The role of speed-power readiness of children involved in acrobatic gymnastics

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Abstract. The results of the use of jumping exercises, borrowed from athletics, in the training process of sports acrobats are presented, and the effectiveness of their influence on the increase in speed-power abilities in children of 13-14 years old who are engaged in acrobatics is shown.

Keywords: acrobatics, physical training, jumping, jumping exercises, speed-power ability, efficiency.

The kinds of sports differ according to the features of the subject basis of competitive activity, each of which contains only inherent ways of increasing physical, technical readiness and conducting competitive activity. The constant complication of acrobatic elements included in competitive programs is an urgent issue in the choice of means and methods for increasing the level of physical fitness of athletes.

Competitive combinations, as a rule, consist of elements with different rotations, from hands to feet and from feet to feet, performed at a high pace, subject to the technique of movements, demonstration of beauty and ease of their implementation.

The peculiarities of special physical training of those who go in for sports acrobatics are in the development of those muscle groups, which account for the power load during the performance of the competitive combination.

Due to the short duration of the acrobatic combination, it is not the maximum manifestation of strength that becomes important, but the speed of its implementation in a short time, while maintaining the amplitude of movements in the elements of the combination itself. Based on this, the level of speed-power abilities is of great importance for acrobats, therefore, in the training process of sports acrobatics, the dominant place is given to jumping elements from the arsenal of acrobatic exercises, i.e. work is underway to improve jumping ability. Under jumping ability Yu.V. Verkhoshansky noted the ability of an athlete to throw his body weight to the highest height by pushing off [2].

For a short in time and strong repulsion, it is necessary to show rapid muscle contraction with strong tension, which requires a powerful concentration of volitional efforts. The higher the level of combination of these indicators in the selected exercise, the faster you can achieve the expected results in increasing intramuscular and intermuscular coordination.

In this case, jumping exercises differ significantly from other means of developing physical qualities, including the development of speed-power abilities. They are available, do not

require special equipment, make it easy to dose the load for athletes of various levels of fitness and help to master complex motor actions [2; 3].

In the process of analyzing materials from literary sources, we turned our attention to jumping exercises and the method of using them in the training process, in the jumping types of athletics - high and long jumps from a run, a triple jump from a run, as well as to the group of national Yakut jumps (Kylyy, Ystanga, Kuobakh). Achievements in these types of jumps, characterizing the levels of jumping ability of athletes, are also interesting.

So, in the high jump for men, the record result is - 245 cm, in the long jump from the run - 896 cm, in the triple jump from the run - 18.29 m, and in the Yakut jumps: Kalyy (jumps from foot to foot in 11 push-offs) - 48.34 cm; Ystanga ("leaps" on one leg in 11 jumps) - 46.50 m; Kuobach ("hare" jumps on two legs, i.e., pushing off 11 times with two legs sequentially) - 39.45 m. These figures are interesting in that they demonstrate the high level of jumping ability achieved by sportsman-athletes on the basis of special jumping exercises, and allow to suggest the possibility of using them in sports acrobatics to increase speed-power readiness.

Our research was aimed at studying the possibility of using jumping exercises from jumping types of athletics to increase speed-power abilities in children of 13-14 years of age, who go in for acrobatics.

In the process of conducting the research, we relied on the following methods: Analysis of materials of educational, methodological and scientific literature on the issue under study; Testing of physical readiness of boys aged 13-14 –, who go in for sports acrobatics; Pedagogical experiment; Mathematical processing of the received data; Analysis of the results of the experiment.

The experiment involved two groups of children involved in sports acrobatics: experimental ("E") and control ("C"), 8 people each. The experimental group consisted of 8 people, 5 people had the sports qualification of the CMS and 3 people had the 1st category, and in the control group 4 people had the fitness level of the CMS and 4 people had the 1st category.

Note. An explanation should be made that in sports acrobatics it is recommended to start classes from the age of 6, and in circus schools, at the Moscow Circus School named after Rumyantsev (Karandash), it is recommended to start enrollment in preparatory groups from 4-5 – years of age. This approach to recruitment speaks of the early start of work with children on physical fitness, the formation of love for acrobatics, its genres. Therefore, children who have undergone directed training for acrobatics, at the age of 11–15, begin to work according to the CMS and MS programs, including more complex elements in their competitive combinations [1].

Our groups trained according to the general requirements set out in the work program for sports acrobatics, the differences during the training process were that in the experimental ("E")

group, in order to increase speed-power abilities, in addition to the content of the program, they used jumping exercises, which are used in jumping athletics.

Testing was carried out according to the group of test exercises: Shuttle run 10x5m; Long jump from a place; Tenth long jump from the spot; Jumping up from a place (with a wave of hands); Hanging pull-ups on the bar; Push-ups from the support lying; Raising the body from the starting position lying on the floor. When performing test exercises, the generally accepted rules for performing and measuring results were observed.

Our experiment with the use of jumping exercises, selected from the jumping types of athletics, made it possible to conduct it at a high emotional level, because the used jumping exercises caused a competitive mood in children and stimulated them to competitive activity.

Each type of jumping used during the lessons was always visible in the distance of the jump, comparable between the practitioners, which made the children want to surpass themselves and others in the group.

Summing up at the end of the experiment, comparing the results of tests at the initial and final levels, we see a positive change in all tests in both groups, but in the "E" group they became higher. In the 10x5 m shuttle run, the time improvement in the "E" group was by 8.03%, from 16.28 seconds to 15.07 seconds, and in the "C" group by 2.35%, from 16.52 seconds to 16.14 seconds.

In the long jump from the spot, the boys of the "E" group improved their results from 207.24 cm to 228.00 cm, that is, by 21.08 cm (10.17%), and in the "C" group this increase was from 205.16cm to 214.17cm, at 9.01cm (4.39%). In this case, it should be noted that the results between the groups have a significant difference $P < 0.05$ in favor of the "E" group.

In the triple jump from the spot, the youths of the "E" group improved their performance by 75 cm (10.01%), and the "C" group by 35 cm (4.64%). As a result, in the "E" group, the result increased by 5.37% higher than the shifts in the "C" group, and the difference between them also has significant differences $P < 0.05$.

In the next jumping exercise, a tenfold jump from a spot, the final results of the young men of the "E" -group turned out to be higher than the "C" -group by 4.35%, and this difference in results also significantly differs in favor of the "E" -group. The acrobats of the "E" -group improved their results by 1 m 59 cm, and in the "C" -group their height was 42 cm.

Considering the results of both groups in the fourth jumping exercise, jumping up from the spot, we see that in the boys of the "E" -group they increased from 41.75 cm to 49.46 cm by 7.71 cm (18.46%). In the "C" -group, the results changed from 42.27 cm to 47.34 cm by 5.07 cm (11.99%), and their difference with the "E" -group also significantly differs $P < 0.05$ in favor of this group.

Paying attention to the advancement of the young men of the experimental group, according to the results of testing in all four jumping tests, the participants of the control group, we can note that the use of jumping exercises borrowed from jumping types of athletics had a positive effect on the growth of the speed-power abilities of acrobats included in "E"-Group.

According to the state of strength abilities in three tests of strength orientation, the advantage of "E" results is noticeable. So, in pull-ups, the boys of the "E" -group increased the result from 11.65 to 17.29, which is 48.41% better than the initial result, and the boys in the control group respectively improved from 12.75 to 16.54 times, their gain was 4.29 times (35.02%). In push-ups in the "E" -group, the increase was 7.72 times (37.20%), and in the "C" -group by 5, 20 times (24.40%). In lifting the trunk from a prone position, the boys of the "E" -group increased their results from 20.71 times to 27.04, which is 6.33 times or 30.56% better than the initial one. During this period, the "C" -group increased its indicators from 20.04 to 25.25 times, by 5.21 times (25.99%), and yet yielded to the "E" -group by 4.57%.

As a result, according to strength tests, the results of the "E" -group are higher than the "C" -group, and this is confirmed by the significance of the differences $P < 0.05$ in favor of the "E" -group. Summing up the results of the experimental study, it can be noted that the use of jumping exercises contributed to an increase in motivation for active fulfillment of all jumping exercises, because the young men saw their effectiveness in each exercise, which set them up for competitive activity, namely, to jump further and higher.

The results obtained by us for the experimental period once again confirmed the correct approach to the choice of exercises for the training process, borrowed from the jumping types of athletics, which allowed the young men of the experimental group to increase the level of speed-power readiness, as evidenced by the growth of results in jumping tests. In addition, the boys' results in strength exercises improved, which is also important for children of this age.

The increased strength and speed-power readiness made it possible to improve the technique of performing the elements included in the combinations, and to perform more successfully in competitions.

Taking into account the training efficiency of jumping exercises used in the types of athletics, introducing a variety of motor actions, contributing to an increase in emotional mood and influencing an increase in speed-power abilities among those who go in for sports acrobatics, we can recommend them for use.

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