

COMPARATIVE ANALYSIS OF THE LEVEL OF PHYSICAL TRAINING OF SCHOOLCHILDREN OF PRIMARY CLASSES (7–11 YEARS OLD): THE EXAMPLE OF ANDIJAN REGION OF THE REPUBLIC OF UZBEKISTAN

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ABSTRACT

In this research, level of physical fitness of pupils of primary schools (7–11 years old) in schools #17, #26, #30, #4, #5, located in the desert, hills, foothill and mountain climatic zones of Andijan region of the Republic of Uzbekistan was analyzed, based on the results of the exercise with a long jump (cm). In the sequence of schools indicated in the studies, it was found that the jump value in boys in the age group 7–11 is about 125.7; 133.5; 141.5; 139.4 and 148 cm, respectively, and also for girls – 123.3; 134.8; 132.9; 141.2 and 154.6 cm respectively. It was found that the value of indicators in the long jump in boys and girls with an age range of 7–11 years in school #5, located in the foothill zone was 1.18 and 1.25 times higher than children of the same age of school #17, located in the desert climatic–geographical zone. In addition, the growth rate of the indicators of the long jump from a place for boys 7–9 years old has a relatively high value, and for children of school #17 located in the desert zone for representatives of both genders, the growth rate of this indicator was significantly lower.

Keywords: primary school pupils, climatic–geographical zones, long jump exercise.

INTRODUCTION

The optimal level of physical fitness of the body of children/adolescents is a criterion for the expression of the spectrum of physical activity during exercise. The level of physical training of children/teenagers in school is characterized by high growth rates and, in turn, is an important period in terms of ensuring optimal physical development [Safronov and Arislanov, 2013].

With the full disclosure of physical/intellectual abilities of schoolchildren, the level of physical training is important [Vilenskaya, 2007], and is one of the important indicators reflecting the physical health and physical activity of the younger generation [Aksenova, 2007; Efimova et al., 2015; Magomedov et al., 2016].

In addition, the study of the dynamics of changes in the physical form of children/teenagers on the basis of climatic and geographical conditions is relevant from a scientific and practical point of view. [Mirbabayeva, 2004].

Based on the above information, the purpose of this study was the analysis of the level of physical fitness of pupils of primary schools (7–11 years old) in schools #17, #26, #30, #4, #5, located in the desert, hills, foothill and mountain climatic zones of Andijan region of the

Republic of Uzbekistan was analyzed, based on the results of the exercise with a long jump (cm).

MATERIAL AND METHODS

Experiments are conducted in 2017 at school of #17 (desert zone) in the Ulugnor district of Andijan region, at school of #26 in Pakhtaabad district (foothill zone), at school #4 in Markhamat district (foothill zone), at school #30 (foothill zone), located in Andijan city (promountain zone) and at school #5, located in Khanabad city (mountain zone).

Experiments in our studies were carried out in full compliance with principles of the Declaration of the Helsinki International Medical Association (World Medical Association, WMA) for determining the functional parameters of primary school pupils. The experiments were conducted with the written consent of the parents of schoolchildren and school administrations and the oral agreement of the schoolchildren themselves.

In the experiments, an exercise of long jump was used (cm) to assess the level of physical training of primary school children (7–11 years old) [Landa, 2006; Muratova, 2009; Efimova et al., 2015] (Fig. 1.).

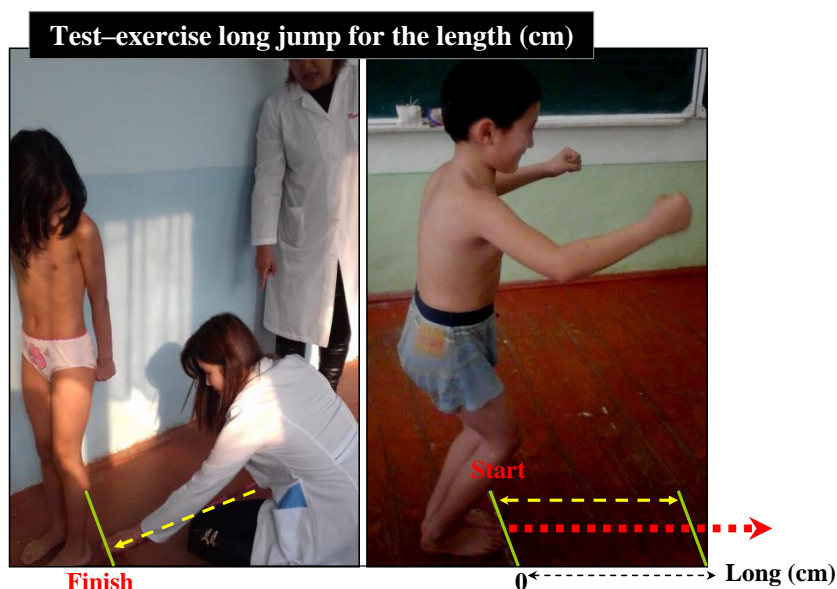


Figure 1. Test-exercise long jump for the length (cm) to assess the level of physical training of primary school pupils (7–11 years old) (Andijan region, 02/15/2017).

This exercise is characterized by the fact that it is easier for schoolchildren to perform in primary classes and provides objective and reliable data for the necessary degree.

DATA ANALYSIS

The results were statistically processed by a special software package OriginPro v. 8.5 SR1 (EULA, USA). The results of experiments processed mathematically—statistically using standard biometric methods [Rebrova, 2002; Denisova et al., 2008; Safronov and Arislanov, 2013]. The results are given in the $M \pm m$ form of the values of the experiments carried out in n replicates, M is the arithmetic average value and m is the standard error value. In addition, the results of the experiments, a statistically significant level of values between the groups

were calculated using the Student's *t*-test and were evaluated as statistically reliable at *p* values <0.05, *p*<0.01 [Efimova et al., 2015].

RESULT AND DISCUSSION

In this research, level of physical fitness of pupils of primary schools (7–11 years old) in schools #17, #26, #30, #4, #5, located in the desert, hills, foothill and mountain climatic zones of Andijan region of the Republic of Uzbekistan was analyzed, based on the results of the exercise with a long jump (cm) (Table 1).

Table 1: The level of physical fitness based on the results of the long-jump exercise (cm) for primary schoolchildren in some schools located in different climatic-geographical zones of Andijan region of the Republic of Uzbekistan (*M±m*)

Secondary school #17 of Ulugnor district										
Test	Boys (n=85)					Girls (n=79)				
	7 years old (n=19)	8 years old (n=21)	9 years old (n=16)	10 years old (n=17)	11 years old (n=12)	7 years old (n=16)	8 years old (n=12)	9 years old (n=19)	10 years old (n=18)	11 years old (n=14)
Long jump (cm)	112.8±3.5	121.4±4.4*	128±3.7*	130±5.3**	136.3±4.2**	110.6±5	118.5±6	125.6±6.5*	127.5±6.3**	134.4±5.6**
Secondary school #26 of Pakhtaobod district										
Test	Boys (n=90)					Girls (n=82)				
	7 years old (n=16)	8 years old (n=19)	9 years old (n=11)	10 years old (n=21)	11 years old (n=23)	7 years old (n=17)	8 years old (n=16)	9 years old (n=12)	10 years old (n=24)	11 years old (n=13)
Long jump (cm)	114.6±4.7	130±4.6*	134.7±3.5**	140±4.8**	148.2±5.5**	116.4±3.6	123±7.2*	134.3±6.2*	148±4.5**	152.2±7.1**
Secondary school #30 of Markhamat district										
Test	Boys (n=76)					Girls (n=88)				
	7 years old (n=14)	8 years old (n=18)	9 years old (n=12)	10 years old (n=13)	11 years old (n=19)	7 years old (n=11)	8 years old (n=22)	9 years old (n=17)	10 years old (n=23)	11 years old (n=15)
Long jump (cm)	119±4.5	136.6±3.8*	147.5±4.6*	152±3.5**	152.4±5.9**	120±5.5	119.4±6.7*	126.4±4.2*	143.2±5.4**	155.5±6.3**
Secondary school #4 of Andijan city										
Test	Boys (n=82)					Girls (n=78)				
	7 years old (n=14)	8 years old (n=12)	9 years old (n=18)	10 years old (n=20)	11 years old (n=18)	7 years old (n=16)	8 years old (n=11)	9 years old (n=17)	10 years old (n=22)	11 years old (n=12)
Long jump (cm)	120.6±4.2	132.4±4.8	141±6.6*	150±4.5**	153±5.8**	122.4±3.5	130±4.2*	142±6.3*	155.4±5.5**	156.2±6.1**
Secondary school #5 of Khanabad city										
Test	Boys (n=87)					Girls (n=84)				
	7 years old (n=19)	8 years old (n=14)	9 years old (n=24)	10 years old (n=13)	11 years old (n=17)	7 years old (n=14)	8 years old (n=17)	9 years old (n=18)	10 years old (n=16)	11 years old (n=19)
Long jump (cm)	128.5±3	136.5±4.5*	148±7.4*	163±5**	164±4.6**	137.4±4	146.5±3.5*	155±6.5**	165.5±4.5**	168.7±5**

Note: *, ** – express the statistical significance of the difference between the experimental groups (II, III, IV and V) compared with other groups (7 years) (* – *p*<0.05; ** – *p*<0, 01).

Based on the analysis of the digital data presented in the table 1, it can be seen that in schools #17, #26, #30, #4, # , located in the desert, hills, foothill and mountain climatic zones with an age range of 7–11 years in groups consisting of boys and girls, the level of physical fitness is significantly different (Fig. 2).

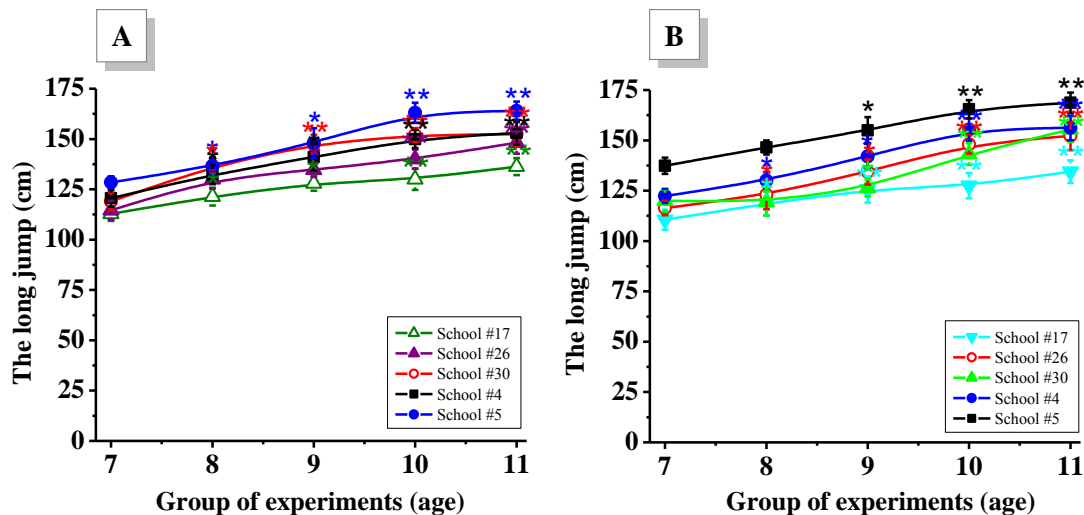


Figure 2. The dynamics of changes in the values of the indicators in the long jump (cm) from the place of schoolchildren in the range of 7–11 years of primary classes of secondary schools where the studies were conducted. A. Boys. B. Girls. * – $p < 0.05$, ** – $p < 0.01$ relative to the control.

In particular, schools #17, #26, #30, #4, #5, located in the desert, hills, foothill and mountain climatic zones with an age range of 7–11 years for both sexes, based on the results of a test exercise of jumping in the length of the space (cm) level of physical fitness in a statistically significant increase. At the same time, in schools #17, #26, #30, #4, #5 in the range of 7–11 years for boys, the test–exercise of the long jump from a place (cm) was 125.7; 133.5; 141.5; 139.4 and 148 cm, respectively, and for girls – 123.3; 134.8; 132.9; 141.2 and 154.6 cm, respectively.

The obtained results, in general, correspond to the existing literary data. In particular, for primary schoolchildren in physical education programs, the developed standards / norms for 7–10 years are equal to the range of jumps for boys – 100–130 cm, and for girls – 90–155 cm. Analysis of the digital data obtained from the research shows that in the sequence of data given in the climatic zones of boys and girls in the age range of 7–11 years old, the jump from school to school #5 located in the foothill zone was 1.18 and 1.25 times higher than schoolchildren of school #17 located in a desert climatic–geographical zone. Similarly, it was found that among schools #17– and #5 in the age range of 7–11 years, the total value of the indicator in the jump for the length from the place (cm) for girls was respectively 1.04 times higher than for boys. It is appropriate to note here that the value of this difference between boys and girls in school #5 of the foothill zone is the opposite in relation to school #17, located in the desert zone.

When assessing the level of physical training of children and adolescents, it is required to take into account gender characteristics (i.e. sexual difference between boys and girls). In particular, in our studies, in terms of the physical fitness of schoolchildren, the boys had high results when pulling on the crossbar, and the girls had a longer test jump for the length [Efimova et al., 2015].

In this case, a markedly pronounced difference in the values of anthropometric indices and body shape in sexual terms in the age range of 7–12 years is recorded. In this period in girls 8–12 years old due to the activation of the secretion of sex hormones, the values of some indicators of physical development/training increase compared with boys [Efremova, 2002; Mirbabaeva, 2004].

At the next stage of the study, the growth rate of the level of physical fitness was analyzed with the age range of 7–11 years for both sexes according to the results of a long–distance jump test (cm) in schools #17, # 26, #30, #4, #5, located in the hills, hillside and mountain climatic zones (Fig. 3).

At the same time, in school #17, in the age range of 7–11 years for boys, the growth rate of the jump for the length from the place (cm) averaged was 20.8%, in the interval 7–9 years – 7.6% and in the interval 9–11 years – 6.5%, and the value of this indicator for girls was 21.5%, 13.6% and 7.1%, respectively.

In school #26 in the age range of 7–11 years, boys had an average jump growth rate of about 29.3% for a place (cm), in the interval of 7–9 years – 17.5% and in the interval of 9–11 years – 10.1%, and the value of this indicator for girls was 30.8%, 15.4% and 13.3%, respectively.

In school #30 in the age range of 7–11 years, boys had an average jump growth rate of about 28.1% for a place (cm), in the interval of 7–9 years – 23.9% and in the period of 9–11 years – 3.3%, and the value of this indicator for girls was 29.6%, 5.4% via 23%, respectively.

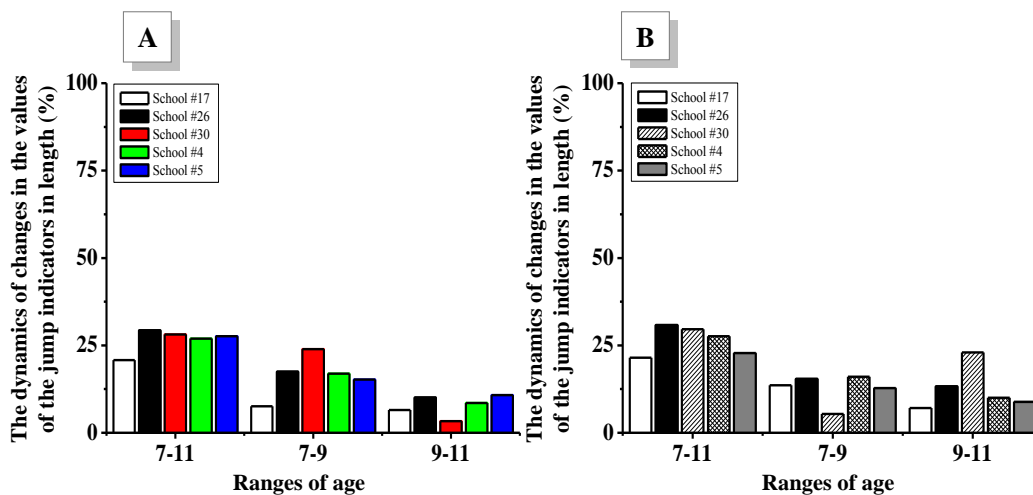


Fig. 3. The dynamics of changes in the values of the jump indicators in length (cm) from the place of schoolchildren in the range of 7–11 years of primary classes of secondary schools where the studies were conducted. A. Boys. B. Girls.

In studies in school #4, in the age range of 7–11 years for boys, the growth rate of a long jump for the length (cm) averaged was 26.9%, in the interval 7–9 years — 16.9% and in the interval 9–11 years – 8.5%, and the value of this indicator for girls was 27.6%, 16% and 10%, respectively.

In the next school #5 in the age range of 7–11 years, boys had an average jump growth rate (cm) of 27.6%, between 7–9 years old – 15.2% and between 9–11 years – 10.8%, and the value of this indicator for girls was 22.8%, 12.8% and 8.8%, respectively. Also, in schools where studies were conducted in the age range of 7–11 years for boys, the minimum–maximum values (average) of the growth rate of the jump for the length of space (cm) is 20.8–27.6 (26.5); in the range of 7–9 years, 7.6–16.9 (16.2); in the range of 9–11 years, 3.3–10.8 (7.8) and for girls in the range of 7–11 years, 21.5–29.6 (26.5); in the range of 7–9 years 5.4–15.4 (12.6); in the range of 9–11 years was –7.1–23 (12.5) %. At the same time, the indicator of the long jump from a place for boys had a high indicator in the age range of 7–9 years, as well as for representatives of both sexes of school #17, located in the desert zone, the growth rate of this indicator was significantly lower.

CONCLUSION

Thus, in the experiments it was revealed that with the age range of 7–11 years for boys, the test results of a long jump from a place (cm) in schools #17, #26, #30, #4, #5, located in the desert, hills, foothill and mountain climatic zones were – 125.7; 133.5; 141.5; 139.4 and 148 cm, respectively. In addition, the value of this indicator for girls was 123.3; 134.8; 132.9; 141.2 and 154.6 cm, respectively. Indicators of boys and girls of the age range of 7–11 years of secondary school #5 located in the foothill zone were 1.18 and 1.25 times higher in long jump from space (cm) than schoolchildren of the same age range of school #17 located in desert climatic–geographical zone. Also for boys, the indicator of the test of the long jump from the spot (cm) has a high value at the age of 7–9 years as compared with the range of 7–11 years; also for representatives of both sexes of school #17 located in the desert zone the growth rate of this indicator was significantly lower. The results will be used in the preparation of regional standards/norms of anthropometric indicators of primary school children (7–11 years old), taking into account climatic and geographical factors.

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