



## ANALYSIS ACCORDING TO TIME AND FORMS OF GOALS IN THE 2016 UEFA EUROPEAN FOOTBALL FEDERATION CHAMPIONSHIP

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### ABSTRACT

The aim of this study is to analyze the time, form and how the 108 goals scored and defeated according to the outbreak of 51 games played in the 2016 UEFA European Football Championship. The data of the study were obtained from Prozone brand performance and match analysis program. In the study, the team can not qualify of the group (n:8) and qualify of the group (n:16); the total number of goals scored, the time of goals, the formation of the goals, and the technique of the strokes used. The Independent Samples T-Test was applied to examine the difference between the groups in the SPSS 20.0 program ( $p<0.05$ ). According to the average of goals per game meaningfulness was observed ( $p<0.001$ ) there was a significant difference between the teams that qualified of the group ( $1.22\pm 0.41$ ) and those who did not ( $0.46\pm 0.27$ ). The time zones in the scored and conceded goals of the team qualified of the group and those who did not, significant differences were observed between groups at 0-15, 30-45, 45-60 min in scored goals ( $p<0.05$ ), no significant difference was found other time periods. In the competition it was determined that most goals were between 75-90 min ( $1.50\pm 1.26$ ). While the significance of the goals scored from the left and the right sides among the groups was determined ( $p<0.05$ ), it was not found goal from the middle ( $p<0.05$ ).

Both in the penalty area and the penalty area outside goals, teams qualified of group were found to have more goals. According to results, in addition to increasing the tactical richness in the offensive area, the national teams and trainers must also prepare the team by analyzing the previous champions well so that the national teams can reach more goals in the championship.

**Key Words:** Football, Analysis, Goal.

### Academic Discipline And Sub-Disciplines

Sport

### SUBJECT CLASSIFICATION

Sport Science

### TYPE (METHOD/APPROACH)

Sport Analysis

### INTRODUCTION

Today, football is played by millions of people and watched by billions of people all around the world. With the development of the economy of football, which is one of the most popular sport forms played in all parts of the world, and with fast developing technology, studies to find out the success and failure states of teams have become important (Carling, 2010, Reilly and Williams, 2003). Generally, the game of football is assessed with subjective observations. Through observations, a team's good and bad sides are found and trainings are shaped in the light of the views obtained. Subjective observations can give misleading ideas because of reasons such as the conditions of viewing, human limits, bias, personal thoughts and the influence of emotions (Smith, 1996). Game analysis programs, which are necessary for objectivity, mean analysis and subjective recording of the events which occur during the game.

When considered from this point of view, analysis practices have recently become more popular among sport scientists to be able to understand different performance indicators in individual sports or team sports. A great number of analysts working in different ranks have used analysis for a great number of purposes such as technical-tactical assessment, movement analysis, providing feedback, developing norms and modeling (Shafizadeh et al, 2013, İmamoğlu et al, 2017).

In football, which is based on scoring goal and not conceding goal, there are a great number of variables influencing success. However, "goal" is the factor discriminating success from failure and it has the most effective role in assessing performance (James et al 2004, Tenga and Sigmundstad, 2011). In this case, all the factors that can result in goal should be created and while analyzing the game, all the stages that can lead to goal should be assessed, addressed as a whole and teams' performances should be analyzed accordingly. In addition, when the results which influence the score of the game in today's football are considered, teams' percentages of ball possession and playing with the ball, balls kicked to the penalty area, passes and shots to the goal post are shown among these factors. This shows the importance of shot and goal in football. In football games, approximately 80% of goals are scored as a result of consecutive 3 or more passes and 1 out of every 10 shots results in goal (Hughes and Franks, 2005, Mitrotasios and Armatas, 2014). Statistically, it



should not be thought that a team's outclassing the opponent will be enough to win the game. However, the data obtained is an important factor that will contribute to the success of the team in future matches and to increasing the efficiency in team game (Castellano et al, 2012, Hughes and Bartlett 2002, Bakır, 2007).

However, some data such as high levels of ball possession, finding too many opportunities to score a goal, shots on target or corner are not rules which are always valid to show a good performance and to show success. A football team can win a competition or a tournament despite showing bad performance (Wright et al, 2011). The purpose of this study is to compare the formations of goals scored and conceded, the areas where goals were scored from and how the goals were scored in the matches played by the teams which could qualify out of the group and those which could not in 2016 UEFA European Cup Championship.

## MATERIAL AND METHOD

This study makes an assessment of the goals scored and conceded by teams which could qualify out of the group and those which could not in a total of 51 matches in 2016 UEFA European Championship in terms of the goals' timing, formation and how they were scored. The data of the research were obtained from Prozone performance analysis program.

**Statistical Analysis:** In the study, the comparison of the parameters which consisted of the total number of goals scored and conceded, the formations of the goals and how they were scored by teams which could qualify out of the group (n:16) and those which could not (n:8) was conducted by using SPSS 21 program and the level of significance was taken as  $p < 0.05$ . Independent Samples T-Test was used to check the significance between groups.

## RESULTS

Total goal averages, total number of goals scored and conceded, the number of goals scored in the first half and the second half by teams which could qualify out of the group and those which could not are shown in table 1.

Table 1. Goal variables of teams who could qualify out of the group and those who could not

Variable	Group	N	Ave.	S.D.	t	P
Total Goal Average	Qualifiers	16	1.22	0.41	4.681	<b>0.000</b>
	Non-qualifiers	8	0.46	0.27		
Number of total goals scored	Qualifiers	16	6.06	3.07	5.786	<b>0.000</b>
	Non-qualifiers	8	1.38	0.74		
Number of goals scored in the first half	Qualifiers	16	2.44	1.50	4.932	<b>0.000</b>
	Non-qualifiers	8	0.38	0.52		
Number of goals scored in the second half	Qualifiers	16	3.50	1.97	4.468	<b>0.000</b>
	Non-qualifiers	8	1.00	0.76		
Number of total goals conceded	Qualifiers	16	4.63	2.06	0.481	0.635
	Non-qualifiers	8	4.25	1.03		
Number of goals conceded in the first half	Qualifiers	16	1.81	1.47	0.305	0.763
	Non-qualifiers	8	1.62	1.30		
Number of goals conceded in the second half	Qualifiers	16	2.68	1.57	0.103	0.919
	Non-qualifiers	8	2.62	0.91		

As can be seen from Table 1, while significant difference was found between groups in terms of total goal average, the number of total goals scored, the number of total goals scored in the first half and the number of total goals scored in the second half ( $p < 0.05$ ); no significant difference was found between groups in terms of the number of total goals conceded, the number of total goals conceded in the first half and the number of total goals conceded in the second half ( $p > 0.05$ ).



**Table 2. The time zones of the goals scored and conceded by the teams which qualified out of the group and those which could not.**

Variable	Group	N	Ave.	S.D.	t	P
Goals scored btw min. 0-15	Qualifiers	16	0.75	0.68	2.953	<b>0.007</b>
	Non-qualifiers	8	0.12	0.35		
Goals conceded btw min. 0-15	Qualifiers	16	0.62	0.72	0.873	0.392
	Non-qualifiers	8	0.37	0.52		
Goals scored btw min. 15-30	Qualifiers	16	0.50	0.82	1.567	0.132
	Non-qualifiers	8	0.12	0.35		
Goals conceded btw min. 15-30	Qualifiers	16	0.37	0.50	0.000	1.000
	Non-qualifiers	8	0.37	0.52		
Goals scored btw min. 30-45	Qualifiers	16	1.19	1.17	3.347	<b>0.003</b>
	Non-qualifiers	8	0.12	0.35		
Goals conceded btw min. 30-45	Qualifiers	16	0.81	0.91	-0.147	0.885
	Non-qualifiers	8	0.87	1.13		
Goals scored btw min. 45-60	Qualifiers	16	1.25	0.93	4.258	<b>0.000</b>
	Non-qualifiers	8	0.12	0.35		
Goals conceded btw min. 45-60	Qualifiers	16	0.87	1.09	0.000	1.000
	Non-qualifiers	8	0.87	0.83		
Goals scored btw min. 60-75	Qualifiers	16	0.75	0.86	1.332	0.197
	Non-qualifiers	8	0.37	0.52		
Goals conceded btw min. 60-75	Qualifiers	16	0.69	1.01	0.461	0.650
	Non-qualifiers	8	0.50	0.76		
Goals scored btw min. 75-90	Qualifiers	16	1.50	1.26	1.978	0.061
	Non-qualifiers	8	0.50	0.93		
Goals conceded btw min. 75-90	Qualifiers	16	1.12	0.88	-0.326	0.748
	Non-qualifiers	8	1.25	0.89		

When the time zones of the goals scored and conceded by the teams are examined, while significant differences were found between groups in terms of the goals scored between minutes 0-15, 30-45 and 45-60 ( $p < 0.05$ ), no significant differences were found in goals scored in terms of other time zones and in terms of goals conceded in all time zones ( $p > 0.05$ ).

Table 3 shows open play total number of goals, open play left side total number of goals, open play total number of midfield goals, open play right side total number of goals, penalty goals, goals from inside penalty box, goals from outside penalty box, goals from header, foot goals, goals from free kick, goals from free kick pass, goals from middle and long pass, set piece goals, total number of other goals, goals from opponent field, goals from own field and total number of goals with fast-attack for the teams which qualified out of the group and those which could not.



**Table 3. Some variables of teams who could qualify out of the group and those who could not**

Variable	Group	N	Ave.	S.D.	t	p
Total number of Open Play Goals	Qualifiers	16	3.31	2.09	5.065	<b>0.000</b>
	Non-qualifiers	8	0.50	0.53		
Total number of Goals from Open Play Left Side	Qualifiers	16	1.37	0.96	5.745	<b>0.000</b>
	Non-qualifiers	8	0.00	0.00		
Total number of Open Play Goals from Midfield	Qualifiers	16	0.81	1.17	1.681	0.107
	Non-qualifiers	8	0.25	0.46		
Total number of Goals from Open Play Right Side	Qualifiers	16	1.12	0.81	2.826	<b>0.010</b>
	Non-qualifiers	8	0.25	0.46		
Goals from outside the Penalty Box	Qualifiers	16	1.00	1.09	3.651	<b>0.002</b>
	Non-qualifiers	8	0.00	0.00		
Goals from inside the Penalty Box	Qualifiers	16	4.94	2.46	5.338	<b>0.000</b>
	Non-qualifiers	8	1.25	0.89		
Goals from Penalty	Qualifiers	16	0.31	0.48	-0.250	0.805
	Non-qualifiers	8	0.37	0.74		
Header Goals	Qualifiers	16	1.19	1.38	1.308	0.205
	Non-qualifiers	8	0.50	0.76		
Goals with foot	Qualifiers	16	4.75	2.11	6.511	<b>0.000</b>
	Non-qualifiers	8	0.75	0.89		
Free kick Goals	Qualifiers	16	0.37	0.72	2.087	0.054
	Non-qualifiers	8	0.00	0.00		
Goals from free kick pass	Qualifiers	16	0.25	0.58	0.559	0.582
	Non-qualifiers	8	0.12	0.35		
Goals from middle and long passes	Qualifiers	16	0.81	0.98	3.313	<b>0.005</b>
	Non-qualifiers	8	0.00	0.00		
Set piece goal	Qualifiers	16	1.75	0.93	3.284	<b>0.003</b>
	Non-qualifiers	8	0.50	0.76		
Other goals total	Qualifiers	16	0.12	0.50	-0.503	0.620
	Non-qualifiers	8	0.25	0.71		
Total goals from opponent midfield	Qualifiers	16	0.19	0.54	1.379	0.188
	Non-qualifiers	8	0.00	0.00		
Total goals from own midfield	Qualifiers	16	0.69	1.01	1.509	0.146
	Non-qualifiers	8	0.12	0.35		
Fast attack goal total	Qualifiers	16	0.87	1.15	1.789	0.087
	Non-qualifiers	8	0.12	0.35		

When Table 3 is examined, it can be seen that while there were significant differences between open play total number of goals, open play left side total number of goals, open play right side total number of goals, goal from inside penalty box, goal from outside penalty box, total number of foot goals, total number of goals from middle and long passes and total number of set piece goals ( $p < 0.05$ ), no significant difference was found between groups in terms of open play total



number of cross goals, penalty goals, goals from header, goals from free kick, goals from free kick pass, total number of other goals, goals from opponent field, goals from own field and total number of goals with fast-attack ( $p>0.05$ ).

## DISCUSSION

When the goal analyses of the teams which qualified out of the group and those which could not in UEFA 2016 European Championship were examined, while significant difference was found between the total goal averages of the teams which qualified in terms of goals scored both in the first half and the second half ( $p<0.05$ ), no significant difference was found between groups in the number of total goals conceded although the average goals conceded were higher in both halves in the teams which qualified out of the group ( $p>0.05$ ).

It was found that the percentages of the goals scored and conceded in both the first half and the second half were higher in the teams which qualified out of the group when compared with those which could not. Goals scored have a key role in teams' success and for a good analysis both in sport games and in major tournament organizations (Michailidis et al, 2013). Of the 108 goals scored in 51 matches played in the tournament, 64 (59%) were scored in the second half. In their study, Armatas et al, (2007) found that most of the goals scored in 1998, 2002 and 2006 FIFA World Cup were scored in the second half. In their study, Alberti et al, (2013) found that the goals scored in the second half (55.1%) were higher than the goals scored in the first half (44.9%). In addition, it was reported that the goals scored in UEFA Champions league 2004-2005, 2005-2006, 2006-2007 seasons were mostly scored in the second half (Sönmeymakas, 2008). In another study which analyzed the goals scored in the quarter finals, semi finals and finals of 2000 European Football Championship, it was found that more goals were scored in the second half (Egesoy et al, 2001). The studies in literature have similar results to the results of our study.

In the study Işık et al, (2000) conducted, 24 (28.9%) of the goals in 2000 European Football Championship were between minutes 46 and 60. In another study, it was reported that 27% of the goals scored in 1996 European Football Championship were between minutes 76 and 90 (Işık 1996). In their study, Armatas et al, (2007) found that most of the goals scored were scored in the last 15 minute period (75-90+) in 3 World Cups (1998, 2002, 2006). Njorora (2013) found that the highest number of goals scored in 2010 World Cup were scored in minutes between 31-45 and 76-90.

In addition, when the goal timing of the matches in the finals of last four years' Champion Leagues were examined in terms of the teams which won and which lost, although no statistically significant difference was found, it was found that the time zones when the highest number of goals scored by the teams which won were 90+ with 50% and between minutes 1 and 15 with 20% (Çoban et al, 2016). Doğan et al, (2004) found in their study which analyzed the goals scored in Turkey Super League that the highest number of goals scored were between minutes 76 and 90. It can be said that the reason why the goals scored and conceded were mostly within the last 15 minutes (between minutes 75 and 90) were physical fatigue of the players, increases in the rate of mistakes and of course tactical changes to win the match. Of the 76 goals scored in open play in 2016 UEFA European Cup Championship, 57 were scored with preparation passes in the open play. While significance was found in the number of total goals scored from the left and right side ( $p<0.05$ ), no difference was found in the total number of goals from the midfield ( $p>0.05$ ). In a study conducted to analyze the goals scored in 2010 World Cup in South Africa, it was found that 71.4% of the goals scored were from open play (Njorora 2013). It was found that the highest number of goals with passes formed in open play (22.39%) were scored with attacks from the left side, while the second highest number (20.20%) were scored with attacks from the right side. In 2006 FIFA World Cup, 40% of the goals were scored from the left side, 34.2% were scored from the midfield and 25.8% were scored with passes from the right side. In a study on the effects of collective performance of 2010 World Champion Spain team on winning the matches, it was found that the attacks were mostly on the left side (Erdil et al, 2013). As can be understood from the studies conducted, it can be concluded that the reason why more goals are scored from this side is the passes on target by left wing players, the talent of the players and the weak defense of the opponent team players on the right (Erdil et al, 2013). In addition, unlike these studies, there are also some studies which show that in matches in major organizations, the attacks resulting in goal evolve in the midfield. It was found that the attacks resulting in goal in UEFA Champions League in 2004-2005 (80%), 2005-2006 (82.6%), and 2006-2007 (76.7%) seasons mostly evolved in the center (Sönmeymakas, 2008). It was recorded that 40.11% (140) of the 349 goals scored in 2012 FIFA World Futsal Cup were from the midfield (Göral and Saygın, 2011).

Significant difference was found between groups in the total number of goals from inside the penalty box and those from outside the penalty box in 2016 UEFA European Cup Championship. In goals scored both from inside and outside the penalty box, it was found that the teams which qualified out of the group had higher rates of goal. While the total number of goals from inside the penalty box was 89 (84.8%), the total number of goals from outside the penalty box was 16 (15.2%). We can say that in the tournament, the teams which could not qualify out of the group could not score goals from outside the penalty box and that this has an influence on teams' success. In the analysis of goals scored in 2000 European Cup Championship, it was found that 81.1% (68 goals) were scored from inside the penalty box, while 18.9% (15 goals) were scored from outside the penalty box (Işık et al, 2000). It was found that the goals scored in UEFA Champions League 2004-2005 (76.4%), 2005-2006 (77.5%) and 2006-2007 (77%) season matches were mostly from inside the penalty box (Sönmeymakas, 2008). In another study which was on the analysis of goals scored in Turkey Football League, it was found that 85.5% of the goals scored in first league were from the penalty area (Eniseler and Egesoy, 1995). The reason why footballers prefer goal shots from places close to the goalpost is the fact that the hit rate is high and shots from close cause a disadvantage to goal keepers (Çakıroğlu et al, 2002).

When the analyses of 2016 UEFA Europe Cup Championship are reviewed, it can be seen that 32 of the 108 goals are goals scored from outside the open play. 13 (41%) of these were scored with long passes, 6 (19%) were scored from free



kick, 5 (16%) were scored with pass from free kick and 8 (25%) were scored from penalty. No significance was found between groups in the goals scored within this set. It was found that the teams which could not qualify out of the group scored more goals from penalty. It was reported that of the 147 goals scored in 2006 FIFA World Football Cup, 24 (16%) were scored from free kick, 13 (9%) were scored from penalty, 12 (8%) were scored from corner and 6 (4%) were scored from throw-in (Acar et al, 2007). It was found that in UEFA Champions League 2004-2005 (84%), 2005-2006 (78.6%) and 2006-2007 (79.9%) seasons, higher number of goals were scored with foot (Sönmeymak, 2008). In a similar study, it was found that 77.1% of the goals scored in Turkey were scored with foot, while 22.9% were scored from header (Enisler and Egesoy, 1995). In a study conducted by Çoban et al, (2016) which was on set piece and goal analysis of the last four years' Champions League final matches, it was found that in the goal hit techniques of the winning and losing teams, 80% of the goals were hit with foot, while 20% were headers. In addition, it was reported that 70% of the goals scored by winning teams were scored with only one touch to the last hit, while the teams which lost scored their goals mostly with foot and with one touch.

In another study, Çoban et al, (2016) found that there was no significant difference between winning and losing teams in terms of set piece timing, set piece type, set piece hit and the area of hit and 2 of 61 set piece organizations resulted in goal (Çoban et al, 2016).

When the goal formation of the teams which qualified out of the group and those which could not in UEFA 2016 Europe Championship were examined, a significant difference was found between groups in terms of goals from the opponent midfield, goals from own midfield, and goals from fast attacks. However, 12 (80%) of these 15 goals from fast attacks were from the attacks in the team's own midfield, 3 (20%) were from the attacks in the opponent team's midfield. Only 1 of these 15 goals was from the teams which could not qualify out of the group.

Sönmeymak (2008) found that in UEFA Champions League 2004-2005, 2005-2006, 2006-2007 seasons, the highest number of attacks which resulted in goal occurred with fast attacks. In another study, it was found that 70% of the goals scored by teams which won in final matches in the last four Champions League final matches were started with balls possessed in the opponent's midfield and there was a significant difference between the total number of goals scored from the team's own midfield and the opponent's midfield (Çoban et al, 2016).

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