

Improving the effectiveness of competitive activity of football players aged 14-15 years on the basis of the development of power abilities proper

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Abstract

Objective of the study was to prove the effectiveness of the methodology, which includes a set of special physical exercises aimed at developing the strength abilities of young athletes.

Methods and structure of the study. The algorithm of the experiment assumed a consistent solution of the following tasks: the development of a complex of physical exercises and its implementation through the method of circular training (experimental group) and the repeated method (control group), which involve the purposeful development of the actual strength abilities and the assessment of the influence of the developed and traditional methods on the indicators of competitive activity in general. The training process using both methods was carried out for six weeks, two workouts per week.

Results and conclusions. For the development of self-strength abilities, special exercises of varying complexity were selected: YWTL, crunches with twisting, pike push-ups, twisting with a twist of the pelvis, "superman", pull-ups in a horizontal position, "bike", flexion and extension of the forearms (raising the biceps) with bent legs, push-ups from the back with a support on three points, lifting straight legs from a prone position, etc. The results of the pedagogical experiment confirmed significant changes in the achievements of the representatives of the experimental group, who practiced according to the developed methodology, in comparison with the athletes of the control group, whose classes were organized according to the traditional methodology, applied without taking into account the peculiarities of the sport.

The authors state that one of the effective means of educating self-strength abilities of young football players is a special set of physical exercises (16 exercises), applied on the basis of the circuit training method, which has proven its advantage over a set of traditional exercises using a repeated method and which will contribute to increasing the effectiveness of preparing young football players for competitive activities in general.

Keywords: football, power abilities proper, circular method, repeated method, diversification, acyclic sport.

Introduction. Football is an acyclic sport, the game activity of which is carried out in conditions of constant changes in the volume and intensity of physical activity. Modern football is hard to imagine without a power struggle, which takes place in almost 50% of game situations that occur around the entire perimeter of the football field. Therefore, an important role in the development of a young athlete as a future professional is played by the level of his physical fitness, including the development of self-strength abilities, the sensitive period of development of which is the age of 14-15 years. The intensive development of the actual strength abilities in a given age period is expressed by the laws of the psychophysiological development of the organism

(its ontogenesis). This is due to the fact that at this age almost all muscle groups that fix the vertical position of the body - static muscles (ilio-lumbar, muscles of the abdominal walls, etc.) develop intensively.

During puberty, along with the development of strength abilities of the main muscle groups of adolescents, there is also an active growth of tubular bones and tendons [2, 5].

Objective of the study was to prove the effectiveness of the methodology, which includes a set of special physical exercises aimed at developing the strength abilities of young athletes.

Methods and structure of the study. The contingent of subjects consisted of two groups. The control



List of control exercises and criteria for assessing the actual strength abilities of football players aged 14-15 [1]

Control exercises	Criteria
Pull-ups on the high bar	Number of times completed
Flexion and extension of the arms in the lying position	Number of times completed
From a hanging position, straight leg raises	Number of times completed
Rope climbing	Number of times completed
From the starting position lying on the bench, hands behind the head, legs bent at the knee joints - raising and lowering the torso	Number of times completed

and experimental groups included 12 football players aged 14 to 15, 24 in total.

Before the start of the experiment, the initial levels of development of the actual strength abilities of the football players of both groups were tested using the control exercises presented in Table 1. The experimental studies were carried out on the basis of the private educational institution "Strategy".

The results of testing the levels of development of the actual strength abilities of football players aged 14-15 in both groups are shown in Figure 1.

To determine the homogeneity of the two groups, the P-value indicator was used, with the help of which it was possible to reveal the absence of statistically significant differences ($P\text{-value} > 0.05$) in representatives of both groups, on the basis of which it can be concluded that both groups before the pedagogical of the experiment did not have significant differences ($p > 0.05$) in terms of the level of physical fitness [6]. Testing data is presented in the form of a diagram in Figure 1.

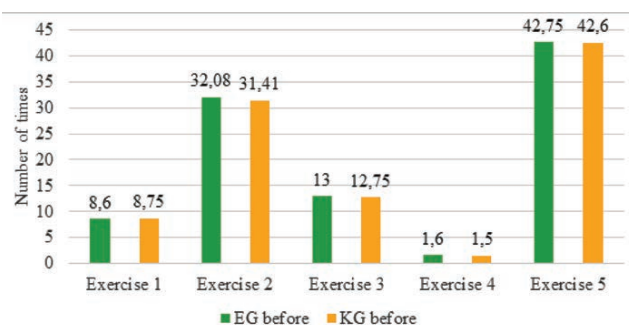


Figure 1. The results of testing the development of the actual strength abilities of football players aged 14-15 in the control and experimental groups before the start of the experiment

For the development of proper strength abilities, special exercises of varying complexity were selected: *YWTL*, *crunches with twisting*, *pike push-ups*, *twisting with a twist of the pelvis*, "superman", *pull-ups in a horizontal position*, "bike", *flexion and extension of the forearms (biceps curls) with bent legs*, *push-ups from the back with a support on three points*, *lifting straight legs from a prone position*, etc. [2]

The experimental group was engaged in accordance with the program, two workouts for six weeks, which in the end amounted to 12 sessions. The circular method of training sessions aimed at developing self-strength abilities assumed the sequential fulfillment of tasks at four stations, four special exercises at each (total 16 exercises). At the same time, in the process of passing the station, only one exercise out of four was performed, and then the transition was carried out. The duration of the exercise was no more than 1 minute of rest, when moving from one station to another, no more than 30 seconds. At the same time, three players were engaged at all stations. Every week, the exercises were rotated, their volume and intensity changed, both in terms of the number of repetitions and the duration of execution, and the rest pauses were also reduced [3]. During one training session, the players went around the circle four times, performing one exercise at each station (four exercises in total).

The control group trained according to the traditional method, also for six weeks, with two training sessions per week. The training process in this group was carried out using the repeated method. The training program consisted of four exercises (squats, an exercise for the extensors of the back muscles, push-ups in the lying position and reverse crunches (*sitting on the floor, bending the legs at the knees and pulling them to the front wall of the abdomen*), performed in four approaches each, with 12- 20 repetitions in the approach. The duration of rest after each approach in the exercise was up to two minutes, and after completing the exercise and moving on to the next, from three to four minutes. Each subsequent week when performing exercises, the number of repetitions in the approach increased, and the duration of rest, respectively, decreased [4].

To assess the effectiveness of the experimental methodology, after the end of the study, a second test of the levels of physical fitness of the players who took part in the experiment was carried out.

Results of the study and their discussion. The results of the study are shown in Figure 2. The analysis of the obtained materials made it possible to identify significant differences, using the P-value criterion, (P-

value <0.05), in terms of the development of the actual strength abilities of 14-15 year old football players in the experimental group compared to the control group (Figure 2), which indicates the high efficiency of the experimental technique developed by the author, which made it possible to successfully achieve the goal of the study.

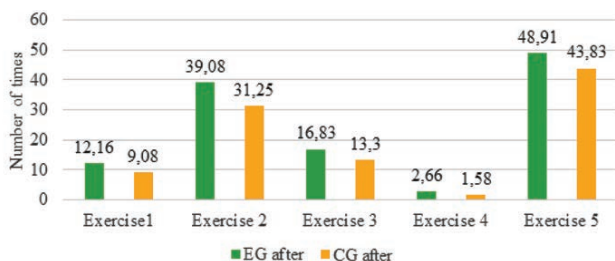


Figure 2. The results of testing the development of the actual strength abilities of football players aged 14-15 after the end of the experiment

Conclusions. The results of a pedagogical experiment focused on the development of self-power abilities of 14-15-year-old football players confirm significant changes in the achievements of the representatives of the experimental group, who were trained according to the developed method, in comparison with the athletes of the control group, whose classes were organized according to the traditional method, applied without taking into account the characteristics of the type sports.

Taking into account the materials of the study, it can be stated with confidence that one of the effective means of educating the self-strength abilities of young football players is a special set of physical exercises (16 exercises), used on the basis of the circuit training method, which has proven its advantage over a set of traditional exercises, with using a repeated method, and which will increase the effectiveness of

preparing young football players for competitive activities in general.

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