Strategic Insights Into Men's Double: Technical and Tactical Analysis of Seo Seung-Jae and Kang Min-Hyuk at the 2023 Badminton Year-End Finals

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Abstract

This study examines and compares the technical and tactical strategies used by Korean men's doubles players Seo Seung-Jae and Kang Min-Hyuk during the 2023 BWF World Tour Finals. Analysis of video from their semifinal and final matches focused on the use and effectiveness of frontcourt and backcourt techniques, along with active and passive scoring patterns. These matches were selected for their impact on the championship outcome and were analyzed frame-by-frame to ensure accuracy in evaluating tactical behavior. Official match footage was used to identify and classify each player's technical actions and strategic choices. Frontcourt techniques such as net shots, drives, and interceptions, and backcourt techniques including clears, smashes, and drop shots, were recorded. Rally durations and transitions were also noted to create a comprehensive dataset. Each rally sequence was reviewed multiple times to reduce observer bias. Scoring outcomes were categorized as active (direct offensive points) or passive (opponent errors under pressure). Comparisons highlighted technique effectiveness under different match conditions. Seo used a more balanced strategy with slices and smashes, while Kang relied on aggressive smashes. Seo also preferred net interceptions, whereas Kang favored drop shots. Active scoring rates demonstrated Kang's offensive strength but higher error risk, contrasting with Seo's

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consistent control. Passive scoring further highlighted Kang's defensive presence. This study offers practical insights into elite-level men's doubles tactics, providing valuable strategies for coaches and athletes at the international level.

Keywords: badminton doubles, technical and tactical strategies, scoring patterns, performance evaluation

I. Introduction

Badminton is a sport that blends speed, skill, and tactical precision, with strong cultural and competitive relevance in Asia. Taiwanese athletes like Tai Tzu-Ying, Wang Chi-Lin, and Lee Yang have brought global recognition to the sport. According to Taiwan's Sports Administration, badminton participation is increasing (admin, 2021). Beyond its physical demands, badminton enhances focus and strategic decision-making (Cabello Manrique & González-Badillo, 2003; Phomsoupha & Laffaye, 2015).

The Badminton World Federation (BWF) World Tour Finals is a premier tournament featuring men's and women's singles, men's and women's doubles, and mixed doubles. In 2023, the event offered a $2.5 million prize and 1,000-level Olympic qualification points (BWF, n.d.). Men's doubles is particularly fast-paced and requires a high level of coordination. Each player typically assumes distinct roles: One controls the net, while the other attacks from the backcourt with smashes (Li, 2014; Liu & Zheng, 2009; Phomsoupha & Laffaye, 2015).

Modern men's doubles emphasizes faster rallies and proactive defensive systems, requiring players to transition quickly between attack and defense. Advanced shot placements and counterattacks have become crucial to success. Studies examines elite player's performances strategies within this evolving landscape, offering insights for contemporary training and match play (L. Feng & Chen, 2023).

i. Tactics in Men's Doubles Badminton

Tactical selection is vital in men's doubles, shaping match outcomes (L. Feng & Chen, 2023). Liao et al. (2022) noted that the first three shots can determine a match's direction. In the 2000 Taipei Open men's doubles finals, Huang (2000) observed that Malaysian players' limited serve variety disadvantaged them, whereas Indonesian players benefited from more diverse serves. Cheng et al. (2013) categorized doubles tactics into net pressing, midcourt pressing, aggressive attacking, and defensive counterattacking, showing how tactics control match tempo.

Serve quality and placement are critical to doubles success. Liu and Zheng (2009) found that elite players place serves in the frontcourt to pressure opponents. Lin (2006) emphasized high-quality serves under the "rally scoring" system, allowing players to control rhythm and set up offensive shots—an essential tactic in men's doubles.

ii. Techniques for Offensive Play in Men's Doubles

Offensive techniques are crucial in doubles. Liao et al. (2022) highlighted the importance of the third shot following a serve and return, with high-quality serves enhancing offensive setups. Tu (2008) noted that modern doubles players frequently use drive and net block techniques to transition quickly from defense to offense, securing early control of rallies. Hong's (2018) study on men's doubles

pairs from the 2015–2016 tournaments showed that most points are scored during the serve-receive phase, emphasizing the importance of serve-return strategies.

Fundamental offensive techniques—such as drives, clears, pushes, and net shots—are critical in men's doubles (Lu & Lu, 2010; Phomsoupha & Laffaye, 2015). Tu (2000) recommended a "high, fast, flat, and forward" strategy, where players use quick drives and net interceptions to pressurize opponents. At the same time, "fast pace" and "aggressive attack" are defining features of modern doubles, with the smash technique often being decisive (Gawin et al., 2013). Players should focus on improving smash accuracy to strategically place the shuttle in challenging areas for opponents. Increasing smash speed reduces opponents' reaction time, enhancing offensive performance and creating pressure. (Edmizal et al., 2024; Tu et al., 2018).

Match analysis is now a key tool in badminton research, aiding in understanding opponents and formulating strategies to improve winning chances. This approach allows coaches to identify opponents' skills, tendencies, and scoring patterns, enabling tailored training programs and game plans (Al Ardha et al., 2024; Barreira & Chiminazzo, 2020; Liao et al., 2022).

Seo Seung-Jae and Kang Min-Hyuk's recent victory at the 2023 BWF World Championships marked a historic milestone, making them the first Korean men's doubles champions in 10 years. Despite their rapid rise to the top, there has been

limited research analyzing their playing style and recent achievements. Most existing studies on men's doubles tactics focus on dominant pairs from Indonesia, China, and Denmark, leaving a gap in understanding the unique complementary roles Seo and Kang employ.

With various playing styles in men's doubles, it is essential to analyze Seo Seung-Jae and Kang Min-Hyuk's approach to determine how their tactical structure compares to other elite pairs. This study addresses this gap by providing a detailed technical and tactical analysis of their performance, offering insights into their aggressive yet controlled approach, which has redefined Korean doubles strategy at the international level. By identifying how these strategies function in high-level matches, this research offers insights that coaches and athletes across different teams can use to refine their training and match preparation.

iii. Purpose of the Study

This study examines and compares the technical strategies of Korean men's doubles players Seo Seung-Jae and Kang Min-Hyuk during the 2023 BWF World Tour Finals, focusing on backcourt and frontcourt techniques used in scoring and defending in semifinal and final matches.

iv. Research Question

What are the key technical and tactical strategies that Seo Seung-Jae and Kang Min-

Hyuk employ in frontcourt and backcourt play, and how do these strategies contribute to their scoring efficiency and rally stability?

The study analyzes active and passive scoring patterns in rallies, with independent variables including technique categories (backcourt and frontcourt) and rally scoring patterns, and dependent variables as the frequency and proportion of technique usage. Specific research objectives include:

1. Analyzing frontcourt techniques, such as drop shots and net interceptions.

2. Exploring backcourt strategies, focusing on smashes and slices.

3. Examining scoring patterns to assess technical stability in various rally contexts.

Through technical analysis, this study aims to provide insights for Taiwanese coaches and players, enhancing their skills to meet international standards (Hong, 2018; Lu & Lu, 2010).

II. Method

i. Sample and Data Collection

The subjects of this study are the Korean men's doubles team, Seo Seung-Jae and Kang Min-Hyuk, in the 2023 BWF World Tour Finals held in Hangzhou, China. The study focuses on their performances in one semifinal and one final match, totaling two matches (four games). The data for these subjects were sourced from the men's doubles schedule published on the official BWF website, and after the video footage was organized by the researchers, four games were selected for analysis. The match footage was sourced from publicly available BWF broadcasts, including official livestreams and BWF TV on YouTube. Since these videos are freely accessible for public viewing and analysis, no special permissions were required for their use in this research. However, any commercial reproduction or redistribution of the footage would require formal approval from BWF (BWF TV, 2023a, 2023b). Through video coding, the data collection in this study aimed to analyze the technique usage and scoring effectiveness of the Korean men's doubles team, Seo Seung-Jae and Kang Min-Hyuk, during the 2023 BWF World Tour Finals, specifically in their semifinal and final matches against Chinese opponents. The study focused on three main areas: frontcourt techniques, backcourt techniques, and rally scoring stability.

To achieve detailed insights into the players' tactical approaches, the researcher utilized match footage to observe and record the frequency and effectiveness of specific techniques. This data collection comprised the following steps:

1. Video Observation

The researcher reviewed each point in both the semifinal and final matches using

official BWF footage. Each rally was analyzed to record the techniques used by Seo Seung-Jae and Kang Min-Hyuk in different game contexts, categorized by frontcourt and backcourt positions.

To ensure consistency in data collection, a standardized coding protocol was applied to classify technical and tactical actions. Each match was analyzed using frame-by-frame video breakdowns, following established badminton performance analysis frameworks for accuracy.

2. Data Recording

For each rally, the researcher documented the number of times each frontcourt technique (net shot, drive, lift) and backcourt technique (smash, drop shot, clear) was executed. Additionally, the scoring outcomes were recorded, noting whether points were won or lost actively or passively. This allowed for an evaluation of which techniques were most effective for scoring and which led to errors. Three main categories were observed:

(1) Frontcourt techniques: The usage of net shots, drives, and lifts was recorded to understand differences in frontcourt technique application between players. It captures how each player uses these techniques in the frontcourt and allows for comparison between Seo Seung-Jae and Kang Min-Hyuk in terms of technique preference and usage frequency.

(2) Backcourt techniques: The frequency and percentage of smashes, drop shots, and clears were documented, allowing for a comparison of backcourt technique preferences among the players. By recording these backcourt techniques, the study aims to identify patterns and differences in technique selection between the two players when positioned in the backcourt.

(3) Scoring stability in rallies: This captures the frequency and percentage of active and passive scoring situations during rallies, providing insights into rally stability and scoring ability. Data on active scores, active errors, passive scores, and passive errors during rallies are recorded for each player, allowing the researcher to assess their stability and effectiveness during prolonged rallies.

Each category provided insights into technique selection and stability, contributing to an overall assessment of the players' tactical and technical proficiency.

ii. Data Analysis

Following the data collection phase, the data analysis focused on calculating the effectiveness and stability of each technique using frequency and percentage measures. The analysis was aimed at understanding not only the frequency of each technique but also its impact on the overall scoring outcome and rally stability.

Descriptive statistics, including frequency counts and percentages, were used to analyze tactical patterns in this study. This approach is

sufficient given the exploratory nature of the research, as the focus is on identifying trends rather than making statistical inferences, but future studies could incorporate significance testing for broader comparisons.

The specific steps in the data analysis included:

1. Calculation of Technique Frequency and Percentage

For each player, the frequency and percentage of each frontcourt and backcourt technique were calculated. This provided a breakdown of how often each technique was employed and the relative preference or emphasis each player placed on different techniques. For example, if smashes constituted a higher percentage of backcourt techniques for Seo Seung-Jae, this might indicate an aggressive approach in the backcourt.

2. Scoring Outcome Analysis

The frequency and percentage of active and passive scores and errors were analyzed to assess the players' rally stability. Active scores and errors were calculated to evaluate how effectively each player controlled the rally and scored points when taking the initiative. Passive scores and errors were analyzed to understand how each player handled defensive or reactive situations.

3. Comparison Between Players

The data from Tables 1, 2, and 3 were used to compare Seo Seung-Jae and Kang Min-Hyuk's performance across various techniques

and scoring situations. This comparison provided insights into each player's strengths and weaknesses in both offensive and defensive contexts, and helped identify any significant differences in their tactical approach.

4. Statistical Interpretation

The statistical method of frequency percentages enabled a clear and interpretable presentation of the players' technique preferences and rally performance. By focusing on percentage data, the analysis accounted for potential variances in the number of rallies each player participated in, thereby normalizing the data for accurate comparison.

This systematic analysis allowed the researcher to draw conclusions about the impact of specific techniques on match outcomes, helping to identify the most effective strategies and the areas where each player demonstrated greater stability and control.

III. Results

i. Frontcourt Tactical Choices of Seo Seung-Jae and Kang Min-Hyuk

As shown in Table 1, there are notable differences in the frontcourt tactical choices between Seo Seung-Jae and Kang Min-Hyuk. Seo Seung-Jae utilized drop shots a total of 33 times (32%), whereas Kang Min-Hyuk executed them 44 times (42%). This higher frequency of drop shots by Kang suggests a strategy that

Table 1　Frontcourt Technique Usage and Percentage

Technique	Seo Seung-Jae, count (%)	Kang Min-Hyuk, count (%)
Drop shot	33 (32%)	44 (42%)
Net intercept	31 (31%)	28 (27%)
Clear	37 (37%)	32 (31%)

places greater emphasis on controlling the pace and forcing opponents into defensive responses. In contrast, Seo displayed a stronger preference for net interceptions, with 31 occurrences (31%) compared to Kang's 28 (27%), indicating Seo's approach to apply immediate pressure at the net and prevent opponent attacks. Additionally, both players used clears, although Seo executed 37 clears (37%), slightly more than Kang's 32 clears (31%), showing a balanced approach in Seo's frontcourt tactics to maintain both defensive and offensive flexibility.

These results imply a tactical differentiation in frontcourt play, where Seo's net interception tactics emphasize a more proactive control strategy, while Kang's higher reliance on drop shots aligns with a conservative yet controlling approach, positioning opponents into unfavorable situations.

ii. Backcourt Offensive Strategies

The backcourt offensive tactics, outlined in Table 2, reveal significant variations in smash and slice usage. Kang Min-Hyuk's backcourt play relied heavily on smashes, with 52 smashes recorded (80%) compared to Seo's 61 smashes (64%), showcasing Kang's aggressive style in

maintaining offensive pressure. Meanwhile, Seo Seung-Jae employed slices more frequently, executing 30 slices (31%) versus Kang's 10 slices (15%), reflecting Seo's intent to disrupt the opponent's rhythm and create opportunities for more versatile play. Both players sparingly used long clears, with Seo performing 5 clears (5%) and Kang executing 3 (5%).

Kang's preference for smashes signifies an offensive strategy focused on applying constant pressure to force errors, whereas Seo's integration of slices aligns with a more varied backcourt strategy aimed at destabilizing opponents and preparing for tactical advantages in subsequent shots.

iii. Rally Stability Through Active and Passive Scoring

Table 3 provides a breakdown of scoring stability in terms of active and passive scores. Kang Min-Hyuk achieved a higher active scoring rate, with 29 points (40%) compared to Seo's 24 active scores (35%). However, this aggressive play resulted in a higher error rate for Kang, with 12 active errors (16%) versus Seo's 8 active errors (12%).

Table 2　Backcourt Technique Usage and Percentage

Technique	Seo Seung-Jae, count (%)	Kang Min-Hyuk, count (%)
Smash	61 (64%)	52 (80%)
Slice	30 (31%)	10 (15%)
Long clear	5 (5%)	3 (5%)

Table 3　Rally Stability and Scoring Patterns

Score type	Seo Seung-Jae, count (%)	Kang Min-Hyuk, count (%)
Active score	24 (35%)	29 (40%)
Active error	8 (12%)	12 (16%)
Passive score	12 (18%)	15 (21%)
Passive error	24 (35%)	17 (23%)

When examining passive scoring, Kang demonstrated greater consistency and control, recording 15 passive scores (21%) and 17 passive errors (23%) compared to Seo's 12 passive scores (18%) and 24 passive errors (35%). These figures suggest that Seo's playstyle aims to extend rallies through controlled, error-minimizing tactics, enhancing overall stability. Kang's higher active score percentage reflects his inclination towards a more assertive playstyle, albeit with increased risks as indicated by his elevated error rate.

These findings underscore Seo's balanced approach to rally stability, with a focus on minimizing errors and controlling play through consistent passive scoring. Conversely, Kang's strategy emphasizes active scoring, reflecting a more aggressive stance that prioritizes point acquisition, albeit at the cost of higher unforced errors.

IV. Discussion

The Korean pair Seo Seung-Jae and Kang Min-Hyuk stand out for their unique tactical balance, combining Seo's precise net control with Kang's aggressive backcourt play. Their strategic approach reflects modern trends in men's doubles, emphasizing controlled defense transitioning into proactive attack. While their style is distinct, similar tactical principles are evident in other top pairs, making this analysis valuable for understanding broader doubles strategies.

i. Frontcourt Tactical Choices

In the frontcourt tactics, Kang Min-Hyuk's preference for the drop shot, with 44 instances (42%) compared to Seo Seung-Jae's 33 (32%), emphasizes the significance of this shot in controlling pace and positioning in doubles matches. According to the document, the drop shots are a crucial tactic in men's doubles as they allow players to maintain control, create offensive opportunities, and reduce errors (Chen & Liao, 2018). This shot puts pressure on opponents by forcing them into challenging net positions, potentially decreasing their offensive efficiency.

On the other hand, Seo demonstrates a higher reliance on net interceptions, with 31 occurrences (31%) versus Kang's 28 (27%). This tactic is described as enabling the player to neutralize the opponent's offense swiftly, thus maintaining an advantageous position for his team (Tu et al., 2018). Seo's strategic preference for net interceptions highlights his role in the pair, focusing on proactive frontcourt control to prevent opponent advances and maintain rally momentum.

While the frontcourt plays a crucial role

in setting up offensive opportunities, success in men's doubles also depends on effective backcourt strategies, where power and shot variation dictate the flow of the rally.

ii. Backcourt Offensive Strategies

In the backcourt, Kang Min-Hyuk shows a clear tendency towards smashes, executing them 52 times (80%) compared to Seo's 61 (64%). The document notes that smashes are critical in doubles because they allow players to exert powerful offensive pressure, forcing the opponent into a defensive stance and facilitating point acquisition. Kang's reliance on smashes underscores his focus on a forceful backcourt style, aimed at scoring through rapid, offensive plays.

In contrast, Seo integrates more slices, with 30 instances (31%) against Kang's 10 (15%). The slice is particularly noted for its ability to disrupt the opponent's rhythm, making it difficult for them to anticipate the next move (Liao et al., 2014). By incorporating slices, Seo leverages tactical variability, providing his team with a wider range of offensive options and increasing unpredictability in rallies (Collet, 2024). Seo's approach combines power and subtlety, illustrating a nuanced backcourt strategy that supports the overall team dynamics through controlled shot diversity.

The balance between aggressive smashes and controlled slices influences the overall rally structure, impacting how the pair manages stability and scoring opportunities.

iii. Rally Stability and Scoring Patterns

Regarding rally stability, Kang Min-Hyuk's higher active scoring rate, with 29 points (40%) compared to Seo's 24 (35%), reveals an aggressive playing style. However, this aggressive focus also leads to a higher error rate, with Kang committing 12 active errors (16%) versus Seo's 8 (12%). The document explains that Kang's approach is effective for quick scoring but increases the likelihood of unforced errors, particularly in extended rallies where control and consistency become essential, a tendency also reflected in prior analyses that note the trade-off between high-tempo attacking play and error control in longer exchanges (Liao et al., 2014; Qiu, 2022).

Kang's consistency in passive scoring, with 12 passive points (18%) and fewer passive errors than Seo (Seo: 24 passive errors, 35%; Kang: 17 passive errors, 23%), points to his strategy of minimizing errors to maintain stability. This style aligns with a defensive approach, where Kang focuses on sustaining rallies and minimizing potential point losses by reducing unforced errors, an essential tactic for ensuring prolonged rally control.

This contrast in rally strategies highlights how Seo and Kang's complementary playing

styles contribute to an effective tactical balance, ultimately shaping their success as a doubles pair.

These findings reinforce the importance of error management training. Coaches should help aggressive players improve shot accuracy and decision-making in extended rallies, while stability-focused players should work on reducing forced errors through precise defensive play.

iv. Complementary Roles and Strategy

Kang Min-Hyuk's aggressive play focuses on maximizing scoring opportunities through high-impact techniques, especially his frequent use of smashes. This approach allows him to take the initiative in rallies, putting pressure on opponents and dictating the pace of play from the backcourt. By constantly challenging the opponents' defense, Kang sets an assertive tone, forcing errors and creating openings.

Meanwhile, Seo Seung-Jae brings a steadying influence and tactical foresight, supporting Kang's offensive play while ensuring overall balance. Seo's controlled use of slice shots, along with his lower error rate, helps maintain rally stability. His role is not only to support but also to organize plays, positioning himself to intercept or return shots strategically. This approach allows Seo to manage the pace of the game, enabling smoother transitions between offense and defense.

Together, they embody an advanced doubles strategy where one player drives the offense and actively seeks to disrupt the opponents' rhythm, while the other stabilizes and orchestrates play, adapting to different situations as the match progresses. This balance of roles enables them to operate as a cohesive unit, executing a dynamic yet structured approach that leverages both players' strengths. Their synergy enhances overall team effectiveness, enabling them to respond flexibly to opponents and maintain control over the match.

However, while previous studies have primarily examined Indonesian and Danish men's doubles pairs, which emphasize aggressive shot frequency and net pressure tactics (e.g., Hong, 2018; Liao et al., 2022), this study identifies a distinct tactical style in Seo Seung-Jae and Kang Min-Hyuk. Unlike the single-dominant-attack approach often observed in other top pairs, Seo and Kang demonstrate a more flexible tactical model, integrating a balance between offensive aggression and defensive adaptability. Research on world-class doubles teams highlights how this strategic structure enhances offensive and defensive flexibility, allowing teams to sustain pressure and adapt to different opponents (X. Feng & Chen, 2022).

This distinction is particularly significant given that Seo and Kang are the first Korean men's doubles champions in a decade. Their success provides valuable insights into the evolution of

Korean doubles strategy, addressing a gap in recent badminton research and demonstrating how flexibility in tactical roles can be an effective alternative to purely attack-focused playstyles.

The complementary dynamic of Seo and Kang suggests that coaches should pair players with contrasting styles to optimize team performance. Training should include role-specific drills, with net players refining interceptions and control, while backcourt players develop offensive consistency such as multi-ball practice with specific task, controlled rally, drop shot or smash with time or consistent accuracy task.

v. Opponent-Based Tactical Adjustment

In practical coaching and high-level competition, strategic choices often vary depending on the opponent's style, strengths, and weaknesses. In the 2023 BWF World Tour Finals, Seo Seung-Jae and Kang Min-Hyuk demonstrated tactical adaptations across different matches, including the semifinal, and final rounds. Based on match footage and scoring records, clear shifts were observed in four key areas: 1. frontcourt play—such as increased net interceptions against when opponents slower their paces; 2. backcourt tactics—with more smashes used against pairs with weaker rear-court defense; 3. lift and clear usage—especially in semifinals against aggressive pairs, where lifts helped neutralize early attacks; and 4. overall technical

strategy—with more patient, rally-based play adopted when facing opponents who relied heavily on fast exchanges. These tactical shifts reflect the real-world coaching process, where understanding and targeting opponent tendencies is essential. As such, the variability seen in Seo and Kang's play is not a limitation of the study, but a meaningful illustration of elite-level match strategy.

Recommendations for local athletes' training and competition strategies:

1. Frontcourt Tactics

The trend in men's doubles is to avoid high lifts in the mid-to-frontcourt. Combining frontcourt control with backcourt attacks, players are encouraged to enhance their frontcourt awareness, develop offensive strategies, and predict the opponent's shots. Training should emphasize reducing frontcourt movements and boosting frontcourt stability.

2. Backcourt Patience and Variation

As defensive skills improve across doubles teams, easy scoring opportunities decrease. Players should focus on backcourt patience, explore diverse backcourt techniques, increase shot power, and target shot placement thoughtfully, rather than attacking indiscriminately. Incorporating slices and drop shots to disrupt opponents' defensive rhythm can enhance offensive efficiency.

3. Rally Management and Error Reduction

During rallies, players are advised to reduce

unforced errors on offense, maximize scoring chances, and improve stability on defense. They should prioritize pacing by adjusting tactics, rhythm, and shot speed to fatigue opponents and provoke mistakes. Effective rally management relies on clear tactical awareness and adapting strategies to game conditions and opponent tendencies. Developing focus and composure through psychological training can help players maintain peak performance during challenging rally stages.

V. Conclusion

The study highlights key strategies employed by the Korean men's doubles team in badminton. Seo Seung-Jae and Kang Min-Hyuk primarily used drop shots in the frontcourt to create backcourt attack opportunities, while relying on slices and smashes in the backcourt for effective point-scoring. Their tactical approach during rallies focused on active scoring with minimal errors, allowing them to control the pace and counterattack from defensive positions. This research contributes valuable insights into the tactical frameworks that drive successful performance in men's doubles badminton, offering specific strategic recommendations that can be applied to training and competition at elite levels.

VI. Limitation and Future Study

One limitation of this study is that it focuses specifically on the Korean men's doubles team, which may limit the generalizability of the findings to other teams or styles of play, and does not account for potential tactical adjustments based on different opponents' playing styles.

To enhance the credibility of video coding analysis, future research should incorporate inter-rater reliability testing, ensuring consistency across multiple analysts. This would help minimize subjective bias and improve the accuracy of tactical classifications. Additionally, employing motion-tracking technology and artificial intelligence (AI)-assisted performance analysis could provide more objective and granular data on player movements and shot patterns. Integrating visualization tools such as TIVEE (Chu et al., 2022) could further enhance the analytical framework by mapping shot distributions, movement trajectories, and tactical shifts in real-time.

Beyond the Korean pair, future studies could compare doubles strategies across different countries, examining how playing styles vary between nations like Indonesia, Denmark, and China. Analyzing these differences would provide a more comprehensive understanding of how tactical preferences evolve based on coaching philosophies, player development, and regional competitive trends. Expanding the dataset to include different levels of play, from junior to professional circuits, could also offer insights into how tactical adaptability develops over a player's career.

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2023 BWF 年終賽男子雙打技戰術分析：徐承宰與姜敏赫韓國組合

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摘　要

本研究旨在探討韓國男子雙打選手徐承宰和姜敏赫於 2023 年 BWF（世界羽球聯盟）年終賽中所採用的技術及戰術策略。方法主要進行 2023 年終賽半決賽和決賽之賽事影像分析，以主動和被動得分模式分類，著重分析前場及後場技術的使用策略及其有效性。以官方比賽錄影影片，採逐顆分析識別和分類每位球員的技術動作和戰術決策。資料收集部分，將記錄前場技術如網前球、擊球和攔截，後場技術則包括高遠球、扣殺和切球。每一球持續時間以及不在比賽的時間皆記錄，並將重複觀看比賽及比對紀錄，減少分析者的誤差。分析階段，得分結果分為主動（通過進攻行動直接得分）或被動（由防守壓力等造成的失誤），進行了統計比較，以突顯特定技術在不同比賽情況下的有效性。結果顯示出徐承宰採取一種平衡的方式，結合切球和扣殺，而姜敏赫則展現出更具侵略性的風格，以扣殺為主。在前場得分模式方面，徐偏好網前攔截，而姜為重度依賴吊球。主動得分和失誤率突顯了姜的進攻優勢，但也增加了失誤的風險，徐則展現了穩定性和拉鋸戰的控制力。被動得分數據進一步強調了姜在防

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守和控制方面的優越性。冀望透過本研究對精英羽毛球雙打選手動態角色和策略的見解，提供教練選手於國際性賽事訓練與比賽戰略之參考。

關鍵詞：羽球雙打、技戰術策略、得分模式、表現評估