PRIORITARY ASPECTS OF THE DEVELOPMENT OF RESISTANCE TO SPECIFIC EFFECTS OF THE FOOTBALL GAME AT JUNIOR B

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Abstract

The study was performed in order to fid the most efficient methods and means of development of general and specific resistance in football of “B” juniors, introducing in the process of instruction of technical-tactical means and a complex of exercises with physical character.

Taking into account that all kinds of efforts from the most intense to the lowest (eg all energy processes) meant to maintain muscle contraction are characterized by a certain level of resistance, we can state that in this research we have managed to develop both the ability to sustain an effort with an unmodified intensity for more time, and the ability to produce an effort of superior intensity over an identical period.

Using the action means with physical character, specific to football, provide a high efficiency to training process, which leads in increasing effort capacity of both the player and the team.

The introduction of the football-specific technical-tactical structures in sports training demonstrates the correctness of the training methodology used, this being the concrete way to increase the quality of the training.

Key words:*football, general and specific resistance, performance.*

Introduction

It should be noted from the very beginning that "in the game of football we encounter all forms of resistance, but at the moment, when we tend towards total football, characterized by players' polyvalence and by a huge waste of energy and when the first signs of the disappearance of posts, the necessary resistance is purely specific."[1] Resistance in the literature is defined as the ability of the body to perform a relatively long duration, and relatively high intensity, maintaining constant indices of optimal efficacy, but "for football, resistance is defined as the ability of the player to support high-efficiency gaming efforts throughout the game without the fatigue being established. In this context, the development of gaming resistance can be achieved by means of development specific to general resistance (as a morpho-functional substrate for specific strength football) ". [2]

Nowadays, for coaches and football players it is necessary to know in detail the strength as a motor quality in combination with the other motor qualities required by the effort made in the competitions. "The degree of resistance development is reflected in the functional capacity of cardiovascular and respiratory systems, metabolism, nervous system, as well as in the ability to coordinate the other systems and apparatuses of the body" [3], "a claim which requires specialists knowledge of morphological support, all the more so as resistance requires vital functions and complex metabolic processes of the body.”[4]

The high performances depend on many factors: the player structure and the motor degree resulted from the right development of basic and specific motor quality.

"In football, resistance is long-lasting, taking place in an aerobic ergo genesis, with the extraordinary engagement of the neurovegetative system. Only the effort made to fatigue and attempts to overcome may speed up the development of resistance" [5]. "The decisive factor in achieving performance is the quantity of O_2 absorbed per unit of time, which depends on the minute-volume size of the heart, which in turn is determined by heart rate and pulse volume size, direct effect of heart volume." [6] In order to prepare these parameters, the most effective efforts are medium strength resistance, which causes the proliferation of new vessels. In soccer, acyclic sport, with a duration of over 90 minutes, the intensity reveals a combined (aerobic-anaerobic) ergo genesis as a result of casual or voyage interruptions (technical fouls, removal of the ball out of the game) interruptions dictated by the referee, (marking of cards, changes of players, etc.), as well as changes in game tempos (pressing in their own third field, etc.).

Analyzing the football player's effort, numerous research has led to the conclusion that "in terms of type of effort, only the anaerobic effort decreases, the aerobic effort recording even a slight increase in the second half, argument sustained by Demello et al., 1987; Stone et al., 1991, who have demonstrated the changes of metabolic ways for obtaining energy by switching from aerobic glycolysis to triglyceride metabolism.”[7]

"As a result, the football game has aerobe dominant, that is, the ability of the body to produce energy in the presence of O_2, but the aerobe power is limited by the body's ability to carry O_2, the development of the O_2 transmission system must be part of any training progression, aiming at improving resistance, which in turn facilitates much faster refurbishment between and after workouts."[8]

Material and method

The period the sportsman can play with complete élan and the easiness of recovery after the effort during the game and trainings characterize its resistance degree. It is the resistance which allows the player to resist until the last minute of the game and to recover very fast after the game. The resistance represents one of the key factors in the performance.

Hypothesis of research

To apply a means complex for general and specific resistance during 6 weekly training sessions in a 6 months period to determine the improvement of resistance value.

Using the technical and tactical means in football, we can improve the "B" junior football player resistance, which is showed in the competition results.

Purpose of research

Aim of the research is to demonstrate that judicious selection of specific means in football, can achieve superior parameters regarding the effort capacity, which is showed in the competition results. Also, we followed, experimental way, if there's means and methods with *game transfer*.

Research subjects

We included 38 subjects in this study. The study group included 20 students from "football" class of "Traian Demetrescu" Highschool of Craiova, the components of "B" junior lot from "Gica Popescu" FootballSchool. Nineteen students, "B" juniors from C.S.U. Craiova formed the comparative group.

Organizing the research

The longitudinal type research, during 6 months (April-October 2017) took place in the "Gica Popescu" Football School.

The training program of study group was 6-7 weekly training sessions, during holiday were even 2 daily training sessions, and the comparative group training consists in 4-5 weekly trainings.

Were performed 4 tests, the first, also called "initial" took place in April, the "intermediate" I and II in May and June and the "final" in October.

The training of study group was conformed to the Ministry of Education and Research method, meaning 8+4 hours/week, plus the official game. The comparative group training sessions were 6-8 hours/week plus the official game.

The extra 4 hours training of study group represent the experiments base and shows the difference between the two groups.

Methods

In this study we followed two directions:

1. For the specific physical training only by bilateral games:
- theme games
- school games
- handicap games
- bilateral games in reglementar conditions
- recordings of the official and friendly games.

2. "The essential feature of training methods is the play between effort and rest, that is, between energy consumption and accumulated fatigue, on one hand, and the rest needed for recovery, on the other."[9]

For the general physical training by physical exercises in different methods:
- continual efforts method;
- interval method (short, medium, long);
- efforts of variable intensity method;
- Fartlek method;
- Pliometric method;
- Circuit training method.

For the evaluation results we used 4 control tests, for which we established admittance value.

1. Endurance running on 3200 m distance, Cooper test

Admittance value was under 12 minutes.

2. Endurance running 3x1600 m.

Admittance value was under 5,20 minutes.

3. Endurance running 3x1000 m.

Admittance value was under 3,30 minutes.

4. Endurance running 3x800 m.

Admittance value was under 2,20 minutes.

Analysis and data interpretation

Test no. 1 (table 1)

In the study group the progression average was 12'36" - 11 '52" = 0'41"

In the comparative group the progression average was 13'16" - 13'02" = 0'14"

The difference between the two values was 0'27", the higher value recorded in the study group.

Were admitted:
- In the study group: 20 students = 100%
- Comparative group 5 students = 25%.

The difference of progression between the groups is semnificative (P <00.1), demonstrating the efficient training in the study group. Also, we noticed that all sportsmen of the study group were admitted, while only 4 were admitted from the comparative group.

Test no. 2 (table 1)
In the study group the progression average was 5’58" - 5'06" = 0'52"
In the comparative group the progression average was 6'11" - 5'50" = 0'21"
The difference between the two values was 0'31", the higher value recorded in the study group.
Were admitted:
- In the study group: 20 students = 100%
- Comparative group 7 students = 35%.

As for the resistance run, we conclude that the difference in progression is not quite high, even if the significance threshold is (P <00.1), however, the percentage of promotion of the control norm is in favour of the experimental group, with 20 athletes, by the control group, with only 7 athletes.

Table 1.

Test No.1 The Cooper Test				**Test No.2 3x 1600**			
Initial testing		***Final testing***		***Initial testing***		***Final testing***	
Group E	Group M	Group E	Group M	Group E	Group M	Group E	Group M
12,36”	13,16”	11,52”	13,02	5'58"	6'11"	5'06"	5'50
The difference in % - 0, 27 %			P<0,01	The difference in % - 0,31%			P<0,01

Test no. 3 (table 2)
In the study group the progression average was 3’47" - 3'12" = 0'35";
In the comparative group the progression average was 3'50" - 3'31" = 0'19".
The difference between the two values was 0'16", the higher value recorded in the study group, and the significance threshold is P <0.01, which confirms the superiority of the experimental group.
Were admitted:
- In the study group: 20 students = 100%
- Comparative group 9 students = 45%.

In this test, the progression is minor, but the percentage of admittance is double in the study group, versus comparative study.

Test no. 4 (table 2)
In the study group the progression average was 2’38" - 2'11" = 0'27"
In the comparative group the progression average was 2'45" - 2'31" = 0'14"
The difference between the two values was of only 0'13", the higher value recorded in the study group. But this time the significance threshold is also significant (P<0,01).
Were admitted:
- In the study group: 20 students = 100%
- Comparative group 12 students = 60%.

As lower the running distance, so is the progression difference. Again, the study group has a maximum percentage of admittance, but the comparative group had a quite good percentage also. 60%

Table 2.

Test No. 3 - 3 x 1000				**Test No. 4 - 3x 800**			
Initial test		Final test		Initial test		Final test	
S Group	C Group	S Group	C Group	S Group	C Group	S Group	C Group
3'47"	3'50"	3'12"	3'31"	2,38	2,45	2,11	2,31
The difference in % 0,16**%**			P<0,01	The difference in % 0,13 %			P<0,01

Conclusions

1. Motric quality – resistance is one of the easiest to develop and educate motric quality. We found in the articles and works studied 9 methods.
2. The introduction of the football-specific technical-tactical structures in sports training demonstrates the correctness of the training methodology used, this being the concrete way to increase the quality of the training.
3. By carefully studying the figures obtained in the purely physical samples, we can say that the differences between the meanings of the two groups were significant; demonstrating that the specific structures applied to the experimental group within the training process had a much higher efficiency than the programs preparation of the control group.
4. The greater number of hours of training assigned to the experimental group as well as the dynamics of the volume and effort intensity according to the complexity of the selected means confirms the effectiveness of the program used by the significant differences between the results of the final tests of the two groups, the number of hours appearing as a necessity in the sport of performance.

5. The higher number of training hours in the study group makes the difference, and appears to be necessary for the performance.
6. Using complex trainings, technical-tactical type, specific to football, in the training of the study group, leads to a visible increase of the play tempo, represented through the succession of gate phases and of the alert play tempo, and also at the superior distances covered during the game play, or in 4/4, 3/4 and 2/4 from potential tempo, as the game requires.
7. Using the action means with physical character, specific to football, provide a high efficiency to training process, which leads in increasing effort capacity of both the player and the team.

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