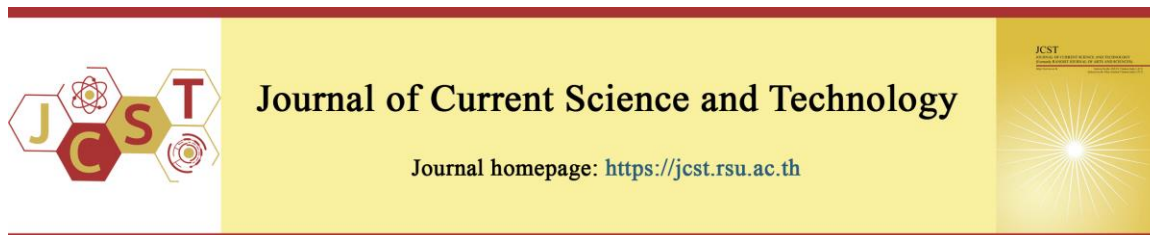


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Analysis of Goal Scoring Indicators in The Futsal Thailand League 2021

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Abstract

This research study examined how teams scored goals in the Futsal Thailand League 2021 and compared them between winning and losing teams. Futsal Thailand League 2021 occurred from October 9 to January 30, 2022. Analysis was conducted based on competition results and recorded video files of the matches. There were 364 matches and 6,603 data points in total. Indicators of goal-scoring ability in the Futsal Thailand League 2021 time to score: 35–40 minutes (1.09 ± 0.96 goals per match). This was the time period that saw the most goals scored. Open play (76.95%) is the most commonly used play type. Type of play: counterattack (2.12 ± 1.25 goals per match), scoring in zone B (2.63 ± 1.16 goals per match), scoring technique type: inside foot (3.21 ± 1.35 goals per match), goal scoring position: bottom mid (1.33 ± 0.86 goals per match), and compare the indicator between winning and losing teams. On the side, Time to score: 35–40 minutes. Open play is a type of play. Counterattack, scoring zone B Type of scoring technique using the inside of the foot Goal scoring position: bottom middle. A statistically significant difference was found at the 0.05 level.

Keywords: Performance analysis; Goal scorers; Futsal Thailand League

1. Introduction

The Futsal Thailand League is the highest professional futsal competition in Thailand. The Football Association of Thailand organizes the tournament. The tournament was first organized in 2006 and currently has 14 clubs participating. The year 2021 was the latest competition in the domestic futsal league, which has a variety of styles of play and strategies created creatively. Futsal is a trendy sport for the Thai public because it is a sport that has a fast-paced, fun, and exciting game at every minute of the competition. In addition, skills such as dribbling, long pass, short pass, ball control, rotation, and shoot are performed at high speeds, demonstrating the importance of power in futsal (Farhani et al., 2022). Currently, the sport of futsal has evolved in terms of competition rules. Gameplay, unique

skills, fun, and challenge, with rules in place to control the competition (Sport Science Bureau, Sports and Recreation Development Office, 2006). Nowadays, all countries are constantly paying more attention to and popularizing the sport, resulting in various world-class tournaments. So, teams must constantly work to improve their training style or game plan to improve their players' physical fitness and athletic skills so that they are ready to compete (Abt et al., 2001). Futsal is a sport that requires both physical fitness and skill for competitive play. Basic skills in futsal include 1. dribbling skills, 2. ball-handling skills, 3. ball-picking skills, 4. ball-guessing skills, 5. ball-head slammed skills, 6. goal-scoring skills. Athletes with good basic skills gain an advantage. In gameplay, goal-scoring

skills are vital. If athletes have practical goal-scoring skills, they will win the competition.

The difference between futsal and football is the smaller pitch size in futsal and the different ball characteristics. Futsal balls are typically heavier and have distinct characteristics compared to soccer balls. Futsal balls are made to fit the fast-paced style of play so that both defensive and offensive games can go on without stopping. Futsal is a demanding team sport involving strenuous high-intensity bouts of running accelerations and decelerations along with kicking, tackling, turning, changes of direction, and repeated sprinting. (Teixeira et al., 2022). The most important aspect of the sport of futsal is to play offensively. A team with an effective scoring technique can win the match (Department of Physical Education, 2010b). The rules of futsal say that the team that scores the most goals during the game wins, and when trying to score goals, players can perform various types of passes, such as short, medium, and long passes (Doewes et al., 2022). Due to the size of the stadium, with an area of 25–42 metres in length and a width of 15–25 metres, there is a fast style of play and frequent goals scored in competitive games. Futsal is a multiple-sprint sport with more high-intensity phases than soccer and other intermittent sports (Barbero-Alvarez et al., 2008, Suryadi et al., 2023). Futsal scoring characteristics of world-class futsal players, such as shooting, make it difficult for the ball to increase its strength and defense. Scoring goals is at the heart of the competition; whichever team scores more effectively will have a chance to succeed and win (Abt et al., 2001). So, players must learn and practice different ways to score from every distance and angle (Aparecida Alves Rodrigues et al., 2023).

Goals can be divided into three phases; near, medium, and long (close range), with an 80% chance of a goal, a 60% chance of medium distance, and a 30% chance of long distance, depending on training and how each team plays. Therefore, long-range goals should be used as little as possible, and find opportunities to score at close range as much as possible (Spyrou et al., 2023). Therefore, good performance or skill is an essential factor in choosing the right strategy to compete in, and it is vital to indicate a win-win outcome by knowing the characteristics, patterns, and ways of playing; movement; and skill application. To better understand the constraints

that promote sporting success, the basic technique of playing futsal that is most often done in the game. This requires established cooperation among players in a team. In addition, some of the goals occurred through precise technique (Supriadi, A., 2022). Match analysis has assumed a significant role in sports games (Carling et al., 2009). In futsal, match performance can be defined as the interaction of different technical, tactical, mental, and physiological factors (Carling, 2010). Obtaining information on athletes of a high calibre will be a fundamental and valuable approach to developing athlete training (Drust et al., 2007; Barros et al., 2007). Currently, studies and research reports study competitive pattern analysis using notational analysis methods, both hand notational analysis and computerized notational analysis (Franks & Hughes, 2004). Performance analysis is one of the most widely used methods, where researchers record competitive videos and use software packages to analyse the patterns of how they play in various events that took place in the competition (Hughes et al., 2019). Proper statistical analysis can aid in selecting techniques or strategies that will give athletes or sports teams a competitive edge. Reducing team shortcomings creates an opportunity for the team to succeed in competitive games and is a helpful back-and-forth in the practice of each sport (James, 2006). For this reason, researchers are interested in studying the analysis of competitive goal-scoring indicators. Thai Futsal League makes a difference in results between the winning and losing teams. Using the data from the analysis to plan the futsal team's strategy for scoring goals will help the team win and make fewer mistakes during competition. It gives athletes more chances to win and helps them train well and meet their training goals.

2. Objectives

To study the performance and analyze the indicators of the goal-scoring performance of futsal in the Thailand League 2021. Furthermore, compare scoring performance indicators between the winning and losing teams.

3. Materials and methods

This research is an analytical project aimed at studying competitive scoring indicators. Futsal Thailand League 2021 and compare the scorecard indicators in the competition between the winning and losing teams. Examples include matches in the

2021 Futsal Thailand League between October 9 and January 30, 2022. In this competition, 364 games were recorded, giving 6,603 data points (goal-scoring time, type of play, scoring area, goal-scoring technique, and goal-scoring position).

The following is a three- step research procedure:

Step 1: Carefully study the different parts of the game, techniques, strategies, and scoring patterns of futsal, and then make a form for collecting data.

Step 2: Collect information from the competition. Competitive goal-scoring indicators include:

1. Goal time minutes (0-5, 5-10, 10-15, 15-20, 20-25, 25-30, 30-35, 35-40)
2. Types of open play
 - 2.1 Positional attack
 - 2.2 Direct play
 - 2.3 Attacking while expecting a defensive set to counterattack.
3. Type of set play
 - 3.1 Free kick
 - 3.2 Cornerback (Conner)
 - 3.3 Penalty kick
 - 3.4 Kick in from the side-lines
4. Scoring area (areas A, B, C, D, E, F, G, H, and I)
5. Goal-scoring techniques
 - 5.1 Shot with the back of the foot.
 - 5.2 Shot with the inside foot.
 - 5.3 Shot with the outside foot.
 - 5.4 Shot with a toe.
 - 5.5 Shot with a head slammed the ball.
 - 5.6 Goals score with other parts of the body.
6. Scoring position
 - 6.1 In the upper left corner of the top left door
 - 6.2 In the upper middle of the top mid door.
 - 6.3 In the upper right corner of the top right door.
 - 6.4 In the lower left corner of the bottom left door.
 - 6.5 In the middle of the bottom of the mid-door.
 - 6.6 In the bottom right corner of the bottom right door.

Step 3: Use the data from the recording and the data collection form to look at the performance indicators that happen every time with the Focus X2 program. This programme works with key performance data resulting from competitions. Then report the results as performance occurs in the competition. By importing VDO competition into the programme and then designing and creating buttons to analyse based on the variables in the research. Then, click "Follow the VDO event." When the data tally is complete, we can select the reporting according to the performance requirements. The data for statistical analysis, the mean (*M.*), and standard deviation (*SD.*) are calculated.

Step 4: Analyse the data from the recording on the data collection form by getting data from video footage to analyse the performance indicators that happen regularly with the Focus X2 program, and then process and calculate the average value (*M.*) and standard deviation (*SD.*) to take the data for statistical analysis.

Step 5: Look at the SUM value, the average (*M.*), the standard deviation (*SD.*), and the percentage value to find the most critical indicators in each area. We can then use statistical analysis to compare the winning and losing teams.

Step 6: Compares the scoring indicators between the winning team (*n* = 182) and the losing team (*n* = 182) using the independent t-test statistics, with the statistical significance value set at 0.05.

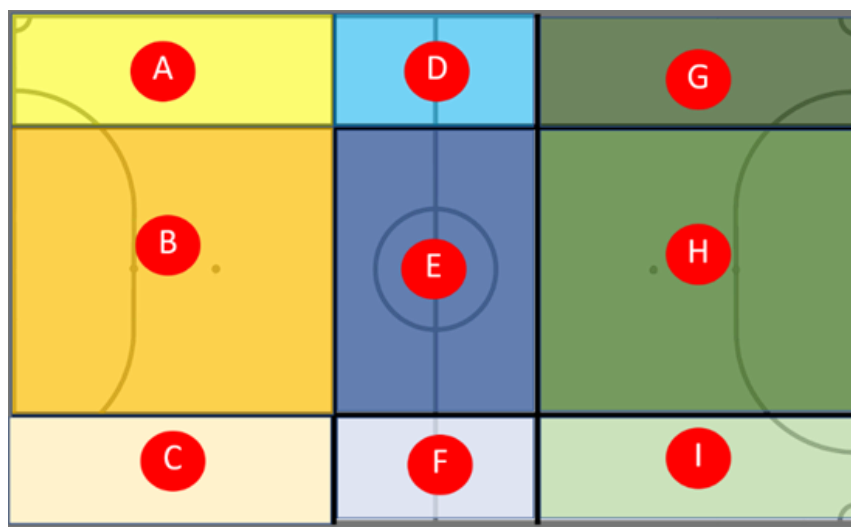


Figure 1 The division of the scoring area (Reangyay & Rangubhet, 2021)

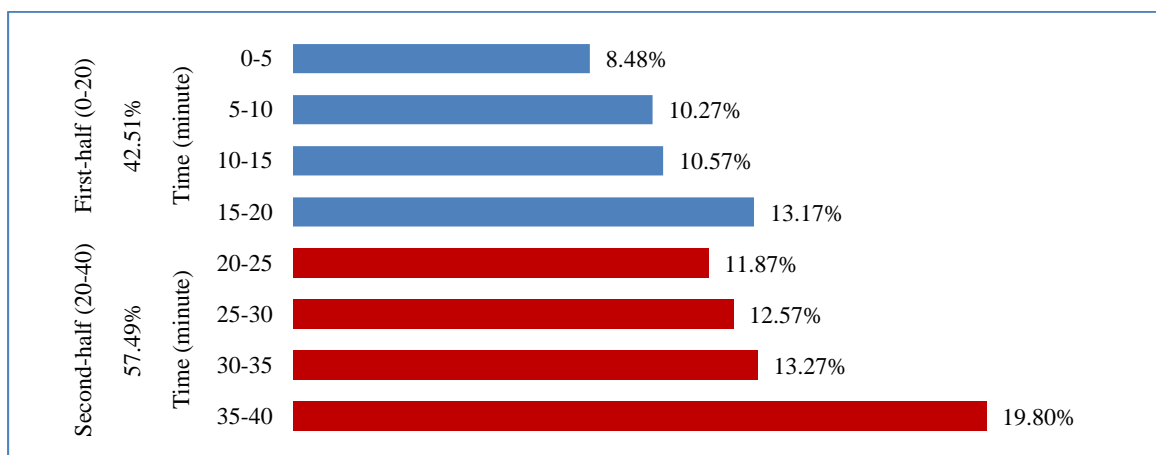


Figure 2 The percentage of the goal-scoring time.

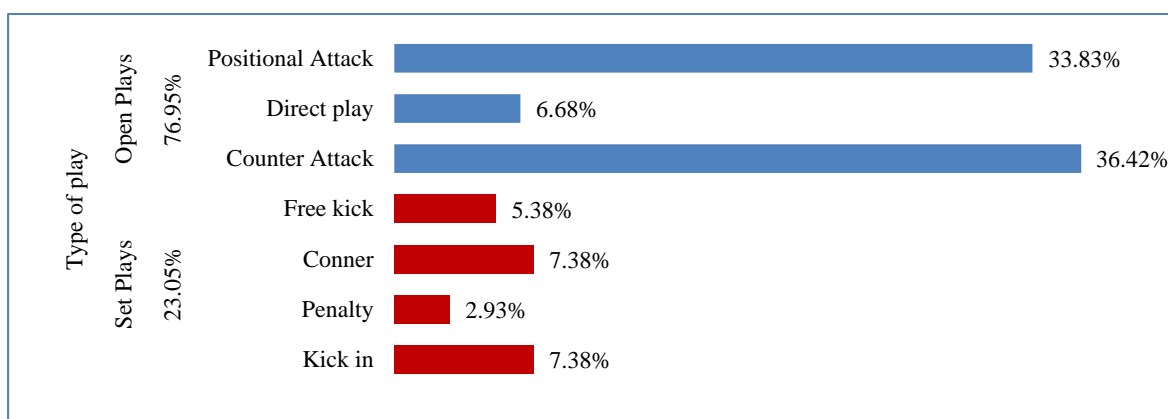


Figure 3 The percentage of the type of play (open play, set play)

4. Results and discussion

4.1 Results

Between October 9 and January 30, 2022, the study examined 364 futsal matches in the Thailand League, analysing 6,603 data points (goal time, type of play, scoring area, scoring technique, scoring position).

According to Figure 2, with the most goals scored in the second half, the percentage is 57.49% per match, and the minute of scoring is 35–40 minutes, a percentage of 19.80% per match, followed by minutes 30–35, a percentage of 13.27% per match.

According to Figure 3, the types of plays are: 76.95% open plays, a counterattacks percentage of 36.42% per match, 23.05% set plays, Conner's kick,

and a kick in an average percentage of 7.38% per match.

According to Figure 4, the top three most scoring areas are zone B percentage 48.01% per match, and zone A. percentage 18.56% per match, while zone C percentage 17.76% per match.

According to Figure 5, the three most common goal scoring techniques are: the inside foot, and percentage of 57.88% per match; the back of the foot, and percentage of 30.33% per match; and shots with the toes. percentage of 8.38% per match.

According to Figure 6, the three most goal scoring positions are bottom midfield percentage 24.15% per match, and bottom right. percentage 23.37% per match; bottom left: percentage 22.25% per match.

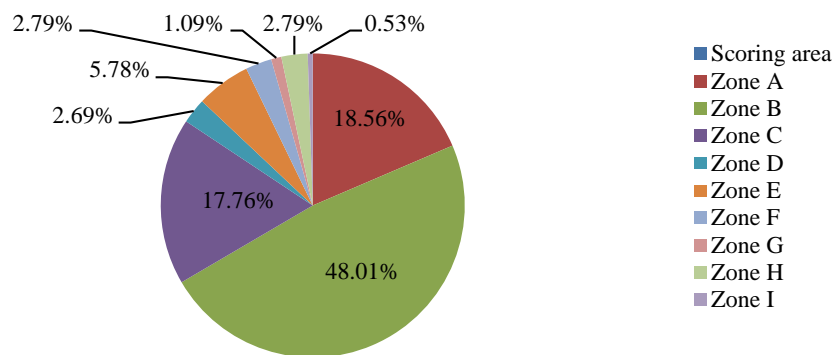


Figure 4 The percentage of the Scoring area.

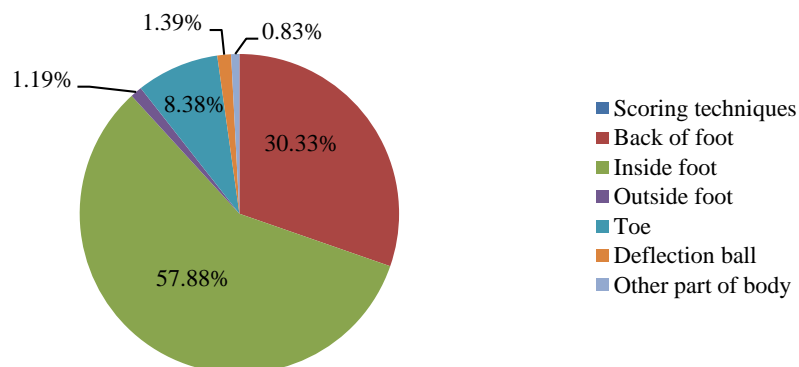


Figure 5 The percentage of the Scoring techniques.

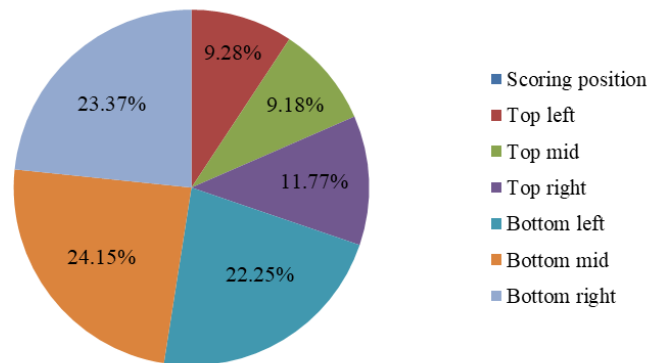


Figure 6 The percentage of the Scoring position

Table 1 Shows a comparison of the scoring indicators between the winning team and the losing team.

Performance Indicator	Winner (n=182)			Looser (n=182)			All match (n=364)		P
	SUM	M.	SD.	SUM	M.	SD.	M.	SD.	
scoring time									
35-40 minutes	132	0.73	0.65	41	0.23	0.43	1.09	0.96	0.000*
Type of Open play									
Counterattack	255	1.40	0.81	76	0.42	0.51	2.12	1.25	0.000*
The scoring area									
zone B	292	1.60	0.85	111	0.61	0.56	2.63	1.16	0.000*
Scoring techniques									
Inside foot	358	1.97	0.85	130	0.71	0.67	3.21	1.35	0.221
Scoring position									
Bottom mid	147	0.81	0.61	51	0.28	0.45	1.33	0.86	0.007*

*p<0.05

According to Table 1, the scorecards between the winning team and the losing team found that the scoring time is 35-40 minutes, the winning team's average is 0.73 ± 0.65 , the losing team's average is 0.23 ± 0.43 , the type of open play is a counterattack format, the winning team's average is 1.40 ± 0.81 , the losing team's average is 0.42 ± 0.51 , the scoring area is zone B, the winning team's average is 1.60 ± 0.85 , the losing team's average is 0.6 ± 0.56 , the goal-scoring technique is shot with the inside foot.

4.2 Discussion

Another approach is leading a team to success by analysing the performance of sporting events. The goal is to watch, investigate, and evaluate information about different things that happen during the competition so that it can be used to improve and fix the team's quality development (Rangubhet, 2019). Analysis of scoring indicators in the 2021 Futsal Thailand League and comparison of the scoring metrics in a match between the

winning and losing teams between 9 October 2021 and 30 January 2022, a total of 364 matches were played. It gives an idea of the critical metrics for scoring goals and the indicators that show differences between the winning and the team that lost the match. The discussion is divided into six topics as follows:

A measure of the time spent scoring a goal in a match, with the most goals scored at the end of the second half, minutes 35–40. According to the analysis, goals are happening during this time because players are starting to use their offensive strategies to score goals, significantly to gain an advantage at the end of the game before running out of time in the race. Another reason is that during this period, for teams that are at a disadvantage in terms of results, the style of play will be changed by adding goalkeeper position players to participate in power plays in order to score goals and hope for victory, thus opening up the possibility of being attacked by the opposing team, which plays back to score goals and concedes many goals (Armatas et al., 2007). Therefore, during that time, the most

goals were scored in the competition, similar to football (Michailidis et al., 2013). At the 1998 World Cup, the most goals were scored at the end of the game. There was also a shooting trend at the 1998 and 2002 World Cups. A goal at the end of the match.

Indicators of the type of play showed that most athletes opted for open play, with 76.95% over set plays, accounting for 23.05%. Moreover, it is a counterattack format that focuses on getting rid of backs quickly to take advantage of having more players than the other team when players are attacking. It is because most of the game's image focuses on continuous raids. Focus on connecting with the ball to score goals. Avoid losing touchdowns from interceptions. Breaking the rules or removing the ball set plays necessitate many factors, including the distance from which the ball is obtained, the height of the ball being delivered, the speed with which the ball is delivered, and the appropriate pace for a compelling entry. Therefore, most athletes do not prefer to use set plays. It is in line with a study (Armatas & Pollard, 2014), which found that the categories played at the European Football Championship that scored the most goals were open plays (72.4 percent) and set plays (27.5 percent).

The scoring area indicator that scored the most goals in this research was zone B at 48.01%. Most teams prefer open-play attacks and counterattacks centred on connecting with the ball to score goals. It is popular to place the ball in the middle of the field. zone B (Department of Physical Education, 2010a), as opposed to secondary areas like zone A and zone C, has angles for scoring close and long distances on each shot. zone A and zone C are bounded areas. It is about the angle of scoring goals. With only one corner in each area, scoring goals and being more accessible for the opponent's defense is challenging. As a result, most athletes who engage in offensive action in such areas are unpopular.

The most common scoring technique in this competition is the goal with the inside foot technique, scoring 580 goals, representing 57.88% due to the inside-foot goal-scoring technique. It is accurate and has much texture to the ball. It can better control the direction of fire. Other scoring techniques Shooting the ball with the inside foot can be done at a close range of about 20 meters and is the easiest way to score goals. It is only 25 meters long. Teams that make attacks when they can get the ball through the middle of the field can easily use the inside-footed shooting technique and have a

high chance of scoring from that technique (Abt et al., 2001).

With Scoring position indicators in the penalty area frame, the front door is considered a danger zone, and it is easiest to score the most goals there. Most athletes prefer to score goals. In such areas, a large number. The results showed that the area where the most goals were scored was in the middle of the penalty area, which was in the middle of the goal, and the player could freely choose the angle to score (Abdel-Hakim, 2014). The most popular scoring position in this competition is that of the bottom midfield, which has scored 242 goals, representing 24.15 percent. Most goalkeepers are born in the manner of a smooth ball that passes between the legs of the goalkeeper, as most goalkeepers choose to cut the ball to close the goal-scoring corner in the left-right corner position. It should protect the mid-goal position more. Another reason for defending the ball in the bottom midfield position is that the goalkeeper cannot fall to pick up the ball fast enough, thus conceding quite a lot of goals in that position (Paz-Franco et al., 2014).

In comparing scoring metrics between the winning and the losing teams at 0.05, there is a statistically significant difference between the winning and losing teams on all indicators: goal time in a match, type of play, goal area, technical aspect of goalkeeping, and goal position. Because futsal is a fast-paced sport, players are constantly switching between being on offense and defence. The competition and chances for goaltending are high. Match During the minute-match period, the winning team had a higher scoring average than the losing team since, during that period, it was the end of the game. They were forcing the disadvantaged team to stay. To change the style of play to "power play," you bring in goalkeepers to contribute to the attacking game (Aires, 2011). As a result, the team lost its goalkeeper in the defensive game and conceded a goal. In terms of the type of open play, the counterattack format, the winning team focuses on the defensive game as an essential part and waits for the opportunity to cut the game from the opposing team in order to take advantage of the players, where the attacking team has more than the defensive team (Garcia & Santana, 2007). In the zone B scoring area, the most goals were scored. This tournament Due to the type of play previously played, where the winning team used the counter-attack format, the players in the attacking game had an advantage over those in the defensive game. The winning team, therefore, has a significant amount of space and scoring chances. It is mainly zone B

because it is an area with many angles to choose from to score goals and is located in front of the opponent's goal, making the chances of scoring goals relatively high. Both teams have chosen such techniques because they are pretty standard, can score goals at a distance of 20 meters with relatively high accuracy, and can control the ball's direction quite well.

The difference between the winning and losing teams is the goal-scoring efficiency generated by the technique, as the winning team has many more attacking games to score than the losing team. It makes a noticeable statistical difference. In the Bottom Mid-Scoring Position section, such a shot occurred in the match. Most of the time, the ball slips between the goalkeeper's legs. As a result, the area mentioned earlier in the raiding game had many scoring angles. As a result, the goalkeeper had to use a leg tear to close the corners of the goal to prevent the goal. As a result, there was a gap between the goalkeeper's legs, and the winning team used that position to score many goals in the match (Szwarc et al., 2014). As for the team that loses the match, its chances of playing an attacking game are relatively small. Most chose to shoot from other positions, thus allowing the goalkeeper to defend and not score. Based on the analysis of the scoring indicators in the Futsal Thailand League 2021 and comparing the scoring indicators in the match between the winning and losing teams, a total of 364 matches were played. Athletes should have scored at the end of the second half in the 35th or 40th minute to build an advantage before the end of the period and maintain their advantage until the end of the game (Nonjuy, 2021). This competition is famous for open play (counterattack style), played on a per-ball basis, that scores in the opponent's territory instead. Playback errors had a factor of this type of play that should be used in the zone B scoring area to create freedom of connection because zone B is a fairly wide area from the middle of the field to the front of the goal (Rungmitjaratsaeng et al., 2013). Therefore, it is easier to create scoring chances, leading to a goal-scoring technique with the inside foot. Both teams have chosen such techniques quite a lot because they are famous, can score goals at a distance of 20 meters, have relatively high accuracy, and can control the ball's direction quite well. Scoring in a bottom midfield scoring position is dangerous, as goalkeepers have to use leg tears to close corners of the goal to prevent goal-scoring. Between the legs of the goalkeeper, a gap can be made to score the most goals.

5. Conclusion

An analysis of goal scoring indicators from all 364 matches of the Futsal Thailand League 2021 revealed the following results: Second-half goal time (57.49%) and 35-40 minutes time most goals scored (0.73 ± 0.65 attempts per match), Open play 76.95% Counterattack 36.42% (1.40 ± 0.81 attempts per match), use the zone B scoring area to score goals 48.01% (1.6 ± 0.85 attempts per match), goal technique 57.88% (1.97 ± 0.85 attempts per match), bottom mid goal position 24.15% (0.81 ± 0.61 attempts per match).

A comparison of performance indicators between the winning team and the losing team was conducted. It was found that scoring goals in the 35-40 minutes created more chances to score and required an open play approach throughout the game, emphasizing counterattacks and creating opportunities to score zone B goals using the inside foot as a goal-scoring technique.

5.1 Suggestions for further study

The physical fitness of athletes should be studied to compare differences in skills and competitiveness, and differences should be studied for each team to evaluate performance variables that lead to loss or win in games. Since there are various statistical values used in comparisons to determine differences according to the conditions of using statistics in research, it is best to experiment with other statistics that may produce better results than the results that the researcher has targeted. Furthermore, non-parametric statistical methods such as the Mann-Whitney test could also be considered for such comparisons.

6. Acknowledgement

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