

Use of special exercises for the development of motor qualities and the formation of technical and tactical actions of defenders 13–14 years in the preparatory period

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Purpose: to develop the content of training programs for the wing-back and central defenders using special exercises in accordance with the game role and determine the effectiveness of their use in young football players 13–14 years old.

Material & Methods: the study involved young football players of 13–14 years old FC "Arsenal" in Kharkiv in the amount of 10 athletes during a one-year macrocycle (2018–2019). In the process of research, pedagogical observation and determination of quantitative and qualitative technical and tactical actions during the match, methods of mathematical statistics were used.

Results: the influence of the complexes of special running and jumping exercises, which were additionally used by the wing back and central defenders in accordance with the game role, on the quantitative and qualitative indicators of the game activity of young football players of 13–14 years is determined.

Conclusions: the results obtained experimentally confirmed the effectiveness of the use of specialized running and jumping exercises separately for the wing-back and central defenders, which increases the level of their performance of technical and tactical actions.

Keywords: wing back and central defenders, motor qualities, playing role, technical and tactical actions, morpho-functional indicators.

Introduction

Improving the training system for young athletes is impossible without the search for new approaches to the organization of the educational process, as well as the use of the latest achievements of sports science in the practical work of a trainer [8; 11; 13].

In existing studies [1; 3; 4; 8; 12] noted the need to improve the quality of training of young football players, to search for and put into practice the most effective training tools and methods, and therefore a special study and analysis of various aspects of this problem is necessary. One of the areas of research is the development of means of special physical training for young football players of 13–14 years of different game roles [5; 7; 14]. The feasibility of solving this issue determines that when conducting training sessions using special means of physical preparation requires taking into account the specific requirements for each player, depending on the game role [2; 6; 15].

In the papers [10; 16; 17] the issues of training features for field players of different game roles (defender, midfielder, forward) are considered, but it is obvious that the actions of the wing-back and central defenders and midfielders have a significant difference. Therefore, the determination of the features of the use of special motor exercises for wing-back and central defenders is relevant for research.

Purpose of the study: to develop the content of training programs for wing-back and central defenders using special exercises in accordance with the game role and determine the effectiveness of their use in young football players 13–14 years old.

Objectives of the study:

1. To develop sets of motor exercises and methods of their use for wing-back and central football players 13–14 years old, taking into account the game role.
2. To determine the effect of special running and jumping exercises, used during the preparatory period, on the quantitative and qualitative indicators of the technical and tactical actions of the wing-back and central defenders 13–14 years old.

Material and Methods of the research

The study involved young football players of 13–14 years old FC Arsenal in Kharkov in the amount of 10 athletes during a one-year macrocycle (2018–2019). In the process of research, pedagogical observation and determination of quantitative and qualitative technical and tactical actions during the match, methods of mathematical statistics were used.

Motor actions carried out by wing-back defenders are significantly different from the actions of central defenders and are associated with a large amount of work requiring manifesta-

tion of endurance, and, above all, anaerobic.

The preparatory period of the experimental program included a retractor, basic in general and basic with special physical training.

The retracting mesocycle is the same for all players in the team and provides for laying the base for general physical training, in connection with which running exercises in various modifications are used: uniform and variable running, fartlek. In addition, general physical exercises are used, which make up a circular training session, both at the stadium and in the gym. Particular attention was also paid to the use of athletics exercises, which are the basis of movements during jerks and accelerations, as well as various movements (back forward, step with a step, running with the lap of the lower leg and raising the thigh, etc.). Considerable attention was paid to jumping exercises (multi-hop, jumping up on one and two legs, etc.).

Conducted retracting mesocycle allowed to form a basic level of physical and technical-tactical preparedness of young football players 13–14 years old. In the end, quantitative and qualitative indicators of technical and tactical actions were determined during the game of the wing-back and central defenders.

Further basic mesocycle in general physical training provided for the use of additional exercises in wing-back defenders

with the use of running (uniform and variable intensity), jumping (over barriers, athletics), strength training on simulators, as well as with packed balls (as the wing-back defender has to throw the ball due to the sideline). Particular attention was paid to the technique of motor actions during their implementation.

In the basic mesocycle of special physical and technical training, exercises that corresponded to game actions were complicated.

So, for wing-back defenders, various types of running exercises were used in combination with overcoming obstacles, performing tackles, jumping, selecting the ball and further technical actions related to passing the ball. In addition, when performing exercises, special attention was paid to the technique of their implementation.

It should be noted that jerking was carried out due to the frequency of movements, and acceleration was mainly due to the length of steps.

Results of the research

The use of special running and jumping exercises allowed to significantly increase the quantity and quality of the implementation of the technical and tactical actions of the wing-back defenders of the studied group (Tables 1, 2). The number of game motor actions increased by 5,1% ($t=2,49$; $p<0,05$) due

Table 1
Quantitative indicators of the implementation of the technical and tactical actions of the wing-back defenders during the study, % (n=20)

No. i/o	Motor actions	At the beginning of the study	At the end of the study	t	p
		$\bar{X} \pm m$			
1.	Jerks 15–20 m	16,1±0,45	18,2±0,47	2,31	<0,05
2.	Acceleration 40–50 m	16,7±0,46	19,5±0,51	4,06	<0,01
3.	Running backwards	5,0±0,24	4,9±0,23	0,18	>0,05
4.	Jogging	3,4±0,22	3,8±0,20	2,00	>0,05
5.	Step run	1,6±0,09	1,5±0,08	0,83	>0,05
6.	Tuckles	19,1±1,31	22,5±1,27	1,87	>0,05
7.	Head game	4,8±0,34	5,2±0,36	0,80	>0,05
8.	Throw in the ball	5,6±0,17	5,7±0,18	0,41	>0,05
9.	Number of run distance per game	42,8±1,47	17,9±1,48	2,49	<0,05
10.	Other motor actions	27,7±1,52	19,7±1,50	3,74	<0,01

Table 2
Performance indicators of the technical and tactical actions of the wing-back defenders during the study, % (n=20)

No. i/o	Technical and tactical actions	At the beginning of the study	At the end of the study	t	p
		$\bar{X} \pm m$			
1.	Short passes	31,2±1,24	32,6±1,25	0,80	>0,05
2.	Midle passes	28,1±1,24	33,8±1,21	3,29	<0,01
3.	Long passes	9,6±0,42	11,7±0,46	3,39	<0,01
4.	Dribbling	14,0±0,58	15,8±0,58	2,20	<0,05
5.	Keeping balls	26,2±1,03	27,1±1,05	0,61	>0,05
6.	Tackling	30,0±1,58	35,7±1,54	2,59	<0,05
7.	Ball stop	24,2±1,08	27,8±1,4	2,32	<0,05
8.	Kicks on goal	25,0±1,08	26,1±1,09	0,71	>0,05
9.	Head kicks	20,3±1,05	21,1±1,07	0,53	>0,05

to the number of jerks performed ($t=2,31$; $p<0,05$) and accelerations ($t=4,06$; $p<0,01$), while other motor actions, less significant for the wing-back defenders, decreased by 8,0% ($t=3,74$; $p<0,01$) (Table 3).

Along with this, the quality of the implementation of the technical and tactical actions of the wing-back defenders of the studied group significantly increased (Table 2). The number of medium ($t=3,29$; $p<0,01$) and long ($t=3,39$; $p<0,01$) passes, tackles ($t=2,59$; $p<0,05$) and ball stops ($t=2,32$; $p<0,05$), performed against a background of fatigue.

The construction of the training process of the central defenders in the retracting mesocycle has a general meaning for all team players and provides for a gradual increase in the load for further individualization of classes depending on the game role.

The basic mesocycle according to the GPP of the central defenders envisaged using running with variable intensity (running for 2000–2500 m; fartlek; shuttle running), jumping athletics based on aerobic endurance; power exercises; circular training, barbell exercises.

In the basic mesocycle for special physical training, the central defenders additionally used exercises taking into account the specifics of motor activity, namely: running exercises – fartlek, skipping, acceleration, jerking, types of running (right and left side, back forward, snake), paying attention to the frequency and the technique of the movements of their implementation; jumping exercises and their combinations with

running exercises and kicks to the ball.

The use of specialized exercises allowed in the competitive period (for 10 games) to carry out a greater number of game actions, mainly those that are characteristic of central defenders (Table 3).

Thus, the quantitative indicators of jerking performance ($t=5,54$; $p<0,001$), accelerations ($t=5,44$; $p<0,001$), back-to-back running ($t=3,43$; $p<0,01$) and a step step ($t=2,19$; $p<0,05$), as well as participation in tackles ($t=2,30$; $p<0,05$) and head games ($t=4,55$; $p<0,001$).

During the study, the number of running varieties per game significantly increased ($t=4,65$; $p<0,001$), which reduced the performance of other motor actions (walking, running in slow motion, etc.) ($t=4,40$; $p<0,001$), that is, the intensity of the game activity of the central defenders increased.

During the running and jumping exercises, special attention was paid to the technique of their implementation, which positively influenced the quality of the technical and tactical actions of the central defenders (Table 4).

In the process of implementing the experimental methodology using special exercises, the quality indicators of the technical and tactical actions of the central defenders increased: medium ($t=4,92$; $p<0,01$) and long ($t=5,54$; $p<0,001$) passes, ball stops ($t=2,72$; $p<0,05$), kicks of the ball ($t=2,13$; $p<0,05$) and head into the goal ($t=2,42$; $p<0,05$).

Table 3

Quantitative indicators of the implementation of the technical and tactical actions of the central defenders during the study, % (n=20)

No. i/o	Motor actions	At the beginning of the study $\bar{X}\pm m$	At the end of the study $\bar{X}\pm m$	t	p
1.	Jerks 15–20 m	14,0±0,49	18,1±0,56	5,54	<0,001
2.	Acceleration 40–50 m	12,5±0,47	13,2±0,49	5,44	<0,001
3.	Running backwards	5,6±0,25	6,8±0,24	3,43	<0,01
4.	Jogging	3,2±0,22	3,9±0,23	2,19	<0,05
5.	Step run	1,8±0,10	1,9±0,12	0,64	>0,05
6.	Tackles	21,5±1,40	26,1±1,44	2,30	<0,05
7.	Head game	7,8±0,38	10,3±0,40	4,55	<0,001
8.	Number of run distance per game	37,1±1,46	46,9±1,52	4,65	<0,001
9.	Other motor actions	62,9±1,57	53,1±1,54	4,46	<0,001

Table 4

Performance indicators of the technical and tactical actions of the central defenders during the study, % (n=20)

No. i/o	Technical and tactical actions	At the beginning of the study $\bar{X}\pm m$	At the end of the study $\bar{X}\pm m$	t	p
1.	Short passes	30,8±1,22	31,9±1,24	0,63	>0,05
2.	Midle passes	25,2±1,28	34,6±1,42	4,92	<0,001
3.	Long passes	10,1±0,44	16,3±1,03	5,54	<0,001
4.	Dribbling	15,1±0,59	17,2±1,02	1,78	>0,05
5.	Keeping balls	25,8±1,17	27,1±1,19	0,78	>0,05
6.	Tackling	16,0±1,26	17,1±1,28	0,65	>0,05
7.	Ball stop	26,2±1,18	30,8±1,21	2,72	<0,05
8.	Kicks on goal	25,0±1,08	28,3±1,4	2,13	<0,05
9.	Head kicks	20,8±1,07	24,5±1,09	2,42	<0,05

Conclusions / Discussion

In previous studies [6; 9] it was established that the wing-back and central defenders in the game activity have a significant difference in terms of the quantity and quality of the performed technical and tactical actions.

So, for wing-back defenders, participation in tackles and the performance of motor actions of aerobic endurance is more inherent.

Central defenders, along with participation in tackles, it is more essential to perform jerks that condition anaerobic endurance. In this connection, it becomes necessary to differentiate the special motor activity of the wing-back and central defenders.

The results obtained in this study experimentally confirmed the assumption of the effectiveness of the use of specialized running and jumping exercises separately in the wing-back and central defenders. It has been proved that in wing-back defenders it is additionally advisable to use various types of

running exercises in training in combination with overcoming obstacles, performing tackles, jumping, taking the ball and further technical actions related to passing the ball. In addition, when performing exercises, special attention is paid to the technique of their implementation.

For central defenders, the use of exercises taking into account the specifics of motor activity is positive, namely: running exercises – fartlek, skipping, acceleration, jerking, types of running (right and left side, back forward, snake, paying attention to the frequency and technique of movements to perform them; jumping exercises and their combinations with running exercises and kicks and kicks to the ball.

So, it is determined that in the training process of the defenders it is advisable to use special exercises in accordance with the game role (wing-back and central defenders).

Prospect of further research is certain effects of using special motor exercises to form the factor structure of the preparedness of young football players of 13–14 years of different playing roles.

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