A Comparative Analysis of the Performances of the Turkish Super League with the 5 Biggest Football Leagues of Europe and the Parameters Affecting Performance

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Abstract. This study aims to examine some basic football-specific variables (goals scored, attack time resulting a goal, the average number of passes before the goal, the penalty with the goal, shot finishing a goal, total number of corner kicks, ball possession) in the leagues of the countries ranked in the top 5 in Europe according to the TSL and UEFA rankings. It is the comparative analysis by looking at the match statistics. Data of all matches played by the top 3 teams in Turkish Super League (TSL), Spanish La Liga (SLL), English Premier League (EPL), Italian Serie A (ISA), German Bundesliga (GB), and French Ligue 1 (FL1) in 3 seasons (2015/2016, 2016/2017, 2017/2018). It has been evaluated separately. Parameters such as pass, shooting, ball possession, defense, and attack are vital in determining the winning teams in football. It has been found that TSL teams are behind the teams in the leagues of the top five countries in Europe in realizing the basic parameters in the football game. It is thought that the inclusion of exercises for the basic parameters of football in the coaches' training programs in the Super League teams will contribute to the development of football. In addition, it can be said that focusing more on the above-mentioned parameters while raising athletes in the infrastructure of the teams in Turkey will positively affect the development of both technical and athlete's behaviors of football players.

Key words: Football, match analysis, goal, scoring patterns, 5 Biggest Football Leagues of Europe, Turkish Super League

Introduction

The basis of the popularity of football is that it has easy-to-understand rules, and its structure that arouses excitement, as a result, may change at any time (1). As a result of rapid progress, football has become a game and a professional, exciting, and commercial activity (2). Considering all these factors, football can be expressed as a phenomenon that has become a giant entertainment industry that is constantly growing and developing (3). Football attracts attention in many ways in societies, plays an important role in

recognizing countries, and has great importance economically (4).

Europe is accepted as the center of football in the world (5). Football contributes to development by making a difference in health and social life and sportive development in European countries. For this reason, the first choice of talented football players in career development is usually European clubs. A study evaluating European leagues stated that the richest league was the EPL (6). According to the Deloitte Football Money League (the Football Money League Report, published annually by Deloitte), the clubs

generating the most revenue are among the leading European leagues: Spain, England, Italy, France, and Germany (7).

For countries to make a difference in football, they must have many elements of the game. Today, football is played in narrower areas and much faster than in the past (8). To be successful in high-level football, players must have multiple technical, tactical, and physical capacities (9). Elite players need to apply a controlled training program to prepare for high-intensity competitions (10). According to a study conducted on football, an elite player's running distance during the match was between 8.6-14.2 km (11). In addition, in the second half of the game, it was found that there was a 5-10% decrease in exercise intensity and distance traveled compared to the first half (12). Furthermore, it is known that successful teams have a longer time to the ball than unsuccessful teams in national leagues (13, 14), and successful teams regain the ball in a shorter time after losing the ball (15). Considering all these data, it is seen that the number of changing and developing game parameters is very high, and the adaptation of teams to these variables is a performance-enhancing factor (16).

Providing feedback to the athlete about the athletes' performances is an important component of the coaching profession (17). Especially the abundance of events that occur in team sports competitions limits the observation of these events. The feedback given to the player about his performance is limited because the coaches can remember only a small part of the events that occurred during the match (in the range of 42-59%) (18). Therefore, the inferences obtained by an analyst in the technical team of the teams are reported to the technical team and the athletes (19, 20). As a result of these evaluations, the game zones, technical, tactical, and physical requirements in football can be determined by performance analysis. However, those who have technical, tactical, and physical performance indicators in football; pass, cross, shot, turnover, ball catch, ball gains, ball contact numbers, set balls, possession, time of possession, goals, defensive reaction times, transitions, counterattack times, counter-attack times, low and high. It is possible to increase football performance by analyzing variables such as intense runs, total sprint distance, speed of runs, and total distance traveled (21, 22).

Match analysis in football provides information both academically and about the game. As a result of these analyzes, it is ensured that the strengths and weaknesses of the teams and the aspects that can develop are determined while analyzing the opponent teams provides tactical advantages to the trainers (23). In this study, the comparison of TSL, which ranks 11th in the country ranking made by UEFA according to the points collected by countries in 2018, and the leagues of Spanish, English, Italian, German, and French (24), which are ranked in the top five in Europe, separately according to the statistical data of the parameters determined.

This study aims to make comparative some of the match statistics (goals scored, attack time resulting in a goal, the average number of passes before the goal, the penalty with the goal, shot finishing a goal, the total number of corner kicks, ball possession) between the top 5 football leagues in Europe (Spanish, English, Italian, German, French) with TSL for 3 seasons (2015-2016, 2016-2017, 2017-2018).

Methods

Working group

The universe of this study consists of the teams in the 2015/2016, 2016/2017, and 2017/2018 football seasons in the TSL, SLL, EPL, ISA, GB, and FL1. There are 18 teams in the TSL, and one team plays 34 matches during 1 season. The average of all the matches played by the teams (n = 9 teams * 34) in the top 3 (Table 1) in 3 seasons (2015/2016, 2016/2017, 2017/2018) in the TSL for each season constitute the sample group. There are 20 teams in the SLL football league, and one team plays 38 league games during 1 season. The sample group consists of the average of all the matches (n = 9 teams * 38) played by the top 3 teams (Table 1) in 3 seasons (2015/2016, 2016/2017, 2017/2018) in the SLL. There are 20 teams in the EPL, and a team plays 38 league matches during 1 season. The sample group consists of the average of all matches (n = 9 teams * 38) played by the top 3 teams (Table 1) in 3 seasons (2015/2016, 2016/2017, 2017/2018) in the EPL. There are 20 teams in the ISA football league. In the ISA

football league, one team plays 38 league games during 1 season. The sample group consists of the average of all matches played by the top 3 teams (Table 1) in the ISA football league in 3 seasons (2015/2016, 2016/2017, 2017/2018) (n = 9 teams * 38) for each season. There are 18 teams in the GB and, one team plays 34 league games during 1 season. In the GB, the average of all matches played by the top 3 teams (Table 1) in 3 seasons (2015/2016, 2016/2017, 2017/2018) (n = 9 teams * 34) for each season constitutes the sample group. There are 20 teams in the FL1, and one team plays 38 league matches during 1 season. The sample group consists of the average of all matches (n = 9 teams * 38) played by the top 3 teams (Table 1) in 3 seasons (2015/2016, 2016/2017, 2017/2018) in the FL1. The sample group of the study is; In total 3 seasons (2015-2016, 2016-2017, 2017-2018) for each season, TSL (n = 102), SLL (n = 114), EPL (n = 114), ISA (n = 114), GB (n = 102), FL1 (n = 114) football teams, statistical data of all competitions played in the leagues of the top 3 football teams were used. The teams that completed the league in the top 3 places in the football leagues of TSL, SLL, EPL, ISA, GB, and FL1 in 2015/2016, 2016/2017, and 2017/2018 are shown in Table 1.

Data Collection

Ethics Committee approval was obtained from Muğla Sıtkı Koçman University Human Research Ethics Committee for the study, dated 30.05.2018 and numbered 96. The data used in the study were used with the necessary permission from the international analysis company InStat after the approval of the ethics committee. Comparison of football-specific variables (goals, attack time resulting a goal, average number of passes before goal, penalty with goal, shot finishing a goal, total number of corner kicks, ball possession) were used in this study.

Analyses

The data were analyzed in SPSS 24 package program. Whether the data showed normal distribution was determined by Kolmogorov Smirnov Test. Since the data showed normal distribution, One-Way ANOVA test, was used to determine the differences between leagues and the Scheffe test was used to determine the group that caused the difference as Post-hoc test.

Results

In this section, the comparison of the basic variables affecting the performance in football match according to the football leagues of the country is included.

TSL and UEFA ranking in the top five ranks in SLL, EPL, ISA, GB, and FL1; for 3 seasons, some variables (goals, attack time resulting a goal, average number of passes before goal, penalty with goal, shot leading to a goal, total number of corner kicks, ball possession) were used in this study.

Goals scored

There was no significant difference between TSL and the top 5 in the UEFA ranking in the number of goals scored in the 0-15 minutes' range ($p > 0.05$). It is

Table 1. Top 3 teams in Turkish, Spanish, England, Italian, German and French football leagues for 3 seasons.

Season	TSL	SLL	EPL	ISA	GB	FL1
2015-2016	Beşiktaş Fenerbahçe Konya Spor	Barcelona Real Madrid Atlético Madrid	Leicester City Arsenal Tottenham Hotspur	Juventus Napoli Roma	Bayern Munich B Dortmund B Leverkusen	Paris SG Lyon Monaco
2016-2017	Beşiktaş Başakşehir Fenerbahçe	Real Madrid FC Barcelona Atlético Madrid	Chelsea Tottenham Hotspur Manchester City	Juventus Roma Napoli	Bayern Munich RB Leipzig B Dortmund	Monaco Paris SG Nice
2017-2018	Galatasaray Fenerbahçe Başakşehir	Barcelona Atlético Madrid Real Madrid	Manchester City Manchester United Tottenham Hotspur	Juventus Napoli Roma	Bayern Munich Schalke Hoffenheim	Paris SG Monaco Lyon

Table 2. Comparison of the goals scored in the 0 - 15 minutes' interval.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\overline{X} \pm Sd$	F	p
TSL	1	6	12	14	9.77±3.27	.836	.531
	2	6	9	8			
	3	7	14	12			
SLL	1	11	16	5	10.00±4.74		
	2	18	6	4			
	3	9	11	10			
EPL	1	6	12	8	8.11±2.26		
	2	10	10	6			
	3	6	9	6			
ISA	1	8	14	7	10.33±2.91		
	2	12	13	9			
	3	13	11	6			
GB	1	8	9	8	8.22±3.92		
	2	6	13	5			
	3	2	15	8			
FL1	1	10	14	14	10.44±2.87		
	2	9	9	10			
	3	5	13	10			

seen that the number of goals scored in all leagues in the 0-15 minutes' range is close to each other (Table 2).

There was no significant difference between TSL and the top 5 in the UEFA ranking in the number of goals scored in the 16-30 minutes' range (p>0.05) (Table 3).

There was no significant difference between TSL and the top 5 in the UEFA ranking in the number of goals scored in the 31-45 minutes' range (p>0.05) (Table 4).

There was no significant difference between TSL and the top 5 in the UEFA ranking in the number of goals scored in the 46-60 minutes' range (p>0.05) (Table 5).

There was no significant difference between TSL and the top 5 in the UEFA ranking in the number of goals scored in the 61-75 minutes' range (p>0.05) (Table 6).

There was significant difference between TSL and the top 5 in the UEFA ranking in the number of goals scored in the 76-90 minutes' range (p<0.05) (Table 7).

Attack time resulting a goal

According to the results, a significant difference was found in the time of attacks resulting a goal (p <0.05). The lowest value in the attack times that resulted a goal in the competitions is the TSL.

Average number of passes before the goal

According to the results, a significant difference was found in the average number of passes before goal (p <0.05). The lowest value in the attack times that resulted a goal in the competitions is the TSL (Table 9).

Penalty with the goal

The results showed that there was a statistically significant differences between leagues of goals scored in the penalty area during the competitions (p <0.05). When the Table 8 is examined, it is determined that significant difference between Turkish and Spanish and French. In national leagues, it is seen that the

Table 3. Comparison of the goals scored in the 16 - 30 minutes' interval of the matches.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	13	8	9	9.44±2.50	1.302	.279
	2	8	10	7			
	3	7	14	9			
SLL	1	15	17	13	12.88±5.30		
	2	22	16	9			
	3	6	6	12			
EPL	1	12	12	13	10.44±2.29		
	2	10	9	6			
	3	9	13	10			
ISA	1	9	11	16	10.44±2.60		
	2	11	8	10			
	3	12	10	7			
GB	1	8	19	13	9.55±4.39		
	2	12	5	7			
	3	8	8	6			
FL1	1	13	17	15	12.00±3.35		
	2	8	12	11			
	3	7	10	15			

Table 4. Comparison of the goals scored in the 31 - 45 minutes' interval of the matches.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	10	13	9	9.66±3.42	1.634	.169
	2	16	12	8			
	3	6	7	6			
SLL	1	16	21	10	14.11±6.69		
	2	20	22	4			
	3	9	7	18			
EPL	1	10	13	11	12.77±3.15		
	2	15	17	12			
	3	16	14	7			
ISA	1	17	12	6	12.11±3.44		
	2	13	14	12			
	3	10	16	9			
GB	1	14	12	12	10.00±3.57		
	2	14	10	6			
	3	11	7	4			
FL1	1	15	14	16	13.0±3.35		
	2	14	15	16			
	3	12	8	7			

Table 5. Comparison of the goals scored in the 46 - 60 minutes' interval of the matches.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	11	12	8	7.88±3.17		
	2	9	8	9			
	3	7	6	1			
SLL	1	25	12	11	12.44±6.38		
	2	11	21	7			
	3	11	7	7			
EPL	1	11	12	17	12.22±3.73		
	2	7	18	10			
	3	8	14	13			
ISA	1	9	11	11	13.33±4.79	1.496	.209
	2	15	17	11			
	3	13	24	9			
GB	1	15	12	9	11.00±3.64		
	2	16	12	6			
	3	7	14	8			
FL1	1	24	15	11	11.44±5.36		
	2	5	10	9			
	3	10	9	10			

Table 6. Comparison of the goals scored in the 61 - 75 minutes' interval of the matches.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	17	15	8	13.22±3.96		
	2	8	11	9			
	3	6	14	1			
SLL	1	20	16	11	15.11±5.81		
	2	12	17	7			
	3	8	8	7			
EPL	1	14	13	17	11,.77±2.58		
	2	12	7	10			
	3	15	9	13			
ISA	1	11	14	11	14.11±3.14	.888	.497
	2	13	12	11			
	3	14	10	9			
GB	1	22	13	9	12.44±5.17		
	2	13	7	6			
	3	18	6	8			
FL1	1	20	14	11	13.88±5.44		
	2	6	15	9			
	3	12	10	10			

Table 7. Comparison of the goals scored in the 76 - 90 minutes' interval of the matches.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	18	41	32	25.44±10.33		
	2	13	36	28			
	3	11	29	21			
SLL	1	25	28	19	21.33±6.12		
	2	27	25	8			
	3	20	22	18			
EPL	1	15	22	23	17.44±4.06		
	2	11	21	17			
	3	15	19	14		3.466	.009
ISA	1	21	12	13	15.00±5.29*		
	2	16	22	9			
	3	21	13	8			
GB	1	13	23	11	15.22±4.84*		
	2	21	16	10			
	3	10	19	14			
FL1	1	20	25	25	18.11±6.11		
	2	25	19	13			
	3	11	15	10			

Table 8. Comparison of the attack time that resulting a goal.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	27.5	18.6	34.6	21.53±6.55		
	2	18	19.2	18.4			
	3	12.4	19.8	25.3			
SLL	1	50.5	39.9	54.4	39.25±12.41		
	2	48	49.9	31.3			
	3	19.1	25.1	35.1			
EPL	1	18.1	28.1	55.4	30.31±10.52		
	2	25.9	36.1	29.8			
	3	27.6	27.2	24.6		2.751	.029
ISA	1	23	23.9	44.2	32.25±8.70		
	2	35.9	30.5	29			
	3	39.2	43.1	21.5			
GB	1	47.4	49.8	41.6	32.55±13.40		
	2	38	25.9	14.9			
	3	21.9	38.4	15.1			
FL1	1	52.5	31.5	50.2	35.88±12.06		
	2	25.8	41.7	36.1			
	3	14.1	30.4	40.7			

Table 9. Comparison of the average number of passes before goals in competitions.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	9.3	5.6	10.8	6.72±2.10		
	2	5	5.8	6.2			
	3	4.4	5.9	7.5			
SLL	1	16.8	12.9	17.1	12.81±3.87		
	2	15.7	15.8	9.8			
	3	6.6	8.3	12.3			
EPL	1	5.1	9.5	20.2	10.15±4.16		
	2	8.8	11.4	9.2			
	3	8.6	10.7	7.9		2.708	.031
ISA	1	7.3	7.8	13.8	10.97±3.17		
	2	12	10.3	11.4			
	3	13	16.2	7			
GB	1	15.5	16.4	13.5	10.74±4.50		
	2	13.4	8.9	4.8			
	3	6.4	12.7	5,1			
FL1	1	18.3	9.7	16.5	11.70±4.29		
	2	8.1	14.3	11.2			
	3	4.5	9.8	12.9			

lowest score for goals scored in the penalty area is in the TSL (Table 10).

Shot finishing to a goal

According to the Table 11, there was no significant difference between TSL and the first 5 countries according to the UEFA ranking in the comparison of the teams in the matches according to the variable shot finishing a goal inside the penalty area (p>0.05). It is noteworthy that TSL teams have the lowest value in the number of shots fired from inside the penalty area in competitions.

Total number of corner kicks

According to the Table 12, there was no significant difference between TSL and the top 5 leagues according to the UEFA ranking (p >0.05).

Ball possession

The outcome shows that there was no significant difference between TSL and the first 5 countries

according to the UEFA ranking in the comparison of the teams according to the variable of possession of the ball throughout the match (p >0.05). Also it is seen that the minimum time to play with the ball in the competitions is in the TSL teams.

Discussion and Conclusion

The main purpose behind conducting this study was to analyze and compare the TSL and the top 5 football leagues in Europe according to some football-specific variables. Within the scope of the study, in 3 seasons (2015/2016, 2016/2017, 2017/2017) in top leagues (TSL, SLL, EPL, ISA, GB and FL1), all competitions played by the teams that completed the league in the top 3 ranks were analyzed according to some football-specific variables.

Goals scored

According to the number of goals scored in the 0-15 minutes' interval TSL and the top five leagues in

Table 10. Comparison of the goals scored in the penalty area during the competitions.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	59	61	26	42.77±15.37		
	2	47	56	26			
	3	39	50	21			
SLL	1	100	96	64	75.11±23.40*		
	2	95	103	41			
	3	53	58	66			
EPL	1	63	72	72	62.33±9.53		
	2	57	72	49			
	3	58	69	49		3.941	.004
ISA	1	59	60	54	61.33±13.37		
	2	65	76	51			
	3	66	83	38			
GB	1	70	74	59	56.77±16.81		
	2	76	55	34			
	3	41	68	34			
FL1	1	88	92	79	66.66±17.08*		
	2	59	66	70			
	3	45	54	47			

Table 11. Comparison of the shots finishing a goal.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	5.6	6.4	6.8	7.60±1.24		
	2	7.6	6.1	7.2			
	3	7.5	6.9	5.6			
SLL	1	3.9	4.9	4.2	9.67±2.20		
	2	5	4.3	6.6			
	3	5.7	6,1	4.7			
EPL	1	5.2	5.3	3.4	9.08±.927		
	2	4.3	4.9	4.9			
	3	5	4,7	3.9		2.262	.063
ISA	1	6.7	5.7	4.4	9.18±1.08		
	2	4.6	4.7	3.4			
	3	5.6	3.7	3.8			
GB	1	5	4.1	4.1	8.85±1.48		
	2	4.8	6.8	6.9			
	3	6.5	5.4	7.2			
FL1	1	4.8	5.9	5.3	8.30±1.49		
	2	5.5	4.1	6.1			
	3	6.2	5.1	5.7			

Table 12. Comparison of the total number of corner kicks.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	32	28	27			
	2	35	34	28	5.48±.843		
	3	37	30	25			
SLL	1	23	24	21			
	2	22	22	28	5.84±.972		
	3	32	32	22			
EPL	1	35	23	20			
	2	25	28	26	6,42±.762		
	3	31	23	27		1.554	.191
ISA	1	25	22	21			
	2	25	25	25	6.08±.792		
	3	26	23	26			
GB	1	20	20	23			
	2	27	35	33	5.87±1.01		
	3	36	26	27			
FL1	1	22	29	19			
	2	28	21	32	5.33±1.23		
	3	35	25	27			

Table 13. Comparison of the ball possession.

Leagues	Teams	2015/2016	2016/2017	2017/2018	$\bar{X} \pm Sd$	F	p
TSL	1	47	40	40			
	2	47	45	43	29.17±2.38		
	3	46	47	39			
SLL	1	35	38	34			
	2	39	31	39	31.26±4.32		
	3	46	44	38			
EPL	1	50	40	32			
	2	40	44	40	31.93±4.50		
	3	45	36	40		.940	.464
ISA	1	40	39	34			
	2	44	45	36	32.82±1.62		
	3	42	40	44			
GB	1	32	35	34			
	2	38	47	41	32.28±5.44		
	3	50	40	42			
FL1	1	33	41	32			
	2	43	34	41	31.67±3.89		
	3	48	34	39			

Table 14. Differences summary between leagues according to match statistics.

Variables	Statistical differences	p	Differences
Goals scored in the 76-90 minutes' interval		.009	TSL highest / ISA lowest
Attack time that resulting a goal	p<0.05	.029	TSL lowest / SLL highest
Average number of passes before the goal		.031	TSL lowest / SLL highest
Penalty with the goal		.004	TSL lowest / SLL highest
Goals scored in the 0 -15 minutes' interval		.531	EPL lowest /FL1 highest
Goals scored in the 16 - 30 minutes' interval		.279	TSL lowest / SLL highest
Goals scored in the 31 - 45 minutes' interval		.169	TSL lowest / SLL highest
Goals scored in the 46 - 60- minutes' interval	p>0.05	.209	TSL lowest / ISA highest
Goals scored in the 61 - 75 minutes' interval		.497	TSL lowest / SLL highest
Shot finishing to a goal		.063	TSL lowest / SLL highest
Total number of corner kicks		.191	TSL lowest / EPL highest
Ball possession		.464	TSL lowest /ISA highest

the UEFA, there is no significant difference between the leagues found. The number of goals scored in all national leagues in the 0-15 minutes' interval in the competitions is close. This result may be due to the teams choosing to take less risk at the beginning of the game. The number of goals scored in all national leagues in the match between 16-30 minutes is close to each other. It is noteworthy that in Spanish, English, Italian, and German, 46-60-minute intervals are higher than the TSL teams. The number of goals scored in all national leagues in the match between 61-75 minutes is close to each other. It is noteworthy that the number of goals scored in the 76-90-minute interval in the TSL is higher between the Turkish and Spanish leagues, English, German, and French. This situation suggests that the TSL teams adopted a cautious game tactic until the last quarter of the game and made more events for goals in this quarter. The fact that TSL teams attach importance to offensive organizations in all parts of the competitions can be a factor that improves the quality of the league. The lowest score for goals scored in the penalty area is in the Turkish Super League in national leagues. Improving the effectiveness of the teams in the penalty area in the Super League can be considered a factor that increases the number of goals. TSL teams should focus on organizations where they can score goals outside the penalty area, especially if the goals scored outside the penalty area against defending teams are considered

a factor that ensures victory in matches. According to the general evaluation of the goal parameters, we can say that the TSL teams scored more goals, especially in the last quarter of the match. This result can be related to the higher motivation win at the end of the game. The results showed that the top 3 teams in the TSL are more effective only in certain parts of the competitions, and this situation is a limiting factor in team performance. In addition, although there is no significant difference, it is noteworthy that the number of TSL teams is lower in goals scored throughout the match. In literature, most studies have focused on the goals scored in the 1st and 2nd periods. In a survey conducted by Aka (25) to predict the end of season league rankings in football with the Artificial Neural Networks model, the goals scored in the first and second periods of the matches in the German football league (Bundesliga) are among the determining factors in the league rankings. Acar et al. (26) found that according to the analysis of goals scored in the 2006 F I FA World Cup, 67 of the 147 goals (46%) were score gained in the first half of the competitions, 69 goals (47%) in the second half of the matches, and 11 goals (7%) in the extra minutes. In a similar study, Armatas et al. (27) analyzed 1995, 1999, and 2003 Women's World Cup. They claimed that the goals scored in the 1995 World Cup were 46.5% in the first half and 53.5% in the second half; in the 1999 World Cup, it was 42.3% in the first half and 57.7% in the

second half; They showed that there was a significant difference in the distribution of goals scored in the first and second half of the 2003 World Cup. Kubayi (28) also concluded that most goals gain during the second half of the game, with a more significant number of goals conceded in the first 15 minutes of the second half and the game's final period. Previous studies on high-level football competitions have found that the rate of goals scored in the second half of the match is higher. It has been reported in the literature that goals scored towards the end of the game due to the fatigue and deterioration of the players, mainly the defenders. (29, 30, 31). An interesting result is that the number of goals scored in the 76-90-minute interval in the Turkish Super League is higher than Spanish, English, German, and French leagues. This situation suggests that the TSL teams adopted a cautious game tactic until the last quarter of the game and made more events for goals in this quarter. The fact that TSL teams attach importance to offensive organizations in all parts of the competitions can be a factor that improves the quality of the league.

Attack time resulting a goal

It is noteworthy that the lowest value of the attack times resulting in the competitions' goals is the TSL. The improvement of the TSL teams' attack times can be considered a factor that improves the team performance. The highest average in terms of time to attack to result in goal belongs to SLL. This supports the findings of Mitrotasiosa et al. (32), who discovered SLL showed a greater proportion of long and combinative attacks. Also Cooper & Pulling (33) claimed that La Liga teams achieved more goals after a tackle, whilst EPL teams were more efficient in terms of scoring goals and taking shots following a turnover.

The average number of passes before the goal

In the competitions, the TSL had the lowest value in the average number of passes before the goal. TSL teams make fewer passes before goal can be considered a restrictive situation in the opponent's half-court. The high number of passes of the teams in the higher ranks in football can be considered a situation that increases the effectiveness of the opponent's half-court and forces the opponent to error. Lago-Penas et al. (34) studied predictors of successful gameplay using game statistics from the 2008–2009 season of the SLL. The authors claimed that the number of crosses and assists positively affected game scores (35, 36). Cintia et al. (37) modeled passing behavior from four major European leagues (German, English, Spanish, and French). The results highlight the importance of passing for successful game performance in soccer. However, based on these results alone, it isn't easy to gain insights into the effects a given pass has on a particular game situation (38). Consequently, a different approach seems warranted to understand passing behavior in TSL soccer better.

Penalty with the goal

Successful penalty kicks play a critical role in match outcomes, particularly in knockout ties, and may ultimately affect the final standings of a league or competition (39, 40, 41, 42). The current study showed that the number of penalties scored by the teams in the national leagues, the highest score is in the SLL. It belongs to the lowest average TSL on penalty kicks that result in a goal. Horn et al. (43) suggested that in-match penalty kicks be directed to the upper vertical zone to optimize the opportunity for success in in-match penalty kicks. It may be helpful for TSL coaches and coaches to consider this recommendation to improve performance on the penalty kick.

Shooting finishing a goal

Shooting in elite soccer has been a popular subject for inspection among academics and practitioners (44, 45, 46). The shooting success rate is considered one of the indicators that definitely affect the final result in every match (47; 48). Holienka et al. (49) stated that the higher is the shooting success rate, the higher is the chance to score a goal, and so be successful in the match according to FIFA World Cup 2018 results. In the studies conducted on the shot variable in football in the literature, it is seen that the shooting averages of the winning teams are higher. A study by Lago-Peñas et al. (50) found that

winning teams shot more shots (14.0 ± 5.1) and on-target shots (6.3 ± 2.6) than tied and losing teams. In a similar study, it was found that in the 2014 FIFA World Cup group stage matches, all shots and on-target shots were found to be between 13% and 48% more likely to win (51). In a study conducted for the first league in Germany, it was found that the shooting average of the teams that won the matches was 15.98, and the shooting average of the losing teams was 10.76. In a similar study, it was seen that the Spanish national team that won the 2010 World Cup took twice as many shots as their opponents. It has been determined that the average of the Spanish National team's shots per game is 15.25 and its competitors have 6.75 shots per game (52). In these studies, the relationship between the number of shots taken and the teams' success was examined, and it was determined that the successful teams shot more. In our study, supporting this study, it is seen that the teams in the leagues of more developed countries shoot more in the competitions compared to the Turkish league. It is thought that the inclusion of activities that increase the shooting performance of the players in the training programs will contribute to the development of the shooting parameter.

Total number of corner kicks

Our results showed that there was no significant difference between the TSL and the first 5 leagues according to the UEFA ranking. It is seen that the number of corners in the matches of the countries is close to each other. It is thought that teams in national leagues do not give their opponents the advantage of taking a corner kick. Li and Zhao (53) noted that EPL showed high goals from corner kicks. Kubayi (54) noted that most goals were conceded from inside kicks (4.6%) compared to short (3.3%) and fast (3.1%) corner kicks in the 2018 FIFA World Cup, and the potential for soccer coaches to use for an effective defensive set. Tackling corners, such as using a mixed method of marking, placing players on goalposts, and being aware of the offensive threat posed by short kicks. A previous study has argued that since short corners are relatively successful from an offensive perspective, teams need to be aware of this to ensure that the dynamic setup

necessary to defend a corner kick is not disrupted, thereby reducing the number of goals conceded from this situation (54). TSL teams can take this suggestion into account and use it in training.

Ball possession

When comparing the countries according to the variable of possession during the match, it has been determined that there is no significant difference between Turkey and the top 5 countries according to the UEFA ranking. However, considering the time of possession of the ball throughout the match, it is seen that the minimum time to play with the ball in the competitions is in the Turkish Super League teams. It is thought that the teams that won the ball in football provide control of the game and force the opposing team to defend and put them under pressure. For this reason, it can say that the time of possession of the Super League teams should be increased.

In the comparison of the teams according to the average possession variable in the national leagues, it has been determined that there is no significant difference between Turkey and the top 5 countries according to the UEFA ranking. Considering the average time of possession of the ball, it is seen that the minimum time to play with the ball in the competitions is in the Turkish Super League teams. When comparing Turkey and the top 5 countries according to the It is thought that the time to play the ball for Turkish Super League teams is shorter and less time than developed country leagues. In addition, in Spain, England, Italy, Germany, and France, the longer the teams have the ball, the higher the skill level of the players.

In the literature, it is seen that there are a limited number of studies on the time of possession of the ball. Aka (25), to predict the Bundesliga a league ranking with the Artificial Neural Networks model developed, determined that the total minutes played by the teams and the average time of possession are important factors for a better ranking in the league rankings at the end of the season.

In a study by Penas and Dellal (55), in the 2008-2009 season, the leader Barcelona had the highest ball possession with 64.3%, and the last Recreativo de Huelva team had the lowest ball possession with 48.1%

in the Spanish League. The same study observed that the top 6 teams in the league generally had a higher ball possession rate than the other teams. The results obtained in our study support the results obtained in the above-mentioned studies and determined that the time of possession of the Turkish league teams was lower than the leagues of developed countries. The ball possession parameter is thought to be one of the important determinants of the teams' performance.

Conclusion

In summary, our study showed both similarities and differences in various aspects of some basic football-specific variables between 5 big European soccer leagues and Turkish Super League Teams. It has been found that TSL teams are behind the teams in the leagues of the top five countries in Europe in realizing the basic parameters in the football game. For this reason, in countries like Turkey that lag behind European football, it should be ensured that motor skill levels such as passing, meeting the pass, running, and jumping, which determines the success in football, should be tested starting from the infrastructure, the trainer should record the test results, and they should be developed with training by international standards. Thus, the contribution to the important components that determine the performance in football (passing percentage, fast attacking, defense, etc.) will be determined. Considering the effect of regional analysis on success (inside the penalty area and out of the penalty area, opponent's half-court, etc.), the coaches should specialize in the defense, midfield, and attacking regions. The technical and tactical development of the players should be provided by a different coach specialized for each region. These findings have provided coaches with a valuable source of information on points to be improved.

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