

Analysis of regional shot usage among elite world men's singles badminton players

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Abstract: Using mathematical statistics, video analysis and literature review, this paper compares data on “regional shot usage” by elite men's singles players in major domestic and international badminton tournaments held in 2013. Results show that: (1) the forecourt was dominated by net shots; (2) the mid-court relied mainly on transitional strokes such as blocks, drives and interceptions; (3) the rear court was characterised by a high proportion of smashes and other downward shots; (4) in the backhand corner players preferred forehand or around-the-head strokes. The findings provide a theoretical basis for training to maintain China's leading position in men's singles. It is recommended that the Chinese national team strengthen practice of net shots, blocks, drives, interceptions, smashes, forehand strokes and around-the-head strokes.

Keywords: badminton, men's singles, technique and tactics, regional shot usage

1. Introduction

China's badminton squad has long been a pillar of the nation's elite sport system, shouldering the expectation of capturing gold and bringing honour to the country at major internationals and the Olympic Games. Recent reforms in scoring systems and changes to Olympic qualification formats, however, have introduced a series of unfavourable variables that threaten this dominant position. At the same time the national team is in a generational transition; although new players have already posted impressive results, their lack of match experience has produced fluctuating performances [1].

2. Badminton tactics – overview and research methods

2.1. Overview of badminton tactics

Technique and tactics are the two inseparable components of competitive badminton; only their seamless integration can produce victory. Tian Mai-jiu's Theory of Sport Training defines technique as “the method used to perform a specific sport action” and tactics as “the plans and actions adopted to defeat an opponent or achieve competitive success”. Technique comprises basic movement structures and their combinations, whereas tactics embrace guiding concepts, tactical awareness and tactical thinking [2].

Dai Jin-Biao et al., in *The Impact of the 21-point Scoring System on Men's Singles Tactics*, note that the shorter, faster 21-point format has made the “serve-and-attack” pattern, net play, drives and blocks more frequent, while rear-court play is now dominated by downward (pressing) shots [3].

Zhang Bo, in *A New View of Positioning and Recovery in Singles*, divides the court into five zones: forecourt (net to short-service line), mid-court (short-service line to doubles back-service line), rear court (doubles back-service line to baseline), plus left and right halves separated by the centre line. Players select appropriate footwork and recovery paths according to tactical demands, maintaining initiative and using flexible tactics to win rallies [4].

2.2. Research methods

This study integrates mathematical statistics, video coding, expert interviews and literature review. Using the “Badminton Technical & Tactical Data Acquisition” software developed by the Badminton & Tennis Teaching and Research Section of Shanghai University of Sport, we coded and analysed 36 major

domestic and international men's singles matches from 2013. The sample comprised world-class players—Lee Chong Wei, Lin Dan, Chen Long, Du Peng Yu, Kenichi Tago and Jan Ø. Jørgensen. Forecourt, mid-court and rear-court shot selections were tallied to profile Chinese players' zone-specific technique usage and to identify global trends in elite singles tactics. The aim is to provide a scientific training reference and strategic framework for China's men's singles squad during its current generational transition, ensuring sustainable development of the event.

3. Results and analysis

A badminton court is 13.4 m long and 6.1 m wide. The centre line divides it into left and right halves; the short-service line to the net is the forecourt, the short-service line to the singles back boundary is the mid-court, and the doubles back-service line to the baseline is the rear court. By recording how often players use each stroke in these three zones, we can characterise zone-specific tactics and inform training.

3.1. Forecourt shot usage – statistics and analysis

The forecourt extends from the net to the short-service line. Shots played here are classified as active, passive or transitional. Active: brush drops, tight drops, net kills and net blocks (player has time to choose the stroke). Passive: lifts (ball is very low, no time for options). Transitional: pushes and cross-court net shots (turning defence into attack).

Table 1 Overall Statistics and Analysis of Forecourt Shot Usage

Front-court techniques	Net shot	Push	Lunge smash	Lift	Drop	Net block	High-hand drop	diagonal tap	Hair-pin net shot	Total
Count	1320	1202	373	2748	1641	71	240	62	548	8205
Percentage / %	16.09	14.65	4.55	33.49	20	0.87	2.93	0.76	6.68	100

Table 1 shows that the lift is the most-used fore-court stroke (33.5 %), followed by the tight drop (20.0 %), brush drop (16.1 %), push (14.7 %), net kill (4.6 %) and cross-court net shot (6.7 %); blocks and slices are rare (< 1 % each).

The pattern is clear: elite singles players fight for the net, play tight drops and force the opponent to lift, creating the next attacking chance.

Individual differences among the six players are marked:

Brush/tight drop: Lee Chong Wei leads (29.5 %), then Jørgensen (24.3 %); Lin Dan (10.5 %) and Chen Long (6.0 %) use it far less. Basic drop: Chen Long tops the list (35.4 %), Lee the lowest (9.6 %). Lift: Lee uses it most (45.1 %), Chen Long least (18.9 %). Cross-court net: Jørgensen (8.7 %), Chen Long (4.4 %). Push: Chen Long again leads (28.3 %), Lee only 6.5 %.

The figures reveal Lee's superior touch and precision in brush drops, while Chen Long—taller and more rally-oriented—prefers push-and-lift sequences to control length and create smash opportunities.

3.2. Mid-court shot usage-statistics and analysis

The mid-court lies between the short-service line and the doubles back-service line. Strokes played here are mainly blocks, drives, lifts, smashes and interceptions. Because opponents usually launch their attack into this zone, a clear profile of each player's mid-court choices shows how they turn defence into offence and passive situations into initiative.

Table 2 Statistics and Analysis of Mid-court Shot Usage

Technique	Block	Drive	Mid-court lift	Smash	Intercept	Total
Count	1861	540	304	182	250	3137
Percentage / %	59.32	17.21	9.69	5.80	7.97	100

As shown in Table 2, the block is by far the most-used mid-court stroke (59.3 %), followed by the drive (17.2 %). The lift ranks third at 9.7 %, while interceptions and smashes account for only 8.0 % and 5.8 % respectively. The limited variety reflects the nature of the mid-court: it is the main attacking corridor where the shuttle arrives at high speed with sharp trajectory, giving defenders virtually no time for elaborate actions. Their first instinct is simply to get the racquet on the bird, so blocks, drives and interceptions predominate. When the attacker's placement or quality is poor, defenders counter-kill; if fully stretched, they resort to a defensive lift to stay in the rally.

Further individual analysis of the six elite men's singles players reveals pronounced differences in mid-court shot selection: Block: Chen Long leads at 85.7 %, followed by Lin Dan (67.1 %), Jørgensen (57.6 %), Lee Chong Wei (57.1 %), Du Peng Yu (56.7 %), and Kenichi Tago (44.1 %). Drive: Du Peng Yu tops the list (27.6 %), then Lee (24.1 %), Lin (20.8 %), Tago (20.8 %), Jørgensen (5.9 %), and Chen Long (5.1 %). Interception: Tago uses it most (19.9 %), followed by Lin (7.4 %), Jørgensen (6.8 %), Du (6.4 %), and Lee (3.3 %). Smash: Jørgensen leads (11.6 %), then Lee (6.2 %), Du (6.2 %), Tago (4.6 %), Lin (1.7 %), and Chen Long (1.0 %). Lift: Jørgensen again heads the group (18.1 %), followed by Tago (10.5 %), Lee (9.3 %), Chen (8.2 %), Du (3.1 %), and Lin (3.0 %).

The data show that Lee Chong Wei, Lin Dan and Chen Long employ broadly similar mid-court tactics, relying mainly on blocks and drives to negotiate the rally and set up the next opportunity. Yet when an opponent's mid-court return is loose, Lee is noticeably quicker to convert it into a killing counter-attack, demonstrating superior mid-court attacking instinct over both Lin and Chen.

3.3. Statistics and analysis of rear-court shot usage

The rear-court extends from the doubles back-service line to the baseline. By location it can be divided into forehand and backhand sides; by situation into active and passive shots; and by contact height into overhead and under-stroke executions. Common strokes include the clear (high), drop, smash, forced drop, forced drive, flat high, and half-smash (tap-kill). Players select the most appropriate option according to match circumstances and tactical requirements. Statistical analysis of rear-court technique usage therefore reveals the technical characteristics and developmental trends evident among today's elite men's singles players.

Table 3 Statistics and Analysis of Rear-Court Shot Usage

Technique	Count	Percentage / %
High	878	18.61
Drop	1143	24.23
Smash	1347	28.56
Forced drop	98	2.08
Forced drive	119	2.52
Flat high	130	2.76
Drive	132	2.80
Backhand clear	191	4.05
Backhand drop	271	5.75
Low drop	83	1.76
Tap	325	6.89
Total	4717	100

Table 3 shows that the smash is the most frequently used rear-court stroke (28.6 %), followed by the drop shot (24.2 %), clear (18.6 %) and half-smash/tap-kill (6.9 %). The remaining strokes—backhand drop, backhand clear, drive, flat high, forced drive and forced drop—account for 5.8 %, 4.1 %, 2.8 %, 2.8 %, 2.5 %

and 2.1 % respectively. The pattern is clear: today's elite men's singles favour downward (pressing) shots, then rush forward to seize the net; drops and tap-kills are gaining share, while flat highs and forced strokes are minimised. In the backhand corner players prefer forehand or around-the-head strokes because the backhand is slower and less threatening.

Individual profiles again diverge sharply: Smash: Tago leads at 39.9 %, then Du (33.9 %), Jørgensen (33.3 %), Chen (27.9 %), Lee (22.2 %) and Lin (13.8 %). Drop: Chen tops the list (33.7 %), followed by Du (33.4 %), Lee (26.3 %), Jørgensen (23.1 %), Lin (17.4 %) and Tago (11.8 %). Clear: Jørgensen uses it most (28.2 %), then Lee (21.6 %), Tago (20.9 %), Lin (14.8 %), Du (10.4 %) and Chen (7.6 %). Tap-kill: Lin leads at 18.9 %, then Lee (11.5 %), Chen (7.2 %), Du (3.3 %), Jørgensen (1.7 %) and Tago (0.3 %). Forced drop: Du (3.7 %), Lee (2.5 %), Lin (2.4 %), Tago (2.0 %), Jørgensen (1.6 %), Chen (0.9 %). Backhand drop: Chen (13.0 %), Tago (7.6 %), Lin (6.8 %), Du (4.0 %), Jørgensen (2.9 %), Lee (2.8 %).

Overall, rear-court play is smash-dominated. With modern badminton demanding ever greater speed, power and endurance, the elite press downward whenever possible and race to the net. Lee Chong Wei, Lin Dan and Chen Long possess particularly explosive rear-court attacks, converting the slightest opening into instant winners.

4. Conclusions

At the net, elite world men's singles players rely chiefly on tight drops; they fight for the highest contact point, force the opponent to lift and set up the following smash. In the mid-court, blocks, drives and interceptions predominate. This zone is the main attacking corridor: the shuttle arrives fast and steep, leaving defenders no time for elaborate replies; the first reflex is simply to get the racquet on the bird.

In the rear court, smashes and other downward shots dominate. In the backhand corner, players prefer forehand or around-the-head strokes rather than a backhand.

5. References

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