

## Ways and means of developing motor skills typical of junior football players aged 17-18

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### Abstract

The period between 17 and 18 years of age of the juniors has as a main objective the finalizing of technical and physical training, turning them into ever more prepared football players, with a permanently improved performance capacity in order to cope with the high demands of today's football. The present study tries to prove that, by applying a concrete methodological model of development of the physical qualities typical of junior football players aged 17-18, one can obtain improved results in the competitive activity. Through the studies and research conducted, one is permanently looking for new ways and means of improvement and growth of the effectiveness of physical training at child and junior level and, implicitly, models of developing physical qualities that have a substantial influence on the quality of the game, as well as the players' development of technical-tactical mastery.

**Key words:** motor skills, juniors 17-18 years of age, force, speed, resistance.

### Rezumat

Perioada cuprinsă între 17-18 ani a juniorilor are ca obiectiv principal definitivarea pregătirii tehnice și fizice, realizarea unor fotbaliști din ce în ce mai bine pregătiți, cu o capacitate de performanță mereu îmbunătățită, pentru a face față cerințelor crescute ale fotbalului de astăzi. Studiul de față încearcă să demonstreze că, prin aplicarea unui model metodologic concret de dezvoltare a calităților fizice specifice la jucătorii de fotbal, juniori 17-18 ani se pot obține rezultate sporite în activitatea competițională. Prin studiile și cercetările realizate se caută permanent noi căi și mijloace de îmbunătățire, de creștere a eficacității pregătirii fizice a copiilor și juniorilor și, implicit, modele de dezvoltare a calităților fizice, care au o influență substanțială asupra calității jocului, precum și asupra creșterii măiestriei tehnico-tactice a jucătorilor.

**Cuvinte cheie:** calități motrice, juniori 17-18 ani, forța, viteza, rezistența

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## Introduction

The components of sportive training are continuously influencing and conditioning each other. Physical training, both general and specific, has reached parameters which are increasingly harder to achieve. The game's technique has extended its spectrum extensively through the apparition of new techniques which players execute with mastery. Furthermore, the sphere of individual and collective tactics has enriched. (1)

The demands encountered, in training and competition, are responded to with an increasingly intense physical and psychical involvement, with implications on the components of players' training model, including the increase in volume, intensity and complexity in training.

In the current concept on football practice, the training of children and juniors can be encompassed in the system of training in performance and high performance football. Thus, the quantity and quality of the process of training of children and juniors represent key factors that ensure a superior capacity of performance in football, at the game's current level of demands. (1)

The methodology of physical training in football will pay attention to the complex and dynamic specifics of this sportive game, such as: cyclic development of aerobic and anaerobic exercise moments and their unequal share during moments of relative rest, the differential nature of physical effort on the players assigned to teams according to players' position, intense demands speed, strength and power. Thus, we can state that football demands to a significant extent a manifestation of the physical factor, determined by the content of the effort made. (1-3)

The purpose of the methodology of physical training also has a complex character and is in direct

balance with the requirements of the training process in various stages, such as: the players' age and level of training, their current competitive stage and their immediate or long-term perspectives of the training process. In our case, the purpose of training at the age of 17-18 consists in the combining of various physical qualities to be used during the game.

As a consequence, within the current concept of football practice, training 17-18 year-old juniors is an integrating part of the system of preparation for performance football. In this context, the quantity, but especially the quality of the process of training of the children and juniors, who constitute the mass basis of performance football, represents a decisive factor in ensuring a superior capacity of performance in football, at the game's current level of demands and in perspective of the evolution of this game.(4)

Starting from these premises, we have considered it necessary to elaborate ways and means of developing the specific motor skills of junior football players, aged 17-18.

The achievement of this objective is conditioned to the most significant extent by the continuous growth in quality and efficiency of the training effort at the level of children and juniors, of optimising the preparation process. The problems raised by this desiderate are multiple and refer to the most diverse behaviours of selection and training, such as: the optimal rapport between the components of the training, rationalising and standardising the means, modelling the training, programming the instruction, choosing the most efficient methods of physical training and efficiently dosing of the effort.(5)

The elaboration and perfecting of a methodical model of development of motor skills in the case of 17-18 year old juniors, which will undoubtedly lead

to the increase in technical-tactical mastery of the The proposed objectives when conducting this experiment are:

- Establishing the lot with the aim of conducting the proposed experiment;
- Evaluating each player from the experimental lot in regard to physical preparation, especially through the tasks that compose the three tests: initial, intermediary and final;
- Elaborating a methodical model, of a program of development and influence of the motor qualities specific to football playing, according to the 17-18 year old junior players' specifics;
- Establishing the hypothesis and conducting the experiment according to the planning documents for each group of subjects under focus, especially for the physical factor.

**The purpose of the paper** is to prove that through a methodology of development of the specific physical qualities of football in the case of 17-18 year old juniors, one can obtain very good results in the competitive activity.

**Hypothesis**

By applying a special methodology, expressed through a model of development of the specific motor qualities, in A juniors, football players, aged 17-18, an improvement of their indexes will be obtained, with positive effects on the effectiveness of the game process.

**Material and method**

The experiment was conducted in Timisoara, the practice and games taking place within the sports facility belonging to FC Timisoara.

In order to check the development of the motor skills in the case of this age group, a “package” of

young player – this represents our object of study. exercises – the experimental model – has been elaborated and systemised; it was applied beginning with May 2011, for the duration of one year, up to May 2012.

The experimental lot was composed of 15 players, belonging to the junior age group (17 year olds), affiliated to FC Timisoara. We mention that we have selected players from each of the team’s compartment. The players were born in 1993.

The control tests that preceded the application of the experimental model have been conducted at an interval of approximately 6 months: in May 2011, October 2011 and May 2012.

The subjects that were the focus of the present experiment are presented in the table I.

A correct interpretation of the results as possible can be obtained by using and calculating some parameters of the general tendency and of dispersion, as well as the graphic method, by presenting these results in the form of graphs using a Cartesian coordinate system.

Within the experiment, three tests were conducted, comprising of four tasks; upon analysing the results, we will refer to the mean weighted average value, which is obtained by dividing the sum of the performance results to the number of cases.

**Table I.** Junior Group A (17-18 years old) FC Timișoara

| #   | Position in the team | Date of birth |
|-----|----------------------|---------------|
| 1.  | J1 – goalkeeper      | 12.09.1993    |
| 2.  | J2 – quarterback     | 04.05.1993    |
| 3.  | J3 – quarterback     | 20.07.1993    |
| 4.  | J4 – quarterback     | 31.10.1993    |
| 5.  | J5 – quarterback     | 15.03.1993    |
| 6.  | J6 – midfielder      | 06.04.1993    |
| 7.  | J7 – midfielder      | 24.11.1993    |
| 8.  | J8 – midfielder      | 30.06.1993    |
| 9.  | J9 – midfielder      | 04.02.1993    |
| 10. | J10 – midfielder     | 18.12.1993    |
| 11. | J11 – midfielder     | 08.11.1993    |
| 12. | J12 – forward        | 08.05.1993    |
| 13. | J13 – forward        | 18.01.1993    |
| 14. | J14 – forward        | 14.01.1993    |
| 15. | J15 – forward        | 25.06.1993    |

We will interpret the results obtained for each task separately by referring to the possible progress made.

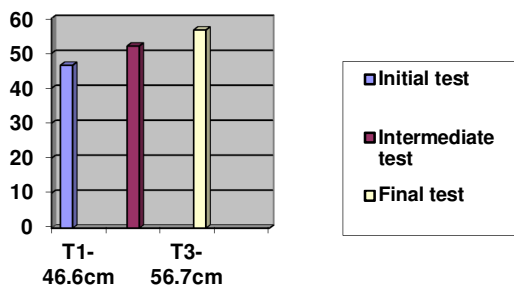
**Task 1.** Expansion without impetus

The results for this task are presented in table II and in figure 1.

**Table II.** The evolution of the mean arithmetic values for expansion without impetus

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 46.6         | 52.1              | 56.7       |

An upward trend of the values obtained of 9.9 cm can be noticed in the final test, as compared to the initial one. In the other three tests, the jumps between them were of 5.5 cm and 4.6 cm. The graphical representation is in the figure 1.



**Figure 1.** The evolution of the mean arithmetic values for expansion without impetus

**Task 2.** Triple jump from a standstill

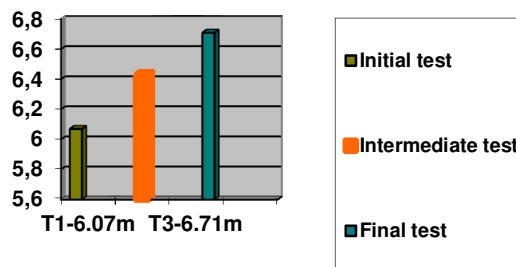
The results for this task are presented in table III and in figure 2.

**Table III.** The evolution of the mean arithmetic values for triple jump from a standstill

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 6.07m        | 6.43m             | 6.71m      |

The results indicate an increase of 36 cm in the intermediate test as opposed to the initial test and with 28 cm in the final test.

The graphical representation of the arithmetic mean values is in the figure 2.



**Figure 1.** The evolution of the mean arithmetic values for triple jump from a standstill

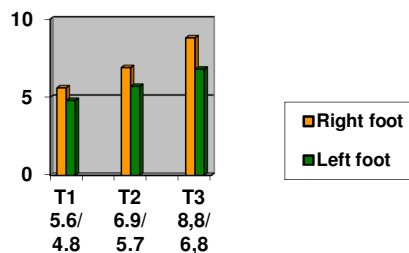
**Task 3.** Squats on one leg

The results for this task are presented in table IV and in figure 3.

**Table IV.** The evolution of the mean arithmetic values for squats on one leg

| SAMPLE STUDY | INITIAL TEST |      | INTERMEDIATE TEST |      | FINAL TEST |      |
|--------------|--------------|------|-------------------|------|------------|------|
|              | right        | left | right             | left | right      | left |
| FC Timișoara | 5.6          | 4.8  | 6.9               | 5.7  | 8.8        | 6.8  |

We notice that the subjects have a higher number of successes on the right leg, as compared to the left leg. The final results show a total increase of 3.2 exercises for the right leg and 2 for the left leg.



**Figure 3.** The evolution of the mean arithmetic values for squats on one leg

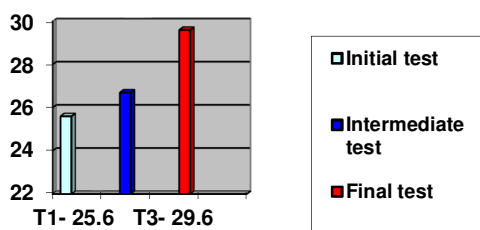
**Task 4.** Torso lifting from lying to standing (crunches) in 30 seconds

The results for this task are presented in table V and in figure 4.

**Table V.** The evolution of the mean arithmetic values for torso lifting from lying to standing (crunches) in 30 seconds

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 25.6         | 26.7              | 29.6       |

An upward trend has been noticed: an increase in the values obtained; the arithmetic mean values are with 4 points higher in the final test, as opposed to the initial test.



**Figure 4.** The evolution of the mean arithmetic values for torso lifting from lying to standing (crunches) in 30 seconds

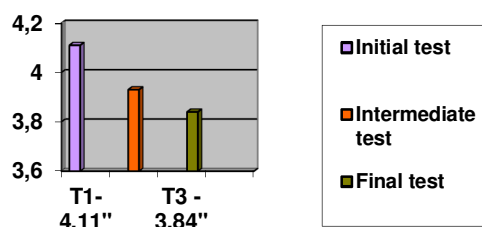
**Task 5.** Speed running - 2x10 m

The results for this task are presented in table VI and in figure 5.

**Table VI.** The evolution of the mean arithmetic values for speed running - 2x10 m

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 4,11"        | 3,93"             | 3,84"      |

A constant upward trend is noticed (in the sense of the improvement of the results) with the specification that an increase of almost 2 tenths in the intermediary test and of one tenth in the final test, in the case of the experimental lot.



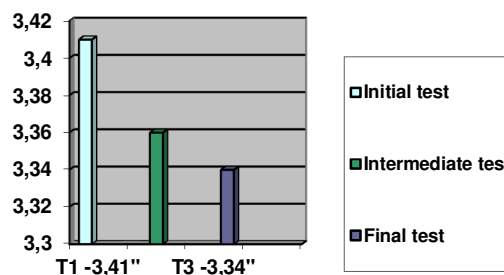
**Figure 5.** The evolution of the mean arithmetic values for speed running - 2x10 m

**Task 6.** Speed running - 20m

The results for this task are presented in table VII and in figure 6.

**Table VII.** The evolution of the mean arithmetic values for speed running - 20m

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 3,41"        | 3,36"             | 3,34"      |



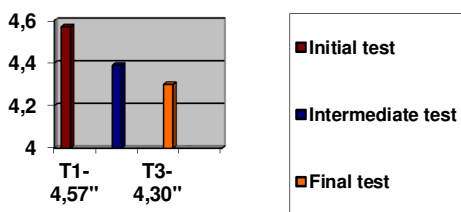
**Figure 6.** The evolution of the mean arithmetic values for speed running - 20m

**Task 7.** Speed running - 30 m

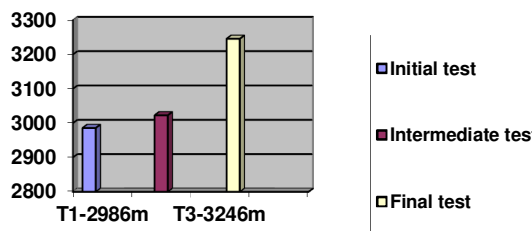
The results for this task are presented in table VIII and in figure 7.

**Table VIII.** The evolution of the mean arithmetic values for speed running - 30 m

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 4,57"        | 4,39"             | 4,30"      |



**Figure 7.** The evolution of the mean arithmetic values for speed running - 30 m



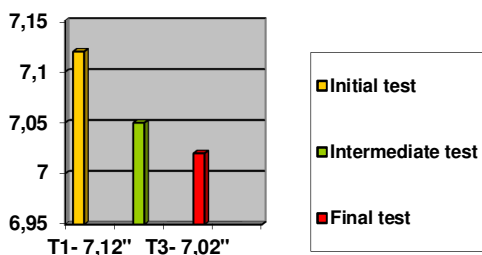
**Figure 9.** The evolution of the mean arithmetic values for running 12 min. - The Cooper test

**Task 8.** Speed running - 50 m

The results for this task are presented in table IX and in figure 8.

**Table IX.** The evolution of the mean arithmetic values for speed running - 50 m

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 7,12"        | 7,05"             | 7,02"      |



**Figure 8.** The evolution of the mean arithmetic values for speed running - 50 m

**Task 9.** Running 12 min. - The Cooper test

The results for this task are presented in table X and in figure 9.

**Table X.** The evolution of the mean arithmetic values for running 12 min. - The Cooper test

| SAMPLE STUDY | INITIAL TEST | INTERMEDIATE TEST | FINAL TEST |
|--------------|--------------|-------------------|------------|
| FC Timișoara | 2986m        | 3023m             | 3246m      |

**Discussions**

Summarising the results obtained by presenting the arithmetic mean values calculated in the control tasks conducted, we can state the following:

- task 1- *jump without impetus (expansion without impetus)* - the progress of the experimental lot was 10.1 cm between the initial test and the end of the experiment, 5.5 cm progress in the second test and 4,6 cm in the final test;
- task 2 - *triple jump from a standstill* - the final progress of the experimental lot was 64 cm, 36 cm in the second test and 28 cm in the final test;
- task 3 - *squats on one leg* - the arithmetic mean value of the executions for the right leg show a final progress of 3.2 executions, while for the left foot a progress of only 2 executions; it is interesting to notice that almost all the subjects had better results for the executions with the right leg - an aspect which is also true for the other two tests;
- task 4 - *Torso lifting from lying to standing (crunches) in 30 seconds* - the progress of the arithmetic mean value in this task was 4 executions (25.6-29.6), 1.1 executions in the intermediary test (25.6-26.7) and 2.9 executions in the final test as opposed to the intermediary test (26.7-29.6); we mention the fact that the final result of the arithmetic mean value is very good in this task type;

- task 5 – *Speed running - 2x10 m* - the progress of the arithmetic mean value in this task was 27 hundredths of a second (4,11"- 3,84"), 18 hundredths of a second in the intermediary test (4,11"- 3,93") and 9 hundredths of a second in the initial test as opposed to the intermediary test (3,93" – 3,84");
- task 6 – *Speed running - 20 m* - the progress of the arithmetic mean value in this task was of 7 hundredths of a second (3,41"- 3,34"), 5 hundredths of a second in the intermediary test ( 3,41"- 3,36") and 2 hundredths of a second in the final test, as opposed to the intermediary test (3,36" – 3,34"); We mention that this progress is due to the improvement in speed of reaction as the start of the task;
- task 7 – *Speed running - 30 m* - the progress of the arithmetic mean value in this task was of 27 hundredths of a second (4,57"- 4,30"), 18 hundredths of a second in the intermediary test (4,57"- 4,39") and 9 hundredths of a second in the final test, as opposed to the intermediary test (4,39" – 4,30");
- task 8 – *Speed running - 50 m* - the progress of the arithmetic mean value in this task was of 1 hundredth of a second (7,12"- 7,02"), 7 hundredths of a second in the intermediary test (7,12"- 7,05") and 3 hundredths of a second in the final test, as opposed to the intermediary test (7,05" – 7,02");
- task 9 – *The Cooper test* - in this task, upon initial testing we have registered a value of 2986m in 12'. The progress of the group was extremely good; in the intermediary test a value of 3023m/12' was registered, so of 37 m progress. In the final test, the progress was of 223m, as opposed to the intermediary test (3023-3246m). The arithmetic mean value indicates an improvement of 260m/ 12' in total.

## Conclusions

The interpretation of the results has an immediate coincidence: the formulation of conclusions referring to the research conducted. From this paper, a series of observations of a general nature come into focus, that come to confirm the hypothesis when applying this physical training program in the case of A juniors, aged 17-18.

Following the collection, processing and interpretation of the data, the comparative analysis and graphical representation, following the conducted experiment on the topic and the results obtained, the following conclusions can be mentioned:

- The research hypothesis has been confirmed by the data obtained, so applying the model in this age category has been efficient, allowing the improvement of the physical training through developing motor abilities specific to football;
- The experimental lot has the psychomotor capacity of registering the components of the model for developing motor skills specific to football;
- An almost uniform progress has been noticed in the case of the control tasks in which the experimental lot was evaluated. The arithmetic mean values calculated for each task in part, for each of the three tests, indicate a positive motor behaviour in all the compartments of physical training.
- The present paper highlights a fact proven by the conducted experiment: the model can be applied successfully in the case of football - in our case. the motor qualities specific to this game, the methods and means applied ensuring the expected success;
- The use of the samples and control norms over the entire competitive year has allowed the periodic quantification of the work conducted, as well as their qualitative appreciation;

- The annual and weekly volume of the training has proven to be in accord with the players' possibilities of coping with the sportive demands.

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