The Pattern of Scored Goals in Women's Football Teams – Romania

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Abstract

Purpose. The aim of the work is to analyze the way of scoring goals in the Selena women's football team.

Methods. For this, we analyzed the matches of the National Women's Football League championship of the Selena Constanta Team, respectively the matches of the Vasas Odorheiul Secuiesc Team. To obtain the information, we used the FRF TV website and the videos posted by the teams on their pages. The analysis consisted of recording the following data: - the field area where the goals were scored; - the gate area where the goals were scored; - the percentage of goals scored in each field area shown; - the percentage of goals scored in each area of the gate perimeter.

Results. The most goals were scored in zone G for both teams, the percentage being 18.18% (Selena) and 22.58% (Vasas). In the Selena team, the scoring percentage in the upper areas of the gate are lower than the the center area, respectively the lower area of the gate, which has the best percentage. In the upper area of the gate, the highest percentage is in the center, in area B (11.36%), while the upper lateral areas, A (6.81%) and C (4.54%), have a percentage deficit. The highest enrollment percentages at Vasas are from zones I (16.12%), II (54.83%), III (12.90%), while at Selena the highest percentages are from zones I (27.27%), II (36.36%) and VI (15.10%). In the Selena Team, the most goals, in absolute value, were scored between minutes 16-30. Vasas, however, do not have a favorite time period, this having goals scored equally in 3 time periods

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of the match, these being from the 31st minute to the 75th minute. Regarding the total number of goals scored in each half, we note that the number of goals scored by the Selena Constanta Team is higher in the first half than the second - 26 goals compared to 18 goals in the second half. While, for the team from Odorheiul Secuiesc, the ratio is reversed - the number of goals scored is higher in the second half, compared to the first half, namely 19 goals scored in the second half, compared to only 11 in the first half.

Conclusions. The most goals were scored from the central axis of the gate perimeter and predominantly from zones II and I - Selena Constanța 28 goals, Vasas - 22 goals. The most goals were scored from zone II both at Selena Constanța (16 goals) and at Vasas (17 goals). Most goals were scored in the lower left corner (zone G) for both teams, the percentage being 18.18% (Selena) and 22.58% (Vasas). The most productive period of scoring a goal was the middle of the first half, for the Selena Constanta Team, followed by the first 15 minutes of the second half, while for the Vasas Team, the most productive periods are the end of the 1st half and the first half of the 2nd half. The number of goals scored by the Selena Constanta Team is higher in the first half compared to the second - 26 goals compared to 18 goals in the second half. While, at the team from Odorheiul Secuiesc, the ratio is reversed - the number of goals scored is higher in the second half, compared to the first half.

Keywords: notational analysis, women's football, goal scoring pattern.

1. Introduction

Early research that used notational analysis focused on the analysis of each movement or rate of effort during a soccer match (Yamanaka & Hughes, 1993). As a result of the data provided by the notational analysis and based on comprehensive statistics of the number of goals scored, some practitioners were able to formulate the laws of training.

Considerable effort has been devoted to establishing objective forms of analysis and demonstrating their importance in the training process (Bangsbo & Peitersen, 2000). But there are difficulties faced by any individual trying to objectively analyze and remember the events that occur in complex team games such as football. One of the main solutions to these inherent problems has been the use of notational analysis systems. Coaches, researchers in the field have designed and developed information collection systems that over the last three decades have been markedly improved (Jones, James & Mellalieu, 2004). While the traditional analyst often used a pen and notebook to write down all the events he considered relevant, technologies such as Opta, Dartfish or Sportscode have become a central asset for today's notational analysts (Hughes & Franks, 2001). The use of a video camera and video analysis software can now provide the analyst with a wide range of features and tools to collect as much information as is needed to assess performance against specific performance indicators (Olsen, 1995, Murphy, Reilly & Spinks, 2002).

Notational analysis is a technique by which the permanent recording of the actions that belong to a sports event is made and is widely used by sports teams (Mitrotasios & Armatas, 2014, Gidu, et all, 2021). In football, notational analysis has provided and continues to provide valuable information that coaches and athletes use to improve their training process. Since scoring a goal is the most important action in football, most notational analyzes have been made in this direction. A number of authors have found that a large proportion of goals are scored from free kicks, which represent 1/3 of all goals scored (Bangsbo & Peitersen, 2000, Scanlan, et al., 2020, Muşat et all, 2021).

Since, according to our knowledge, not many studies have been carried out in Romania that have as their theme this type of analysis in women's football, we thought that a work like this can be not only interesting, but also particularly useful for specialists in the field.

We assumed that the analysis of the way goals are scored in women's football teams can reveal different patterns in matches played at home, compared to those played away.

2. Method

For this, we analyzed the matches of the National Women's Football League championship of the Selena Constanta Team, respectively the matches of the Vasas Odorheiul Secuiesc Team. To obtain the information, we used the FRF TV website and the videos posted by the teams on their pages. The matches of the 2 teams were analyzed during 3 competitive seasons, starting with the 2018-2019 season – 120 soccer games, 60 for each

team. The study was based on the researcher's personal observation that recorded the following data:

- the field area where the goals were scored (Figure 1);
- the goal area where the goals were scored (Figure 2);
- the time period in which the goals were scored;
- the number of goals scored;



Figure 1. The areas of the field where the goals were scored

I. the 6m square; II. the space between the edge of the 6m square and the point at 11m; III. the space between the point at 11m and the edge of the 16m square; IV. the space located on the right side of the 16m square and contained between its lateral edge and that of the 6m square (which extends imaginarily up to 16m); V. the space located on the left side of the 16m square and contained between its lateral edge and that of the 6m square (which extends imaginary up to 16m); VI. the space located outside the 16m square, contained between the side lines of the 6m square, imaginary extended; VIII. the space located outside the 16m square, on the right side, between the lateral lines of the 16m and 6m squares, imaginary extended



Figure 2. The areas of the goal where the goals were scored

A - left link of the gate; B - the center of the top gate; C - right link of the gate; D - half height left; E - half height of the center of the gate; F - half height right; G - lower left corner; H - the center of the lower gate; I - lower right corner.

3. Results

3.1. The field area where the goals were scored

The highest enrollment percentages at Vasas are from zones I (16.12%), II (54.83%), III (12.90%), while at Selena the highest percentages are from zones I (27.27%), II (36.36%) and VI (15.10%).

3.2. The area of the goal where the goals were scored

Most goals were scored in zone G for both teams, the percentage being 18.18% (Selena) and 22.58% (Vasas). In the Selena team, the scoring percentage in the upper areas of the goal are lower than the area in the center of the goal, respectively the lower area that has the best percentage.

3.3. Time period in which goals were scored

In the Selena team, the most goals, in absolute value, were scored between minutes 16-30. Vasas, however, do not have a favorite time period, this one having goals scored equally in 3 time periods of the match, respectively from the 31st minute to the 75th minute, proving that they have a more homogeneous team and a better physical condition.

The number of goals scored. Regarding the total number of goals scored in each half, we note that the number of goals scored by the Selena Constanța team is higher in the first half compared to the second - 26 goals, respectively, 18 goals in the second half. While, for the team from Odorheiul Secuiesc, the ratio is reversed - the number of goals scored is higher in the second half, compared to the first half, namely 19 goals scored in the second half, compared to only 11 in the first half.

4. Discussions

4.1. The field area where the goals were scored

Looking at the graph below, it can be seen that the most goals were scored from zone II both at Selena Constanța (16 goals, which means 36.36%), and at Vasas, where more than half of the total goals were scored from this area (17 goals, respectively 54.83%).

At Selena, from zone I, a percentage close to that recorded in zone II was scored, the difference being four goals (12 goals from zone I and 16 from zone II).

In third place in terms of scored goals is zone VI with a significantly lower number of goals compared to the first two zones (7 goals).



Figure 3. The field area where the goals were scored

The most goals scored in Vasas are from zones II (17 goals), I (5 goals) and III (4 goals), while in Selena the highest percentages are from zones II (16 goals), I (12 goals), and VI (7 goals). The first two areas are common to both teams, the difference being Selena's VI area, which proves that they had a better percentage of scoring goals from outside the 16m box. Regarding the side areas of the 16m box m (zone IV and V), as expected, the number of goals scored is lower than the central zones in both Selena and Vasas, both teams having only one goal scored from the side zones. And Garganta J (1995), Yiannakos & Armatas (2006), Armatas et all (2007) and Kubay (2020) find that the majority of goals were scored inside the goal area.

4.2. The area of the goal where the goals were scored

The most goals were scored in the G zone for both teams, 8 for Selena and 7 for Vasas. In the Selena team, the number of goals scored in the upper areas of the goal is lower than the area in the center of the goal, respectively the lower area that has the best percentage. In the upper area of the goal, the highest number of goals scored is in the center, in area B (5), while the upper side areas, A (3 goals) and C (2 goals), are poorly exploited.



Figure 4. The goal area where the goals were scored

The D-G side area is superior to the F-I area, scoring more goals on the left side of the goal – 15 goals (area D -7 and area G – 8 goals), while a total of 12 goals were scored in the right area of the goal (zone F - 5 and zone I – 7

goals). From the total surface of the goal, the most accessed part is the lower area, made up of areas G, H, I. After this analysis, I noticed that the shots placed in the lower corners were more favorable to the Selena team. In zones E and H it is less likely to score goals, because these zones are always covered by the goalkeeper. In the Vasas team, most goals are scored on the left side of the goal, namely zone A (4 goals), D (5 goals) and G (7 goals). As with the Selena Constanța team, most of the goals were scored in the lower right and left corners.

4.3. Time period in which goals were scored

In the Selena team, the most goals, in absolute value, were scored between minutes 16-30, respectively 12 goals. Vasas, however, do not have a favorite time period, this having equal goals scored in 3 time periods, namely, 31-45, 40-60 and 61-75, proving that they have a more homogeneous team and a better physical condition.



Figure 5. The time period in which the goals were scored

4.4. The number of goals scored

Regarding the total number of goals scored in each half, we note that the number of goals scored by the Selena Constanța team is higher in the first half compared to the second - 26 goals compared to 18 goals in the second half. While, for the team from Odorheiul Secuiesc, the ratio is reversed - the number of goals scored is higher in the second half, compared to the first half, namely 19 goals scored in the second half, compared to only 11 in the first half.



Figure 6. The number of goals scored

Overall, the efficiency in terms of goals scored is higher for the seaside team – 44 goals, compared to 30 goals for the Vasas team. The difference can be attributed to the value of the echelon in which the two teams evolve. At the Selena Constanța team, I also watched the matches from the second echelon of women's football - where the level of the participating teams is not that high. While at the Vasas team, I only watched the matches in the League 1 championship, where, the value of the teams being more homogeneous, fewer goals are scored.

Armatas et all (2007) and Kubay (2020) concluded that more goals were scored in the second half (52.4 vs. 47.6).

5. Conclusions

Most goals were scored from the central axis of the goal and predominantly from zones II and I - Selena Constanța 28 goals, Vasas - 22 goals. The most goals were scored from zone II both at Selena Constanța (16 goals) and at Vasas (17 goals).

Most goals were scored in the bottom left corner (zone G) for both teams, the percentage being 18.18% (Selena) and 22.58% (Vasas).

The most productive period of scoring a goal was the middle of the first half, for the Selena Constanța team, followed by the first 15 minutes of the second half. While for the Vasas team, the most productive periods are the end of the 1st half and the first half of the 2nd half.

The number of goals scored by the Selena Constanța team is higher in the first half compared to the second - 26 goals compared to 18 goals in the second half. While, at the team from Odorheiul Secuiesc, the ratio is reversed - the number of goals scored is higher in the second half, compared to the first half.

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