

The influence of specific football training methods during the preparation period upon the physical and motor development of 17-18 year-old juniors

Influența mijloacelor antrenamentului sportiv specific jocului de fotbal din perioada pregătitoare, asupra dezvoltării psihomotrice la juniorii de 17-18 ani

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Abstract

Background. In conducting the research, we start from the premise that the football game is perfectible, and the introduction of specially designed exercises structures for the optimization of some psychomotor skills can lead to a player's progress and make a difference in competition.

Aims. The research aims to achieve a significant increase in psychomotor skills for junior footballers aged 17-18 years, by introducing in the preparatory period microcycles some special technical-tactical exercise structures, demonstrating the beneficial effects of their application in practice, with direct implication in the participation in official competitions.

Methods. We used the practicing in standard conditions method, so that in the preparatory period microcycles two complex technical and tactical exercises were introduced, to be repeated daily for 6 weeks during July 15-August 25, 2013. The study was conducted on an experimental group (E) consisting of 18 juniors and a control group (C) of 18 juniors.

Results. The values obtained for assessing the technical and tactical exercise actions in the two complexes, as well as those for the experimental group exercise capacity are a strong argument for the efficiency of the methods and means used in this research.

Conclusions. The individualization of training, with specific technical and tactical exercise structures demonstrates the correctness of the methodology used, being the concrete way of increasing the quality level of training.

Key words: football, microcycle, training, A juniors.

Rezumat

Premize. În efectuarea cercetării se pornește de la ideea că jocul de fotbal este perfectibil, iar introducerea unor structuri de exerciții, special create pentru optimizarea unor calități psihomotrice, poate duce la progresul jucătorilor și să facă diferența în competiție.

Obiective. Cercetarea urmărește să realizeze creșterea semnificativă a unor calități psihomotrice la fotbalistii juniori de 17-18 ani, prin introducerea în microciclurile din perioada pregătitoare a unor structuri de exerciții speciale cu caracter tehnico-tactic, care să demonstreze efectele benefice ale aplicării acestora în antrenament, cu implicație directă în participarea acestora în competițiile oficiale.

Metode. În cercetare a fost utilizată metoda exersării în condiții standard, astfel că, în microciclurile din perioada pregătitoare au fost introduse două complexe tehnico-tactice, care au fost repetate zilnic pe durata a 6 săptămâni, în perioada 15 iulie - 25 august 2013. Studiul s-a efectuat pe un lot experimental (E) format din 18 juniori și un lot de control (C) format tot din 18 juniori.

Rezultate. Valorile obținute pentru aprecierea acțiunilor tehnico-tactice din cadrul celor două complexe, cât și cele privind capacitatea de efort a lotului experimental, reprezintă un argument solid în privința eficienței metodelor și mijloacelor folosite în cadrul prezentei cercetări.

Concluzii. Individualizarea pregătirii, cu ajutorul structurilor tehnico-tactice specifice jocului de fotbal, demonstrează justetea metodologiei de pregătire folosite, aceasta constituind modalitatea concretă de creștere a nivelului calitativ al pregătirii.

Cuvinte cheie: fotbal, microciclu, antrenament, juniori A.

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Introduction

In current football training, there are a series of training and facilitating factors, an important role being played by the continuous improvement of planning and selection strategies, addressed through the adaptation theory (Calinescu, 2004). Most technicians in the field believe that this game is in its era of maturity in terms of field organization and the possibilities of expression of the players (Radulescu, 2009).

Therefore, the fundamental goal of any act of learning is the future utility of the results obtained; as the acquired concept is more important, the applicability to new problems will be larger (Bruner, 1970).

Today, the rigid separation between defenders and strikers is losing its validity, in the sense that each of them can adapt to the requirements of the other category, becoming the striker - defender and vice versa, which emphasizes the collective aspect of the game of football (Rădulescu, 2009).

The increase of efficiency is achieved under carefully prepared performance planning, which is defined as the work to develop detailed and accurate training targeting performance objectives, and the means, methods and organizational forms appropriate to the goals (Dragnea & Teodorescu, 2002 quoted by Ciolcă 2006).

Currently, when rigor characterizes all fields, football cannot be an exception, the coaches' work being carried out on a serious, well thought out schedule, with realistic goals that are strictly based, formulated and pegged (Miu & Velea, 2002). Sports planning has several components, from thinking as a whole, to the daily, hourly planning of the means (macrocycle, mesocycle, microcycle and lesson plan) (Achim, 2005).

Planning as a complex dynamic process of development and monitoring of an attainment plan leverages information obtained through forecasting and feedback, resulting in a clear record of the previous work. (Teodorescu, 2009a).

The microcycle is the most important tool of the planning function, because its structure and content determine the quality of training. Within the microcycle, the lesson type varies by objectives, volume, intensity and methods, each of which may predominate in a certain stage of preparation. (Bompa 2002, quoted by Niculescu & Vladu, 2009).

Microcycles include weekly trainings and are customized according to the objectives and means specific to the stages referred to: microcycle training, microcycle accommodation or approach, microcycle competition and microcycle recovery (Motroc, 1994), being divided into long microcycles (5-9 lessons), which alternate effort with recovery, and short microcycles, representing assemblies, (3-4) training sessions, with different objectives, solved systematically (in a certain order in 2-3 days) (Colibaba-Evuleț & Bota, 1998).

Basically, a weekly cycle includes a number of lessons, placed in a certain order and sequence, lessons having tasks arising from the content of the training plan, within the stage (Nicu, 1999). The weekly cycle is the operative tool, its content including the elements necessary to establish concrete methods and means to be used, the volume and

intensity of effort, (Apolzan, 1996), and is elaborated from week to week, taking into account the period of preparation, the previous cycle, opponents, etc., including the chained contents of all planned training sessions within the week in progress (Cernaianu, 1997). The weekly cycle structure has become increasingly loaded by increasing the number of training lessons, repetitions and the duration of efforts (Nicu, 1999).

The microcycle effort dynamics is determined by the training task means and methods used in training. For high performance athletes, the general and specific means of physical preparation dominate the early preparatory period and during the competitive period, specific means and competition means hold the leading role (Dragnea, 1996). For junior football players aged 17-18, the introduction in the training program of technical and tactical exercise structures such as those presented in this paper is aimed at increasing the effectiveness of training in a short time and the acquisition of sports fitness, shortly before the start of the championship. The microstructure planning must take into account more the sportsman's personality features (Teodorescu-Mate, 2001), and therefore proofreading the guidelines on implementation will be done taking into account this aspect.

The role of the training plan is to create guidance signals: information on the methods used in training, the means, the volume and intensity of effort, the duration of breaks, energy exchanges, the estimated amount of stress, the preparation which must be made taking into account how the athlete responds to requests (Teodorescu, 2009b). The following must be rigorously provided: what you want to achieve, where *you want to lead* the team; *the planning* must clearly *present* the objectives (Miu, 2001). Following a logical judgment, the macrocycle reflects the dynamic vision of effort and of the other sports training substructures, and the microcycle and lesson content materializes the entire content and organization of training (Dragnea & Teodorescu, 2002).

As the first part of training, volume is a prerequisite for quantitative highly technical, tactical and physical achievements. As an athlete becomes able to achieve high levels of performance, the total volume of training is becoming more important (Muraru, 2008). Lyakh & Witkowsky (2007) show that coordination skills in soccer players are determined primarily by inherited factors. We agree, with the addition that they increasingly develop due to a process of proper training and appropriate training volume.

Determining the optimal combination between volume and intensity is a complex task, the athlete accumulating the effort capacity indices in regularly increasing qualitative steps, not in a straight line (Bompa, 2002). The criterion for the training lessons in a microcycle includes the dominant factors or biomotor qualities specific to the sports concerned. The optimal sequence is: learning and improving the technique in mild conditions, followed by the technique improvement (Ozolin 1971, quoted by Bompa, 2001).

All these considerations lead us to believe that planning in complex training structures, mainly technical and tactical training, will have a particularly important effect on the

efficiency of the game completion, the main objective of the game of football.

The aim of the research

The aim of the research is to optimize the football game didactic methodology, by developing microcycles with tasks that result from the content of the training plan according to the stage, so that the technical exercises used in the preparatory period such as those presented in this paper will increase the efficiency of training.

Hypothesis

It was felt that by structuring the microcycles within the annual planning system, using technical and tactical exercises to increase the efficiency of training (physical technical and tactical training), corresponding to the general demands of training and the degree of preparedness of juniors, can significantly improve sports performance in 17-18 year-old juniors.

Materials and methods

In this research we used the method of exercising under standard conditions (Dragnea & Mate-Teodorescu, 2002). The conditions of training applied to the junior football players using the standard method were:

- carrying out movements, components of structures that were practiced in a predetermined order, always the same;
- the amount and intensity of effort were set precisely;
- the length of the breaks and their character (active or passive) were established with precision;
- the organizational and material conditions favoring optimal repetitions, to the extent to which they were conceived, including every measure and control device

necessary to be created.

Research protocol

We mention that according to the Helsinki Declaration, the Amsterdam Protocol and Directive 86/609/EEC, the approval of the Ethics Commission of the Department of Physical Education and Sport of the "Gică Popescu" Football School regarding research on human subjects was obtained, and the participants in the study gave their informed consent.

a) Subjects and groups

The study was carried out in a group of 18 junior football players aged between 17 and 18 years, members of the „Gica Popescu” College in Craiova, the experimental group (E), and the control group (C) consisting of 18 juniors of the same age, members of the group of junior Republicans „A” of the School Sports Club Craiova.

b) Period and place of the research

The study was conducted in the preparatory period, for a period of six microcycles, between July 15 and August 25, 2013, on the field of the „Gica Popescu” College for the experimental group, and on the CSS Craiova field for the control group, under the same working conditions.

c) Tests applied

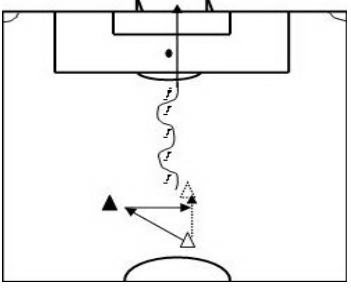
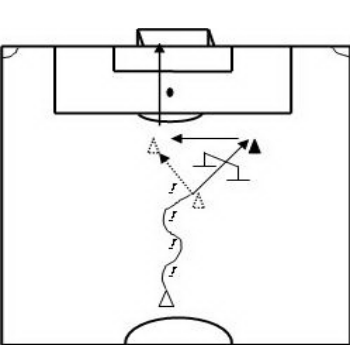
The details of the research team training program consisted of using two modes of technical and tactical training and development of motor skills (Table I). These were applied only to the experimental group, after the completion of a 20 minute warm-up, while the control group ran these complexes only within the tests.

The two technical and tactical complexes were the following (Table I):

d) Statistical processing

The mathematical and statistical calculations were performed using SPSS 10.1.

Table I
The two technical and tactical complexes used in group E

Technical description	Graphical representation	Dosage
<p>Technical and tactical complex 1</p> <p>The player is at a distance of 15 m from the first pole. He passes the ball to a teammate located diagonally at a distance of 10 m and 10 m left from the first pole, then gets the ball into position next to it (one-two). He takes the ball on the run, after which he drives it at maximum speed to the right of the first pole. A passage through the 5 poles located perpendicularly in the middle of the goal line and positioned at a distance of 3 m between them follows. After the last pole located at a distance of 5 m from the 16.5 m line, there is a shot to the goal, the ball passing over the goal line in the air. The arithmetic mean of the five executions was recorded. The test was carried out against time.</p>		<p>The arithmetic mean of the five executions was recorded.</p>
<p>Technical and tactical complex 2</p> <p>The player standing at 1.5 m in front of the first pole goes driving the ball through the four poles located at a distance of 3 m between them and perpendicularly to the middle line. After the last pole, located at a distance of 25 meters from the 16.5 m line, he passes the ball right laterally or to the left side to a teammate through a picket fence 1.50 m wide and 1m high, at a distance of 15 m from the last pole and at a 45° angle towards the perpendicular in the middle of the goal drawn from the last pole. After passing the ball to enter the race, he continues a combination (one-two) with a teammate located at 1.5-2 m behind the fence, takes the ball passed to it, then shoots to the goal from outside the area of 16.5 m. The ball must cross the goal line in the air. The test is considered successful when the player passes the ball forward to a teammate through the air beyond the goal line. The number of successful executions out of 10 attempts was recorded. The test was not carried out against time.</p>		<p>The number of successful executions out of 10 attempts was recorded</p>

Results

Table II
Comparative indices of technical-tactical data n=18

Parameter	Group	TI	TF	TF-TI	TF-TI (%)	p
Technical and tactical complex 1 (sec)	E	8.3	7.4	0.9	10.84	$p=5.87 \times 10^{-11}$
	C	8.5	8.2	0.3	3.52	$p<0.001$
Technical and tactical complex 2 (ex.)	E	5.3	8.7	3.4	64.15	$p=9.67 \times 10^{-14}$
	C	4.9	6.1	1.2	24.48	$p<0.001$

Table III
Comparative indices for the effort test applied n=18

Parameter	Group	TI	TF	TF-TI	TF-TI (%)	p
30 m running (sec)	E	4.69	4.19	0.68	14.49	$p=1.33 \times 10^{-9}$
	C	4.85	4.68	0.17	3.50	$p<0.001$
60 m running (sec)	E	8.65	8.0	0.65	7.51	$p=4.59 \times 10^{-9}$
	C	8.78	8.62	0.16	1.28	$p<0.001$
Cooper Test (m)	E	3076	3289	213	6.92	$p=5.33 \times 10^{-6}$
	C	3016	3054	38	1.25	$p<0.001$

Discussion

In the case of motor indices for the development of speed and strength, the experimental group had superior indicators for all tested parameters, the differences between the two groups at the final testing being significant in all cases, $p<0.001$ (Table III). This is a major advantage for the players. In the current football game held at high speed, the athletes had good speed, especially in one-to-one duels, which were decisive in the game economy (Dumitrescu, 2009). Dynamism, sustained pace, with all players participating in the deployment phases of the game, contributed to the increase of effort, which was done on account of the main functions of the body, strengthening them considerably (NET, 2008), which entitles us to believe that the predominant use of technical-tactical exercises during preparatory training will have a positive effect on the manifestation of players in competition.

Regarding the progress made between the two tests, initial and final, it appears that both arithmetic means and the percentage difference were in favor of the experimental group. All this was due to the interest in psychological recovery during the research, knowing that nerve cell regeneration is seven times slower than muscular regeneration (Krestvonicov 1938, quoted by Bompa 2002). The null hypothesis was thus rejected, the training program applied to the experimental group proving to be effective.

Regarding the progress made on the two technical and tactical complexes, it can be observed that the results of the experimental group were superior to those of the control group, the differences between them, in the final testing, being in all cases significant: $p<0.001$ (Table II).

In all 5 motor tests, the differences between the averages of the two groups were significant, demonstrating that specific structures applied to the experimental group in the training process had a much higher efficiency than the training programs in the control group. The null hypothesis was rejected, the research hypothesis was confirmed.

Due to the large number of repetitions within the preparation microcycles and the careful planning based on streamlined and standardized resources, the exercise capacity of the experimental team as well as the level of technical and tactical actions evolved

significantly both qualitatively and quantitatively. Within the preparation microcycles during training, increasing the volume of work effort in the experimental group, introducing two technical and tactical training complexes, while gradually increasing the intensity, was a primary factor in improving the exercise capacity of players, thus influencing the physical performance and technical tactical skills of the players in the field.

Conclusions

1. Increasing the workload in training microcycles by using mostly the technical and tactical means set, i.e. prolonged effort, in the juniors of the experimental group, significantly contributed to enhancing the effort capacity of the 17-18 year-old junior players.

2. The significant increase in the indices of the dynamics of both the technical and tactical complexes was due to the volume and intensity of effort, depending on the complexity of the means selected, aspect confirming the effectiveness of the program used.

3. In the educational process within the preparatory period microcycles, we need documentation and an accurate recording of the effort made by the players, which certifies the need for training planning, with the introduction of predominantly technical and tactical complexes such as those presented in this paper, to achieve maximum efficiency in the competition.

Conflicts of interests

Nothing to declare.

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