 0 for girls and from 40 to 1 times – for boys. This points to the need for the individual approach to the development of power qualities of children in this age group [4].

The next indicator of physical fitness determination was the power endurance of hand muscles. The boys had low (50,7%) and average (46,7%) levels, the girls as in the previous case, had an average level – 78,9%. However, in this test, a very small percentage of children (2,7% of boys and 5,6% of girls) had "5" points.

The development of power-speed qualities has the defining value in the motor activity of acyclic and mixed character (jumping, sports games), in such kinds of sport where the results depend on the speed of repulsion and explosive tension.

To determine the level of power-speed development of 10-11 year-old children we used the test "standing long-jump". Average results showed that "5" points gained 11,3% of girls and only 2,7% of boys, "4" points – 29,6% of girls and 24,0% boys, "3" – 28,2% and 14,7% respectively. It should be noted that significantly greater percentage of boys did not perform the test in comparison with girls – 58,7% against 31,0% (P <0,05).

Comparing the indices of "shuttle running 3 x 10 m", we found out that the results of this test for boys and girls were not significantly different. 37,7% of all pupils had a low level of dexterity, 54,8% – average and only 7,5% were characterized by the high level of development of this quality.

Analyzing the results of bench sit-up we revealed that boys show higher results than girls. The low level of test performing showed only 8,0% of boys against 21,1% of girls (P <0,05). 68,0% of boys and 59,2% of girls performed the test for "3" and "4". 19,7% of girls and 24,0% of boys demonstrated the high level.

Indices of flexibility testified that the majority of 10-11 year-old schoolchildren do not develop this quality – 73,3% of boys and 63,4% of girls had the low level of its development (in accordance with the measurement data these are "1" and "2" points), 36,6% of girls and 22,7% of boys gained for the test "3" and "4" points, that corresponded to the average level and only 4,0% of boys – "5" points.

Thus, the study of the FP level of 10-11 year-old children showed that only 2 (2,8%) of girls and 1 (1,3%) of boys had a high level of FP, the majority (66,2% of girls and 65,3% of boys) – the average, 31,0% and 33,3% of girls and boys respectively had the low level.

Conclusions.

Thus we may state that the average value of the indices of physical development, the functional state of the cardiovascular and respiratory systems, physical efficiency, physical fitness and physical health level of schoolchildren

in our extracts meet the data which are presented in scientific publications of recent years for 10-11 year-old children [11].

The results stated that 55,0% of schoolchildren have low and below average levels of somatic health.

Analysis of the results of pedagogical testing allowed us to determine the leading and lagging physical qualities of children from the studied age group. Dominant over the other physical properties were agility and strength of the abdominal muscles and to the lagging physical qualities mainly belonged the force of arms and legs, flexibility. A significant amount of children were not able to fulfill the standards of the State tests of Ukraine for their age and gender groups and gain the positive mark [2, 6, 8].

This is the result of low motor activity of 10-11 year-old pupils. According to the research 50,7% of schoolchildren had the low level of MA; the high level had only 10 children (6,8%).

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