

# The use of running and jumping exercises in special motor training of young forwards 13–14 years old

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**Purpose:** to determine the effect of using complexes of various athletics running and jumping exercises on the indicators of the quantity and quality of technical and tactical motor actions of young forwards-football players 13–14 years old.

**Material & Methods:** the study involved forwards-football players of the children and youth football club Arsenal in Kharkiv from May to October 2019. As the initial data of technical and tactical motor actions, we used the indicators obtained by football players during 10 games of the previous competitive period (May-October 2018). In the preparatory period, complexes of special athletics exercises were used for young football players of the 13–14 years old research group in each training session, which were held 4 times a week, the control group carried out the training process according to the Youth Sports School program, in which classes were also held 4 times a week for 90 minutes.

**Results:** the study made it possible to establish the influence of athletics running and jumping exercises on the special motor fitness of young forwards-football players 13–14 years.

**Conclusions:** the use of specialized athletics running and jumping exercises for young forwards-football players attacking 13–14 years during the preparatory period allowed us to improve the results of indicators of the quantity and quality of performing motor and technical and tactical actions.

**Keywords:** athletics exercises, forwards-football players, technical and tactical actions, motor actions, quantitative and qualitative indicators.

## Introduction

Interest in football is growing every year, not only among boys, but also among girls, so in terms of mass and popularity, it is ahead of many sports. So, systematic football lessons have a comprehensive impact on the body of children and youths, increase the general level of their physical activity, improve the functional activity of the body, ensuring proper physical development.

In football, tactics and technology are closely intertwined. When deciding to whom and how to make a pass, apply a stroke to beat an opponent or use a partner, to make a shot at the goal, the player uses tactical thinking, and after taking the decision itself, he shows his technical skill [6]. So, the technique is a means of transforming the tactical intentions of the player into action.

Currently, youth football is at the stage of modernization and positive update. Development of new scientific and pedagogical technologies is underway, contributing to the improvement of the physical, tactical, technical and psychological training of young football players. The experience of preparing a football reserve in the leading countries of Western Europe indicates the need to attract specialist trainers with in-depth knowledge of the anatomical and physiological characteristics of the structure and development of the child's body to ensure adequate responses to the load, volume and intensity, which in recent years have increased dramatically [2; 10].

Analysis of scientific and methodological literature on issues of children's and youth football [7; 8; 11; 12] showed that the main works are devoted to the history of the development of this sport, technical, tactical and physical training of football players and do not take into account the particular features of the educational process of children and

youths.

Two groups of exercises are used in the preparation of football players aimed at developing physical qualities: non-specific (running, jumping, exercises on power simulators) and specific (tactical and technical). Exercises of the first group contribute to the development of basic physical qualities (endurance and strength), while exercises of the second group turn these basic qualities into specific [3; 11].

The technical and tactical preparedness of young football players has always been in the field of vision of scientists and coaches [1; 3; 7]. At the same time, in the works of these authors the questions of the dependence of the level of technical and tactical preparedness of young football players on the level of special physical fitness are not completely disclosed.

In scientific papers [1; 8], age-related volumes of performing technical and tactical actions of football players different in nature and conditions are given, as well as complexes of technical and tactical actions with a subsequent analysis of the consequences of the effectiveness of their implementation [5; 9].

For each player who occupies a particular game position in the general arrangement of players on the field, it is necessary to select individual exercises from the field of tactical and technical training. These exercises should be as close as possible to that real gaming environment and to those events that occur before the player during the match, in that part of the field where this player is located. In other words, it is necessary to develop a series of exercises designed for more in-depth training of football players in each individual position. Based on this, the scientific and methodological justification, practical development and implementation of the methodology for the development of motor qualities in conjunction with technical training is an actual scientific direction in the theory and methodology of physical education during youth football training.

**Purpose of the study:** to determine the effect of using

complexes of various athletics running and jumping exercises on the indicators of the quantity and quality of technical and tactical motor actions of young attacking football players 13–14 years old.

## Material and Methods of the research

The study involved forward football players of the children and youth football club Arsenal in Kharkov, from May to October 2019.

The initial data used are indicators obtained by football players during 10 games of the pre-competitive period (May–October 2018). In the preparatory period, complexes of special athletics exercises were used for young football players of the 13–14 years old research group in each training session, which were carried out 4 times a week, the control group carried out the training process according to the program of the Children’s Sports School, in which classes were held 4 times a week for 90 minutes.

## Results of the research

The motor actions of the attackers are significantly different from the players of other game roles, since their main function is to carry out attacking actions. Therefore, in the experimental program of young football players of an attacking nature, athletics running and jumping exercises were used to the full, providing for improving primarily speed and speed-strength qualities.

During the implementation, the number of actions inherent in attackers increased, namely: jerks ( $t=6,51$ ;

$p<0,001$ ), accelerations ( $t=2,61$ ;  $p<0,05$ ), running backwards ( $t=4,40$ ;  $p<0,001$ ), tackle ( $t=4,17$ ;  $p<0,001$ ) and head games ( $t=4,06$ ;  $p<0,001$ ) (Table 1).

Thus, the number of runs per game increased by 11,5% ( $t=5,93$ ;  $p<0,001$ ), while other activities (walking, jogging, etc.) decreased by 20.6% ( $t=12,11$ ;  $p<0,001$ ).

An increase in the number of motor actions per game, mainly due to those specific to the forwards, did not negatively affect the quality of their performing (Table 2).

On the contrary, performance of short and medium pass ( $t=5,44$ ;  $5,09$ ;  $p<0,001$ ), groundmove ( $t=5,40$ ;  $p<0,001$ ), dribbling ( $t=2,14$ ;  $p<0,05$ ), ball stop ( $t=2,64$ ;  $p<0,05$ ), kicking to the goal ( $t=5,10$ ;  $p<0,001$ ) and head ( $t=4,71$ ;  $p<0,001$ ). The above significantly ( $t=3,73$ ;  $p<0,01$ ) influenced the average quality of performance of movement actions of young football players of 13–14 years of the experimental group.

The obtained indicators of technical and tactical actions after the introduction of complexes of special running exercises allowed young attacking football players of the research group, in relation to the control, to increase the data on quantitative and qualitative motor actions (Table 3). The number of offensive-specific actions, namely jerks 15–20 m and backwards running increased by 2,2% and 1,1%, respectively ( $t=2,18$ ;  $2,97$ ;  $p<0,05$ ;  $0,01$ ) Also, the attackers of the experimental group performed significantly more single combats by 3,3% ( $t=2,21$ ;  $p<0,05$ ) and head games by 1,6% ( $t=2,32$ ;  $p<0,05$ ). In general, the number of running movements of young attackers of the experimental group was 4,8% ( $t=2,53$ ;  $p<0,05$ ) more than in the control group, which contributed to the use of 9,7% more specific for the attacking motor actions.

**Table 1**

**Quantitative indicators of the performance of motor actions of young attacking football players 13–14 years of the experimental group during 10 games (n=20), %,  $\bar{X}\pm m$**

No.	Motor actions	At the beginning	At the end	t	p
1.	Jerks 15–20	16,7±0,76	23,8±0,78	6,51	<0,001
2.	40–50 m acceleration	10,4±0,46	12,2±0,52	2,61	<0,05
3.	Running backwards	5,8±0,25	8,0±0,27	4,40	<0,001
4.	Cross-step running	3,0±0,22	3,2±0,23	0,63	>0,05
5.	Shuffle running	1,8±0,11	2,0±0,12	1,25	>0,05
6.	Tackle	16,1±1,05	22,4±1,08	4,17	<0,001
7.	Head game	9,8±0,46	12,6±0,51	4,06	<0,001
8.	Number of runs per game	37,7±1,36	49,2±1,38	5,93	<0,001
9.	Other motor actions	36,4±1,28	15,8±1,11	12,11	<0,001

**Table 2**

**Performance indicators of the technical and tactical actions of young attacking football players 13–14 years of the experimental group during 10 games (n=20), %,  $\bar{X}\pm m$**

No.	Motor actions	At the beginning	At the end	t	p
1.	Short pass	28,8±1,28	38,7±1,30	5,44	<0,001
2.	Medium pass	24,4±1,17	32,9±1,19	5,09	<0,001
3.	Long pass	9,1±0,51	10,5±0,53	1,89	>0,05
4.	Groundmove	20,1±1,04	28,2±1,08	5,40	<0,001
5.	Dribbling	24,8±1,02	27,9±1,03	2,14	<0,05
6.	Slide tackle	15,0±1,19	15,5±1,20	0,30	>0,05
7.	Ball stop	23,6±1,11	27,8±1,14	2,64	<0,05
8.	Kicks to the goal	22,0±1,07	29,8±1,10	5,10	<0,001
9.	Headshot	21,1±1,06	28,3±1,10	4,7	<0,001
	$\bar{X}$ , %	21,0±1,05	26,6±1,07	3,73	<0,05

**Table 3**

**Quantitative indicators of the performance of motor actions of young attacking football players 13–14 years of the control and experimental group during 10 games (n=20), %,  $\bar{X} \pm m$**

No.	Motor actions	Control group	Experimental group	t	p
1.	Jerks 15–20	21,6±0,64	23,8±0,78	2,18	<0,05
2.	40–50 m acceleration	10,9±0,48	12,2±0,52	1,83	>0,05
3.	Running backwards	6,9±0,25	8,0±0,27	2,97	<0,01
4.	Cross-step running	3,1±0,22	3,2±0,23	0,31	>0,05
5.	Shuffle running	1,9±0,11	2,0±0,12	0,63	>0,05
6.	Tackle	19,1±1,02	22,4±1,08	2,21	<0,05
7.	Head game	11,0±0,46	12,6±0,51	2,32	<0,05
8.	Number of runs per game	44,4±1,30	49,2±1,38	2,53	<0,05
9.	Other motor actions	25,5±1,24	15,8±1,11	5,81	<0,001

**Table 4**

**Performance indicators of the technical and tactical actions of young attacking football players 13–14 years of the control and experimental group during 10 games (n=20), %,  $\bar{X} \pm m$**

No.	Motor actions	Control group	Experimental group	t	p
1.	Short pass	34,0±1,28	38,7±1,30	2,58	<0,05
2.	Medium pass	28,7±1,16	32,9±1,19	2,53	<0,05
3.	Long pass	10,0±0,52	10,5±0,53	0,68	>0,05
4.	Groundmove	24,7±1,03	28,2±1,08	2,35	<0,05
5.	Dribbling	26,3±1,01	27,9±1,03	1,11	>0,05
6.	Slide tackle	15,1±1,18	15,5±1,20	0,31	>0,05
7.	Ball stop	26,3±1,11	27,8±1,14	0,94	>0,05
8.	Kicks to the goal	25,7±1,05	29,8±1,10	2,70	<0,05
9.	Headshot	25,1±1,04	28,3±1,10	2,12	<0,05
	$\bar{X}$ , %	23,0±1,04	26,6±1,07	2,42	<0,05

The number of motor actions in the indicators determining the technical and tactical actions of attacking football players of the experimental group during the game did not negatively affect the quality of their performance, significantly higher than in the control group, in the performance of short and medium passes of 4.7 and 4.2% ( $t=2,58$ ;  $2,53$ ;  $p<0,05$ , respectively), strokes by 3.5% ( $t=2,35$ ;  $p<0,05$ ), kicking to the goal 4,1% ( $t=2,70$ ;  $p<0,05$ ) and the head by 3.2% ( $t=2,12$ ;  $p<0,05$ ) (Table 4). The average performance indicator of technical and tactical actions among the young strikers of the experimental group per game has increased significantly and in relation to the players of the control group has reached 3,6% ( $t=2,42$ ;  $p<0,05$ ).

Thus, the use of complexes of athletics running and jumping exercises aimed at increasing the quantity and quality of motor actions, effective to improve the performance of technical and tactical actions of the forwards.

### Conclusions / Discussion

1. The use of athletics running and jumping exercises for young attacking football players of 13–14 years during the preparatory period allowed the players of the experimental group to increase the quantitative indicators in relation to the control group players in jerks by 15–20 m ( $t=2,18$   $p<0,05$ ), backwards running ( $t=2,97$ ;  $p<0,01$ ), tackle ( $t=2,21$ ;  $p<0,05$ ), head game ( $t=2,32$ ,  $p<0,05$ ) and the amount of run per game ( $t=2,53$ ;  $p<0,05$ ), which affected the reduction of other (less significant) motor actions ( $t=5,81$ ;  $p<0,001$ ).

2. The increase in the number of motor actions performed by the players of the experimental group did not negatively

affect the quality of the performance of technical and tactical actions, which is higher in relation to the players of the control group in the performance of short ( $t=2,58$ ;  $p<0,05$ ) and medium passes ( $t=2,53$ ;  $p<0,05$ ), strokes ( $t=2,35$ ;  $p<0,05$ ), kicks to the ball ( $t=2,70$ ;  $p<0,05$ ) and headshot ( $t=2,12$ ;  $p<0,05$ ), which is generally 3.6% ( $t=2,42$ ;  $p<0,05$ ) higher among young football players 13–14 years of the research group.

The motor actions of the attackers are significantly different from other players of the football team and are related to the organization and completion of the team's attacks. Our previous study allowed us to develop a methodology for the use of athletics running and jumping exercises for defenders [4; 5] and midfielders and experiment to verify the effectiveness of their application.

At the same time, these exercises do not fully correspond to the attackers. Therefore, in view of the foregoing, we have developed sets of exercises that allow for striker actions related to jerking to receive assists, to conduct martial arts in the fight for the ball, to increase the distance of distance running and other football-specific actions.

The results obtained allowed us to confirm the effectiveness of the developed methodology for using specific running and jumping exercises for attackers in terms of the quantity and quality of the implementation of technical and tactical actions during the game.

**Prospects for further research.** The research results presented are the initial link in determining the features of constructing training sessions for young attacking football players 13–14 years old and require further identification of the level of manifestation of physical qualities and techniques.

**Conflict of interests.** The authors declare that no conflict of interest.

**Financing sources.** This article didn't get the financial support from the state, public or commercial organization.

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Received: 04.01.2020.

Published: 29.02.2020.

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