

The Effects of Ball Recovery Times on Match Results in Football

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Abstract

The aim of this study is to analyze the ball recovery times of the teams in the Turkish Super League. The sample group of the research consists of the teams that finished the league in the first 4 and last 4 places in the 2021-2022 season. For the analysis of the research, a total of 2 matches of the 8 football teams in the sample were selected randomly. The relationship between the ball recovery times and the number of goals scored and conceded, ball possession rate, total number of shots, goal expectation and number of corners were examined using the video analysis method, and comparisons were made between the variables according to the match result. Also, the relationship between these five parameters and the ball recovery times discussed. In the research findings, it was seen that there is a significant negative relationship between the ball recovery times and the number of goals scored, total number of shots, ball possession percentages, goal expectations and points received by the teams. Moreover, the findings show that the ball recovery times of the winning teams were much lower than the losing teams. On the other hand, there is a significant positive relationship between the ball recovery times and the number of goals they concede. In addition, no statistically significant relationship was found between the ball recovery times and the number of corners taken by the teams. In conclusion, this research reveals that recovering the ball back faster is an important parameter for winning a match in football.

Keywords: Football, Match analysis, Ball recovery, Ball recovery time, Match winning-losing

Introduction

Football is a team sport in which two teams try to score as many goals as possible into the opponent's goal within a certain playing time and by complying with the game rules (Bakır and Müniroğlu, 2020: 393). Therefore, football teams compete on the field to achieve goals such as winning points and matches, winning cups, becoming champions, or avoiding relegation by defeating their opponents. Because football is a sports branch with an ultimate goal, that is, it is a game in which one gains superiority by scoring more points against the opponent and describes this superiority as success (Yıkımsı, 2022: 273). In addition, according to Yıkımsı (2022), football is a game in which various formations and game approaches are reflected on the field thanks to the different tactics and systems it contains, and football players are always looking for the performance that will win the match, and coaches are always looking for the tactics and systems that can help their team reach the ultimate goal (Yıkımsı, 2022: 274). There are various methods to achieve this ultimate goal, that is, success, in football. At this point, match analysis is one of the methods used to be successful in today's football.

Match analysis means objectively recording and examining behavioral events that occur during a match (Carling, Williams & Reilly, 2007: 2). However, the most important benefit of match analysis is that it provides the opportunity to quantitatively evaluate the movements of team players during the match (Bakır & Müniroğlu, 2020: 393). In this context, analysis is an important aid for coaches, as it shows the direction and how of an athlete or a team's development with numerical data. Thanks to the analysis, coaches have the opportunity to evaluate the match, training or seasonal variables of athletes or teams by determining the parameters they want to examine. Regarding this, Carling et al. (2007) state that match analysis can be handled in a multifaceted way, from the effectiveness of an individual player or each member of the team as an individual profile to a synthesis of the interaction between individuals in accordance with a team plan (2007: 2). One of the elements that provide this diversity in match analysis is “the ball recovery”.

In football, teams engage in many actions to win against each other or not to lose. The action of winning the ball in football is also one of the actions that teams can have superiority over each other. According to Borge and McNamee (2017), the constructive side of a constructive-destructive sport such as football, which has scoring in its nature, aims to create, set up ways to score goals or produce new goal positions. At the same time, the destructive side of football aims to prevent or prevent the opposing team from scoring a goal (2017: 250; Yıkımsı, 2022: 39). Therefore, winning the ball in football both creates a new chance for your team to score a goal and appears as a parameter that allows the opponent to lose their current chance to score a goal. Emphasizing the importance of winning the ball in football, Barreira et al. (2014) states that the most important purpose of the defensive phase, winning the ball, is a short and even momentary action and at the same time it is the first stage of the attack (2014: 37). In other words, winning the ball in football is a football action that ends the opponent's attacking action and starts the attacking action of the team that wins the ball at the same time, regardless of the area of the field. Therefore, it is crucial to be aware of the conditions that influence ball recovery patterns, that is, how and where the ball is recovered and its impact on subsequent attacking play patterns (Barreira, Garganta, Machado and Anguera, 2014: 37).

Ball recovery time in football is a FIFA metric that calculates the amount of time it takes for a team to regain possession of the ball, and it indicates how efficient a team is at winning the ball back (EFI Metric: Ball Recovery Time, 2022). In football, ball possession is a strong predictor for team success, and it is hard to control the game without having control over the

ball (Bundesliga Match Fact Ball Recovery Time: Quantifying Teams' Success in Pressing Opponents on AWS | Amazon Web Services, 2023). In this context, ball possession begins when the team recovers the ball. When we look at examples of the importance of ball recovery, firstly, in the past three Bundesliga seasons, as well as in the current season (at the time of this writing, 2023), Bayern Munich is ranked first in the table and in ball possession percentage, followed by Dortmund being second in both (Bundesliga Match Fact Ball Recovery Time: Quantifying Teams' Success in Pressing Opponents on AWS | Amazon Web Services, 2023). Another example of ball recovery in football shows the importance of recovering the ball for Manchester City and doing it as quickly as possible. In an interview in 2018, Pep Guardiola's assistant at the time, Domenec Torrent, emphasized the importance of ball recovery time in football by saying, "Five seconds is so, so long in football.", and "When you lose the ball, the most important thing is not to drop but react, go forward and try to regain the ball again." (Bajkowski, 2018). In addition, Torrent stated "Many teams go back or drop, we prefer to regain the ball again and if you are able to regain the ball, attack quickly." (Bajkowski, 2018). As we see, the coach must prepare the player technically, tactically, physically and mentally and ensure his development (Güler & Şarvan Cengiz, 2018: 19). In other words, for these instructions and tactics for regaining the ball to be carried out flawlessly, it is important for the coach to prepare the players in every way. Thus, it has been revealed that regaining the ball back as quickly as possible and recovering the ball is a kind of game mentality and a philosophy in modern football.

There are various studies on ball possession and ball recovery in football. The result of Jamil's (2019) case study, which examined the ball possession patterns of an elite English Premier League team for three seasons from the 2015-16 season to the 2017-18 season, is an example of this. In the relevant study, it was revealed that the ball regaining actions in the opponent's half, the ball regaining actions on the left side of the opponent's half and the quality of the opponent factors had a significant and positive effect on the number of ball possessions and the attacking performance of the examined team during the match. Another example of this issue is the study conducted by Cooper and Pulling (2020) in which they examined matches in both the English Premier League and the Spanish La Liga and investigated the effects of the type of ball recovery, the location where the ball was recovered, and the duration of teams' possession on the results of possession. The results of this study show that La Liga teams mostly scored goals by gaining possession as a result of a physical struggle, while Premier League teams mostly gained possession due to the opponent's ball losses and thus scored more goals. In addition, the study revealed that while the English teams had less than 5 seconds to recover the ball in attacks that end with a goal or a shot opportunity, the Spanish teams had more than 12 seconds, and as a result, the EPL teams reached the score much faster than the La Liga teams.

In the light of all the examples mentioned above, when the relevant literature is reviewed, it is seen that the studies on the parameters of ball winning and possession in football, especially the analysis of the ball recovery times, are limited.

To sum up, it is expected that this research will support the development of the understanding that the ball recovery time is an important parameter for teams in football. It is also expected that the research will help raise awareness about what kind of feedback and advantages ball recovery time in football will provide for the football teams in the short and long term.

Material and Method

Purpose of the Study

The aim of this study is to analyze the ball recovery times of teams, specifically in the Turkish Super League. In this season the top 4 teams qualified for various UEFA Tournaments (Champions League, Europa League and Conference League) and the last 4 teams were relegated from the Turkish Super League. In this context, analyzes were made regarding the effects of the ball recovery times of teams that finished the league in the top 4 and bottom 4 at the end of 2021-2022 season of the Turkish Super League on the rate of ball possession, total number of shots, goal expectation and the number of corners. In addition, our research also examined the relationship between these five parameters and ball recovery times, and why teams finished the league in the top 4 or bottom 4.

Research Group

Turkey Super League football teams in the 2021-2022 season constitute the population of the study. In the research, the sample of the research is the football teams that are thought to represent the universe, compete in the same league, and finish the league in the first 4 and last 4 places in the 2021-2022 season. The selected teams for this study were Trabzonspor (1st), Fenerbahçe, (2nd) Konyaspor (3rd) and Başakşehir (4th), Rizespor (17th), Altay (18th), Göztepe (19th) and Yeni Malatyaspor (20th). A total of 2 matches were selected by lottery method from among the matches played at home by a total of 8 football teams in the study, one match among the matches they won and one match among the matches they lost. One of the away matches of a team that never lost a home match was also selected randomly and a total of 16 matches included in the study.

Data Collection

These matches were evaluated using the video analysis method in line with the determined parameters by two experts match analysts who has certification by Turkish Football Federation. The ball recovery time was monitored and recorded in the entire football field. In the study, the relationship between the ball recovery time and the number of goals scored and conceded, possession percentage, total number of shots, expected goal and number of corners were examined, and comparisons were made between the variables according to the match result (win-loss).

The matches were observed by obtaining a subscription from the website of Beinsport, which has the right to broadcast the matches of the Turkish Super League, after they made the entire 2021-2022 season available. The ball recovery times for each match were manually entered into a Microsoft Office Excel file using an ALTIS SV-30 60-memory digital stopwatch. After each of the ball recovery times of the teams' matches were recorded in a Microsoft excel file, they were analyzed separately according to the parameters included in the study such as possession percentage, total number of shots, goal expectancy, data on meeting the ball in the opponent's penalty area and number of corners. In this study, the teams' ball recovery time ("regaining control of the ball") was evaluated and analyzed as: balls directly taken from the opponent and set plays (free kicks, crown, corner, offside, penalty) won as a result of pressure or regaining control of the ball.

Data Analysis

In this study, SPSS 26.0 package program was used for statistical analysis and $p < 0.05$ was accepted as significance level. Before analyzing the data, normal distribution was checked by using Kolmogorov-Smirnov and Shapiro-Wilk normality tests according to numbers of

analyzed actions. Then parametric analyses were applied to normally distributed data by using the Independent Samples t Test. Finally, the correlation analysis were done by using Spearman's correlation test for normally distributed data.

Findings

In this section, the results of correlation analysis are given and explained in tables.

Table 1. Analysis of the relationship between ball recovery time and goals scored/conceded, corners used and team's points with Spearman's correlation test

	Number of goals scored		Number of goals conceded		Corners		Point	
	r	p	r	p	r	p	r	p
Ball recovery time (sec)	-,652	0,006*	,671	0,040*	,093	0,733	-,705	0,020*

When Table 1 is analyzed, it is seen that there is a statistically significant negative correlation between the ball recovery time of the teams and the number of goals scored ($r=-,652$; $p<0,05$) and the points scored ($r=-,705$; $p<0,05$). On the other hand, there is a statistically significant positive correlation between the ball recovery time and the number of goals conceded ($r=,671$; $p<0,05$). On the other hand, there is no statistically significant relationship between the ball recovery time and the number of corners used by the teams ($r=,093$; $p>0,05$).

Table 2. Analysis of the relationship between ball winning time and pass accuracy percentage, total shots, expected goals and possession percentage with Pearson correlation test

	Pass accuracy percentage		Total shots		Expected goals		Possession percentage	
	r	p	r	p	r	P	r	p
Ball recovery time (sec)	-,068	0,803	-,493	0,040*	-,639	0,008*	-,558	0,020*

When Table 2 is examined, it is seen that there is a statistically significant negative relationship between the teams' ball recovery time and the total number of shots ($r=-,493$; $p<0,05$), expected goals ($r=-,639$; $p<0,05$), and the percentage of possession ($r=-,558$; $p<0,05$). On the other hand, there was no statistically significant relationship between the ball recovery time and the passing accuracy percentage of the teams ($r=-,068$; $p>0,05$).

Table 3. Analysis of the differences between the matches won and lost by the teams according to the time to win the ball by T Test

	Match result	Arithmetic mean	Standard deviation	t	p
Ball recovery time (sec)	Lost	26,65	4,84	3,355	,005*
	Won	19,48	3,60		
Goals scored	Lost	0,62	0,51	-5,245	,000*

	Won	2,25	0,70		
Goals conceded	Lost	2,00	0,53	5,612	,000*
	Won	0,50	0,53		
Pass accuracy percentage	Lost	83,87	4,85	0,265	,795
	Won	83,12	6,35		
Total shots	Lost	12,37	5,06	0,246	,809
	Won	11,75	5,09		
Expected goal (xG)	Lost	1,17	0,62	-1,468	,164
	Won	1,65	0,68		
Corner	Lost	5,50	2,87	2,118	0,53
	Won	3,00	1,69		
Possession percentage	Lost	49,50	12,17	-0,850	,410
	Won	53,75	7,20		

According to the results of the match given in Table 3, there were statistically significant differences in the ball recovery time ($t(14)=3,355$; $p<0,05$), the number of goals scored by the teams ($t(14)=-5,245$; $p<0,05$) and the number of goals conceded by the teams ($t(14)=5,612$; $p<0,05$). However, there was no statistically significant difference in the teams' pass accuracy percentage ($t(14)=0,265$; $p>0,05$), total number of shots ($t(14)=0,246$; $p>0,05$), goal expectancy ($t(14)=-1,468$; $p>0,05$), number of corners ($t(14)=2,118$; $p>0,05$), and percentage of possession ($t(14)=-0,850$; $p>0,05$).

Discussion and Conclusion

There are limited number of studies analyzing the effects of the ball recovery time on match results (Barreira et al., 2014; Cooper & Pulling, 2020; Bundesliga Match Fact Ball Recovery Time, 2023). That is why the discussion part was written just using these references. Considering Table 1, which contains the data on the matches examined in the study, it is seen that the number of goals scored by the teams increases as the time to win the ball decreases. This situation can be thought that it happens because one team regains possession of the ball quickly from the opponent team and catches its opponent off guard, and the team that catches the ball quickly from the opponent finds a goal with transition plays and counterattacks. In addition, as the ball recovery time teams to win the ball increases, the number of goals conceded decreases; It may be related to the fact that teams that regain the possession of ball faster cut off their opponents' attacks faster, giving their opponents fewer scoring opportunities. On the other hand, it is thought that the decrease in the number of goals scored as the time to regain the ball increases, causes the ball control to be left to the opponent, to move away from the opponent's goal and to have fewer scoring opportunities. However, it is seen that the points received by the teams increase as the time to regain possession of the ball decreases. This situation shows that teams that regain the ball faster exert pressure in the opponent's area and in areas closer to the opponent's goal, therefore scoring more goals and

get more points than their opponents. Regarding this, the results of Cooper and Pulling's (2020) study on both the English Premier League and the Spanish La Liga; It reveals that in both leagues, most of the goals are scored after the possession of ball is regained in the offensive zone of the field. In addition, Barreira et al. (2014) found that approximately 60% of the attacks that lead to scoring opportunities come because of the ball being snatched in the opponent's half, and that most of the attacks that result in goals by the best teams in Europe start in the third zone of the field. These studies mentioned above, which state that regaining the possession of the ball influences the number of goals, support the result of the research.

Considering Table 2 in the study, it is seen that the total number of shots, ball possession percentages and goal expectations increase as the teams' ball recovery time decreases. This result can be thought that it is since the balls that are regained quickly disrupt the defensive setup of the opponent, the teams that regain the ball quickly catch their opponents off guard in defense and are the side closer to the penalty area. However, as the teams' ball recovery time decreased, their ball possession percentages increased. This situation shows that the teams that press and possess the lost ball faster increase their possession percentages and therefore the time they play the ball. Regarding this, the results of the study by Sarmiento et al. (2018) investigated the effect of tactical and situational variables on the offensive actions of the teams during the matches in the Spanish La Liga, Italian Serie A, German Bundesliga, English Premier League and Champions League; It demonstrates the importance of regaining the ball, especially in offensive zones, in increasing the effectiveness of offensive sequences. This study, which states that grabbing the ball influences getting more scoring opportunities, supports the result of the research. The study conducted by Barreira, Garganta, and Anguera (2011) in which they examined the connection between the attacking play patterns of the national teams in the 2008 European Football Championship, the match situation (winning, drawing, and losing), and the types of ball recovery and possession. The results of this study show that teams showed performances aimed at developing the understanding of having the ball in the opponent's half of the midfield when losing the match. On the other hand, the results also show that when teams win a match, they often show defensive/offensive transitions by directly stealing the ball from the opposing team to approach the opponent's goal, and during a draw, teams exhibit various offensive methods to score goals.

When Table 3 examined in the study, it is revealed that there is a direct relationship between the time of the team's regaining possession of the ball and the winning-losing of the match. In the findings, it is seen that the time of the ball recovery of the teams that won the match was much lower than the time of recovery of the ball of the teams that lost the match. The situation of regaining the ball; Teams that regain the ball faster are expected to win the match, as it affects match-winning factors such as catching the opponent off guard in defense, finding more scoring opportunities and scoring more, finding more shooting opportunities, and conceding fewer goals in the own goal. Regarding this, the average goals scored by the teams that won the match were 2.25, while the average goals of the teams that lost the match were 0.62, and the average goals conceded by the teams that won the match were 0.5 and the average goals conceded by the teams that lost the match were 2.00. It shows that regaining the ball faster has a direct effect on scoring more goals and conceding fewer goals, thus winning the match. In the research on the teams that were successful in the World Cup, it was revealed that the four most successful teams in the 2010 World Cup, Germany, the Netherlands, Spain and Uruguay, had similar situations and statistics regarding regaining the ball (Barreira, Garganta, Guimarães, Machado, Anguera, 2014: 69). This study, which shows that the ball recovery time has a direct effect on the team's winning the match and the team's success, supports the result of the research.

Moreover, in the 2022-2023 German Bundesliga, Borussia Dortmund was the league leader in this area, winning the ball back with an average of 12.5 seconds. In the same season, Bayern Munich ranked second with 13.6 seconds. These two teams scored the most goals and won the most matches in the German Bundesliga in the 2022-2023 season (Bundesliga, 2023). These findings show that the ball recovery time has a direct effect on the team's winning the match and the team's success, supports the result of the research.

In conclusion, Ball Recovery Time (BRT) calculates the amount of time it takes for a team to regain possession of the ball, indicates how hungry a team is at winning the ball back and is measured in average ball recovery time in seconds (Bundesliga Match Fact Ball Recovery Time: Quantifying Teams' Success in Pressing Opponents on AWS | Amazon Web Services, 2023). As a result, this research reveals that recovering the ball faster is an important parameter for winning a match in football, and that recovering the ball faster influences winning the match.

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