



# Important performance characteristics at Wimbledon: Implications for coaches

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## INTRODUCTION

My research has sought to address the lack of performance analysis investigations into elite grass court tennis. In addition to introducing and validating a new, coach-friendly data analysis method, designed to encourage coaches to embrace performance analysis (Fitzpatrick et al., 2018), our research has advanced knowledge on the important aspects of elite grass court tennis match-play, and provided new insight into how matches are won at Wimbledon. This evidence-informed article summarises the key findings and then, crucially, considers the practical applications from a coaching perspective.

## KEY FINDINGS

Longitudinal analysis of men's and women's matches at Wimbledon showed that although the characteristics of match-play evolved between 1992 and 2017, short points (points of between 0 and 4 shots) remained the most important aspect throughout. Informed by coaches' knowledge of the sport, we then defined 'closely contested' and 'one-sided' tennis matches, with analysis revealing that short points remain highly important in both closely contested and one-sided matches (Fitzpatrick et al., 2024). With only 3 weeks typically separating Roland Garros and Wimbledon, a comparison of the two Grand Slams provided important context to inform players' training strategies during the crucial, but time-pressured, clay-to-grass surface transition (Fitzpatrick et al., 2019). Interestingly, despite the slower nature of clay courts, short points prevailed again, as the most important aspect of match-play, on both surfaces, with players who won more short points than their opponent winning the match in 85-92% of cases (Fitzpatrick et al., 2019; see Table 1). Note that a higher PWOL value indicates a stronger positive association with match outcome (i.e., with winning matches).

Researchers and coaches have consistently acknowledged the serve as the most important shot in tennis, with some also highlighting the vital nature of the return (Ruder, 2019). 'Serve plus one' strategies (where a player executes a serve and then aims to put the ball away with their next shot) are also considered crucial components of a players' arsenal (O'Shannessy, 2019a), and therefore feature heavily in practice sessions. These practitioner observations along with the clear importance of short points led us to investigate points of 0-4 shot rally length in more depth. Our analysis reaffirmed the importance of effective serving and

returning strategies for winning matches at Wimbledon, but also indicated that serve plus one strategies (i.e., points of 3 shots) do not differentiate winning and losing players (Fitzpatrick et al., 2021; see Table 2), which could cast doubt over their current prioritisation within training. Note that a PWOL value close to 50% indicates no association with match outcome.

Tactical analysis of Hawk-Eye ball-tracking data provided insight into the most common and most effective serving and returning strategies for men and women at Wimbledon (Fitzpatrick et al., 2023). Perhaps unsurprisingly, serves and returns that landed in more lateral areas of the court (i.e., closer to the sidelines) were more successful than those that landed more centrally, and winning players executed both serves and returns more accurately to lateral areas than losing players.

## IMPLICATIONS FOR COACHES

Findings revealed that points of 0-4 shot rally length (i.e., short points) was the most important performance characteristic in terms of winning matches at Wimbledon, irrespective of sex (male/female), time (from 1992 to 2017) and match closeness (closely contested/one-sided) (Fitzpatrick et al., 2024). Coaches should be aware of the prevalence and importance of short points, and design players' training accordingly. Guided by Pinder et al.'s (2011) representative learning design framework, coaches should ensure that short rallies and point-ending strategies are fundamental aspects of players' grass court training sessions. However, tennis strategy analyst, Craig O'Shannessy, has suggested that elite players spend around 90% of their practice time engaging in long, baseline rallies (O'Shannessy, 2019b). This type of practice develops rhythm and consistency, and should therefore not be abandoned, but the importance of providing a training environment that is representative of the performance context should not be overlooked. Our findings therefore suggest that the amount of time spent practicing long baseline rallies should be reconsidered and potentially reduced, due to the high prevalence and unconditional importance of short points (Fitzpatrick et al., 2021). Where necessary, coaches can be guided on how to design more representative baseline rallies, to ensure high levels of specificity within players' training; strategies for this are presented shortly.

Our results consistently highlighted the crucial role of serving and returning strategies at Wimbledon. According to O'Shannessy (2020), the serve and particularly the return are drastically under-practised skills, relative to their prevalence in elite match-play. Although this has not yet been investigated empirically in

**Table 1.** Men’s and women’s PWOL values (i.e., importance in terms of winning matches) for the most important performance characteristics at Roland Garros and Wimbledon (derived from Fitzpatrick et al., 2019).

Performance characteristic	Roland Garros		Wimbledon		Average PWOL
	Men’s PWOL	Women’s PWOL	Men’s PWOL	Women’s PWOL	
Points won of 0-4 rally length	89%	85%	92%	87%	88%
First serve points won	85%	83%	85%	84%	84%
Baseline points won	82%	84%	79%	90%	84%
Second serve points won	77%	76%	73%	79%	76%
Points won of 5-8 rally length	65%	68%	69%	72%	69%
Points won of 9+ rally length	66%	56%	61%	58%	60%

**Table 2.** Mean (± sd) number of points won of each rally length by winning and losing players of both sexes at Wimbledon, and corresponding PWOLs (i.e., importance in terms of winning matches) (derived from Fitzpatrick et al., 2021).

Rally Length	Men			Women		
	Winning players	Losing players	PWOL	Winning players	Losing players	PWOL
0 shots	4.2 ± 2.7	3.2 ± 2.4	56%	3.5 ± 2.2	2.7 ± 2.3	55%
1 shot	41.3 ± 15.5	35.0 ± 16.2	71%	18.9 ± 7.0	15.4 ± 7.5	71%
2 shots	15.1 ± 5.9	10.4 ± 5.3	77%	11.0 ± 4.3	8.1 ± 4.4	71%
3 shots	18.3 ± 7.2	18.0 ± 7.7	48%	11.0 ± 4.3	9.9 ± 4.8	54%
4 shots	10.6 ± 3.7	7.1 ± 3.7	72%	7.8 ± 3.5	5.9 ± 3.2	66%
0-4 shots (combined)	89.5 ± 25.7	73.7 ± 28.6	92%	52.3 ± 14.3	41.8 ± 16.7	87%

professional tennis, Krause et al. (2019) analysed junior players’ training sessions and demonstrated that serves and returns comprise only 10% and 3% of total practice time, respectively. With our findings demonstrating that serving and returning strategies are highly influential to the outcome of matches (Fitzpatrick et al., 2021), serves and returns should undoubtedly be prioritised during grass court training. Results showed that, for male players, returns may in fact be more important than serves (Fitzpatrick et al., 2021), so it is particularly important for men’s coaches to ensure that returns are afforded sufficient practice time. Additionally, players tend to practise the serve by repeatedly hitting balls from a basket, often engaging in conversation simultaneously (Meffert et al., 2018) and without a returning player present (Krause et al., 2019); it is important to address the limited representativeness of such practice designs. To more accurately represent the performance context, serves and returns should not be practised in isolation, but rather as they occur during match-play – as part of a series of strokes, beginning with a first or second serve (Krause et al., 2019). Therefore, serving practices in which players are dissuaded from talking, a returning ‘opponent’ is active, and the serving player is required to perform the next stroke if the return is successful, are advised.

Serve plus one strategies (i.e., 3-shot rallies) did not differentiate winning and losing players, casting doubt on previous claims that they are crucial in elite tennis. However, this finding must be considered in context; 3 shots was found to be the second most common rally length, and changing the amount of practice time afforded to serve plus one strategies could lead to players becoming less proficient at executing them. So, it would be unwise to suggest that serve plus one strategies should not be practised, but coaches could ensure specificity, affording time to the specific strategies that their player executes either more or less successfully during matches.

Serves and returns landing close to the lateral edges of the court were more successful than those landing in central zones (Fitzpatrick et al., 2023). The importance of short points, the importance of serving and returning strategies, and the success of serving and returning to lateral zones (compared to central zones) collectively indicate that success is typically attained at Wimbledon by executing attacking strategies that put the opponent under pressure early in the point. In line with these findings, coaches should design practices that elicit proactive behaviours and foster attacking strategies, such as playing on the front foot, stepping inside the baseline, taking the ball early (i.e., on the rise), and putting the opponent under positional and/or time pressure.

Newell’s constraints-led model is an effective pedagogical approach for promoting desirable emergent behaviours (Renshaw & Chow, 2019), and can therefore underpin coaches’ development of such practice designs. Below are four task designs that coaches could explore, whereby constraints are manipulated to encourage functional behaviours. These suggestions are informed by our research findings and derived from tennis coaching literature.

**1. Time-restricted rallies**

Players rally for 60 seconds, with the aim of hitting as many strokes as possible (ideally within one rally). As players explore behavioural adaptations to achieve the goal, they learn to reduce the amount of time between strokes, and therefore hit more strokes within the time limit, by taking the ball early and executing an attacking ball trajectory. Time-constrained tasks can also improve players’ capacity to play at a high tempo while maintaining consistency, a vital skill in tennis (Antoun, 2007). Informed by the finding that short points are closely associated with success, this task will encourage players to put their opponent under time pressure early in the point. In time, this task could also progress to become direction-based (i.e., cross-court or down-the-line), to be more representative of match-play scenarios.

## 2. Adapted playing space

Use masking tape or markers to create a line 10 cm behind the server's baseline, demarcating the effective playing space that players must stay within. Under this adaptation, incoming balls that land near the baseline must be taken on the rise to satisfy the task demands. Over time, players learn that this imposes time pressure on the opponent. During points-based activities, this manipulation ensures that players do not retreat after serving, in turn promoting active consideration of an appropriate serving strategy, as an added benefit. This task is informed by the importance of serving strategies, and the finding that winning players hit a higher proportion of their serves to lateral areas of the service box than losing players. A similar adaptation could be applied for the returning player, to encourage increased focus on returning strategies.

## 3. Two steps forward

During return-focused tasks, ask players to take two steps forward after each stroke. This promotes hitting on the front foot and moving through the ball, and fosters an attacking mentality, as it is difficult to play defensively when moving forwards. With the importance of returning strategies (particularly for men), this will encourage players to attack the return, to try to prevent the server from dominating the start of the point. This manipulation can also be used during baseline rallies to improve players' forward and backward movement skills, which are typically weaker than their lateral movement skills.

## 4. Bonus points for creating perturbations

Coaches can award a bonus point if players miss by a small margin while attempting to create a perturbation (i.e., apply time or positional pressure) early in the point, to promote positive intent. For example, if a player serves wide to the advantage court, then moves into the court and attempts but misses (clipping the tape) an aggressive down-the-line backhand on their next stroke, they could be awarded a bonus point for controlled, positive intent. Informed by the importance of short points, this task fosters an attacking (rather than passive or defensive) approach to the first few shots of each point, by negating the psychological pressure associated with committing an error. Bonus and/or penalty points can be applied to many activities, to promote desirable behaviours or dissuade less-desirable behaviours.

Relevant verbal instruction and feedback (i.e., clear, simple statements) can be provided by coaches to supplement these manipulations (Reilly & Williams, 2003). Examples that reflect our findings include 'hit through the ball', 'take their time away' or 'strike first' to encourage proactive play (Ruder, 2019). Where possible, practice environments should also elicit the cognitions and emotions associated with competition, to better support the emergence of functional behaviours and exhibit fidelity with the performance context (McCosker et al., 2019). Coaches can aim to re-create the high-pressure environment of competition using forfeits and rewards (Stoker, 2017), or by implementing time restrictions and/or situational scoring manipulations (e.g., the player must start each game 0-30 down). As tennis is an individual sport, putting players into teams, whereby everyone's performance affects the success of the wider team may also help to simulate pressure.

For the successful implementation of practice designs, players must understand the purpose, relevance and context, to ensure they adopt an appropriate mindset (Ruder, 2019). Based on

our findings, players should approach practice prepared to actively search for and create opportunities to win the point, rather than passively waiting for opportunities to arise or for their opponent to commit an error. To facilitate this mentality, coaches could ask players to verbalise their tactical intention as they perform each stroke, by calling out 'defend', 'neutral', or 'attack', for example. Self-evaluation, an important skill for athletes, has been shown to improve focus, and enhance particularly those areas within players' control, such as the serve (Taylor & Wilson, 2005). Self-assessing the effectiveness of serves and returns during training, by scoring them out of ten, based on how difficult the player perceives each stroke to be for an opponent to retrieve, could encourage exploration of different ways to execute serves and returns to increase the likelihood of creating a perturbation (i.e., putting their opponent under pressure).

Crucially, the coaching application outlined in this article is not 'one size fits all', and must be individualised. Given the array of game styles in tennis, and players' individual personalities, coaches have an inherent responsibility to know their own player's game and character well enough to determine how, and the extent to which, they should implement these recommendations (Reilly & Williams, 2003). In this way, the tactical strategies of an individual player should maximise their strengths, while limiting the opportunities for opponents to exploit their weaknesses. (Antoun, 2007). How coaches communicate the context of findings and associated adaptations is also important (Jones et al., 2004). For example, with a male player whose weapon is their powerful serve, a coach could highlight the strengths of this game style on grass courts, based on the critical importance of serving and the importance of first serve speed and aces uncovered in our research, to instil confidence and self-belief (Wilkins & McBrien, 2018). However, for a player whose strengths are movement and shot consistency, the coach expressing that their game style is not ideal for grass courts (as long points are not important for winning matches at Wimbledon) is unlikely to be beneficial. So, clearly, coaches must consider players' gamestyles and personalities before deciding how best to design sessions and explain adaptations to them.

## SUMMARY

- Based on our research findings, coaches should design grass court practices that elicit proactive behaviours and foster attacking strategies (e.g. playing on the front foot, taking the ball early, and putting the opponent under positional and/or time pressure).
- To reflect match-play, coaches should develop representative and specific serve, return and serve plus one based practice, and consider the amount of time players spend engaging in long, baseline rallies.
- The four constraints-led task designs presented here demonstrate how coaches can apply the current findings, complemented by appropriate instruction and feedback, to ensure representative practice.
- Coaches should tailor the implementation of such task designs, based on individual players' game styles and characters.

## CONFLICT OF INTEREST AND FUNDING

The author declares that she does not have any conflict of interest and that she did not receive any funding to conduct the research.

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