

**Dejan Čeremidžić, Vladimir Kovačević**  
**Faculty of Physical Education and Sport, East Sarajevo**

**Original scientific paper**  
**UDC: 796. 332 (pp. 13-18)**  
**Doi: 10.7251/SHTSR1203013C**

## **RELATIONSHIP OF MOTOR SKILLS WITH SITUATIONAL-MOTOR SKILLS OF MEMBERS OF FOOTBALL SCHOOL „OLIMP”**

### **SUMMARY**

*The primary objective of this study is to investigate the connection between motor abilities as a predictor set of variables with the situational-motor abilities, which are reflected in the ability to control the ball in conditions of rapid change of direction, as criterion variables in participants of football school, "Olimp" from Pale aged 14 years  $\pm$  6 months, and the secondary objective is to compare the results of the tests of motor and situational-motor abilities of the participants of football school, "Olimp" from Pale and their peers who are selected by the Serbian soccer team. The connectivity is determined by regression analysis and it is statistically significant. Statistically significant association was with all eight predictor variables individually. Differences between footballers from Olympus and representatives of Serbia were determined by t-test and they are statistically significant in the area of space agility and repetitive strength of the lower extremities. The differences are evident in all the other tests, but were not statistically significant.*

**Key words:** *football, motor skills, situational-motor skills, association.*

### **1. INTRODUCTION**

Age population that is treated in this paper is at a period before puberty, the period when the boys begin to transform into an adult. Priority in the development and coaching of this population can not and must not be the result, but gradually build a player that will, in its latter days demonstrate superior soccer techniques and play in conditions of maximal expression of motor skills. Coaches need to be aware that it is thorny path to success. Development and create superior footballers requires careful and detailed work coordinated by experienced trainers. On the one hand, there are requirements for the adoption of highly complex technical and tactical skills and at the same time, on the other hand, the comprehensive development of motor skills. In this period when the anatomical and physiological aspects of the look, structure of the body is changing so rapidly that the boys take on a different appearance, breast circumference in boys spreads, muscles of the whole body are stronger, lower limbs assume a different shape, in fact, the boys are exposed to a turbulent developmental period. Increasing function of the endocrine glands, especially the secretion of sex hormones leads to increased emotional irritability.

These transformations affect the basic movement activities as well as the functional capabilities of the boys at this age. Due to the sensitivity and rapid development of all abilities, one must take into account the chronological and biological growth of the child, so that the programs in the school football must be designed so as to take account of this fact.

Children at this age develop differently, so we have a big difference in appearance, where each looks like ten-year olds while others whose rapid growth and development started earlier, look like sixteen-year olds. The boys of the same age differ in biological growth in four years, which means that at the same team we have, figuratively speaking, a ten-year old and a sixteen-year old. When we look at motor skills that were investigated in this study we can say that their development is still high and harmonious, boys can control their movements, the development of speed, strength and endurance during this period is significant. As for the coordination and development of its training and coordination of complex movements (connecting more technical elements with the ball) the negative impact of a turbulent period is being noted in which certain abilities are limited. Coaches need to know that motor habits, which match the capability of children, are formed faster and easier if you start early with playing football. Normally the study methodology in children training positively affects the development of the organism.

Dynamics of speed development in children of different ages has its own characteristics. Speed and frequency of movement, as well as the ability to maintain maximum speed, almost reaches its maximum at the age of 12. The result in the 60m sprint, a period of 11 to 18 year, there is an average increase of 1.4 seconds, and from 12 to 15 the largest increase is noted. Later, on average, these results increase substantially with lower pace. Boys organism are well adapted to the load speed of character. Thus, aged 8 to 15 years is the most favorable for the development of the reaction rate, speed of movement and speed. The greatest strength increase is observed also in the period from 13 to 15 year. Developing agility for boys to 10 goes very intensively. In the older age agility property significantly depends on the development of motor functions. Age between 7 and 11 is the most convenient for the development of flexibility. In this age group the optimal relationship between the mobility of the joints and muscle tone is being observed. For example, previous research, the young players who were compared with children their age who are not football players, they can be characterized with a high degree of agility and speed. Aerobic capacity and anthropometric dimensions were also assessed as an important trait of interest for early selection.

The problem of this research is to determine whether there is a relationship and influence of motor abilities on the speed of the player with the ball in terms of fast direction changes in young football players aged 14 years  $\pm$  6 months.

The subject of this study are situational-motor and motor skills of young football players aged 14 years  $\pm$  6 months.

The aim of this study was to investigate certain physical abilities of young footballers aged 14 years  $\pm$  6 months, or to determine which of these abilities may be potential predictors of their subsequent successful practicing soccer.

According to the stated subject, the problems and research objectives, the following hypothesis:

H1 - There is a statistically significant correlation between motor skills and the situational motor abilities.

## **2. METHODS**

### **2.1. The sample of respondents**

The sample comprised 12 respondents from the football school "Olimp" from Pale

aged 14 years  $\pm$  6 months. For comparative analysis, we used the results of selected young footballers in Serbia soccer team aged 14 years  $\pm$  6 months.

## 2.2. Pattern variables

Tests of motor skills, the predictor set: 10 m sprint – high start M10s, 20-meter flying start M20LS, 30 m sprint M30S, Zigzag test without the ball MCC, jump from a half squat without swing arm with hands on hips MVSP, Jump with a half squat with the swing arms MVSZR, test M7US 7 consecutive jumps, shuttle run test MSHR.

Test of situational-motor abilities, criterion variable: Zigzag test with the ball MCCL.

For the relationship between these areas regression analysis was used.

For the differences between the two groups t-test was used.

## 3. RESULTS AND DISCUSSION

A sample of 12 young footballers football school "Olimp" from Pale aged 14 years  $\pm$  6 months was used for a research conducted in order to determine the influence and

connections of motor skills for success in a test of a zigzag with a ball that assesses specific agility or ability to control the ball in conditions of rapid changes of direction.

*Table 1. Basic statistical parameters of motor skills*

TESTS	number	AS	Min.	Max.	Std.Dev.	Skewness	Kurtosis
M10S	12	1.89	1.610	2.38	.237	.98749	.5930
M20LS	12	2.88	2.410	3.23	.230	-.40625	.1271
M30S	12	4.78	4.300	5.61	.402	.60367	.0478
MCC	12	6.12	5.720	6.66	.304	.71892	-.7433
MCCL	12	7.25	6.630	8.17	.446	.33607	.2739
MVSP	12	25.17	17.400	38.00	5.664	.83618	1.1689
MVSZR	12	33.78	25.500	51.20	6.639	1.64029	4.0301
MUS7	12	20.89	12.800	31.10	4.929	.28167	.7100
MSHR	12	1456.36	620.000	1940.00	493.949	-.70312	-1.1729

The analysis of Table 1, showing the basic statistical parameters of motor skills, it can be concluded that by comparing the standard deviation (SD) with a range of maximum (Max.) and minimum (Min) normal sensitivity of selected tests can be concluded. At intervals the minimum (Min.) and maximum (Max) results there are at least five standard deviations (SD), indicating a significant dispersion, or in other words sensitivity of tests of motoric abilities. Value of skunis and kurtozis moves at the limits of the normal distribution of the results, except for the test with a half squat jump with the swing arm which has a larger dispersion, because one of the subjects on this test, which assesses the effectiveness of using elastic potential energy during the exertion of maximum explosive power of the

lower extremities. achieved far better results from the other respondents. Dispersion of the results in this test was the reason that the best result in this test is 51.2 centimeters, by 14 centimeters better than the next best result, which is 36.9 inches, which we can see in the chart below, which is in favor of the difference of chronological and biological age.

**Tabela 2.** Regression analysis for the criterion variable zig-zag ball MCCL.  $R = .999$   $R^2 = .999$  Adjusted  $R^2 = .997$   $F(8,2) = 516.34$   $p < .001$  Std. Error of estimate: .017

	BETA	St. Err. of BETA	B	St. Err. of B	t(2)	p-level
Intercpt			3.74	.3207	11.67	.007
M10S	-8.809	.3224	-12.72	.4657	-27.33	.001
M20LS	-6.020	.2924	-9.54	.4631	-20.59	.002
M30S	11.534	.5113	10.19	.4519	22.56	.002
MCC	.773	.0372	.98	.0470	20.77	.002
MVSP	-3.083	.0898	-.18	.0054	-34.34	.000
MVSZR	2.817	.0849	.14	.0044	33.19	.000
MUS7	.918	.0322	.06	.0022	28.49	.001
MSHRUN	-1.226	.0407	-.00	.0000	-30.13	.001

By regression analysis of Table 2, statistically significant impact and correlation between the predictor and criterion variables zigzag with the ball ( $R = 0,999$ ) is determined.

Correlation between the predictor and criterion variables is statistically significant ( $r = 0,999$ ) and by predictor set 99% of common variance in the error level of 0.01 ( $p < 0.001$ ) is explained.

When we look at the predictor variables individually, we can notice that all eight variables achieved significant relationship with the criterion variable and significantly affect the outcome of the criterion variables. Variables assessing M10S start speed and the ability to accelerate M20LS have negative connotations and inversely affect the result of the criterion variables. Variable estimating maximum running speed M30S as well as variable assessing agility in terms of rapid changes of direction without the ball MCC, are directly related to the MCCL criterion test, which assesses specific agility that is the ability to control the ball in conditions of rapid changes of direction. When we look at the variable MVSP, which assesses the explosive force, or force of concentric contraction of the lower extremities, we can see that there is a negative sign, but since it is about seconds (lower numerical value is better) and centimeters (higher numerical value is better), we can conclude that this variable is directly related to the criterion variable and positively affects the outcome of the criterion variables. M7US variable, which assesses repetitive and plyometric strength of the lower extremities and MVSZR variable, which evaluates efficacy of using elastic potential energy are at inverse proportion to the variable criteria. Space endurance was being observed through shuttle run test variable, test of progressive loading of multiple feedback running at 20 meters, which assesses general acyclic (aerobic) endurance. The results show that in this test the reverse relationship with the criterion is realized.

Comparative analysis of the average scores of motor and situational-motor abilities of the participants from football school, "Olimp" from Pale and their peers who appear for the selection of the football team of Serbia was done by t-test. Based on Table 3. t-test, we can conclude that the difference is found in the zigzag test without the ball and test of 7

consecutive jumps.

**Table 3.** *T-test of mean differences*

	Mean olimp	Mean fss	t-value	p
M10	1.89	1.85	.175	.863
M20	2.88	2.59	1.210	.251
M30	4.78	4.45	.787	.447
CC	6.12	5.29	2.640	.022
CCL	7.25	6.91	.726	.482
VSP	25.17	29.60	-.752	.467
VSZR	33.78	39.90	-.886	.394
M7US	20.91	32.20	-2.184	.051
SUTRUN	1343.33	1526.00	-.286	.779

#### 4. CONCLUSION

In a sample of 12 young football players aged 14 years  $\pm$  6 months, who are members of Football School "Olimp" from Pale a research of status of motor abilities and situational-motor abilities has been carried out with the aim to evaluate the effect of motor on the situational-motor abilities. A statistically significant correlation between all the variables of motor skills with the criterion variable was realized, so that the hypothesis that is set in the paper is verified. Space velocity (starting speed, maximum speed of development and the possibility of acceleration), space power (explosive and repetitive strength) and a general aerobic endurance are interconnected and essential to the quality of execution of technical elements with the ball. With this research, besides the established links between two different motor areas, we tried to determine and compare the current level of motor and situational-motor abilities in boys who have two years of continuous training at a football school, "Olimp" from Pale with their peers who are selected by the Serbian soccer team. Comparative analysis with the help of t-tests which analyze differences of means between the two groups, we found that subjects differ in zigzag test without the ball used to assess the ability of the respondents in terms of agility, quick changes of direction and test 7 consecutive rebounding (7 U.S.) , which indirectly assesses repetitive strength of the lower extremities. Better results in the following two tests are made for players who perform for a selection of football team of Serbia, while the difference is evident in the other tests in favor of the Serbian national team footballers but it is statistically insignificant. Based on this, we can say that the members of Football School "Olimp" are on a satisfactory rate, the starting acceleration, capabilities of acceleration and maximal running velocity. When it comes to strength, or strength concentric contraction of the lower extremities and efficacy of elastic potential energy during the exertion of maximum explosive power of the lower extremities, based on determined difference in favor of national team we can conclude that there is a need to improve curriculum development program of strength of treated type.

Coaches who do curriculum and program of football school on the basis of these results, are given insight into the current skills of its students and on the basis of a comparison with the model for that age, coaches should give insight into each individual

boy, what needs to improve, as well as through team through individual training. Coaches need to give each student recommendations for the further development of skills that are below average, compared with an average value of team members, the recommendations contain exactly certain exercises that will be continuously applied over an interval of about three months after it is recommended to re-test.

It is also necessary to continue monitoring the ongoing development of all other motor skills. students tested, in order to analyze and modify developmental and training programs to ensure proper development and progress of these subjects in their further football career.

## 5. REFERENCES

1. Aleksić V., Janković A. (2006): *Fudbal*. Fakultet sporta i fizičkog vaspitanja, Beograd.
2. Joksimović, A. (2005), *Efekti modela treninga mladih fudbalera na razvoj eksplozivne snage*, Doktorska disertacija, Fakultet fizičke kulture, Niš.
3. Perić, D. (2001), *Statistika*, Ideaprint, Beograd.
4. Radosav, R., Molnar, S. i Smajić, M. (2003), *Teorija i metodika fudbala*, Fakultet fizičke kulture, Novi Sad.
5. Stojanović MD, Kanostrevac K, Ostojić SM (2009), *Testiranje mišićne snage*, Fakultet za sport i turizam, Novi Sad. TIMS Acta 3, 42-65
6. Sporiš, G. Jovanović M., Kubla, B. (2010). *Teorija treninga UEFA A*, Nogometna akademija-Hrvatski nogometni savez; Zagreb
7. Željaskov C. (2004): *Kondicioni trening vrhunskih sportista*. Sportska akademija Beograd.

### *Abstract*

*The primary objective of this study was to investigate the relation between motor abilities as a predictor set of variables and the situational-motor abilities, which are reflected in the ability to control the ball in conditions of rapid change of direction, as well as variables in participants kriteriske football school, "Olimp" Pale aged 14 years  $\pm$  6 months, and the secondary objective is to compare the results of the tests of motor and situational-motor abilities of the participants football school, "Olimp" Pale and their peers who are selected by the Serbian soccer team. The connectivity is determined by regression analysis and statistically significant. Statistically significant association was with all eight predictor variables individually. Differences between footballers Olimp and representatives of Serbia were determined by t-test and were statistically significant in the area of space agility and repetitive strength of the lower extremities. The differences are evident in all the other tests, but were not statistically significant.*

**Key words:** *football, motor skills, situational-motor skills, association.*

**Tamara Karalić<sup>1</sup>, Aleksandra Vujmilović<sup>2</sup>**

<sup>1</sup>Faculty of Physical Education and Sport, Banja Luka, Bosnia & Herzegovina

<sup>2</sup>Medical High School Banja Luka, Bosnia & Herzegovina

**Original scientific paper**

**UDC: 796.325 (p.p. 19-29)**

**Doi: 10.7251/SHTSR1203019K**