

Physical Fitness of Pupils in Schools of Russia and Kazakhstan

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Abstract—The presented article is devoted to the study and comparison of physical fitness of children and adolescents, studying at the educational institutions of the border regions of the Kurgan region of the Russian Federation and the North Kazakhstan region of the Republic of Kazakhstan. Both countries have adopted and successfully used national systems (tests) to determine the level of physical fitness of the population. The conducted study shows the physical fitness of pupils in the 5th, 9th and 11th forms of secondary schools of the two countries. It is determined that the development of speed-power abilities in pupils of the two countries is at an average level. Speed abilities of girls are poorly developed while power abilities of studying boys and girls of 9th and 11th forms both of the Russian and Kazakhstan schools are within a high level of development.

Keywords—physical fitness, pupils, Russia, Kazakhstan.

I. INTRODUCTION

A. Relevance of research

The cross-border cooperation is a special kind of cooperation between territorial entities. It is conditioned by the closeness and neighborhood of the interacting entities. The dynamic development of the border cooperation is a characteristic feature of the modern stage of the international relations. The cross-border relations of the regions have its specificity. It is, in the first place, in the close proximity and the perfect knowledge of partners, as well as in the common character of many questions and problems, affecting the interests of people, living on both sides of the state border [1]. The Kurgan region geographically borders on the Qostanay and the North Kazakhstan region of the Republic of Kazakhstan in the south and south-east. That is why the development of the mutual partnership of the border regions is one of the effective mechanisms of the cooperation and improvement of the border territories not only at the state level but also at the level of social and private structures.

Physical culture is a unique phenomenon of the general culture as it unites commonly accepted material and spiritual values of the society as a whole and of each individual, in particular. It fulfills different functions such as the development of physical, aesthetic and moral qualities of the personality, the organization of the socially useful activity, the leisure of the population, the prevention of diseases, the physical and psycho-emotional recreation and rehabilitation, spectacular, communicative functions and others. That is why the development of physical culture is one of the components of the social policy of many countries.

Russian and Kazakhstan pay great attention to physical culture. In 2014 decree № 172 “Of All-Russian physical sport complex “Ready for work and defence (GTO)” of the President of the Russian Federation was issued. It puts the complex into effect from the 1st of September 2014 [2]. In the same year the order of the acting Minister of culture and sport of the Republic of Kazakhstan “On approval of Rules for conducting tests of the First President of the Republic of Kazakhstan – Leader of Nation” was published [3]. Both of the documents focus on the increase of the role and the significance of physical culture in the state and the society as well as on the improvement of physical fitness of the society. Both complexes of tests include physical exercises, requiring strength, flexibility, agility, speed and endurance. Also, both complexes consist of stages and levels, targeting at different age groups of the population.

B. Goal

In this connection the goal of our research is the study of the level of the development of physical qualities of the children, studying at schools of Russia and Kazakhstan.

C. Objectives

Based on the goal, the following *objectives* of the research have been stated:

1. To determine the level of physical fitness of the pupils of the 5th, 9th and 11th forms with the help of the control testing.
2. To conduct the comparative analysis of the levels of physical fitness of the pupils of the 5th, 9th and 11th forms, studying in Russia and Kazakhstan.

II. RESEARCH METHODOLOGY

43 people took part in the research. They are pupils of the general secondary special Budennovsk school of the Budennoe rural area of the North Kazakhstan region of the Zhambylsk district, the Republic of Kazakhstan. Also, 36 children, taking part in the research, are the pupils of the municipal educational institution “Ilyinsk general secondary school” of the Ilyino rural of the Shatrovo district of the Kurgan region, the Russian Federation.

All the children, taking part in the research, belonged to the main medical group according to their health state.

To determine the level of physical fitness of the pupils of the 5th, 9th and 11th forms, tests were used for the estimation of physical qualities and the main forms of their manifestation: “standing long jump”, “run for 30 meters”, “run for 100

meters”, “pull-up” (boys – from suspension on the high bar, girls – from support on a low bar).

The subject “physical culture” is held for 3 hours a week both in the Russian and Kazakhstan schools. This subject includes such sections as light athletics, gymnastics, basketball, volleyball and skiing training [4, 5, 6].

III. RESULTS

The following data were received as a result of the conducted testing.

In the test “long jump” the Russian pupils of the 5th form at the beginning of the year had the following average result: boys – 173.8±11.4 cm, girls - 163.3±13.1 cm. The Kazakhstan children had the average result of September as follows: boys – 159.4±10.1 cm, girls - 151.3±10.3 cm. At the end of the school year the average result comprised 177.2±7.8 cm and 171.1±8.9 cm of the Russian pupils respectively, it comprised 167.7±10.2 cm and 156.3±9.3 cm of the Kazakhstan pupils respectively (fig. 1)

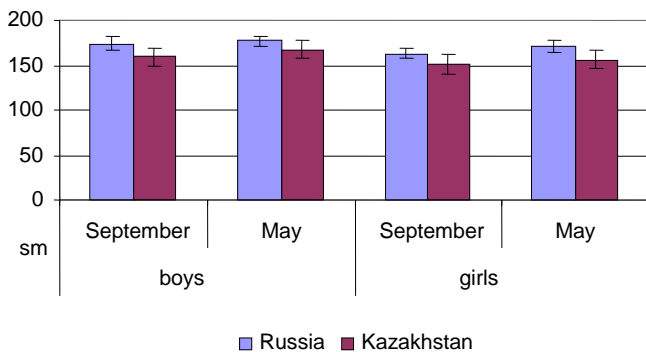


Fig. 1. Results of test “long jump” of pupils of 5th form ^ differences are significant between groups (p>0.05).caption)

In the 9th form in this test at the beginning of the research the average result of the Russians comprised 226.0±4.8 cm in the group of boys and 176.0±5.2 cm in the group of girls, at the end of the research the results were 230.0±5.1 cm and 177.0±6.4 cm respectively. The age mates from Kazakhstan had the average results in the amount of 215.0±10.8 cm in the group of boys in September and 227.5±13.2 cm in the group of boys in May, 175.3±9.2 cm and 180.4±5.9 cm in the group of girls (fig. 2).

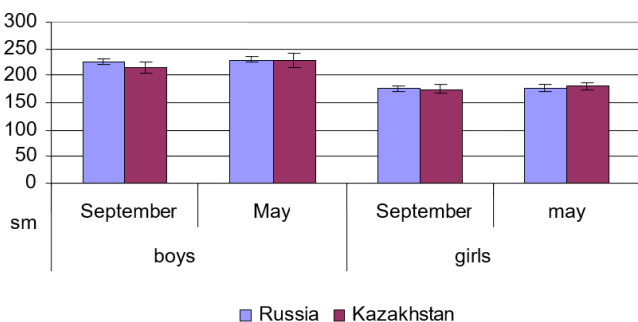


Fig. 2. Results of test “long jump” of pupils of 9th form.

In this test the Russian school-leavers had the average result in the amount of 219.6±8.4 cm in the group of boys in September and 223.4±8.5 cm in May, the results of girls were 173.2±8.7 cm and 177.6±8.5 cm respectively. The Kazakhstan age mates had the result of 205.0±8.0 cm in the group of boys

at the beginning of the school year and 209.5±9.5 cm at the end of it, the result comprised 175.3±9.5 cm and 181.8±8.8 cm in the group of girls respectively (fig. 3).

So, the Russian boys of all the age groups had higher average results in the long jump than the Kazakhstan boys, on average, by 12cm, 6.7 cm and 14 cm in the 5th, 9th and 11th forms respectively. The result of the Russian girls of the 5th form was 13.4 cm higher, the Kazakhstan girls of the 9th and 11th forms jumped farther by 2.6 cm and 3.1 cm respectively. In the school year the average result went up more among Kazakhstan schoolchildren, both boys and girls of all the age groups.

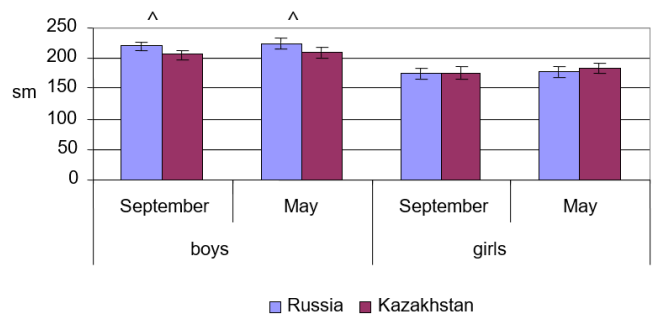


Fig. 3. Results of test “long jump” of pupils of 11th form ^ differences are significant between groups (p>0.05).

The determination of the level of physical fitness of the schoolchildren was carried out with the help of the methods of V. I. Lyakh and L. P. Matveev, presented in the programs on physical culture for general educational institutions [7, 8]. As a consequence, it is stated that the results of the development of speed-strength abilities of the children of all age groups both in the Russian and Kazakhstan schools are at the average level.

The development of speed abilities in the 5th form was defined with the help of the test “run for 30 meters”. In September the schoolchildren of the Ilyinsk school showed the average result of 10.7±1.4 sec in the group of boys and 11.1±1.6 sec in the group of girls. At the end of the year the results improved by 7% and 5% and comprised 10.0±1.1 sec and 10.5±1.5 sec respectively. The boys of the Budennovsk school had the average result of 11.0±1.7 sec at the beginning of the year, in the school year it improved by 9% and comprised 10.1±1.3 sec. The result of the girls of the same school was 10.9±1.4 sec, then it changed by 6% and became 10.3±1.5 sec (fig. 4).

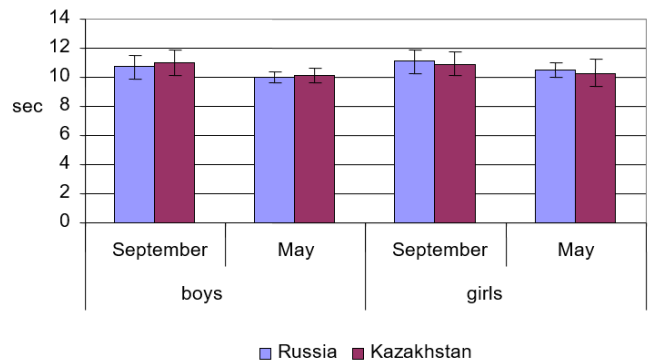


Fig. 4. Results of test “run for 30 meters” of schoolchildren of 5th form.

In the 9th and 11th forms the determination of speed abilities is defined with the help of the test “run for 100

meters". In September the boys of the 9th form of the Russian school ran this distance in 14.5±2.4 sec on average, in May they improved their result by 4% and it started to take them 14.0±2.1 sec. The girls covered 100 meters in 17.8±2.7 sec and 17.4±2.5 sec respectively, i.e. they improved their result by 3%.

Their Kazakhstan age mates showed the following results at the beginning of the research: boys ran 100 meters in 14.7±1.8 sec, girls – in 17.5±2.3 sec. At the end of the research the average result of boys went up by 5% and comprised 14.0±1.9 sec, the girls did not change their result (fig. 5).

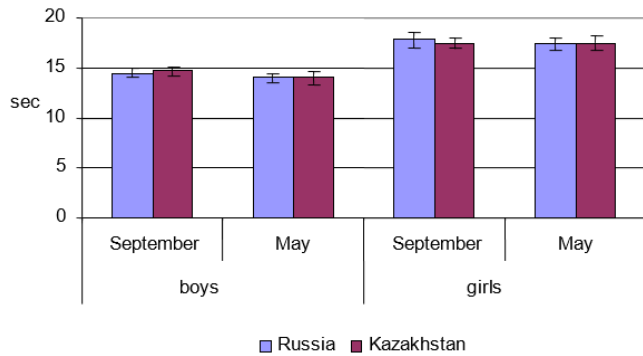


Fig. 5. Results of test "run for 100 meters" of schoolchildren of 9th form.

At the beginning of the year the boys of the 11th form of the Russian school showed the average result of 13.9±2.1 sec in the run for 100 meters, in a year they improved it by 4% and started to run this distance in 13.4±1.9 sec. The girls of the same school improved this result by 2%, it was 18.1±2.4 sec and became 17.9±2.2 sec.

The result of the Kazakhstan 11-form boys at the beginning of the research was 14.5±1.8 sec, the girls' result was 17.5±2.0 sec. During the studied period, the results had the trend of improvement by 2% and 3% respectively and comprised 14.3±0.9 sec and 17.4±1.6 sec (picture 6).

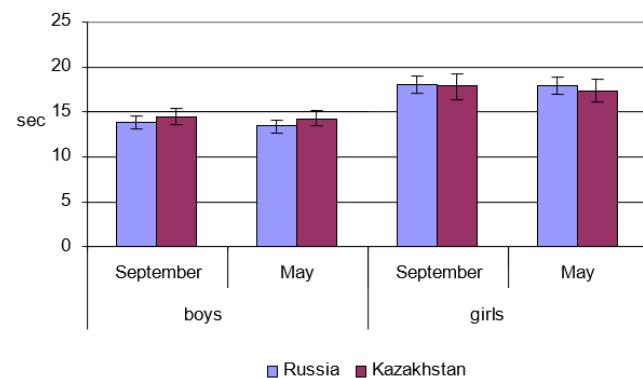


Fig. 6. Results of test "run for 100 meters" of schoolchildren of 11th form.

The level of the development of speed qualities in the 5th forms of both school was estimated as low, in the 9th and 11th forms the boy had a middle level and the girls – low.

Strength abilities in the research were estimated with the help of the test "pull-up".

At the beginning of the year the 5-form boys did 3.7±1.8 pull-ups on average, the Kazakhstan - 3.5±1.9 pull-ups. In a school year the test results improved by 21% and 34% respectively and comprised 4.5±1.6 pull-ups and 4.7±1.5 pull-ups.

At the beginning of the year the girls of this age showed the following results: the Russian girls did 13.4±1.4 pull-ups, the Kazakhstan did 12.3±1.6 pull-ups. During the studied period the similar tendency of the result change was detected, the improvement by 11% and 18% respectively, so at the end of the year, on average, they began to do 14.9±1.1 pull-ups and 14.6±1.7 pull-ups respectively (fig. 7).

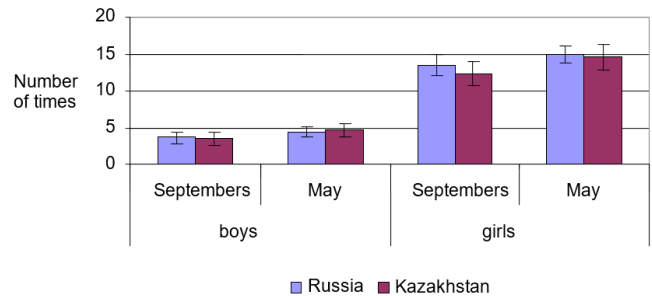


Fig. 7. Results of test "pull-up" of pupils of 5th form.

At the beginning of the year the Ilyinsk 9-form boys did 11.3±0.9 pull-ups, the Buddenovsk boys did 13.0±1.4 pull-ups. In a school year the results became better by 42% and 46% respectively and became 16.1±1.1 pull-ups and 19.0±1.2 pull-ups. At the beginning of the research the girls did 21.0±1.5 pull-ups and 29.0±1.5 pull-ups respectively. In a year the results also improved by 22% and 9% respectively and comprised 25.7±1.3 pull-ups and 31.4±1.2 pull-ups (fig. 8).

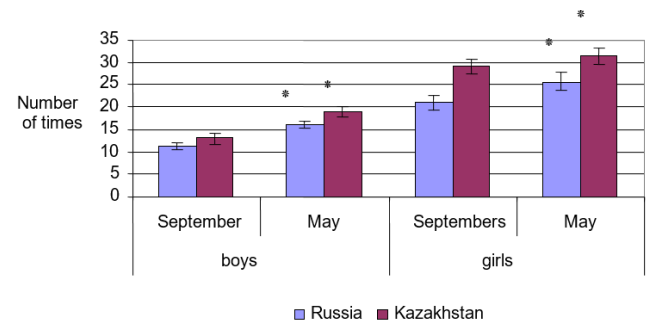


Fig. 8. Results of test "pull-up" of pupils of 9th form.* differences are significant in relation to initial results (p<0.05).

At the beginning of the year the Russian pupils of the 11th form, on average, did: 12.7±1.1 pull-ups in the group of boys and 31.4±1.5 pull-ups in the group of girls. During the studied period their results in this test improved by 36% and 15% respectively. At the end of the research the boys began to do 17.3±1.0 pull-ups and the girls – 36.2±1.4 pull-ups (picture 9).

At the beginning of the research the Kazakhstan pupils of the 11th form did 10.0±2.0 pull-ups in the group of boys and 38.8±1.3 pull-ups in the group of girls. At the end of the research the number of pull-ups of boys increase by 45%, of girls – by 7%, the results became 14.5±1.7 pull-ups and 41.5±1.3 pull-ups respectively (picture 9).

At the beginning of the school year the level of the development of strength abilities of all the boys of the 5th form was low, at the end of the year it reached the middle level. During the whole research period the 5-form girls of both schools had a middle level of the development of strength abilities.

Both in the Russian and the Kazakhstan schools, according to standards, the development level of strength abilities was

estimated as high either in the group of boys or girls of the 9th and 11th forms.

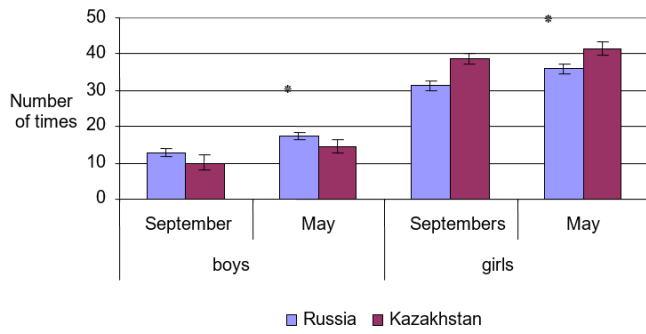


Fig. 9. Results of test “pull-up” of pupils of 11th form. * differences are significant in relation to initial results ($p < 0.05$).

IV. SUMMARY

1) The analysis of the received data in the test “long jump” has shown that the development of speed-strength abilities of the children of all age groups both in the Russian and Kazakhstan schools are at the average level.

2) The research has revealed that the level of the development of speed qualities of boys and girls of the 5th form and of girls of the 9th and 11th forms is estimated as low in the Russian as well as in the Kazakhstan schools. The boys of the 9th and 11th forms have a middle level of the development of speed qualities.

In accordance with the standards, the level of the development of strength abilities was estimated as high in the group of girls and boys of the 9th and 11th forms both in the Russian and the Kazakhstan schools. The girls, studying in the 5th form of the Russian and the Kazakhstan schools, have a middle level of the development of strength abilities. All the 5-form pupils had a low level of the development of strength abilities at the beginning of the year; it reached a middle level at the end of the year.

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