

## Differences Between Motor Abilities of First and Second League Soccer Players in Kosovo

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### Abstract

In this research is applied a sample of 159 soccer players from Kosovo, 79 of them from the first league and 80 others from the second league, aged 18-33 years old. The aim of this research is the evaluation of motoric skills of the soccer players from the first and the second league, and the comparison between them. To prove motoric abilities, 9 variables are applied: Standing long jump, Standing high jump, Standing triple jump, foot-tapping against the wall, 20m run, 50m run, ball lead slalom 20m, work with the ball, ball lead 20m in corridors. In this research are applied these methods of result elaboration: basic statistical parameters and the correlation between motoric space variables. In order to prove statistically valid changes between researched groups is applied T-test. The most noticeable difference is shown in the variable work with the ball 27 -15, whereas a small change between two groups of soccer players is noticed to the Standing high jump. The effect of more qualitative trainings is noticed in favor of the first league soccer players. After basic statistic parameters analyzed in motor space is concluded that exist systematic differences in favor of the first league soccer players. Based on the value of gained skills is formed the Kosovo soccer players model.

**Keywords:** Soccer, first and second league, motoric abilities.

### INTRODUCTION

Muscle strength, power, and speed are important physiological characteristics of soccer players in order to perform sprinting, jumping, tackling, and kicking in a soccer game (Reilly, Bangsbo, & Franks, 2000). In particular, muscle strength of the lower limbs is significantly associated with vertical jump height and sprinting performance (Wisloff, Castagna, Helgerud, et al., 2004).

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The physical requirements differ among non-elite and elite soccer players and also depends on what position the player have on the field. Endurance might be the first thing to consider important when describing the physical profile of the sport but strength and power is not to be overlooked. Stølen et al., (2005) states the three qualities as of equal value. Being physically fit is well related to greater performance in soccer. It also helps the players to cope with a heavy training and game load, benefits recovery and prevent injuries (Hoshikawa et al., 2009). Endurance, strength and power is gained from soccer practice and game play but it is possible to enhance sport specific performance by adding extra strength and conditioning training (Suchomel, Nimphius, & Michael, 2016). Strength training as an example improves sprinting and jumping and quick change of direction ability (Suchomel, Nimphius, & Michael, 2016). In soccer the lower extremities are the most used muscles which means that great strength is essential to perform the required skills and movements repeatedly without getting injured (Lehance, Binet, Bury, & Croisier, 2009). This is mainly done during the preseason when preparing the players for upcoming series and cups but is still performed during in season to maintain fit.

During a soccer game, short-lasting exercises performed with maximal intensity (sprinting, jumping, sliding) and high inten-sity (counter-attacking) involving primarily anaerobic energy metabolic processes are intertwined with exercises of moderate intensity (accelerations) and low intensity (walking, jogging) involving mainly aerobic energy processes. Maximal-intensity exercise in soccer is interrupted with rest breaks lasting from a few to more than 10 seconds (Spencer, Bishop, Dawson, & Goodman, 2005).

Low-intensity exercise and rest breaks during match play are necessary for muscle re-laxation, body recovery, and lactate utilisation, as well as for paying the oxygen debt which develops during the performance of high- and maximal-intensity exercise. The high level of physi-cal fitness and training accelerates all the aforementioned reac-tions and physiological-biochemical processes. The aim of this research is the evaluation of motoric skills of the footballers from the fist and the second league from Kosovo, and the comparison between them.

## **METHOD**

In this research is applied a sample of 159 soccer players from Kosovo, 79 of them from the first league and 80 others from the second league, aged 18-33 years old. To prove motoric abilities, 9 variables are applied: Standing long jump (SLJ), Standing high jump (SHJ), Standing triple jump

(STJ), foot-tapping against the wall (FTAW), 20m run, 50m run, ball lead slalom 20m (BLS20m), work with the ball (WWB), ball lead 20m in corridors (BLC20m). The measurements were carried out in the field of the respective clubs, in the morning hours.

In this research are applied these methods of result elaboration: basic statistical parameters: arithmetical average (X), minimal result (min), maximal result (max), and standard deviation (ds) and the correlation between motoric space variables. In order to prove statistically valid differences between researched groups is applied T-test and canonical discriminative analysis.

## FINDINGS

**Table 1.** Basic statistical indicators of motor skills - First league

	N	Min	Max	Mean	Std.. Dev.
SLJ	79	205	273	238	14.8
SHJ	79	22	69	51.8	6.8
STJ	79	585	792	697.5	47.4
20MRUN	79	278	350	310.8	14.8
BLS20m	79	837	1134	961.6	73.9
BLC20m	79	300	394	334.8	18.9
WWB	79	2	100	27.2	23.6
FTAW	79	953	2034	1379.9	202.3
50MRUN	79	622	763	684.9	30

Standing long jump (SLJ), Standing high jump (SHJ), Standing triple jump (STJ), foot-tapping against the wall (FTAW), 20m run, 50m run, ball lead slalom 20m (BLS20m), work with the ball (WWB), ball lead 20m in corridors (BLC20m)

**Table 2.** Basic statistical indicators of motor skills - Second league

	N	Minimum	Maximum	Mean	Std.. Deviation
SLJ	80	185	270	229.4	17
SHJ	80	38	65	51.4	5
STJ	80	565	800	670.5	51
20MRUN	80	284	346	311	25
BLS20m	80	887	1556	1048.2	100
BLC20m	80	306	420	351.1	25.2
WWB	80	3	52	15.4	11.5
FTAW	80	1020	1846	1398.8	166.5
50MRUN	80	631	787	693	31.1

Standing long jump (SLJ), Standing high jump (SHJ), Standing triple jump (STJ), foot-tapping against the wall (FTAW), 20m run, 50m run, ball lead slalom 20m (BLS20m), work with the ball (WWB), ball lead 20m in corridors (BLC20m)

In table 1 and 2 are shown basic statistical results, arithmetical average (X), minimal result (min), maximal result (max), and standard deviation (ds). In these tables is noticed the effect of more qualitative trainings in favor of the first league soccer players. The most noticeable difference is shown in the variable work with the ball 27 -15, whereas a small change between two groups of soccer players is noticed to the Standing high jump.

**Table 3.** T-test for motoric variables

	<b>NIVEL 1.2</b>	<b>N</b>	<b>Mean</b>	<b>St. Dev</b>	<b>St. Er M</b>	<b>T</b>	<b>Sig.</b>
SLJ	First league	79	238	14.8	1.6	3.3	<b>.001</b>
	Second league	80	229.4	17	1.9	3.3	<b>.001</b>
SHJ	First league	79	51.8	6.8	.773	.421	.674
	Second league	80	51.4	5.3	.596	.421	.675
STJ	First league	79	697.5	47.4	5.3	3.4	<b>.001</b>
	Second league	80	670.5	51.3	5.7	3.4	<b>.001</b>
20MRUN	First league	79	310.8	14.8	1.6	-.083	.934
	Second league	80	311	11.9	1.3	-.082	.934
BLS20m	First league	79	961.6	73.9	8.3	-6.1	<b>.000</b>
	Second league	80	1048.2	100.7	11.2	-6.1	<b>.000</b>
BLC20m	First league	79	334.8	18.9	2.1	-4.5	<b>.000</b>
	Second league	80	351.1	25.2	2.8	-4.6	<b>.000</b>
WWB	First league	79	27.2	23.6	2.6	3.9	<b>.000</b>
	Second league	80	15.4	11.5	1.2	3.9	<b>.000</b>
FTAW	First league	79	1379.9	202.3	22.7	-.644	.521
	Second league	80	1398.8	166.2	18.5	-.643	.521
50MRUN	First league	79	684.9	30	3.3	-1.6	<b>.098</b>
	Second league	80	693	31.1	3.4	-1.6	<b>.098</b>

In table 3, as we can see in T-test chart, are presented significant differences between the first and the second league soccer players. In motoric test Standing long jump (SLJ) are shown significant statistical differences between the first and the second league soccer players with rate.001. Standing triple jump (STJ) test shows significant statistical differences between the first and the second league soccer players with rate .001, whereas in situational motoric tests ball lead slalom 20 m (BLS20m), Ball lead 20m in corridors (BLC20m) and work with the ball (WWB) are shown significant statistical differences between the first and the second league soccer players with rate .000, whereas 50m running test shows lower statistical differences between the first and the second league soccer players with rate .098. Other tests don't have any significant statistical differences between the first and the second league soccer players.

## Discriminative Canonic Analysis Between Groups of First and Second League Soccer Players in Motoric Variables

**Table 4.** Discriminativ Canonical function

Function	Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	.619	.618	.618	73.4	9	.000

Table 4 - contents these data:  
 The number of discriminative functions (Fcn),  
 Characteristic equation root ( $\lambda$ ),  
 Canonical correlation coefficient (Rc),  
 Wilks' $\lambda$  – that defines the criterion for discriminative power of applied variables,  
 Bartlet X<sup>2</sup> test – which tests statistical importance of discriminative equation,  
 Freedom degree (df),  
 The level of importance of discriminative function.

In table 4 – A discriminative function is isolated with characteristic root of discriminative equation  $\lambda=.619$ . The coefficient of canonical correlation has value  $Rc=.618$ . The criterion for discriminative force of applied variable has value Wilks' $\lambda=.618$ . With Bartlet X<sup>2</sup>test is made importance statistical test of discriminative equation where are gained values  $X^2=73.446$ , for  $Df=9$  freedom degree. The level of statistical importance of discriminative function is high  $Sig=.000$ . This level of statistical importance of discriminative function ( $Sig=.00<.01$ ) shows that two groups of footballers have statistical important differences in measured variables.

**Table 5.** Discriminative function

	Function
BLS20m	-.626
BLC20m	-.466
FTAW	.406
STJ	.349
SLJ	.342
50M.RUN	-.169
WWB	-.065
SHJ	.043
20M.RUN	-.008

Standing long jump (SLJ), Standing high jump (SHJ), Standing triple jump (STJ), foot-tapping against the wall (FTAW), 20m run, 50m run, ball lead slalom 20m (BLS20m), work with the ball (WWB), ball lead 20m in corridors (BLC20m).

In Table 5, important correlation with discriminative function have given situational variables: work with the ball (WWB), Ball lead slalom 20m (BLS20m), and ball lead 20m in corridors (BLC20m), and variables: Standing long jump (SLJ), Standing triple jump (STJ). Based on variables' correlations with discriminative functions, this function can be interpreted as complex dimension of skills of ball manipulation and explosive strength

**Table 6.** Centroid groups in relation with discriminative function

	Function
First league	.787
Second league	-.777

Table 6. The best discrimination of groups is made by centroids of groups, which have shown arithmetical averages of discriminative variables in discriminative function. The position of group centroid in discriminative function separates it in two parts: in one part are entities that have lower value of centroids – The First League soccer players (centr.=.787), whereas in the other part are entities that have higher value of centroids – The Second League soccer players (centr.=-.777).

Based on discriminative functional structure and based on centroids value, can be concluded: Soccer players of the first league have lower numerical value in ball manipulation abilities, compared with the second league soccer players, but in reality they are higher because lower numerical value shows better results. Also first league soccer players have shown better results in explosive strength test.

## DISCUSSION

The aim of this research is the evaluation of motoric skills of the soccer players from the first and the second league from Kosovo, and the comparison between them. As commonly known, speed ability is a hereditary trait, but it can be improved by conscious training (Sevim, 2006). The skill to show fast reactions to unexpected developments in soccer is directly related to speed performance, since speed in soccer is more complicated than covering the distance between two points in the shortest time possible. Players can use speed to pass or block opponents, to gain possession of the ball or to protect the ball (Eniseler, 2010). Therefore, the other sports that also attribute importance to speed performance and contribute to its development as well in fact help the development of speed performance in soccer because there is a need for speed at certain rates in all sports (Dündar, 2015). Previous studies proved that certain sports branches in addition to soccer (e.g. basketball, swimming) contribute to speed development as well (Atan et al., 2016; Bavlı, 2012; Saygın, 2001; Yılmaz, 2012; Yılmaz et al., 2004). Akçakaya's (2009) study of 45 male athletes aged 19 and 20 who were interested in soccer, basketball and track and field reported

that athletes' speed skills had similar characteristics. Similarly, Duyul's (2005) study of 46 male athletes interested in soccer, handball and volleyball reported that there were no statistically significant differences in the 10 meter speed performances between the soccer players and volleyball and handball players; there was also no significant difference in the 20 m speed performances between soccer and handball players ( $p > 0.05$ ).

After basic statistic parameters analyzed in motor space, is concluded that exist systematic differences in favor of the first league soccer players. In the group of 159 first and second league soccer players from Kosovo, can be notice that the most motoric variables have given important statistical correlation. The highest correlation is noticed to these variables: Standing long jump (SLJ), Standing high jump (SHJ), Standing triple jump (STJ), and 50m run (.45-.78). This is justified with the fact that most of these variables are indicators of explosive strength. Work with the ball (WWB) is excluded because it has shown important correlation only with variable Ball slalom master between barriers and Lead the ball in 20 meter distance. At the variable ball master is noticed the ability of soccer players to keep the ball longer in the air. The best discrimination of groups is made by centroids of groups, which have shown arithmetical averages of discriminative variables in discriminative function. The position of group centroids in discriminative function, separates it in two parts: in one part are entities that have lower value of centroids – The First League soccer players (centr.=-.787), whereas in the other part are entities that have higher value of centroids –The Second League soccer players (centr.=-.777).

## CONCLUSION

Based on discriminative function structure and based on centroid's value, can be concluded: Soccer players of the first league have lower numerical value in ball manipulation abilities, but in reality they are higher because lower numerical value shows better results than the second league soccer players. Also first league soccer players have shown better results in explosive strength test.

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