



Analysis of Skill Execution in Direct and Indirect Penalty Corner Strategies in Field Hockey

Ms. Pranali Patil

Research Scholar

Dr. Ameet Prabhu

Professor, CACPE

ABSTRACT

Penalty corners act as one of the most important scoring opportunities in field hockey. Teams use different strategies such as Direct and Indirect Penalty corners to convert these scoring opportunities into goals. Understanding the use of different skills during the penalty corners is important for improving the team strategies and coaching practices as well. The sole purpose of this study was to examine the association between the penalty corner style and the skill used during the execution.

A total of 214 Penalty corners were analyzed. The data was collected through a systematic observation of the field hockey matches available on the Watch hockey app. The Penalty corners were categorized according to the Penalty corner styles and the skill used. A Chi- square independence test was applied to determine the relationship between the two variables. The findings showed a significant association between the penalty corner style and the skill used ($\chi^2(8, N = 214) = 199.484, p < .001$).

The results indicated that direct penalty corners mainly involved Drag flicks, whereas the indirect penalty corners involved passing combinations and deflection variations. The findings showed that the choice of tactic in a penalty corner is very important and can help players and coaches improve goal scoring strategies thus resulting in increased conversion rates.

Keywords : Field hockey, Penalty corner, Drag flick, Skill analysis, Chi- square analysis.



Introduction

In modern hockey, penalty corners play a crucial role in scoring goals and affecting the match outcomes. Studies have shown that a large number of goals have been scored in the penalty corners at the elite level hockey championships (Hughes & Franks, 2005). Because of their importance, teams invest a lot of time in training and developing specialized penalty corner strategies to increase the chances of goal scoring.

Over the years, the way teams execute their penalty corners have changed due to the introduction of new strategies and variations. Now-a-days, teams use players who specialize in skills such as drag flicks, hit, deflections and passing combinations. These tactics are used to take advantage of the weaknesses of the defense and to create better scoring opportunities. As a result, teams have developed different strategies to improve their penalty corner conversion rates and overall attacking performance (Laird & Sutherland, 2003).

Two main strategies are commonly used in penalty corners: Direct penalty corners and Indirect penalty corners. Direct penalty corners involve a direct shot at the goal after the ball is injected and stopped, mostly using the dragflick technique. The drag flick has become one of the most effective scoring techniques, with the most conversion rate among the other skills due to its high speed, accuracy and its ability to beat the defenders and the goalkeeper (McLaughlin, 1997) whereas indirect penalty corners involve passing combinations and deflection variations before taking a shot at the goal. These strategies are used to confuse the defenders, and to create more scoring opportunities.

Researchers such as Zainuddin and Jakiwa (2024) observed a total of 195 penalty corners and compared their execution patterns between the winning and the losing teams in the Malaysian Women's Hockey League. They found out that the dragflick was the only skill that proved effective and dominant for goal scoring in the League. Whereas skills such as direct hit, tomahawk and passing made not much difference in their goal scoring. Hence the laid more emphasis on mastering the drag flick skill for maximum conversion rate in the Penalty Corners.

Another research conducted by Hambali, et al (2024) studied the effectiveness of skills used in the Penalty corners in the Indoor Hockey National Tournament held at Jakarta in 2023. A total of 11 male players were evaluated for the research. This study stated that most of the players demonstrated above average performance in the penalty corners and that the conversion rate of the Penalty Corners totally depends on the technical proficiency and coordinated play of the players.



Whereas Laird and Sutherland (2003) developed a notational analysis system using the video and hand notations for evaluating the Penalty Corner performance. A total of 250 penalty corners were observed from the 1988 World Cup. The studies showed that most of the successful goals came from straight shots such as the dragflick and the rise shots whereas, unsuccessful attempts were mostly because of the goalkeeper save or when the attacker lost the ball control.

Understanding how the skill execution differs between the direct and the indirect penalty corners is very important for the coaches, analysts and players for identifying the most effective technique and tactical patterns that are used in the penalty corners at the elite level competitions. Such analysis can also help the coaches and analysts in designing effective offensive strategies.

Despite the importance of penalty corners in field hockey, there is a need for systematic study of how different penalty corner styles influence the choice of skill to be used during the penalty execution. Therefore, the present study aims to examine the association between the penalty corner style and the skill used during the penalty corners (Hughes & Franks, 2005).

Purpose / Objective

To examine the relationship between the two variables: Penalty corner styles and the skill used during penalty corner execution and to identify how these strategies (direct and indirect) affect the choice of skill used during the execution of penalty corners in field hockey.

Methodology

The present study was conducted using the Descriptive research method. This approach was used to analyze the technical and tactical aspects associated with penalty corner execution in field hockey.

Population and Sample

The population of the study included the penalty corner situations from International Field Hockey matches played from 2018 onwards. A total of 214 penalty corners were selected from 42 International Matches as a sample for analysis using Purposive Sampling. This sample was chosen because it reflected the current Penalty Corner strategies at the elite level and also as per the availability of the match videos.



Data collection tools

The following tools and resources were used to collect, organize and analyze the data:

1. **Video Sources** : Match videos were taken from the online streaming platforms such as Watch Hockey and Youtube.
2. **Observation sheet** : A structured observation sheet was prepared to systematically record the details of each attempt. The researcher observed and analyzed all the matches and noted the Penalty Corners attempted.

Variables of the study

The following variables were analyzed in the study:

1. Independent Variables - Penalty corner styles (i.e. Direct and Indirect penalty corner)
2. Dependent variable - Skills used in the Penalty corner execution

• Drag flick	• Drag flick for deflection
• Tomahawk	• Passing
• Hit	• Pass n Tomahawk
• Slap shot	• Pass n slap
• Pass n Drag flick	• Pass n Hit

Statistical Analysis and Interpretation

The collected data was organized and analyzed using the Statistical Package for Social Sciences (SPSS). Chi-square test was used to identify whether there is any significant association between the penalty corner style and the skill used for scoring Penalty Corners in Hockey. The analysis is presented below

**Table 1** : Distribution of skills used in Direct and Indirect Penalty Corners

Skill used for Penalty Corners	PC Style		
	Direct	Indirect	Total
Drag Flick	165	1	166
Hit	1	0	1
Tomahawk	0	1	1
Slap Shot	2	1	3
Pass & Drag Flick	0	16	16
Drag Flick for Deflection	1	3	4
Passing	0	15	15
Pass & Tomahawk	0	3	3
Pass & Slap	0	5	5
Total	169	45	214

Table 2 : Chi-Square Analysis of skills used in Direct and Indirect Penalty Corners

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	199.484a	8	0
Likelihood Ratio	199.597	8	0
Linear-by-Linear Association	175.44	1	0
N of Valid Cases	214		

Results

The results of the above study are as follows:

1. The descriptive analysis showed that the drag flick technique was mainly used in the direct penalty corners. Out of 169 direct penalty corners, 165 were drag flicks.
2. Whereas indirect penalty corners showed a variety of techniques such as passing combinations or deflection variations.



3. Skills such as pass n drag flick, passing, pass n tomahawk were primarily used in the indirect penalty corners in field hockey.
4. A Chi-square test was used to examine the association between the penalty corner style and the skill used. The results showed a significant relationship between the penalty corner style and the skill used, $\chi^2(8, N = 214) = 199.484$, $p < .001$.
5. These results/ findings show that the skill used in a penalty corner is strongly influenced by the type of tactic used by the teams during the execution.

Discussion

The present study found a significant association between the Penalty Corner style and skills used in field hockey with dragflick being the most dominant skill in the Direct Penalty Corner and Passing and variations in the indirect Penalty Corner. These findings are similar with the findings of Laird and Sutherland (2003) and Zainuddin and Jakiwa (2024), which stated that dragflick is the most important and useful skill for maximum goal conversion in the Penalty Corner in field hockey. These results also support the findings of Hambali et al. (2024) who laid emphasis on the importance of technical proficiency for increased conversion rate of Penalty Corners in field hockey. Overall, the study suggests that it is very important to select the appropriate skill for successfully converting the Penalty corner. This study also shows that coaches should improve the players dragflick quality for direct Penalty Corner and also practice different variations for indirect Penalty Corner.

Conclusion

The findings of this study clearly indicate a strong relationship between the penalty corner style and the skill used for penalty corners in field hockey. Direct penalty corners mainly use drag flicks whereas the indirect penalty corners use passing combinations and deflection variations. These results show the importance of using the right tactic (penalty corner style) and skill for the successful conversion of penalty corners.

Recommendations

1. Coaches should focus on drag flicks training in their practice as it is one of the most commonly used skills/ techniques in the penalty corners.
2. Teams should practice both direct and indirect penalty corners strategies so that players can adapt to different match situations and improve their conversion rates of penalty corners.



3. The players who are involved in the penalty corner should develop more specialized skills such as drag flicks, deflection techniques in order to increase their conversion rates of penalty corners in field hockey.
4. Coaches/ analysts should watch more hockey match videos of elite or international players in order to identify different techniques used in penalty corners and practice it in their training sessions.

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