Original Article

Offense and defense statistical indicators that determine the Greek Superleague teams placement on the table 2011 – 12

BEKRIS EVANGELOS¹, MYLONIS ELEFThERIOS¹, SARAkinOS ARIS¹, GISSIS IOANNIS³, GIOLDASIS ARISTOTELIS^{1,2}, SOTIROPOULOS ANTONIOS¹.

¹Department of Physical Education and Sport Science, National and Kapodistrian University of Athens, GREECE.

²Faculty of Earth and Life Sciences, Vrije Universiteit Amsterdam, NETHERLANDS.

³Sport Biomechanics Laboratory, Department of Physical Education and Sports Science, Aristotle University of Thessaloniki, GREECE.

Published online: September 30, 2013

(Accepted for publication August 25, 2013)

DOI:10.7752/jpes.2013.03055;

Abstract:

The aim of the present study was to determine the differences in offense and defense performance indicators which influence the final placement on the table of the Greek Superleague. The sample comprised 240 matches of the Greek Superleague in the 2011 – 12 season. The teams were categorized based on their final placement on the table. The four categories that were compared were: G1, the Champion team, G2, the teams that earned the right to participate in the play offs, G3, the teams that simply remained in the Superleague, and G4, the teams that were demoted.

There was variance analysis by one-way anova, and the comparisons among categories (Post hoc Bonferoni) were conducted in significance level $\alpha=0.1$. The results showed that the Champion team (G1) surpassed its immediate competitors (G2) in offense performance indicators, namely goals scored ($p = 0.000$), number of assists ($p = 0.000$), total number of shots ($p = 0.000$), crosses ($p = 0.000$), number of assists ($p = 0.000$), and number of assists and goal per game ($p = 0.000$), as well as in defence performance indicators, that is total shots against ($p= 0.004$), shots against inside the 16m ($p=0.020$), shots against outside the 16m ($p= 0.032$), number of crosses against ($p=0.005$), passing effectiveness against ($p=0.049$). High level teams (G1&G2), which ranked 1st – 5th, showed common quality differences in offense and defense performance indicators in comparison to those that ranked 6th – 16th (G3&G4). Those indicators were the effectiveness of passes and shots on goal, and the lower accuracy of the opponents' passes. The present study also shows that the final placement on the table is further influenced by different quantity and quality offense and defense performance indicators depending on the levels of the compared teams.

Key words: offense, defense, performance, match analysis, soccer.

Introduction

Nowadays, soccer game analysis is one of the most essential factors contributing to the development of coaching and the most important data resource from which conclusions regarding the tactic of the game can be drawn (Zubillaga Asier, Gorospe Guillermo, Mendo Antonio Hernández and Villaseñor Angel Blanco 2007; Martinez Luis Casais & Ballesteros Joaquin Lago 2007). One of the most important aims of this analysis is the pinpointing of strengths and weaknesses in our own team and the opposing one (Carling, C., Reilly, T. & Williams, A., 2009), and also, the assessment and use of such data regarding guidance and coaching. It is important that the data be used by coaches in the training procedure through the implementation of specialized training programs, thus benefiting the special tactic of the team (Carlos Lago-Peñas, Joaquín Lago-Ballesteros, Alexandre Dellal and Maite Gómez, 2010). Many studies have dealt with successful teams' statistical indicators and characteristics in an attempt to offer useful data and advice on the modern way of playing all teams should adopt. Some studies analyzed the attempts at shot in different events and examined their impact on the final result or the final placement on the tournament's table (Janković, A., Leontijević, B., Mićović, B., 2010; Szwarc 2004; Grant, A.G., Williams, A.M. and Reilly, T., 1999; Hughes, M.D. & Franks, I., 2005; Roxburg, A., 2008; Lago, C., Lago, J., Dellal, A. & Gomez, M., 2010; Armatas, V., Yannakos, A., Zaggelidis, G., Skoufas, D., Papadopoulos, S. & Fragkos, N., 2009; Rampinini, E., Impellizzeri, F.M., Castagna, C., Coutts, A.J. & Wisloff, U., 2009; Janković, A., Leontijević, B. i Mićović, B., 2009; Kapidžić, A., Mejremić, E., Bilalić, J., Bečirović, E., 2010). Others have dealt with goals achieved and attempts at shot (Ensum, J., Taylor, S. & Williams, M., 2002; Grant et al., 1999; Hook, C. & Hughes, M., 2001; Hughes, M., Robertson, K. & Nicholson, A., 1988; Hughes, M.D. & Churchill, S., 2005; Hughes, M. & Franks, I. 2005; Jones, P., James, N. & Mellalieu, S.D., 338-----

2004; Konstadinidou, X. and Tsigilis, N.,2005; Scoulding, A., James, N. & Taylor, J.,2004; Stanhope, J.,2001; Yamanaka, K., Hughes, M. and Lott, M.,1993; Bekris, E., Louvaris, Z., Souglis, S.,Hountis, K., Siokou, E., 2005; Njororai , 2013). Some others attempted to demonstrate the importance of frequent crosses on offense performance and final result (Hughes et al., 1988; Griffiths, D.W. 1999; Low, D., Taylor, S. and Williams, M., 2002; Lago et al., 2010). Reep, C., & Benjamin, B. (1968) investigated shot effectiveness more than 50 years ago, and other researchers followed (Franks, I.M., Goodman, D., & Miller, G.,1983; Franks, I.M., Partridge, D., & Nagelkerke, P., 1990; Hughes et al., 1988; Partridge, D., & Franks, I.M.,1989a, 1989b; Grehaigine, J.,1999; Roxburg, 2008; Hook and Hughes 2001; Szwarc 2007; Rampinini et al., 2009; Armatas et al., 2009; Acar, M., Yapicioglu B., Arkan, N., Yalcin, S., Ates, N. & Ergun M., 2007; Hughes and Franks, 2005). Assists and crosses have been used in researches many times to determine the teams' offense advantages (Grant et al.,1999; Bergier Józef, Soroka Andrzej & Buraczewski Tomasz, 2007; Horn, R., Williams, M., and Ensum, J., 2002; Carlos Lago-Peñas et al., 2010; Armatas et al., 2009; Griffiths 1999; Hughes et al., 1988 and Low et al., 2002 ; Hughes & Churchill , 2005).The quality and quantity of passes along with their contribution to success and the final result have been studied in many researches (Grant et al., 1999; Hook & Hughes 2001; Reed ,2004; Jones et al., 2004; Martinez & Lago-Ballesteros 2007; Luhtanen, P., Belinskij, A., Häyrynen, M. & Vanttinen, T., 2001; Scoulding A; N. James; J. Taylor 2002 , James N., Mellalieu S.D., Hollely C., 2002; Scoulding et al., 2004; Hughes & Franks, 2005; Jones et al., 2004; Szwarc, 2004; Hook and Hughes, 2001; Balyan Melih , Vural Fatih, Çatıkkaş Fatih, Yüce Tuğrul , Afacan Serkan , Atik Emre & Acar Ferit M., 2007).Two studies were done on the 2010 World Cup. Aleksandar Janković, Bojan Leontijević, Milan Pašić & Veselin Jelušić (2011) analyzed the teams' offense characteristics, while Njororai (2013) studied the goals achieved.

Two recent studies discriminated some indicators of offensive and defensive behavior that affect performance. The former, by Lago et al (2010), was carried out in the Spanish Championship and correlated offense and defense indicators with each game's result (victory, defeat , draw). The latter, by Kapidžić, A. et al., (2010) investigated winning and losing teams in the Premier League of Bosnia and Herzegovina in 2008/2009 as well as the National teams that participated in Euro 2008.

However, all the above studies correlated the performance indicators to each game's final result and not to the final placement on the table.

Nonetheless, each team has different aims in each tournament, and the placement on the table demonstrates how successful each team has been. Thus, both the team that comes first and the one which manages to gain the best placement on the table and achieve its aims based on its potential should be considered successful. Moreover, aside from winning the National Championship, there are privileged places that lead to European tournaments in all European countries' championships, places that just keep the team in the League, and finally, places that lead to demotion. Consequently, it is as important for each coach to know the differences between his team and the champion team as it is for him to pinpoint the differences between his team and the other participating teams in the same League. This way he will discover the reasons that led his team to the specific placement on the table and he will be able to set immediate targets so that his team will earn a better placement on the table in the short run. Aleksandar Janković, Bojan Leontijević, Veselin Jelušić, Milan Pašić & Branimir Mićović (2011) conducted research that was carried out in the Serbian Championship, and was based on exactly that logic. However, the analyzed indicators only had to do with the offense. The study correlated the success of organized offense that ended in shot at goal and the characteristics of passes to the final placement on the table. No other study examined the effect of both offense and defense statistical indicators relative to the success or failure that represented the teams' final placement on the table.

The aim of the present study was to determine the discrepancies in offense and defense performance indicators with different levels of performance, defined on the basis of placement on the table, after a competitive season.

Materials and methods

The teams were categorized according to their final placement on the table. Four categories were compared, that is G1, the Champion team, G2, the teams that earned the right to participate in the playoffs, G3, the teams that just remained in the Superleague, and G4, the teams that were demoted.

The data were collected from the Greek Soccer Federation official site, and the analyzed variables were described as offense and defense variables (for and against each group).

Table 1. Categories of statistical indicators that were examined in the present study.

Regarding the final result of the offense	Regarding the team's approach to the opponent's home	Regarding offense game organization	Regarding inappropriate defense behavior
Number of goals	Number of crosses	Total number of passes	Fouls
Total number of shots	Crosses efficiency	Accuracy of passes	Red cards
Number of shots inside the 16m	Number of assists		Yellow cards
Number of shots outside the 16m	Number of assist and goal		
Shot effectiveness	Assist effectiveness		

Results

There was variance analysis by one way anova, and all comparisons among categories were carried out with a significance level of $\alpha=0.1$

Table 2. Offense indicators that discriminate the Champion from all other groups. All statistically significant differences were at $p=0.000<0.1$

	Goals achieved	Total nuber of shots	Shots inside 16m	Number of crosses	Assists	Assists and goals
G1	2.44±1.62	15.2±5.16	6.51±2.77	32.6±11.42	3.37±3.73	2±2.28
G2	1.60±1.05	11.1±4.42	4.73±2.32	21.11±8.80	1.88±1.03	0.98±0.77
G3	1.24±1.04	9.88±3.37	3.98±1.89	20.42±8.81	1.75±0.96	0.75±0.75
G4	1.1±0.98	11.0±4.30	3.67±2.26	18.82±9.84	1.67±0.94	0.7±0.60

Fig1. Offense indicators that discriminate the Champion from all other groups

Table 3. Offense indicators where G1 was better than G2.

	G1	G2	p value
Goals achieved	2.44±1.62	1.60±1.05	p=0,000
Number of shots inside the 16m	6.51±2.77	4.73±2.32	p=0,000
Total number of shots	15.2±5.16	11.1±4.42	p=0,000
crosses	32.6±11.42	21.11±8.80	p=0.000
Number of assists	3.37±3.73	1.88±1.03	p=0.000
Number of assist and goal per game	2±2.28	0.98±0.77	p=0.000

Table 4. Offense indicators where G2 was better than G3.

	G2	G3	p value
Goals achieved	1.60±1.05	1.24±1.04	p=0. 003
Number of shots inside 16m	4.73±2.32	3.98±1.89	p=0.010
Number of assist and goal	0.98±0.77	0.75±0.75	p=0.098
Number of passes	127.7±31.55	114.0±29.15	p=0.004
Accuracy of passes	0.58±0.08	0.53±0.07	p=0.000

Table 5. Offense indicators where G3 was better than G4.

	G3	G4	p value
Shots inside 16m	3.98±1.89	3.67±2.26	p=0.000
Number of assists	1.75±0.96	1.67±0.94	p=0,054
Shot efficiency	0.14±0.14	0.11±0.09	p=0.038
Total number of assists	1.75±0.96	1.67±0.94	P=0,054

Table 6. Defense indicators that discriminate the Champion from all other groups.

Total Shots against	Shots against inside 16m	Shots against outside 16m	Number of crosses against	Passing effectiveness against (%)
6.69±2.21	2.69±0.94	2.76±1.83	12.93±5.65	44±0.06
10.0±3.75	3.94±2.04	4.47±2.26	19.32±8.41	52±0.07
11.0±4.22	4.49±2.30	4.61±2.43	22.04±9.86	56±0.08
11.8±4.42	4.85±2.40	4.83±2.40	23.45±10.07	57±0.06

Table 7. Defense indicators where G1 was different from G2.

	G1	G2	p value
Total Shots against	6.69±2.21	10.0±3.75	p= 0.004
Shots against inside 16m	2.69±0.94	3.94±2.04	p=0.020
Shots against outside 16m	2.76±1.83	4.47±2.26	p= 0.032
Number of crosses against	12.93±5.65	19.32±8.41	p=0.005
Passing effectiveness against (%)	44±0.06	52±0.07	p=0,049

Table 8. Defense indicators where G2 was different from G3.

	G2	G3	p value
Shots against inside 16m	3.94±2.04	4.49±2.30	p=0.013
Total Shots against	10.0±3.75	11.0±4.22	p= 0.007
Number of crosses against	19.32±8.41	22.04±9.86	p=0.058
Number of passes	110.8±24.78	121.0±30.78	p=0.011
Passing effectiveness against (%)	0.52±0.07	0.56±0.08	p=0.001

Table 9: Defense indicators where G3 was different from G4.

	G3	G4	p value
Fouls committed	15.7±4.61	17.8±5.45	p=0.025

Discussions

It seems that the number of goals achieved affects the final placement on the table significantly, and constitutes a determining performance indicator that discriminates levels G1 & G2 (places 1 – 5) against the other teams. It is also an indicator that gives the Champion team a competitive advantage over the play off teams. This superiority is also denoted by Kapidžić et al., (2010) for the winning teams which scored more goals inside and outside 16m in the Premier League of Bosnia and Herzegovina in 2008/2009 season. The Champion's goal / match were in modest levels (2.44±1.62), since, according to Njororai (2013), similar figures were observed in the World Cups in South Africa (2.27 goals per match) , Germany (2.30) and Japan – South Korea (2.52). However, no comparison could be made among the above data, as the opponent teams' potentials were different.

Shots

The 'total number of shots' indicator discriminates the Champion against all other groups, and is particularly important given that it is different from the same indicator in G2 teams, while a similar difference does not occur between G2 and G3 teams. The 'shots inside 16m' indicator is representative of the team's final placement on the table, as the higher this indicator is, the higher the placement. The results of the present survey relative to the number of shots agree with those of other surveys mentioned below. More specifically, in surveys carried out in World Cups, Hughes et al., (1988), showed that the teams that reached the semi-finals in the 1986

World Cup (successful teams), had more attempts at goal after the ball was repossessed (Transition). Hughes et al. (2005) in the 1990 World Cup, observed that the more successful teams achieved more shots than unsuccessful teams did, and attributed this to a better conversion of ball possession into shot on goal. Grant et al. (1999) found that the successful teams in the 1998 World Cup achieved 18.1 shots on goal, while the unsuccessful teams achieved 9.5 shots on goal. Griffiths (1999) reports that France, the best national team worldwide at that time, combined longer ball possession with more shots. Szwarc (2004) observed that in the 2002 World Cup, the finalists achieved 18 shots on goal, while the teams that did not reach the final phase had an average of 14.08 shots per match. Janković et al. (2009) analyzed the number of successful attacks of the four best teams in three World Cups (1998, 2002, 2006) and found that the average number of successful attacks at 16th World Cup was 17.68, at the 17th World Cup 11.46, and only 10.96 attacks at the 18th World cup. In the 2010 World Cup, it was observed that the average of shots / match was 16.02 ± 5.46 for the winning teams, 12.07 ± 5.36 for the drawing teams and 12.72 ± 4.68 for the losing teams (Aleksandar Janković et al., 2011).

Other surveys were carried out on national championships. Armatas et al. (2009) found that top teams made more shots than bottom teams in the Greek Soccer First League. Similar results are reported in Italian "Serie A" (Rampinini et al., 2009). Kapiđić, et al. (2010) examined the winning and losing teams in the Premier League of Bosnia and Herzegovina in the 2008/2009 season, and found that the winning teams were better at shot on goal in and out of 16m.

According to Lago et al. (2010), in the Spanish soccer league 2008-2009, the winning teams achieved an average of 14.4 shots on goal, the teams that tied 13.6, while the defeated teams achieved an average of 11.9 shots on goal.

In the Super League of Serbia in the 2009/2010 season, Janković et al. (2011) observed that the top 4 teams made more shots at goal (11.66 ± 4.22), in comparison to the middle-placed teams (9.09 ± 4.03), and those that were placed at the bottom of the table (7.94 ± 3.66). They believe that this is because better teams organize their offenses much better than their opponents do. Bekris et al. (2005) examined matches from the 10 most competitive European National Championships (based on the UEFA grading system) and the 2 most competitive Latin America National Championships in the 2004 – 05 and 2005 – 06 seasons, and concluded that the team which executed more shots during the game, stood a 57.2% higher chance of winning it.

At the 2008 European Championship, the semi-finalists performed an average of 15 successful attacks (shots) per game, while the last four ranked teams in the group achieved an average of 13.2 successful attacks (Roxburg, 2008). In the 2009–10 Champions League, the teams which qualified in the quarterfinals had approximately 13 shots per game, while the 8 last teams had only 8.76. Similar results were observed in the League of Europe, with teams in quarterfinals averaging 11.99 successful attacks, and the 8 last ranked teams averaging 9.38 attacks (www.uefa.com).

Of course, there are exceptions, according to which one team wins the first place, like the Italian National Team in the 2006 World Cup, without any significant difference from their (7) opponents regarding shots on goal or in distribution of shots of different precision.

In conclusion, it is evident that a team's ability to execute shots against the opponent's home, especially in 16m, is a determining factor of performance. Offense combinations and individual offense actions increase the likelihood of winning the match and / or of achieving a better placement on the table.

Shot effectiveness

Many studies have analyzed shot effectiveness. First, Reep & Benjamin (1968), who collected data from 3213 matches between 1953 and 1968, showed that one goal is scored for every 10 shots. Similar results have been found in FIFA World Cup finals (Franks et al., 1983, 1990; Hughes et al., 1988; Partridge & Franks, 1989a,b; Grehaigine, 1999). Grant et al. (1999) observed differences between the winning and the losing teams regarding the effectiveness of shots at goal.

At the 2000 European Championship, the successful shots ratio of successful teams was 1:7, while that of the unsuccessful teams was 1:17 (Hook and Hughes, 2001). Janković et al. (2009), analyzed the accuracy of successful attacks of the four best teams in three World Cups (1998, 2002, 2006), and came to the conclusion that the total number of successful attacks decreases.

Szwarc (2007) observed that in the Champions League Finals, the winning teams had a ratio of 1:8, while the defeated teams had a ratio of 1:24. In the 2008 European Championship, the semi-finalists had a ratio of 1:9, while the last four ranked teams had a ratio of 1:28 (Roxburg 2008). Rampinini et al. (2009) showed that the teams that came top 5 in the Italian "Serie A" were much better at accurate shots in comparison to the last 5 teams. Armatas et al. (2009) observed that in the more successful teams of the Greek Championship, the relationship of goals and shots on goal was 1:7.8, while in the two bottom ranked teams it was 1:14.2. Lago et al. (2010) report that in the Spanish Soccer League, the goal / shot relationship was 1:7.5 for the winning teams, 1:17 for the tied games, and 1:27.65 for the losing teams. In the 2010 World Championship, Aleksandar Janković et al. (2011) showed that winning teams were much more efficient than were less successful (drawing and losing) teams. Having observed that all the teams had approximately the same number of shots on goal, he explained that distance as well as shot accuracy may probably account for that phenomenon. In the Serbian

Championship, the teams that were placed at the top of the table (G1) had higher shot effectiveness (goals / kicks ratio was 1:6) than those which were placed in the middle (G2) (goals / kicks ratio was 1:9) and those placed at the bottom (G3) (goals / kicks ratio was 1:8) (Aleksandar Janković et al., 2011)

In the present study, shot effectiveness was 1/ 5.8 in G1, 1 / 6.25 in G2, 1/7.14 in G3, and 1/9 in G4. Higher level teams (G1&G2) differ significantly from lower level teams (G3&G4) regarding shot effectiveness, but this difference does not apply between them. Therefore, it seems that one of the reasons for the different placement of G1&G2 teams was the Champion's (G1) ability to attempt more shots (especially inside 16m), namely, to generate more opportunities, rather than its ability to take better advantage of the opportunities it generated.

Interpreting the results of the previous studies and this one, it seems that the number of shots and the effectiveness play a joint part, though each to a different extent, in success, depending on the difference in the level of the compared teams. It is obvious that effectiveness does not depend solely on the quality of offense or the individual players' ability (Bergier Józef, Soroka Andrzej & Buraczewski Tomasz (2007), but also on the opponents' defense quality, which generates the conditions of shot execution (difficulty, distance, shooting position in relation to goal).

Assists

Older surveys (Grant et al., 1999) had already shown an interest in the way the opponent's defense could be penetrated. They observed that in the 1998 World Cup, the successful teams (those that reached the semi-finals) could penetrate the opponent's defense through passing or dribbling with the ball moving forward in more phases during the game than could unsuccessful teams (that failed to qualify from the initial groups phase). According to Bergier, J. & Buraczewski, T. (2007), successful passes contribute greatly to generating phases and goal scoring, since combinations between 2 – 4 players usually precede successful offense. Thus, it seems that accurate passes are not only conducive to ball possession, but also to generating goal scoring opportunities by means of quality assists.

Horn et al. (2002) tried to devise a winning formula for the successful teams and reported that 86% of passes through the central area (but outside 16m), could result in penetrating the 16m area, thus generating shot and goal opportunities.

The results of the present study agree with those of Carlos Lago-Peñas et al. (2010), who analyzed the Spanish Men's Professional League in 2008 – 2009 and observed differences in assists among winning, drawing and losing teams. We also agree with Armatas et al. (2009), who found that top teams had twice as many assists as bottom ones in the Greek Championship.

It is obvious that in the Champion team there is greater ability of offense cooperation since more assists are executed and the opponent's defense is more easily penetrated. This ability seems to lead to more goals scored. Thus, the number of assists and goals appears to be the performance indicator which plays an important part in discriminating the teams even on higher levels (G1&G2). Nevertheless, this success is attributable to quantity rather than quality (assists effectiveness).

Crosses

It is evident that regarding crosses, the Champion's ability to carry the ball into the opponent's penalty area is greater, and it discriminates the Champion against all others. Further, this ability constitutes another difference between the quality of G1 & G2 which is probably attributable to the individual's and the whole team's technicotactical ability in G1. Evidently, this is an indicator that discriminates only the Champion team. The present study agrees with that of Griffiths (1999), who reported that France – the world's best National Team at the time - made many more crosses than its opponents. We also agree with Carlos Lago-Peñas et al. (2010), who analyzed the Spanish Men's Professional League in the 2008-2009 season and observed differences in crosses in favor of the winning teams. Different findings exist in other surveys regarding crosses Hughes et al. (1988) and Low et al. (2002) and can be explained by the different kind of sample that was used.

Number of passes and effectiveness

In the present study, it seems that the bigger number of passes and their effectiveness discriminate the offenses of G1 & G2 groups against those of the G3 & G4 groups. More and better passes mean dominance in the game and seem to constitute those indicators that discriminate the stronger against the weaker teams as far as final placement on the table is concerned. According to Martinez & Lago-Ballesteros (2007), shorter and consecutive fast passes characterize successful teams.

Grant et al. (1999) found differences between the winning and the losing teams regarding passes, while Hook & Hughes (2001) observed that successful teams had greater ball possession as opposed to unsuccessful teams in Euro 2000 although there were no significant differences in the number of passes that led to goals. According to the aforementioned scientists, longer ball possession was an indicator of success. Reed (2004) reported that the teams that qualified for the 1998 World Cup finals executed more passes than those who did not.

In a study by Luhtanen et al. (2001), the average number of passes per team was 369, 78% of which were successful. The winner (the National Team of the Netherlands) covered 8.9 km in passing the ball, much longer than any other team. This was an extremely important element in a tournament of such magnitude, and constituted – according to the final placement on the table – a determining factor on performance. In the 2010 World Cup, the winning teams had significantly more passes (391.6 ± 115.3) than the defeated teams (331.9 ± 88.5), and than the teams that tied (342.1 ± 99.1). Regarding the accuracy of passes, winning teams (72.3 ± 7.1) had a higher percentage than the teams that were defeated (69.2 ± 6.9) or tied (69.9 ± 7.5), yet there were no statistically significant differences.

Comparing these values against those of the G1 group in the present study, there is a big difference regarding the number of passes and their accuracy in G1 (128 ± 26.32 and 60%) as opposed to high international standards. In a study by Bekris E., Louvaris Z., Anagnostakos K., Souglis A., Kachrimanis G., Karamanos H., (2010), which compared teams from the Greek Superleague with European ones that earned similar placements on the table in their own National Championships, it was found that there was a significant difference in the number of passes by 130 / game, and in their accuracy by 16.43% in favor of the latter (European teams). The scientists concluded that both these indicators increase the speed and the quality of the game, and consequently, the level of offense.

In a study by Kapidžić, A., Mejremić, E., Bilalić, J., Bećirović, E. (2010) in Bosnia – Herzegovina, winning teams executed 50% more passes than losing ones. However, not seeing any relevant differences among the Euro 2008 teams, they concluded that this is attributable to the similar technicotactical level of the National Teams.

In other words, it seems that the team's apparent level is directly linked to the opponents' and the championship's level, and that this factor alone is enough to differentiate the results.

However, those indicators alone, do not seem to account for the difference in the final placement on the table regarding G1 & G2 teams, since there was no such difference. It seems that the conversion of approximately the same number of passes into goals, assists, crosses and shots (more frequent approach to the opponent's penalty area and defense penetration) play a pivotal role in winning the Championship and in discriminating G1 & G2. A corroborating example is that of the Italian National Team, which won the 2006 World Cup despite its lower percentage of successful short passes than its opponents, but which displayed a much better technicotactical behavior in defense. The same happened in the 2004 Euro, when Greece won the tournament despite coming 10th in the technicotactical characteristics assessment (Hughes and Maloney, 2007).

In agreement with Balyan et al. (2007), we believe that although successful passes constitute an indicator of higher offense performance, they are not always a precondition to win a match or a tournament. Moreover, the purpose for which a team uses passes is important, since many times passes are wasted. According to Scoulding et al. (2002), many passes in front of the defense area characterize mediocre teams.

Defense performance indicators

Regarding the goals they accepted, there was no significant difference between G1 & G2, although G1 was better. However, there were significant differences between G1 and G3 & G4, and G2 and G3 & G4. It seems that the indicator 'goals against' was one of the factors that discriminated the first five teams (G1 & G2) against the others (G3 & G4) on the table. Nevertheless, it did not decisively influence the discrimination of the Champion against the teams in G2. It is, therefore, evident that when a team combines goal achievement with the ability to accept fewer goals from its opponents, then it ranks higher on the table. However, the Champion team displayed a better defense behavior than the rest of the teams, since it managed to significantly reduce the opponent's ability to shoot at its home (total shots, shots inside and outside 16m). This is an indicator typical of the Champion. It seems that a team's ability to avert shots at goal against it, especially inside 16m, constitutes a very important performance indicator that helps it achieve better placement on the table.

'Crosses against' is a decisive defense performance indicator too. It seems that by reducing the number of passes by opponents inside 16m, a team wins better placement on the table. Carlos Lago-Peñas et al. (2010) reached similar conclusions that showed statistically significant differences between winning, losing and drawing teams concerning 'crosses against'. Regarding the indicator 'number of passes against', G1 accepted fewer passes against than G3 ($p=0.007$) & G4 ($p=0.001$). The same happened with G2 in relation with G3 ($p=0.011$) & G4 ($p=0.001$). It seems that the fewer the passes opponents can execute, the higher the placement on the table (1st – 5th place). This is probably because of better defense behavior (interruption of passes and pressing) or differences between the technicotactical quality and fitness of teams. Szwarc (2007) reached similar conclusions, observing that in the 2009 – 10 Champions League, finalist teams performed 478 passes / game, while their opponents 305.5. Between G1 & G2 there was no difference in the number of passes but in their effectiveness. It is obvious that between equivalent / equipotent teams, where the number of passes is more or less the same for each, better defense behavior (pressing) which diminishes the opponent's effectiveness is a key performance indicator. Most probably, that's the reason why in some tournaments, like the 17th World Cup in 2002, there were no differences between finalist teams (355.16) and their opponents (387.58) (Szwarc, 2004).

Thus, it seems that among equivalent teams, the final placement on the table is influenced by qualitative performance indicators (i.e. effectiveness) and not by quantitative ones (i.e. number of passes).

The teams that were demoted committed considerably more fouls as compared to the other groups (G1, $p=0.018$), (G2, $p=0.000$), (G3, $p=0.025$). It seems that this indicator negatively affected the demoted teams, and is probably attributable to their inability to deal with their opponents' offense with proper defense behavior (individually or as a team). There were no differences among the groups regarding yellow and red cards. The present study agrees with that of Lago et al. (2010), which in the Spanish Championship did not find any differences in yellow cards, but considerably more red cards for the losing teams.

Conclusions

According to the present study, the most successful team (Champion team) had better offense and defense performance indicators than its stronger opponents (G2). Regarding offense, it achieved more goals as it managed to penetrate the opponents' penalty area more times, despite not having more passes / game than them. In other words, it managed to turn individual efforts or passes into opportunities, enabling it to achieve more shots in 16m. Thus, the generation of more opportunities (quantity) was more decisive than the better exploitation of those opportunities (shots on goal effectiveness). This phenomenon is probably due to the big difference in the level of those teams. Regarding defense, the Champion team managed to reduce their opponents' ability to reach its penalty area and execute shots on goal. Its ability to reduce their opponents' passes accuracy also appears to contribute to that.

Furthermore, it seems that the teams of a higher level that ranked 1st-5th (G1& G2) on the table differ from the rest (G3& G4) in offense performance indicators, such as the number of goals achieved, shots in 16m, shot effectiveness, the number of assists and goal, accuracy of passes. Additionally, they had better defense performance indicators, since they accepted more goals, total number of shots against, shots in 16m, crosses, and prevented their opponents' passes accuracy.

The present study shows that the final placement on the table is influenced by specific offense and defense performance indicators which are different depending on the levels of the compared teams.

Moreover, it is evident that it is as important for a coach to know what the differences are between the teams and the Champion team (the most successful) as it is to be aware of the technicotactical changes he needs to make in his team with a view to better placement on the table.

References

- Acar, M., Yapicioglu B., Arıkan, N., Yalcın, S., Ates, N. & Ergun M. (2007). Analysis of goals scored in 2006 World Cup. In Reilly and Korkusuz. Proceedings from: *Science and football VI: Sixth World Congress on Science and Football* (235-242). Oxon: Routledge.
- Aleksandar Janković, Bojan Leontijević, Milan Pašić, Veselin Jelušić (2011). Influence of certain tactical attacking patterns on the result achieved by the teams participants of the 2010 FIFA World Cup in South Africa. *Physical Culture* 65, (1), 34-45
- Aleksandar Janković, Bojan Leontijević, Veselin Jelušić, Milan Pašić, Branimir Mićović (2011) Influence of tactics efficiency on results in Serbian soccer super league in season 2009/2010. *Journal of Physical Education and Sport* ,11(1), 32-41
- Armatas, V., Yannakos, A., Zaggelidis, G., Skoufas, D., Papadopoulou, S. & Fragkos, N. (2009). Differences in offensive actions between top and last team in Greek first soccer division. A retrospective study 1998-2008. *Journal of Physical Education and Sport*, 23(2), 1-5.
- Balyan Melih , Vural Fatih, Çatıkkaş Fatih, Yüce Tuğrul , Afacan Serkan , Atik Emre and Acar Ferit M. (2007). Technical analysis of 2006 World Cup soccer champion Italy. *Journal of Sports Science and Medicine*, Suppl. 10, 2-5.
- Bekris, E., Louvaris, Z., Souglis, S., Hountis, K., Siokou, E. (2005). Statistical analysis of the ability of shoot in high standard matches. *1st International Scientific Congress in Soccer, 8-10 April, Trikala*, Greece.
- Bekris E., Louvaris Z., Anagnostakos K., Souglis A., Kachrimanis G., Grigoriadis D., Karamanos H., Sotiropoulos A. (2010). «Comparison between technicotactical parameters of Greek and European high level football teams». *Physical Education and Sport*. 30(4):300-314, Thessaloniki.
- Bergier Józef , Soroka Andrzej and Buraczewski Tomasz (2007). Analysis of actions ended with shots at goal in Women's European Football Championships *Journal of Sports Science and Medicine*, Suppl. 10, 199-209.
- Bergier Józef, Soroka Andrzej and Buraczewski Tomasz (2007). Analysis of successful scoring situations in football matches. *Journal of Sports Science and Medicine*, Suppl. 10, 199.
- Bergier, J. & Buraczewski, T., (2007). Analysis of successful scoring situations in football matches. *Journal of Sports Science & Medicine*, 6(10), 199-209.
- Carling, C., Reilly, T. and Williams, A. (2009). *Performance assessment for field sports*. London: Routledge.

- Carlos Lago-Peñas, Joaquín Lago-Ballesteros, Alexandre Dellal and Maite Gómez (2010). Game-related statistics that discriminated winning, drawing and losing teams from the Spanish soccer league. *Journal of Sports Science and Medicine* 9, 288-293.
- Ensum, J., Taylor, S. and Williams, M. (2002). A quantitative analysis of attacking set plays. *Insight* 4(5), 68-72.
- Franks, I.M., Goodman, D., & Miller, G. (1983). Human factors in sport systems. In *Proceedings of the Human Factors Society 27th Annual Meeting* (Norfolk, Virginia, October 10–14), pp. 383–386. Santa Monica, CA: Human Factors Society.
- Franks, I.M., Partridge, D., & Nagelkerke, P. (1990). *World Cup 90: A Computer Assisted Technical Analysis of Team Performance*. Technical Report for the Canadian Soccer Association.
- Grant, A.G., Williams, A.M. and Reilly, T. (1999) Analysis of the goals scored in the 1998 World Cup. *Journal of Sports Sciences* 17, 826-827.
- Grehaighe, J.-F. (1999). Systemic approach and soccer. In *Notation of Sport III* (edited by M. Hughes), pp. 1–8. Cardiff: Centre for Performance Analysis, UWIC.
- Griffiths, D.W. (1999). An analysis of France and their opponents at the 1998 soccer World Cup with specific reference to playing patterns. PhD thesis. University of Wales Institute Cardiff.
- Hook, C. & Hughes, M. (2001). Patterns of play leading to shots in 'Euro 2000'. In: *Pass.com*. Ed: CPA (Center for Performance Analysis). Cardiff: UWIC. 295-302.
- Hughes, M. & Franks, I. (2005). Analysis of passing sequences, shots and goals in soccer. *Journal of Sport Sciences*, 23(5), 509-514.
- Hughes, M., Robertson, K. and Nicholson, A. (1988) Comparison of patterns of play of successful and unsuccessful teams in the 1986 World Cup for soccer. In: *Science and Football*. Eds: Reilly, T., Lees, A., Davis, K. and Murphy, W.J. London: E. and F.N. Spon. 363-367.
- Hughes, M.D. and Churchill, S. (2005) Attacking profiles of successful and unsuccessful team in Copa America 2001. In: *Science and Football V*. Eds: Reilly, T., Cabri, J. and Araújo, D. London and New York: Routledge. 219-224.
- Hughes, M.D. and Franks, I. (2005) Analysis of passing sequences, shots and goals in soccer. *Journal of Sport Sciences* 23(5), 509-514.
- Hughes Mike and Maloney Craig (2007). A technical analysis of elite male soccer players by position and success. *Journal of Sports Science and Medicine*, Suppl. 10
- Horn, R., Williams, M., and Ensum, J. (2002) Attacking in central areas: A preliminary analysis of attacking play in the 2001/2002 FA Premiership season. *Insight* 3, 31-34.
- James N., Mellalieu S.D., Hollely C. (2002). Analysis of strategies in soccer as a function of European and domestic competition. *International Journal of Performance Analysis in Sport*, 2, Number 1, 15 pp. 85-103 (19).
- Janković, A., Leontijević, B., Mićović, B., (2009). Tendencije razvoja taktike igre kroz analizu uspešnih napada na XVI, XVII i XVIII Svetskom prvenstvu u fudbalu. U Vladimir Koprivica i Irina Juhas. Zbornik radova sa: Teorijski, metodološki i metodički aspekti takmičenja i pripreme sportista. Beograd, FSFV. 115-121.
- Janković, A., Leontijević, B., Mićović, B. (2010). Tendencije razvoja taktičkog plana igre kroz primenu „Kontinuiranih napada” najuspešnijih reprezentacija učesnika XVI, XVII i XVIII SP u fudbalu. U Aleksandar Janković. Zbornik radova sa: Iskustva i perspektive – Svetsko prvenstvo u Južnoafričkoj republici 2010. godine. FSFV. Beograd: Srbija. 59-70.
- Jones, P., James, N. & Mellalieu, S.D. (2004). Possession as a Performance Indicator in Soccer. *International Journal of Performance Analysis in Sport*, 4(1), 98-102.
- Kapidžić, A., Mejremić, E., Bilalić, J., Bečirović, E. (2010). Differences in some parameters of situation efficiency between winning and defeated teams at two levels of competition *Sport SPA* 7 (2), 21-28.
- Konstadinidou, X. and Tsigilis, N. (2005). Offensive playing profiles of football teams from the 1999 Women's World Cup Finals. *International Journal of Performance Analysis in Sport* 5(1), 61-71.
- Lago, C., Lago, J., Dellal, A. & Gomez, M. (2010). Game-related statistics that discriminated winning, drawing and losing teams from the Spanish soccer league. *Journal of Sports Science and Medicine*, 9(2), 288-293.
- Low, D., Taylor, S. and Williams, M. (2002). A quantitative analysis of successful and unsuccessful teams. *Insight* 4, 32-34.
- Luhtanen, P., Belinskij, A., Häyrynen, M. & Vääntinen, T. (2001). A comparative tournament analysis between EURO 1996 and 2000 in soccer. *International Journal of Performance Analysis in Sport*, 1(1), 74-82.
- Martinez Luis Casais and Ballesteros Joaquin Lago (2007). Analysis of offensive playing patterns in soccer. *Journal of Sports Science and Medicine* Suppl. 10.
- Njororai W. W. S. (2013). Analysis of goals scored in the 2010 world cup soccer tournament held in South Africa. *Journal of Physical Education and Sport*, 13(1), 6 - 13
- Partridge, D., & Franks, I.M. (1989a). A detailed analysis of crossing opportunities from the 1986 World Cup (Part I). *Soccer Journal*, May–June, pp. 47–50.

- Partridge, D., & Franks, I.M. (1989b). A detailed analysis of crossing opportunities from the 1986 World Cup (Part II). *Soccer Journal*, June–July, pp. 45–48.
- Rampinini, E., Impellizzeri, F.M., Castagna, C., Coutts, A.J. & Wisloff, U. (2009). Technical performance during soccer matches of the Italian Serie A league: Effect of fatigue and competitive level. *Journal of Science and Medicine in Sport*, 12(1), 227-233.
- Reed Les (2004). *Basic team Coaching*, pp 36, edition FA Learning Ltd, Manchester.
- Reep, C., & Benjamin, B. (1968). Skill and chance in association football. *Journal of the Royal Statistical Society, A*, 131, 581– 585.
- Roxburg, A. (2008). *Technical report EURO 2008*. Nyon: UEFA's Football Development Division.
- Scoulding A; N. James; J. Taylor (2002). Passing in the Soccer World Cup. *International Journal of Performance Analysis in Sport*, Volume 4, Number 2, pp. 36-41(6).
- Scoulding, A., James, N. and Taylor, J. (2004). Passing in the soccer World Cup 2002. *International Journal of Performance Analysis in Sport*, 4(2), 36-41.
- Stanhope, J. (2001) An investigation into possession with respect to time, in the soccer world cup 1994. In: *Notational Analysis of Sport III*. Ed: Hughes, M.D. Cardiff, UK: UWIC. 155-162.
- Szwarc, A. (2004) Effectiveness of Brazilian and German teams and the teams defeated by them during the 17th Fifa World Cup. *Kinesiology*, 36(1), 83-89.
- Szwarc, A. (2007). Efficiency of Successful and Unsuccessful Soccer Teams Taking Part in Finals of Champions League. *Research Yearbook*, 13(2), 221-225.
- Yamanaka, K., Hughes, M. and Lott, M. (1993). An analysis of playing patterns in the 1990 World Cup for association football. In: *Science and Football II*. Eds: Reilly, T., Clarys, J. and Stibbe, A. London: E. and F.N. Spon. 206-214.
- Zubillaga Asier, Gorospe Guillermo, Mendo Antonio Hernández and Villaseñor Angel Blanco (2007). Match analysis of 2005-06 Champions League Final with Amisco system. *Journal of Sports Science & Medicine*, 6 (10), 20.