
DIFFERENCES IN THE LEVEL OF PHYSICAL PREPARATION AMONG 13-14-YEAR-OLD FOOTBALL PLAYERS ACCORDING TO THEIR POSITION

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Abstract: Football is a total sport and its requirements are enormous in terms of the parallel development of physical qualities, technical tactics and psychological abilities. Depending on the age, the training process is structured according to the individual and general tasks of the preparation, the main directions are defined, which includes the general pre-training, special-preparatory, pre-competitive and competitive stages of the annual training cycle. The dynamics of 17 indicators for physical, technical and physiological training of 13 – 14-year-olds practicing football have been analyzed. The groups of 12 children each are formed according to their position – Attackers and Defenders. Changes were observed as a result of a training method used by the authors during a 14-week cycle of time and 42 training sessions. The authors believe that the players should do exercises which are closer to the nature of the physical activity they perform during a match depending on their game post. Attackers —should emphasize on speed and force-strength trainings, and defenders should give priority to trainings for general and tempo-endurance. Due to the still insufficient determination of 13-14-year-old players to a certain game post, the authors refrain from making recommendations for strictly specialized trainings which are specific for older football players.

Keywords: football, physical qualities, children, changes, game post.

INTRODUCTION

Football is a total sport and its requirements are enormous in terms of the parallel development of physical qualities, technical tactics and psychological abilities.

Nowadays the genetic factors have specific meaning in the analysis of sports-pedagogical preparation. Systemic training of a sport of which the child does not have genetic features would not give the expected high results, on the contrary, it would lead to low results [4, 5]. In the modern childhood-adolescent sports, the problem of reaching and maintaining the necessary level of effective working capacity over a long period of time has always been relevant, especially in the context of the game-competition activity [4].

The parents and the coaches of each future football player should firstly ask themselves two main questions before leading the child through the tough training-learning process. These questions are:

1. How much time do they have for the realization of their admissions?
2. Does the child (the future football player) really have the necessary qualities which have to be developed further in the training-learning process?

The development of the special game habits, such as a sharp start, a change of direction, special speed endurance, requires a high level of special physical training (SFT). This is a physical training which is primarily aimed at developing these physical qualities which correspond to the functions of the child- athlete during his / her participation in competitions, **control meetings** and are especially necessary for their successful realization during the game. Various authors draw attention to the need for footballers to make special exercises during the training process in order to develop the skills which are inherent in football [6, 13, and 16]. Yet, most of them refer to Zaciorski in working on developing motor skills and do not look at the specific qualities in their football essence [18, 2].

The models for physical and tactical preparation of future players which are offered by coaches provide at least 3-4 workouts per week, and with age they become daily. In these programs, depending on the age, the training process is structured according to the individual and general tasks of preparation, the main directions are defined, which include the general pre-training, special-preparatory, pre-competitive and competitive stages of the annual training cycle [3, 21, 6, 20, and 8]. The framework of this accepted system of planning the training process contains purposeful means and methods to develop endurance, strength, speed, agility, flexibility, tactics and technique. In addition to all these tasks which aim to improve and boost the above-mentioned qualities and skills from the earliest ages, the children's football training emphasizes the need to develop certain qualities depending on the position of the player [7, 17, 1, 13, , and 16]. This trend is also preserved in other sports games [23, 12, 14, and 19].

When planning the workloads, both team and individual, depending on the play position, the coaches are mainly guided by the physiological changes that take place during the training which is performed in one way or another.

The current football training process, no matter in what age group it is conducted, is impossible without detailed knowledge of the physiological and biochemical processes that occur in the body as a consequence of it. Special attention is paid to this issue by some of the leading specialists, who detail the aerobic, aerobic-anaerobic, anaerobic-alactate and anaerobic-lactate sports preparation.

According to researches led by Castelo [24], contestants playing at different posts have great differences in the level of maximum oxygen consumption (IOD), oxygen transport and carbon dioxide release. Significant differences are also mentioned in maximum pulmonary ventilation, pulse rate increase and other physiological changes in the body.

According to Molnar, C. [25], at the age of 13-14 the factor relevance of performance indicators is related to external breathing, aerobic energy delivery, depth and frequency of breathing, and aerobic performance.

These authors also consider that the ability to understand and use training exercises according to their classification distinctness and physiological characteristics is essential for the planning of the preparation of the footballer.

In this regard, we set ourselves the **goal** of tracing the changes in some sports-pedagogical and physiological indicators in football players aged 13-14.

To accomplish this goal, it was necessary to solve the following tasks:

1. To identify a number of informative tests that allow us to detect changes in the level of the basic physical and techno-tactical qualities by creating a test battery.
2. To separate the students who train football in two main groups, according to the position they play – attackers and defenders.
3. To apply the test battery and register the differences in the metrics changes at the beginning and the end of the experiment.

1. ORGANIZATION OF THE SURVEY

The formed groups contained twelve attackers and twelve defenders. The entire period of tracking the changes was lead during the autumn-winter cycle (September – December), during which 42 training and control exercises were carried out on the program created by us. The groups were tested in the beginning and in the end of the given period for seventeen metrics.

The obtained results are statistically processed.

The used tests are popular, for example PWC170 and MOC. They offer intensity and recalculation to determine the physical abilities. PWC170 are used from the models given by Karpman V., H. Belotzerkovskiy and I. Tutskov [11] and the Unpredictable Methods of Practice by Astrand, P. (1966), updated in Bulgaria by Iliev, Il. [9].

2. RESULTS AND DISCUSSION

The results obtained from the test are presented in **table 1.**, where they are divided into posts: attackers and defenders. Anthropometric indicators do not have significant changes because of the short length of the period.

Table 1.¶

Changing the control indicators of attackers and defenders during the first training cycle among 13-14-year-old football players¶

№	Indicators	Attackers—first cycle					Defenders—first cycle				
		Start	End	Difference	t	Pt	Start	End	Difference	t	Pt
1.	High (cm)	164,30	164,57	0,07	2,70	993	165,6	166,1	0,5	1,79	930
2.	Body mass (kg)	51,2	51,7	0,5	2,85	995	52,8	53,6	0,8	2,31	979
3.	Sprint 15 m. (s)	2,52	2,49	0,03	2,02	956	2,64	2,61	0,03	2,85	995
4.	Sprint 30 m. (s)	4,53	4,51	0,02	2,15	968	4,80	4,73	0,07	2,24	979
5.	Sprint 60 m. (s)	10,01	9,95	0,06	2,51	987	9,81	9,67	0,14	2,90	996
6.	Running on 10 steps-upstairs (s)	2,39	2,30	0,09	2,65	991	2,52	2,47	0,05	2,59	990
7.	Anaerobically-alactate-zig-zag test (40 m/s)	13,13	12,45	0,68	2,97	887	14,06	13,79	0,27	2,97	997
8.	Anaerobic, lactate test 300 m/s	70,13	68,86	1,27	2,14	967	71,09	68,91	2,18	3,04	997
9.	Speed lower limb (n/cycles)	20,50	21,80	1,30	2,00	954	21,10	22,48	1,18	3,14	998
10.	Vertical jump (cm)	36,13	38,70	2,57	2,21	973	35,23	36,5	1,27	2,80	995
11.	5th jump from place (cm)	934,0	951,1	17,1	2,68	992	920,0	939,5	19,50	2,18	870
12.	Jumping length of place (cm)	169,8	174,5	4,30	2,47	986	167,8	172,4	4,60	3,14	996
13.	Special football test „Zhelyazkov“ (s)	49,18	48,52	0,66	2,96	996	53,56	51,99	1,57	2,70	993
14.	Combined passing with place changing (s)	39,90	38,20	1,70	2,62	991	43,51	42,06	1,45	2,20	972
15.	Quick change of passing / passes / (n)	26,17	24,54	1,63	2,99	997	28,01	26,44	1,57	2,54	990
16.	PWC170 (kgm/min)	1100	1240	140	2,57	989	1050	1250	200	2,69	992
17.	Maximum Oxygen Consumption (l/min)	3,33	3,76	0,13	2,67	992	3,46	3,73	0,27	2,95	997

The first six speed indicators show the average growth - the attackers - 0.165 s, and in the defenders - 0.112. It is interesting that in the short sprint runs (15 m, 30 m and 10 steps on stairs) the attackers have the advantage. In the test of linear speed - running at 60 m, the two groups have almost equal opportunities. In the anaerobically-alactate test (No. 7 of Table 1), the attackers have an advantage of 1, 25 m/s over the defenders by 1, 01 m/s. This finding is plausible given the fact the attackers use small spaces for a high-speed run, while the defenders handle longer runs. The training program offered by us has also led to an increase in the value of the anaerobic lactate test (300 m run) where the differences between the two groups is 0.59 s. Other studies [2] show that in real-time conditions most work in running aspect is done by the attackers and most kilometers are run as a whole by the defenders. This characteristic coincides with the results of our study, where the indicators of maximum aerobic power (PWC170 and IGC - Maximum Oxygen Consumption) shows that the defenders outweigh the attackers (indicators 16 and 17). These statistics show we have to emphasize and improve the anaerobically-alactate opportunities for the ones and the anaerobically-alactate qualities for the others. This is also explained by the fact that the two groups have different structures in their game activity. According to Bachvarov, M., L. Dimitrov and A. Gigov [2], in a football match, 10-14 km (30%) can be just passed in walking, in light running - 55%, in accelerated running - 12% and in sprint about 3%.

Madanski, M. [16] while studying the 15-18-year-old players found that they spend the time as follows: 1260 meters in slow running, in acceleration and sprint - 892 meters, and in dribble running only 123 meters.

According to Savin, S. [18], the attackers carry a significantly higher volume of training and racing work at submaximal intensity (see Ref. No. 7, No. 13 and No. 14). It is the nature of the work done, which obviously requires a general and tempo durability in the defenders and a speed of stamina for the attackers, which will inevitably affect the volumetric and qualitative training in the two groups of players. As shown in Table 1, the baseline and final level of physical performance of the defenders was higher than that of the attackers (PWC170 growth of 125 kgm / min, in the attackers against 140 kgm / min, in the defenders and 0.28 l / min. versus 0.36 l / min. for IGC (maximum oxygen consumption). When recording the changes in the power-strength of the players, the attackers have an advantage in all four tests used for testing (Table 1 - Test 9, 10, 11 and 12).

In the indicators combining the technical capabilities of the players and their physical qualities, we have seen a higher growth rate for the attackers, which is explained by the gameplay performed at high speed on a limited stretch of the pitch. The greatest increase is noticed in the combined passing between four players with their change of places at the same time where the results are as follows: 3.70 s. for the attackers against 2.66 seconds for the defenders. The lowest growth rate was found in the "Rapid Swap" index (2.80 points for the attackers and 2.61 pts for the defenders).

3. CONCLUSIONS AND RECOMMENDATIONS ON PRACTICE

1. The effectiveness of the training model is confirmed by the results obtained in the control testing of motor skills required by the player.

2. Formation of a player in a game requires a purposeful workout that meets the requirements, character and volume of work performed during the competition.

3. In both gaming positions, the level of functional capability of players, both inherently and as acquired quality, is expressed by the levels of overall physical performance (PWC170 and IGC).

4. Due to the fact that at this age the game positions are not yet clearly established, it is advisable to pay attention to the development of motor skills, technical skills and general physical fitness by including in the above training work characteristic of the given post qualities (general and pace endurance defenders, and speed and power-force qualities)

5. By increasing the age and sport-technical skill, more attention will be paid to the specific physical and technical-tactical qualities of the game, which will help the players to grow specifically for the given game.

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5.	Sprint 60 m. (s)	10,01	9,95	0,06	2,51	987	9,81	9,67	0,14	2,90	996
6.	Runing on 10 steps-upstairs (s)	2,39	2,30	0,09	2,65	991	2,52	2,47	0,05	2,59	990
7.	Anaerobically-alactate-zig-zag test (40 m/s)	13,13	12,45	0,68	2,97	887	14,06	13,79	0,27	2,97	997

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15.	Quick change of passing /passes/ (n)	26,17	24,54	1,63	2,99	997	28,01	26,44	1,57	2,54	990
16.	PWC ₁₇₀ (kgm/min)	1100	1240	140	2,57	989	1050	1250	200	2,69	992
17.	Maximum Oxygen Consumption (l/min)	3,33	3,76	0,13	2,67	992	3,46	3,73	0,27	2,95	997