FEATURES OF USING CIRCULAR TRAINING EXERCISES TO INCREASE MOBILITY IN PHYSICAL EDUCATION LESSONS

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ABSTRACT

The article describes a technique that allows for rapid mobility improvement based on sensitive periods at a primary school age. The developed technique can be used to increase mobility of 9-10 years old children both in physical education lessons and sport clubs as well.

Keywords: Mobility, circular training exercises, sensitive periods, primary school age, Physical Education lessons.

Actuality

In all socially and economically developed countries, priorities to organize leisure time of the youth practically, to strengthen their health and to prepare brighter youth for good prospects are achieved by physical education lessons and sport. In addition, special attention is paid to improve the general physical training of children, the formation of the necessary mobility skills, the development of their physical abilities, and comprehensive development of the child's personality. Targeted physical development of school-age children is especially important.

Based on world leading practices, techniques for further development of primary education, improving the system of physical education, increasing the efficiency of physical activity and effective organization in sport lessons at school are developed. Scientific studies have been carried out on the practical usage of tools and techniques for comprehensive development of the qualities necessary for the physical well-being of school-age children, as well as on the development of various forms to enhance their physical development and functional training [2]. Taking into account of their sensitive periods, numerous studies have been conducted on the development of physical abilities of primary school children, selective techniques for the rapid development of mobility skills and physical qualities.

At present, large-scale projects are being carried out in our country aimed at regular training of young generation to refine physical education and sports. The most important aim of the education system in our Republic is to provide the younger generation with a solid education and to bring them up as physically and spiritually smart and intelligent generation [1]. In spite of the high state-level emphasis on the education system, the current condition of physical education in secondary schools remains one of the most worrying issues in education. The course process of Physical Education lessons introduced in the traditional system is not perfect, that is, does not fully meet the demands of the growing organism [2,5].

Effective use of sensitive steps to fill this gap enables the body to realize its numerous capabilities to the full and develop certain physical qualities. Since speed is the most difficult skill to develop, it is important to pay special attention to the targeted use of sensitive periods for rapid development [4]. Therefore, the solution of the problem of improving the learning process targeted at mobility development in primary school physical education lessons is still worrying.

Purpose of the study. The develop techniques of improving mobility in physical education lessons of sensitive primary school-age children by circular training exercises.
Research methods. The improved method of holding lessons in the open air and indoor control of physical training lessons aimed to improve the mobility of elementary school children during the is sensitive period was Implemented and introduced in secondary school.
The results of the study and their discussion. Then, in order to determine physical and functional readiness and physical development indicators, young school students were tested at the beginning of the pedagogical experiment and the following control tests were used:

1. 30m Running (after the start signal, speed assessment, ability to react faster, three attempts were made, the final result was chosen);
2. 60m Running (after the start signal, speed assessment, three attempts were made, the best result was chosen)
3. Long jump from position (speed-strength quality assessment, three attempts were made, the best result was chosen);
4. Jingle Jangle running to 3x10 m (speed assessment);
5. Rope jumping(with two feet together, speed assessment, three attempts were made, the best result was chosen);
6. High jump from position (speed-strength assessment, three attempts were made, the best result was chosen);
7. Throwing the stuffed ball (the performer comes to the throw line with both hands on the front, legs unlocked. Bending down, he lifts the ball over the head, throws the ball up-forward with strength of the body and arm; speed-strength assessment, three attempts were made , the best result was chosen);
8. Throwing a tennis ball into the distance (speed-strength assessment, three attempts were made, the best result was chosen)
9. Six-minute running (speed-strength assessment).

Prior to the tests, the students were informed about the purpose of the test, they were shown examples and explained how to do the test in detail.
Students in the experimental group completed a set of specific circular training exercises to improve the mobility within the set of exercises both during the course preparation and in the main part of the course. The newly-developed technique involves the exercise of one or two series of exercises with an extensive-interval circular training method. One circular training includes 8 sets. Each exercise was spent on the same 15 seconds and the rest interval was 30 seconds. Duration of this method is a minimum of 8 lessons, 2 consecutive lessons per week, which is considered a completed cycle for an extensive interval method. The number of cycles during the school year is min 3, max 4.

In order to avoid the stability of movement and performance skills in our work, we used one new workout each week, to simplify, each week we used variety range of exercises. Thus, during the school year, children learned and reinforced 23 different exercises targeted at mobility improvement.
The circular training set includes the following exercises:

Exercise 1 (stop) Running, staying on the same position (the performer tries to rotate his knees as often as possible on a rope hanging horizontally at the height of his thigh at right angles).

Exercise 2 (stop) Jumping on right and left feet with great intensity as if you were rope jumping, hands are on the waist.

Exercise 3 (stop) Bending and lifting the back, with the body lying on the back (the performer tries to act as fast as possible, with the legs locked at the knees at first).

Exercise 4 (stop) Running, feet should meet the back of the hips (the palms of your leg should touch with the back of your hip muscles as much as possible).

Exercise 5 (stop) Lying on the back, leaning on something (f.p. standing straight, leaning-sitting, leaning-lying, leaning-sitting, return to the first position)

Exercise 6 (stop) Jump up (the first position is sitting on locked knees and you should jump up the front keeping the body straight up.

Exercise 7 (stop) F.p.- the right foot is on the seat, the arms are on the waist (after the start, he should jump up with force , touching the feet on the seat alternatively, the shoulders are held straight, the pushing leg fully adjusted).

Exercise 8 (stop) Running staying on the same position-Leaning on the hands - (after the start f.p. the performer runs from the position, the whole body leans on the hands, the face is kept straight up.

Exercise 9 (stop) Running up the hips, and "boxing" with the hands (the person in the experiment tries to perform as fast as possible, combining hand and foot movements accordingly).

Exercise 10 (stop). Jump up at a fast pace and touch a specific target (flag, ball, rope, basketball board).

Exercise 11 (stop). Rope jumping(the performer should try to jump on two legs as fast as possible).

Exercise 12 (stop) Jumps –legs are kept shoulder-width apart, hands are up (each time started from the first position and clapping the palm over the head).

Exercise 13 (stop). Leaning on hands from 0.7 m facing the wall, the performer pushes the wall with hands and bends over hands at a rapid speed.

Exercise 14 (stop). Jumping, keeping the sitting position (after the start, the performer-f.p. legs kept blocked, hands on the waist – jumps, with the legs bent to the side .

Exercise 15 (stop). Cross-leg (cross-sectional) movement of the legs, lying on the back (after the start, he performs rotating movements with the feet raised slightly above the ground (angle 45^{o})).

Exercise 16 (stop). Lying on the back, hands locked behind the head, the legs bent at the knees. It is necessary to lift the left foot and touch the right elbow to the knee.

Exercise 17 (stop). Tapping test (maximal fast movement of feet in standing position, the hands move in accordance with the activity of the feet or kept locked on the shoulder).

Exercise 18 (stop) "Spider" – f.p. legs kept shoulder-width apart, hands on the waist-leaning on the hands, the performer should return to the lying position, then again back to the first position.

Exercise 19 (stop). F.p. The legs are kept up on the right side, moving the legs alternatively (after the start the performer replaces the forelegs with elastic movements at a fast speed).

Exercise 20 (stop). “Shakes,” f.p. - The legs are shoulder-width apart, the hands are forward (after the start, the adjusted legs are raised to the horizontal or to the face level height, either the arms touch the tip of the foot or palms of the hands clap under the knee).

Exercise 21 (stop). “Mill” exercise (f.p- The legs are shoulder-width apart, bending the body forward, hands on the side, after the start the performer touches adjusted hands with the head in a vertical plane).

Exercise 22 (stop) Lying on the back with the hands behind the head (at the fastest speed after the start, alternating the pedal by rotating the legs in the knee and thigh joints - the "bicycle" movement).

Exercise 23 (stop). F.p. lying on the back, legs bent at the knee, hands resting on the ground (joining and separating vertical legs crossed from top to bottom, right and left, alternating with speed).

In order to determine the effectiveness of the developed methodology, a pedagogical experiment was conducted at the secondary school N29 in Karshi to increase mobility of primary school children(9-10 years old third-grade students) in the learning process. All study participants (N = 60) were divided into two groups: EG - experimental group and CG - control group. The number of children in the groups was equal (n = 30) and the same number of children participated both in the "EG" and "CG". In the control group, the physical education classes were conducted by a physical education teacher based on the traditional school curriculum. In the experimental group, a teacher conducted that lesson, using the new methodology developed and proposed by us.

As a result of the pedagogical experiment, it was found that young children in the CG had slightly improved their performance in terms of physical training during the pedagogical experiment, however statistics on all studied indicators did not show reliable changes (p> 0.05) (Look at Table N1).

Table N1: Dynamics of physical training indicators of Control group children [n=b-15; g-15]

T/p	Control tests	Before the Experiment $\bar{x} \pm \sigma$	V %	After the Experiment $\bar{x} \pm \sigma$	V %	t	p
1.	30m Running, sec	5,8 ± 0,24 6,1 ± 0,26	4,1 4,3	5,7 ± 0,21 6,0 ± 0,24	3,7 4,0	1.21 1,09	> 0,05 > 0,05
2.	60m Running, sec	10,1 ± 0,26 10,4 ± 0,28	2,6 2,7	10,0 ± 0,22 10,3 ± 0,26	2,2 2,5	1.14 1.01	> 0,05 > 0,05
3.	High Jump (Abalakov length), cm	25,3 ± 2,8 21,8 ± 2,3	11,1 13,3	26,7 ± 2,4 23,3 ± 1,9	9,0 8,1	1,47 1,68	> 0,05 > 0,05
4.	Long jump from the position , cm	135,9 ± 3,6 128,4 ± 4,1	2,6 3,2	137,3 ± 3,2 130,1 ± 3,8	2,5 2,9	1,13 1,18	> 0,05 > 0,05
5.	Throwing stuffed ball (1kg), cm	294± 22,6 286 ± 18,2	7,7 6,4	301,1 ± 24,3 293,0 ± 16,4	8,1 5,6	0,83 1,09	> 0,05 > 0,05
6.	Throwing tennis ball, m	19,7 ± 2,2 17,5 ± 2,1	11,2 12,0	20,5 ± 1,3 18,4 ± 1,3	7,1 10,4	1,21 1,41	> 0,05 > 0,05
7.	Rope jumping, times						

		11,1 ± 1,5 / 13,6 ± 1,2	13,5 / 8,8	11,5 ± 1,2 / 14,1 ± 0,8	10,4 / 5,7	0,81 / 1,34	> 0,05 / > 0,05
8.	Jingle jangle running 3x10 m, sec	9,8 ± 0,24 / 10,1 ± 0,22	2,4 / 2,2	9,7 ± 0,20 / 10,0 ± 0,26	2,1 / 2,6	1,24 / 1,14	> 0,05 / > 0,05
9.	6-minute running	825,4 ± 17,4 / 720,2 ± 19,3	2,1 / 2,7	829,2 ± 17,2 / 724,5 ± 18,4	2,0 / 2,5	0,60 / 0,62	> 0,05 / > 0,05

Note N1. Boys' results were shown in the numerators, girls' in denominators.

The physical training levels of EG boys and girls show that their level of physical training improved significantly and reliably (p <0.01) (Look at Table N2).

Table N2: Dynamics of physical training indicators of Experiment group children [n=b-15; g-15]

T/p	Control tests	Before the Experiment $\bar{x} \pm \sigma$	V %	After the Experiment $\bar{x} \pm \sigma$	V %	T	p
1.	30m Running, sec	5,9 ± 0,26 / 6,2 ± 0,30	4,4 / 4,8	5,5 ± 0,12 / 5,8 ± 0,20	2,2 / 3,5	5,41 / 4,30	< 0,01 / < 0,01
2.	60m Running, sec	10,2 ± 0,21 / 10,3 ± 0,19	2,1 / 1,8	9,6 ± 0,14 / 9,8 ± 0,27	1,5 / 2,8	9,21 / 5,87	< 0,01 / < 0,01
3.	High Jump (Ablakov length), cm	26,8 ± 2,8 / 22,6 ± 3,1	10,4 / 13,7	35,6 ± 2,2 / 33,6 ± 1,7	6,1 / 5,0	9,57 / 12,0	< 0,01 / < 0,01
4.	Long jump from the position , cm	134,1 ± 4,2 / 126,1 ± 6,1	3,1 / 4,8	151,6 ± 3,4 / 148,6 ± 4,2	2,2 / 2,8	12,5 / 11,8	< 0,01 / < 0,01
5.	Throwing stuffed ball (1kg), cm	291,1 ± 17,8 / 283,0 ± 12,8	6,1 / 4,5	337,0 ± 13,7 / 329,1 ± 10,4	8,1 / 5,6	7,91 / 10,8	< 0,01 / < 0,01
6.	Throwing tennis ball, m	19,9 ± 1,6 / 18,0 ± 1,8	8,0 / 10,0	20,6 ± 0,8 / 18,8 ± 0,8	3,7 / 4,3	1,52 / 1,57	> 0,05 / > 0,05
7.	Rope jumping, times						

		11,2 ± 1,4 13,2 ± 1,1	12,5 8,3	14,4 ± 1,0 15,4 ± 0,7	6,9 4,5	7,20 6,53	< 0,01 < 0,01
8.	Jingle jangle running 3x10 m, sec	9,9 ± 0,28 10,2 ± 0,27	2,8 2,6	8,8 ± 0,11 9,1 ± 0,17	1,2 1,8	14,2 13,3	< 0,01 < 0,01
9.	6-minute running	823,8 ± 19,8 718,6 ± 18,6	2,4 2,6	832,9 ± 17,6 726,8 ± 17,2	2,1 2,3	1,33 1,25	> 0,05 > 0,05

Note N2. Boys' results were shown in the numerators, girls' in denominators.

There was a significant increase in results for two figures: tennis ball throwing and six-minute running, but no reliable statistical differences (p> 0.05). Actually, throwing a tennis ball away describes strength levels and a six-minute running shows durability. However, our method is designed to improve the mobility using extensive interval techniques and the absence of reliable statistical differences in control measurements is explained by this.

CONCLUSIONS

As a result of the pedagogical experiment, enough data were obtained to evaluate the proposed methodology for increasing mobility targeted at improvements of physical readiness of young children.

Having analyzed all figures, we can conclude that the traditional method of physical education lessons has insignificant impact on the general physical fitness of young children.

The high effectiveness of the proposed methodology is confirmed by the results of the same measurements obtained from the figures of boys and girls. During the experiment, all of the indicators were confidently higher in the experimental method group than in the standard school program. This is a compelling argument in favor of the methodology developed to enable rapid development of primary school students' mobility through the use of sensitive periods.

The methodology for enhancing mobility based on the use of extensive circular training exercises can be used in physical education classes as well as in sports clubs to develop the mobility of school children aged 9-10.

The method, which allows primary school children to increase mobility, has proven to be more effective than traditional systems used in the general education curriculum and makes school lessons more effective. As a result, their overall physical fitness improved by 12.5%, physical development and functional training by 10.6%, and their speed and strength qualities increased by 8.2%, and their mobility increased by 15.2%.

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