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ORIGINAL RESEARCH

GOAL SCORING PATTERNS IN GREEK TOP LEVELED SOCCER MATCHES.

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Abstract

The purpose of the present study was to record and evaluate goal scoring patterns in Greek “SuperLeague” soccer matches (2007-08). 240 matches were studied where 558 goals were scored. Specifically it was recorded: 1) goal scoring frequency per 45 minutes 2) goal scoring frequency per 15 minutes, 3) first’s goal influence in the match’s outcome (for the team scoring the goal: win, draw, loss), 4) home advantage in tournament (win, draw or loss for home team). Results revealed that more goals were scored in the second half of the matches along presented a systematic upward trend in the number of goals scored as time progressed. Further, it appeared that first’s goal effect is strong in game’s outcome since in 74.2% of matches that a team scored first won the match. Concerning home advantage in Greece, it was shown that it is slightly strong compared to other league (home wins: 51.9%). Our results are in accordance with previous studies of Greek League but also with other competitions.

Key Words: soccer, football, goal, video-analysis, Greek League.

Introduction

Greek League began in 1906 but not since 1926 Greek Football Federation was established. Since then, all national Leagues are organized under Federation’s presence. Although, Greek’s soccer first steps began one century ago there is little information relatively its characteristics. In most major European Leagues there is an ample amount of scientific works that have collected their features.

The first study to our knowledge that tried to search Greek’s soccer characteristics was conducted by Saltas and Ladis (1992). In particular, it was examined offensive actions related in time, area of the pitch, prior actions, part of body, number of passes, first’s goal effect in the match’s outcome. In a more recent study Armatas and his colleagues (2008) examined Greek League 2006-07. Moreover, they recorded the effect of time towards goal scoring patterns, first’s goal effect in the match’s outcome and home advantage. Continuing the above work and in order to implode more information about Greek soccer the present study conducted. Thus, the aim of the present study was to record and evaluate the goal scoring patterns in Greek “SuperLeague” soccer matches of 2007-2008.

Methods

Sample

All matches of Greek “SupeLeague” 2007-2008 (n=240) were studied. 558 goals were scored in this tournament.

Study Design

The selected matches were analysed through systematic observation, with the aid of Sportscout video-analysis program for PC, by two experienced observers. Additionally, the inter-rater reliability of separate

observations was calculated to guarantee the quality of the observation system. A reliability index of 0.90 was observed (intra-class correlation coefficient and kappa index).

The analysis method assisted in observing: 1) goal scoring frequency per 45 minutes 2) goal scoring frequency per 15 minutes, 3) first's goal influence in the match's outcome (for the team scoring the goal: win, draw, loss), 4) home advantage in tournament (win, draw or loss for home team).

Statistical Analysis

All data were analyzed using the statistical package for PC SPSS 14.0. (Lead Technologies Inc, USA). Non parametric chi-square analysis was used to determine the statistically significant differences and the level of significance was set at $p < 0.05$.

Results

Although, data analysis showed that more goals were scored in the second half of matches, there was not a statistical significant difference (Figure 1). Concerning 15-min analysis, it was observed an upward trend in the number of goals scored at the end of each half (Figure 2).

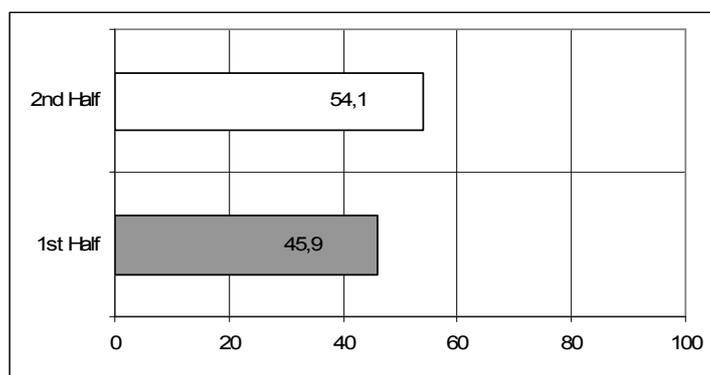


Figure 1: Frequency of goal scoring / 45 min.

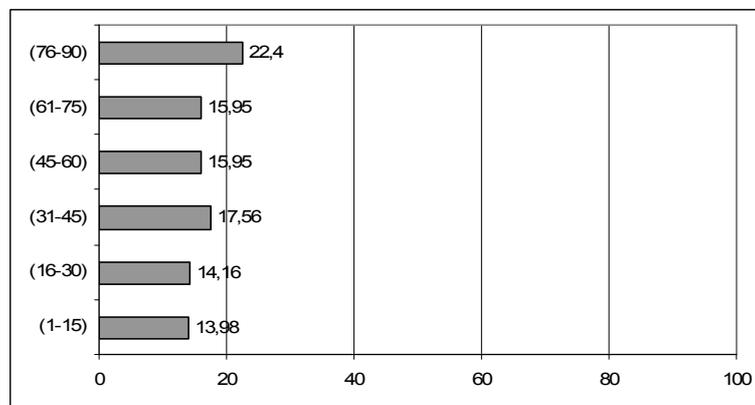


Figure 2: Frequency of goal scoring / 15 min.

As far as first's goal influence in matches' outcome, data analysis showed that the team scored the first goal was the winner of the match (74.2%) and presented statistical significant difference versus draw and loss ($p < 0.05$).

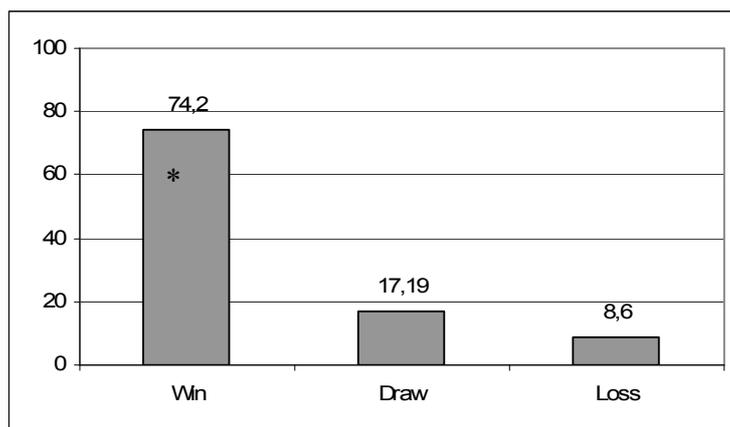


Figure 3: First's goal influence to the match's outcome.

The results revealed that there is strong home advantage in Greek League (Figure 4). Thus, it was presented that home teams won 47.3% of matches, 26.34% of matches were draw and lost 26.4% of matches. Statistical analysis showed significant differences between “win” compared to “draw” and “loss” ($p < 0.05$).

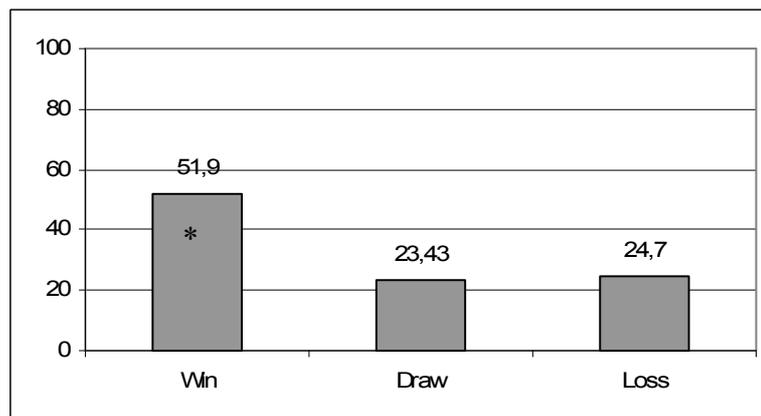


Figure 4: Home advantage.

Discussion

As far as relationship between time and goal scoring patterns concerned, results presented that more goals scored as time progressed. Saltas and Ladis (1992) studied Greek A' Division soccer matches of 1990-91 season and presented a uniform distribution in goals scored without any significant statistical differences. In the most recent study for Greek soccer, Armatas et al. (2008) concluded that statistically more goals are scored in the second half and at the last 15-min of the matches. Likewise, there is an ample amount of studies that searched relationship between time and goal scoring in other competitions. Thus, Abt and his colleagues (2002) concluded that frequency of goals scored during soccer matches is time dependent. Moreover, it was observed a systematic and significant upward trend in the number of goals scored as time progressed. Kirkendall et al. (2002) examined men and women World Cups of 1998 and 1999 respectively and presented that a large fraction of the goals scored in the men's game occur late in the second half while goals in the women's game are a little more evenly spread through the game. Men also scored 35% in the beginning of the second half. Yiannakos and Armatas

(2006) in their study of Euro 2004 find that 57.4% of goals were scored in second half ($p < 0.05$). Also, Armatas and his colleagues (2007b) studied exclusively the correlation between time and goal scoring in the three later World Cups and concluded that statistically more goals are scored at second half of matches and on the last 15 minute period of them. Another study that examined the three later women World Cups showed similar results (Armatas, Yiannakos, Galazoulas & Hatzimanouil, 2007a).

The above results could be attributed in physiological and tactical factors of the game. According to Reilly (1996), defenders present a greater deterioration in physical condition (thereby providing attackers with an advantage) and lapses in concentration. From a purely physiological perspective there is a strong body of

knowledge supporting a reduction in physical condition over the course of a match leading to a state of fatigue and reduced physical performance (Bangsbo, 1994; Saltin, 1973). Additionally, the same author reports that play may become urgent towards the end of play as teams chase a result. Although, “urgent” game is difficult to quantify, it would appear that the players are more willing to take greater risks towards the end of a match in order to affect an outcome (Abt et al., 2002). Finally, it is also possible that the losing team pushes players forward in order to create scoring opportunities, thereby scoring themselves or conceding further goals (Reilly, 1997). As far as highly percentage in second’s half first period (46-60 min) of the match concerned, could be a result of teams being prepared to play immediately in the second half instead of using the early minutes to warm-up for the remainder of the 2nd half (Bangsbo, 1994).

Concerning first’s goal effect in game’s outcome for the team that scored it, results presented that when a team scored the first goal, managed to get victory in greater percentage (74.2%). Saltas and Ladis (1992) in their early study concluded that in 70.3% of the matches that a team scored first managed to win, 11.2% draw and 18.5% of matches were lost. Moreover, Armatas et al. (2008) examined first’s goal influence in Greek League 2006-07 and presented similar results (71.43% win). Researchers attributed their results in qualitative differences between top teams compared to the rest, taking into account goals and points that were collected in 2006-07 season. The above justification could explain our results too, inasmuch as final standings in 2007-08 season are similar with those of season 2006-07. Another study that examined first’s goal influence in World Cup’s 2006 soccer matches concluded similar results (73.21%) (Armatas & Yiannakos, 2008).

Home-field advantage in professional team sports is a long-standing and well-established phenomenon (Carmichael & Thomas, 2005). Although there is a great number of studies, examining various soccer tournaments, home advantage phenomenon in Greek soccer has not been examined extensively. In the present study results showed that home teams won 51.9% of matches. Armatas and his colleagues (2008) examined season’s 2006-07 SuperLeague’s soccer matches and concluded similar results (win: 47.3%). Moreover, Courneya and Carron (1992) present home advantage figures, involving a quantitative synthesis of studies that have examined home advantage in major team sports in terms of the win percentage of decided games, reporting soccer 69%. A retrospective analysis of home advantage was conducted by Pollard and Pollard (2005) for English soccer. Thus, they presented that the early years of the Football League in England saw home advantage averaging close to 70%. There was then a decline to values below 65%, but by the 1930s home advantage was averaging around 67%. However, the 7-year suspension of the league during the Second World War was followed by an immediate drop in home advantage to its lowest ever value of 60.0%. A slight increase followed, but since the late 1980s annual values below 60% are not uncommon. In particular, concerning years 2000-01, 2001-02 and 2002-03 the same researchers presented the following percentages 62.8%, 57.4% and 62.0% respectively. Thus, percentage of home wins in our study seems diminished compared to the above. It could be attributed to great qualitative differences between teams participated as presented above.

Apart from the above reason, Nevill and Holder (1999) proposed four factors that differentially impact on teams competing at their own versus an opponent’s venue. These include crowd factors, an acknowledgement that generally competitors at home have more support from spectators than do visiting competitors, learning/familiarity factors, an acknowledgement that competitors at home are generally more familiar with their own venue and also have the opportunity to modify that venue temporarily in order to capitalize on their perceived strengths (e.g. soften the pitch through excessive watering). Moreover, travel factors, an acknowledgment that visiting competitors generally must undergo the inconvenience of some travel and rule factors, an acknowledgment that in some sports the rules may favour the home team.

Results should provide useful information for Greek soccer League but also for characteristics of Greek soccer. Some practical implications for coaches and players are:

- attention should be given at the end of matches where most goals are scored,
- prompt players to achieve first goal of the match
- teams should take advantage of home advantage

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