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## Predicting Match Success Through Scoring Efficiency in Elite Men's Indoor Hockey: Field Goals Versus Penalty Corners

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### ABSTRACT

**The purpose of the study.** Men's indoor hockey is a high-intensity invasion sport in which goal-scoring efficiency serves as a critical determinant of competitive success. Despite the strategic importance of different scoring modes, comparative investigations examining the relative relationships between field goals, penalty corner goals, and match outcomes remain limited, particularly in Southeast Asian elite competitions. This study aimed to examine and compare the relationships between field goals, penalty corner goals, and team victories in men's indoor hockey at the SEA Games 2025.

**Materials and methods.** A quantitative observational design employing systematic notational analysis was applied to 26 team-match observations derived from 13 official matches involving five national teams. Match outcome was coded as win (1) or loss (0), while field goals and penalty corner goals served as independent variables. Descriptive statistics, Kolmogorov-Smirnov and Shapiro-Wilk normality tests, Spearman's rank correlation, Mann-Whitney U tests, and binary logistic regression were employed to analyze the data.

**Results.** Field goals accounted for 60.0% of total goals ( $n = 72$ ), while penalty corner goals contributed 40.0% ( $n = 48$ ). Both scoring modes were significantly associated with match outcome; however, penalty corner goals exhibited a stronger correlation with victories ( $p = .788$ ,  $p < .001$ ) than field goals ( $p = .583$ ,  $p = .002$ ). The Mann-Whitney U test confirmed significantly higher scoring ranks for winning teams in both categories, with a larger separation observed for penalty corner goals ( $U = 11.00$ ,  $Z = -3.94$ ,  $p < .001$ ). Logistic regression indicated that a one-goal increase in penalty corner goals was associated with a 12.09-fold increase in the odds of winning ( $\text{Exp}(B) = 12.09$ ), compared with a 5.23-fold increase for field goals. The model explained 86% of the variance in match outcome (Nagelkerke  $R^2 = .86$ ) with 88.5% classification accuracy.

**Conclusions.** Although open-play goals provide the primary scoring volume, penalty corner efficiency plays a more decisive role in determining team victories in elite men's indoor hockey. These findings offer evidence-based insights for tactical planning and training prioritization in competitive indoor hockey.

**Keywords:** indoor hockey; field goals; penalty corner goals; team victories; performance analysis; SEA Games.

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## INTRODUCTION

## MATERIALS AND METHODS

## RESULTS

## DISCUSSION

<sup>abcde</sup>Authors' Contribution: a-Study design; b-Data collection; c-Statistical analysis; d-Manuscript preparation; e-Funds collection.

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**CONCLUSION**

**ACKNOWLEDGMENTS**

**CONFLICT OF INTEREST**

**REFERENCES**

