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*Original article*

## SPEED TRAINING MODEL IN FUTSAL GAME

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### Abstract

#### *Objectives.*

The purpose of the research is to develop and apply a speed training model for the futsal player in the early junior stage, 11/12 years.

#### *Methods of research.*

The experiment took place in the junior team from "Metalul" Club in Constanta which was the experimental group and in F.C.Top Sport Constanta team which constituted the control group. The trainings were held in School "Albatros" Constanta gym for the experimental group and in "Portul" Constanta Club gym for the control group. The research development conditions have met the standards required to support scientific endeavor. The basic experiment was conducted over a period of 30 weeks. The initial experiment took place in November 2013 and was completed in May 2014 and totaled 138 days and 144 workouts. It covered a preparatory period, a pre-competitive period and a competitive period and have totaled 311 hours of training

#### *Results.*

3x10m test points out that the experiment group progresses from initial testing to the final testing, the difference between averages being statistically significant to significance  $p < 0.0005$ . Control group has not a statistically real progress, the difference between averages being statistically insignificant.

Comparative analysis of groups, highlights the fact that the program applied to the experimental group was very effective, so that the difference between the averages at final testing is statistically significant at significance  $p < 0.0005$  in favor of the experimental group.

The explosive strength test for the legs, from initial testing to final testing, both the experimental group and the control group progresses, the differences between averages of 4.2 cm. for the experiment group and 1 cm. for the control group was statistically significant at  $p < 0.0005$  for the first and  $p < 0.005$  for the second. *Conclusions.*

The research hypothesis has been confirmed. After the implementation of the speed development program, specific to futsal game at junior level 11 to 12 years, was found an increased efficiency for the experimental group compared to the control group.

Keywords: futsal, specific training, speed.

### Introduction

According to figures from the official FIFA website, 270 million people worldwide are involved in some way in the world of football. The International Federation has, since May 2007, when Montenegro accepted, 208 member associations. Football is no longer a simple game on a pitch. Football means engagement, means celebrities, popularity, power and FIFA seeks to make these attributes benefits for the society. The new slogan "For the Game, For the World" is the mission statement of both FIFA and the chance that this

organization go beyond charitable events and actively and directly involved in the development of society. FIFA argues that the popularity and strength, the game of football benefits of globally, are attributes that can be put in the service of communities. Also, football is a force that can reach every corner of the world to promote solidarity, regardless of gender, ethnicity, faith or culture. (Roxana Smil- 2007 [www.businessmagazin.ro](http://www.businessmagazin.ro).)

In the idea that football is trying hard to gain formative accents for youth and future generations, new branches drawn from football (soccer) and

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Footsal, footballbeach, footballtenis, etc. meet the requirements of personality development of these players, pupils, students and other categories of people who practice within an organized framework, or leisure, these branches. Futsal game is declared the fastest growing sport. It is already practiced by over 30 million players of both sexes. Football in the gym (futsal) had a rapid ascent in Romania, due to the regulation, attractiveness, as countless advantages: reduced field, acceptable number of players, spectacular, coordination, speed, a genuine "show" !. (MAQUART et Olivier Florent LAUNOIS- F.F.F.)

Futsal is played by two teams of five players each, one of which is the goalkeeper; Futsal is characterized among other things by:

1. The active participation of all players, equally and at any time, to both phases of the game (attack and defense)

#### Methods of research

The experiment took place in the junior team from "Metalul" Club in Constanta which was the experimental group and in F.C.Top Sport Constanta team which constituted the control group. The trainings were held in School "Albatros" Constanta gym for the experimental group and in "Portul" Constanta Club gym for the control group. The research development conditions have met the standards required to support scientific endeavor. The basic experiment was conducted over a period of 30 weeks. The initial experiment took place in November 2013 and was completed in May 2014 and totaled 138 days and 144 workouts. It covered a preparatory period, a pre-competitive period and a competitive period and have totaled 311 hours of training.

The sample investigated included a total of 30 children, divided into 2 groups - experiment (n = 15) and control (n = 15). Age of the two groups of athletes falls into the category - juniors 11-12 years.

Research methods used in the research were: method of observation, demonstration, modeling,



Ex: 2. Goal: Developing acceleration speed, developing the capacity of changing speed;  
Method: Five cones placed on a distance varying between 5m and 20m; start from the cone 1, speeds to cone 2, slows to cone 3, maximum speed at cone

2. Very fast execution, with a very high degree of precision that surprise the opponent.

3. availability of all players to control, pass and shoot through simple actions under conditions of limited space and time in crisis.

4. achieving a rapid and sustained pace of ongoing actions throughout the game

I underlined in particular the speed exercising as the main vector of sports performance in futsal skills with / abilities.

#### Research hypothesis

Applying a system of exercises especially developed and applied in futsal training at age 11-12 years will lead to speed development.

The purpose is to adapt the speed development exercises from soccer to specific game conditions of futsal and increase sports performance.

practicing the method, the method of analysis and statistical mathematical interpretation. The applied program was processed in SPSS-16.

#### Tests

1. 20m straight-line speed test

2.30m straight-line speed test

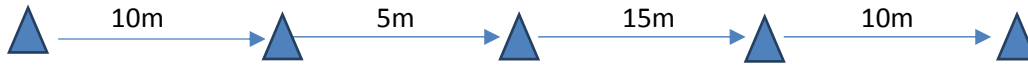
3. speed 3x10m test

#### The proposed operating systems

##### Speed Acceleration

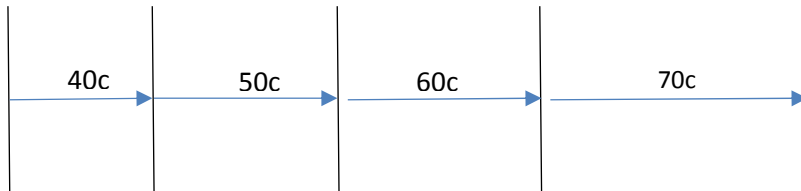
Ex: 1. Goal: Developing acceleration speed; developing the ability to change speed ;  
Method: Five cones at 10m distance, intensity variation between cones, learning acceleration and variable tempo speed; Between cone 1 and 2- 50% of the maximum speed; between cone 2 and 3 - 25% of the maximum speed, between cone 3 and 4-100 % of maximum speed, varying the order of the cones is recommended; 100m total volume; 2x 3x 50m break: 1/10, 6 - 8min Pause between series Total Volume: 300m

3(the record) until the cone 4, from cone 4 to cone 5 reduces the intensity but maintaining frequency steps, 3x 4x 40m break 1 / 10-1 / 12, 6 -8min break between series;



Ex: 3. Goal: Developing speed acceleration up to full speed by learning the technique of optimal ratio between length and frequency of steps; deceleration prevention due to excessive length of running stride;  
 Method: Five sticks or a special ladder for acceleration, increasing spaced placed; between the

stick 1 and 2 -40cm, 10cm are added for every distance to the stick 5  
 2 x 5rep break 1/10 - 1/12 2-3min break between series  
 This is performed like a warm-up drill before training speed acceleration development



**Moving speed**

Ex: 4. linear Sprint

Purpose: developing moving speed , learning speed running technique

Methodology: it is done both with a ball and without the ball; first series running without the ball , the second series is running with the ball, from standing or from taking over a pass from a teammate, you can end up the sprint with shooting to the goal;

1x (4x 30m + 2x 20m break 1/15) 6 -8min without the ball break between series;

1x (4x 30m +2x 20m break 1/15) 6 -8min with the ball break between series

Ex: 5. speed moving with shooting

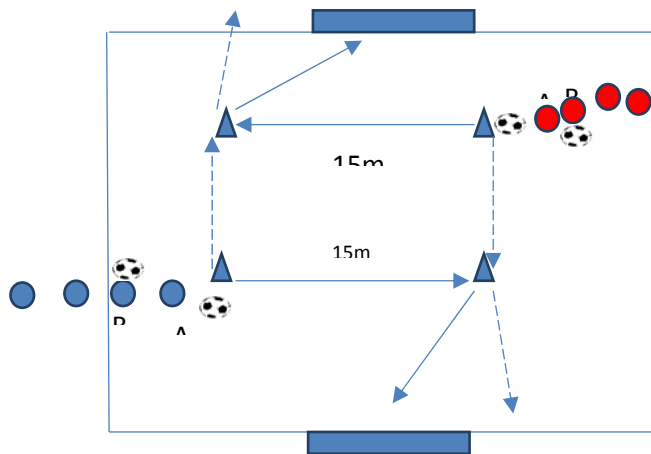
Purpose: Developing moving speed ;

Methods: Two groups of 10- 15 players, two goals and two goalkeepers;

Shooting distance 10 - 15m; The two players from each group passes the ball, makes a maximal sprint to the opposite cone where picks up the ball passed by the colleague and shoots;

After each action the player is moving with walking and changes execution side; The trajectory of the pass and the shot may vary;

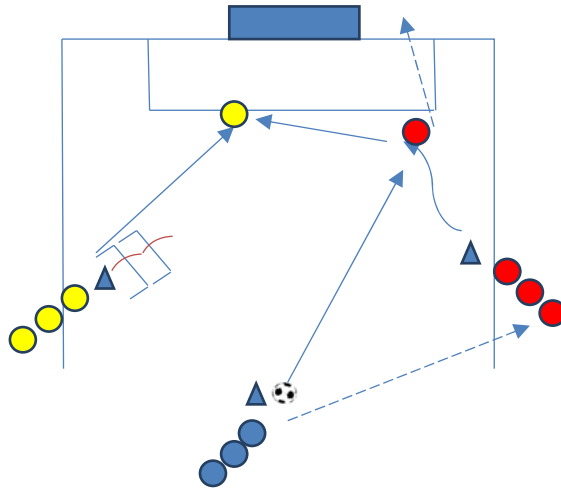
3x 6rep break 1/10 - 1/15; 5 -6 minutes break between series



**Developing speed reaction**

EX 6.purpose: Developing speed reaction :  
Developing spatial-temporal coordination Methods:  
Three groups of 5-8 players  
Blue group starts by passing to red group, at the same time the yellow player jumps over two fences

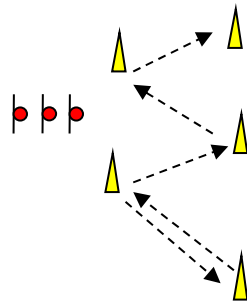
and speed up to shoot after he gets a center pass from the red player; walking toward the blue group; red group player moves to yellow group ;  
2x 8rep break 1/5 - 3 1/8 -4 min break between series;  
Second Series changes the side;



Ex 7: Purpose: speed reaction to visual stimuli  
ORGANIZATION: Two groups of 8-10 players.  
The player of the first group leaves when the player from the second group starts ; 2x 5rep p: 1/10 3 -4 min break between series;  
the group starting changes in the second series;

a) The athletes sitting in row, it starts to visual / auditory signal - Speed running forward, going around the cone, followed by moving backwards to the cone behind; continue w-shaped moving towards the other cones -2x 3xP.active  
b) the same exercise. with the specification that the coach indicates the color that the athlete is moving to -2x 3xP.active  
c) ex. a) and b) -with ball-2x 3xP.activă

Ex 8. purpose: reactive speed and moving speed „ w ”- the distance between the cones -3 m (short distance)

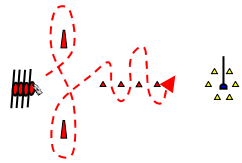


Ex 8. a) Athletes sit in a row, it starts to visual / auditory signal - player goes around the first 2 cones in the highest speed, winding running -2x 3xP.active

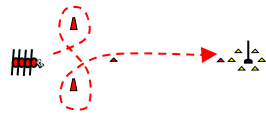
- the athlete avoids the first two big cones then performs a straight speed running through to the last pole -2x 3xP.active

-the athlete avoids the first two big cones player then performs a speed winding running through to the last

pole-2x 3xP.active  
-same ex. with ball -2x 3xP.active

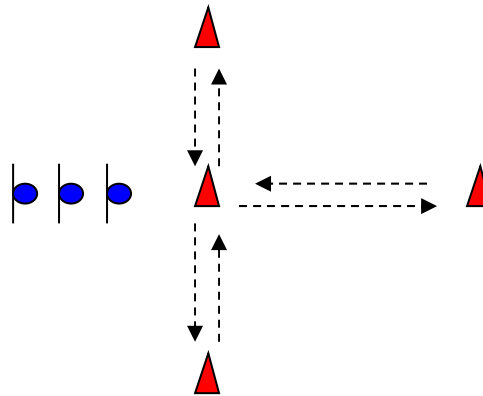


3)



4) Ex 8. Athletes sat in row, it starts to visual / auditory signal- speed running to exterior cone, runs back to the one in center, runs to the one in front, comes back to the one in centre, and runs to the outer cone. -2x 3xP.active

-same ex. returns with the back -2x 3xP.active  
-same ex. - lateral movement to left and right cones - 2x 3xP active  
-the same exercises with ball-2x 3xP.active



## Results

Table no. 1. Presentation of the results for speed running on 20 m

	experiment group		control group	
	initial testing (sec)	final testing (sec)	initial testing (sec)	final testing (sec)
X ±S	3,93±0,48	3,85±0,39	5,15±0,23	5,03±0,26
Cv%	12,42%	10,34%	4,61%	5,35%
dep T test		2,85		5,18
Significance p		<0, 05		p<0.005
ind T test				4,736
Significance p				p<0.0005

Data recorded at speed running on the distance of 20m shows real progress, so that the initial testing experiment when the group average was expressed by  $x \pm s = 3.93 \pm 0.48$  reaches final testing at an average of  $x \pm s = 3.85 \pm 0.39$ . The difference between the averages from initial testing to final testing is statistically significant at significance  $p < 0.05$  which reinforces the fact that the proposed program is very good.

The running speed test on 20 m. for the control group indicates a statistically significant progress from one

test to another, according to the test "t" Student which has a value of 5.18 and where significance is  $p < 0.05$ . The values of the variability coefficient for both tests show a high homogeneity so a data variance lack to average.

Comparative analysis between the two groups found that the experiment group recorded a much better time since the initial testing. At the final test is observed the same dynamics of registered parameters in that group experiment get much better performance than the control group.

Table no. 2. Presentation of the results for speed running on 30 m

	experiment group		control group	
	initial testing (sec)	final testing (sec)	initial testing (sec)	final testing (sec)
$X \pm S$	5,73±0,55	5,64±0,59	7,30±0,66	7,22±0,64
Cv%	9,68%	10,50%	9,06%	8,95%
dep T test		2,87		2,38
Significance p		<0,05		p>0,05
ind T test				4,736
Significance p				p<0,0005

Speed running test on 30 m. for the experiment group shows an improvement for indices, so that, from initial testing to final testing, the difference is 0.09s. It is statistically significant at significance  $p < 0.05$ , test "t" Student dependent having a value of 2.87. The coefficient of variation indicates a homogeneous for the representative group of values for the experiment group. In this test, control group indicates that there isn't a statistically significant progress,  $p \geq 0.05$ . As we can see, however, from initial testing to final testing there is improvement of 0.08sec. This is because the control

group is also training, and at this age coaches focuses on speed training and speed coordination.

The speed running test on 30m shows the same dynamics of parameters as the previous test: the experiment group has better results since the initial testing reaching to the final testing the value of group average  $x \pm s = 5.64 \pm 0.59$  sec where the control group reaches at the same final testing the value of group average  $x \pm s = 7.22 \pm 0.64$  sec. this means a significant progress for the experiment group at  $p < 0.0005$  comparative to the control group.

Table no. 3. Centralized with averages obtained by experiment group and control group for speed running test - 3x10m

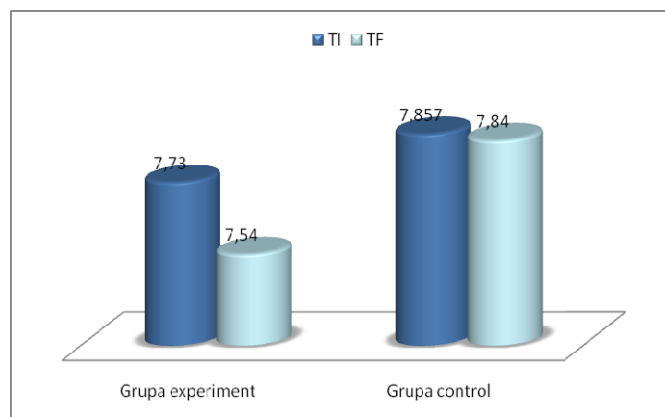
	experiment group		control group	
	initial testing (sec)	final testing (sec)	initial testing (sec)	final testing (sec)
$X \pm S$	7,73±0,192	7,54±0,19	7,857±0,149	7,84±0,146

Cv%	2,48	2,51	1,896	1,862
dep T test		4,654		1,516
Significance p		<0,0005		p>0.05
ind T test				4,736
Significance p				p<0.0005

Due to the nature of the futsal game in which the speed actions on short distances are prevailing, we decided to choose another speed test to highlight the profile of futsal player.

The sample 3x10m. points out that the experiment group progresses from initial testing to final testing, the difference being statistically significant at significance  $p < 0.0005$ . Control group has not a real statistical progress, the difference between averages

being statistically insignificant. Comparative analysis of groups, highlights the fact that the program applied to the experimental group was very effective, so that the difference between the averages at final testing is statistically significant at significance  $p < 0.0005$ , in favor of it. The coefficient of variation indicates the high homogeneity of the parameters tested both for both groups and in both tests.



**Graphic no. 3. Representative graphic for the averages obtained to speed running test 3x10m**

### Discussions

Michailidis Y. et al., 2009, conducted a study to improve leg muscle development aimed at developing explosive strength. This study involved 45 children ( $10.6 \pm 0.5$  years). These children attending regular soccer training twice a week and found themselves plyometric exercises to develop explosive strength. Children were tested by measuring muscular power (vertical jump, countermovement jumps, depth jumps [DJ], long jump [SLJ]). At the experiment group achieved a significant improvement ( $p < 0.05$ ), at squat jump, testing vertical jump (10-18.5% and 16-23% intermediate testing to final testing), SLJ

(2.6% and 4.2% intermediate testing to final testing), leg strength (15% and 28% intermediate testing to final testing).

Meylan C. and Malatesta D., 2011, tested children in soccer, explosive actions such as jumping, sprinting and change of direction. The research was conducted with 14 children (13.3) who were part of the experimental group and 11 children (aged 13.1) who were part of the control group. Children are trained twice a week for 90 minutes with the same exercises soccer. Experimental group followed a program of 8 weeks plyometric (jumping, jumping



over fences and footwork). Initial testing and the final, explosive actions were assessed with the following tests: CMJ, CT. Plyometric exercises have significant influence CMJ values (+7.9%) and CT (+10.9%).

López-Segovia M et al., 2012, evaluated the relationship between power variables vertical jump and crouch to sprint performance in soccer players. The study involved 14 players under - 21 and was tested in two sessions separated by 7 days. In the first test session, vertical countermovement jump height was measured, and power, both loaded Counter Movement Jump (CMJL). Variable vertical jump

### Conclusions

Following the implementation of a specific program to develop specific speed for the game of futsal at junior level 11 to 12 years has conducted to increased performances for this motoric skill.

### Acknowledgments

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power obtained showed significant results ( $r = -0.56/-0.79$ ,  $p < 0.01/0.01$ ).

Tonnessen E., Shalfawi S.A., Haugen T., Enoksen E., 2011, conducted a study on twenty young people being trained elite male players aged  $16.4 \pm 0.9$  years, weight  $67.2 \pm 9.1$  kg, and height of  $176.3 \pm 7.4$  cm. All participants were tested for speed and countermovement jump (CMJ). Participants were divided into experimental group ( $n = 10$ ) and control group ( $n = 10$ ). In the group, the results indicate that the experimental group had a statistically marked improvement in their performance in the speed and CMJ (2.7 cm).

Acceleration capacity increased, in this sense we can say that speed times have improved . The research hypothesis was confirmed. Time data recorded for the experiment group registered a considerable progress in comparison to the control group.

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