

Influence of the importance of the point and service tactical position in the shot following the return in men's and women's professional padel

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Abstract

The objective of this research was to analyse the shot following the return in men's and women's professional padel according to the importance of the point and the service tactical position. The type of shot following the return, importance of the shot and tactical position of the serving pair were recorded by systematic observation. A total of 2752 points (1431 men's and 1321 women's) from 69 matches played in the 2021 season of the World Padel Tour circuit were used. The results show that while men use more forehand and backhand volleys as shots following the return, women use more trays or smashes and back wall shots. In addition, while the server is the one who plays the most third shots following a straight return in men's padel (forehand and backhand volleys) and women's (forehand volleys and backhand volleys), the server's partner is the one who plays the most third shots following a lob return in the men's category (trays or smashes and back wall shots) and women's category (trays or smashes and back wall shots). Moreover, the importance of the point and the service position are parameters that affect the shot following the return in men's and women's professional padel. Thus, these findings are very novel as it is the first investigation to analyse the shot following the return in professional padel.

Keywords

Golden point rule, performance analysis, racquet sports, tactics

Introduction

The number of papers that have padel as an object of study has increased in recent years^{1,2} due to the great importance that this sport has been acquiring, as it is practised in more than 50 countries, increasing the number of facilities, sports licenses, trade agreements (sponsorships or labour contracts), etc.^{3–5} Specifically, the research topics in padel address a large number of areas: from the recording of technical and tactical shots to the epidemiology of injuries, physiology and physical performance, match analysis, anthropometric profile and biomechanics. Among all of them, notational analysis or game analysis stands out, as it is the subject of study on which the most manuscripts have been written.^{1,2}

The participants in the World Padel Tour (WPT), the world's most established professional men's and women's circuit that organises tournaments in different countries around the world each season, have been the object of study in several of these investigations, determining the

differences that exist according to the sex of the players. It has been shown that the duration of the points is longer in women's padel, and the number of shots per point is

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greater.^{6,7} The participation of the players according to their position on the court is also different, being higher that of the backhand players in men's padel and that of the forehand players in women's padel.⁸ Regarding the type of shots, men play more backhand volleys, flat or topspin smashes and shots close to the net, while women make more lobs, trays and shots from the middle zone or the back of the court.^{7,9–12} In addition, women make a higher percentage of errors, while men make a higher percentage of winners.^{8,13} On the other hand, although men are more effective on serve,¹⁴ women are more effective on break points.¹⁵

Since the 2020 season, the WPT has incorporated the golden point rule, which consists of playing a point that will decide the game when the score is deuce. According to the official padel regulations,¹⁶ 'If both pairs have won three points each, the score of "deuce" will be called and a decisive point called the golden point will be played. The receiving pair will choose if they want to receive the service from the right side or the left side of the court. The components of the receiving pair cannot change positions to receive this decisive point. The pair that wins the deciding point will win the game'. Thus, some research has analysed the influence of the golden point on the men's and women's professional padel game,^{13,17–19} observing reductions in the duration of the set and a greater number of games, deuce sets, three-set matches and number of breaks with respect to the previous regulation. In addition, they indicate that the effectiveness of the serve increases in golden points, this point being a performance factor in padel, especially in the women's category. Likewise, various investigations^{13,20} that have studied different variables related to the game in padel have identified that the importance of the point is an influential factor in game analysis.

Service efficiency in professional padel is affected by the tactical position used by the players.²¹ In this regard, the serving pair can adopt two types of tactical positions (traditional and Australian). In the Australian position the server's partner stands on the same side of the court from which the serve is taken and in the traditional position the server's partner stands on the opposite side of the court from which the serve is taken.²²

Following the analysis of the scientific literature, there are a large number of studies that have as their object of study the analysis of the game in men's and women's professional padel, as well as studies that consider the importance of the point or the service position. However, to the authors' knowledge, the characteristics of the third shot in men's and women's professional padel have never been analysed. Despite the fact that better knowledge about this shot would help in the decisionmaking of padel players in real game contexts and would positively influence the development and design of tasks and sessions specific training. Therefore, the objective of this research was to analyse the influence of the importance of the point and the service position on the third shot in men's and

women's professional padel. Considering as a research hypothesis that the importance of the point and the tactical position at the service will influence the shot following the return according to the sex of the players.

Material and method

Research design

The design of this research follows an empirical methodology approach and more specifically it is a study with a descriptive strategy. In addition, it is included within the observational category, being nomothetic, transversal, and multidimensional.²³

Sample

The database consisted of the recording of 2752 points (1431 men's points and 1321 women's points), from 69 matches in the quarterfinal, semi-final and final rounds from six WPT tournaments of the 2021 season.

Study variables

To carry out this study, the following variables were defined (based on their categorical nucleus and degree of openness²⁴) and analysed:

Category: the men's and women's categories were established to analyse the possible differences between them.

Importance of the point¹³: distinguishing between non-key moment (those points that do not imply changes in the set scoreboard, such as at 15-0, 30-0 or 30-15), key moment (points in which the pair has the option of winning a game, such as 40-0, 40-15, etc.) and golden points (the decisive point that is played with the score of deuce).

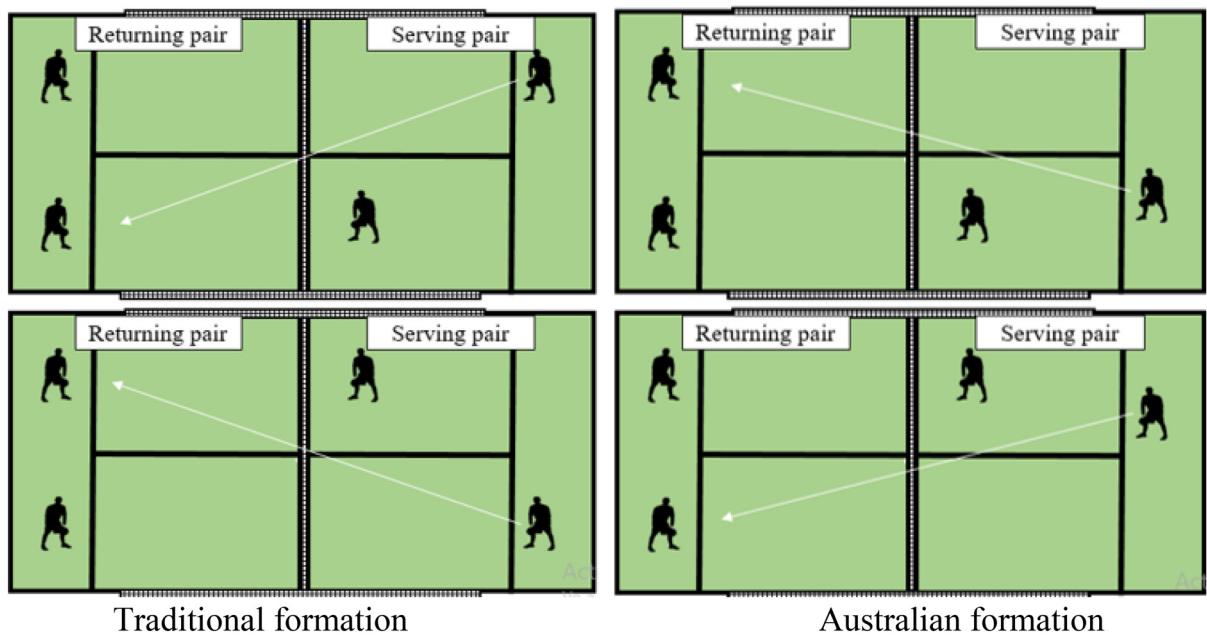
The player who plays the third shot: the categories server and partner of the server were established according to who plays the third shot of the points.

Type of third shot (shot following the return): they were classified as forehand volley, backhand volley, tray or smash, back wall shot, other shots and there is no third shot, these being the possible technical actions following the opponent's return.

Tactical service position²²: distinguishing between the Australian position where the server's partner is placed on the same side of the court from which the serve is made (Figure 1, courts on the left) and traditional position where the server's partner is placed on the opposite side of the court from which the serve is made (Figure 1, courts on the right).

Process

The analysed matches were broadcasted in streaming through the WPT website. Specialised LINCE software²⁵

**Figure 1.** Service position.**Table 1.** Type of third shot according to sex.

Type of third shot	Men			Women		
	n	%	CSR	n	%	CSR
Forehand volley	374	26.1a	3.1	279	21.1b	-3.1
Backhand volley	490	34.2a	7.5	282	21.3b	-7.5
Tray or smash	411	28.7a	-6.6	538	40.7b	6.6
Back wall shot	91	6.4a	-5.1	158	11.9b	5.1
No third shot	65	4.5	-0.4	64	4.8	0.4

CSR = corrected standardised residual; a, b = indicate significant differences in Z-tests for comparison of column proportions from $p < 0.05$ adjusted according to Bonferroni.

was used for this data collection process, and an ad-hoc instrument was designed to analyse the variables under study.

An intra-observer reliability analysis was performed to ensure the veracity of the data collected. The observer analysed a sample of 420 points (60 games) to guarantee a relevant amount of data, between 10% and 20% of the study sample.²⁶ The mean reliability of the analysis test was 0.98, considered almost perfect.²⁷

Statistical analysis

A descriptive analysis was performed to obtain information on the number of times the categories of each study variable occurred (frequency and percentage). An inferential analysis was continued to develop contingency tables, including the Chi-square (χ^2) statistical test in order to obtain the association between variables. The strength of association between the variables was also calculated, for which

Cramer's V coefficient (V_c) was used,²⁸ a coefficient widely used in sports science studies.^{29–31} Crewson differentiates the strength of the association based on the value, considering a small (<0.100), low ($0.100–0.299$), moderate ($0.300–0.499$), or high (>0.500) association.³² In addition, subsequent Z-tests were performed to compare column proportions, adjusting p -values $<.05$ according to Bonferroni. The contingency tables made it possible to identify the associations between the categories of the variables through the corrected standardised residuals (CSR). Residuals >1.96 reported more or fewer cases than there should be.²⁸ Statistical analyses were performed using the statistical package SPSS 27.0 for Windows.

Results

The results show that the type of third shot is associated with the sex of the players ($\chi^2(4)=100.658$; $p < .001$; $V_c = .191$). Thus, in Table 1 it can be observed the frequency, percentage and corrected typified residuals in the type of third shot between men's and women's professional padel.

During the men's and women's professional padel points there is usually a third shot. In addition, while men use more forehand ($CSR = 3.1$) and backhand ($CSR = 7.5$) volleys as third shots, women use more trays or smashes ($CSR = 6.6$) and back wall shots ($CSR = 5.1$). There were no cases in the category 'other shots'.

Considering the importance of the point, the results show that the type of third shot is associated with the sex of the player when it is performed by the server (non-key moment $\chi^2(3)=49.316$; $p < .001$; $V_c = .225$; key moment $\chi^2(3)=11.293$; $p = .010$; $V_c = .182$; and golden point

$\chi^2(3) = 10.872; p = .012; Vc = .222$ and when it is made by the server's partner (non-key moment $\chi^2(3) = 31.483, p < .001, Vc = .213$, and key moment $\chi^2(3) = 12.238, p = .007, Vc = .224$). However, it is not associated when it is made by the server's partner in the golden point ($\chi^2(3) = 2.982; p = .394; Vc = .141$). Table 2 shows the values of the type of third shot in men's and women's padel according to the situation of the scoreboard and the player who performs it. The frequency of points being higher at non-key moments (men: 914; women: 836), followed by the points at key moments (men: 312; women: 296) and finally golden points (men: 205; women: 189).

When the third shot was directed at the server's partner, men hit more forehand volleys than women during key moments. Likewise, when the third shot was directed at the server, men played more backhand volleys than women regardless of the importance of the point. Additionally, they hit more backhand volleys when directed at the server's partner during non-key moments. On the other hand, women made more trays or smashes than men always, except when the third shot was directed at the server's partner during golden points. Finally, women made more back wall shots than men during non-key moments.

Table 3 shows the frequency, percentage and CSR of the shot following the return between men and women, taking into account the direction of the return (server or server's partner) and the service position (traditional and Australian). The results show that the type of shot was associated with the sex of the player when the return was directed towards the server (traditional position $\chi^2(3) = 44.485; p < .001; Vc = .256$; and Australian position $\chi^2(3) = 24.708; p < .001; Vc = .170$) and towards the server's partner (Australian position $\chi^2(3) = 47.888; p < .001; Vc = .311$). However, it was not associated when the return was directed to the server's partner in the traditional formation ($\chi^2(3) = 6.087; p = .107; Vc = .121$).

Men played more backhand volleys than women as third shots when shot by the server in the traditional position and men played both more forehand and backhand volleys than women as third shots when shot by the server's partner in the Australian position. On the other hand, women performed more trays or smashes and back wall shots than men regardless of the player who performed it or the serving arrangement (except when it is performed by the server's partner in the traditional position).

Table 4 shows the results of the shot following the return according to the player who played it, both in men's and women's padel. The results show that the type of shot following the return was associated with the sex of the player who performed it, both in men ($\chi^2(3) = 51.054; p < .001; Vc = .193$) and in women ($\chi^2(3) = 41.050; p < .001; Vc = .181$).

While the most likely shots of the server are forehand (CSR = 3.7; CSR = 5.1) and backhand (CSR = 3.8; CSR =

2.2) volleys in both men's and women's professional padel, trays or smashes (CSR = 6.1; CSR = 4.8) and back wall shots (CSR = 2.5; CSR = 2.1) were the shots that the server's partner performed the most.

Table 5 presents the results found in the type of shot made by the server and server's partner depending on the importance of the point, both in men's and women's padel. It can be seen that the type of third shot in men and women varied depending on whether it was played by the server or by the server's partner and depending on whether it was a non-key moment, key moment or golden point. Thus, the results show that the type of shot was associated with the player who performed it in men's padel (non-key moment $\chi^2(3) = 32.435; p < .001; Vc = .193$; key moment $\chi^2(3) = 7.086; p = .069; Vc = .153$; and golden point $\chi^2(3) = 14.513; p = .002; Vc = .274$) and in women's padel (non-key moment $\chi^2(3) = 25.964; p < .001; Vc = .180$; key moment ($\chi^2(3) = 13.949; p = .003; Vc = .223$; and golden point $\chi^2(3) = 7.228; p = .065; Vc = .202$).

Finally, Table 6 shows the results found in the shots following the return of the server and the server's partner, depending on the service position. Thus, we can observe that, in the men's category, the Australian position caused differences in the shots performed by the server and the server's partner ($\chi^2(3) = 44.335; p < .001; Vc = .249$), with the server being more likely to perform a volley shot and the server's partner a tray/smash or back wall shot. These same results were observed in the women's category ($\chi^2(3) = 92.901; p < .001; Vc = .383$). However, in the traditional position, men's category, there was a greater probability that the server would make a forehand volley and the partner a tray or smash. In the women's category, there was a higher probability than expected that the server's partner would play a backhand volley.

Discussion

The objective of the present research was to analyse the characteristics of the shot following the return in men's and women's professional padel, based on contextual variables, such as the importance of the point and the service tactical position since no research has analysed the third shot in professional padel before.

During men's and women's professional padel points there is usually a third shot and while men perform more forehand and backhand volleys as a third shot, women execute more trays or smashes and back wall shots. These results can be attributed to a greater use of the lob in all points and games of each set or match in women's padel,^{6,7,11} and to a greater use of straight trajectories in men's padel. In addition, a greater number of volleys as the third shot in men's padel is associated with a greater number of straight returns, and, on the contrary, a greater number of trays or smashes as the third shot in women's

Table 2. Type of third shot in men's and women's padel according to the player who performs it and the scoreboard situation.

Type of third shot	Server											
	Non-key moment				Key moment				Golden point			
	Men		Women		Men		Women		Men		Women	
%	CSR	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR	
Forehand volley	31.2	1.0	28.3	-1.0	32.4	1.3	25.9	-1.3	29.3	0.9	23.8	-0.9
Backhand volley	42.2a	5.6	25.2b	-5.6	35.9a	2.2	24.7b	-2.2	37.1a	2.5	21.9a	-2.5
Tray or smash	21.6a	-4.7	35.3b	4.7	24.7a	-2.6	37.6b	2.6	30.2a	-2.4	45.7a	2.4
Back wall shot	5.0a	-3.6	11.2b	3.6	7.1	-1.5	11.8	1.5	3.4	-1.6	8.6	1.6
Partner of the server												
Type of third shot	Non-key moment				Key moment				Golden point			
	Men		Women		Men		Women		Men		Women	
	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR
Forehand volley	22.7	1.6	17.8	-1.6	24.1a	3.3	8.2b	-3.3	16.9	0.8	12.3	-0.8
Backhand volley	32.2a	4.4	17.5b	-4.4	29.3	0.2	28.2	-0.2	22.1	1.3	13.7	-1.3
Tray or smash	37.0a	-3.1	48.8b	3.1	36.8a	-2.1	50.0b	2.1	51.9	-1.2	61.6	1.2
Back wall shot	8.1a	-3.2	16.0b	3.2	9.8	-0.9	13.6	0.9	9.1	-0.6	12.3	0.6

CSR = corrected standardised residual; a, b = indicate significant differences in Z-tests for comparison of column proportions from $p < 0.05$ adjusted according to Bonferroni.

padel is associated with a greater number of lob returns, as stated in their study by Sánchez-Alcaraz et al.¹⁴ Previous research shows that while men are more effective on serve,¹⁸ women are more effective on return, achieving a greater number of break points and winning breaks.¹⁵ Greater use of the lob is likely to make it easier to reach the net. Some studies have observed that in men's padel there are fewer transitions, or movements of the players from the net zone to the baseline zone or vice versa,³³ and various papers show that about 80% of the direct points are obtained from the net.³⁴⁻³⁶ Thus, while in men's padel they should practice more on the return of serve to prevent the serving pair from winning the point quickly at the net, in women's padel they should train more on the serve and the shot following the return to avoid losing the net area easily.

While the most likely shots of the server are forehand and backhand volleys in both men's and women's padel, trays or smashes and back wall shots are the shots that the server's partner performs the most. This could be attributed to the server having to move from the baseline zone to the net zone quickly and the server's partner already being ready at the net. For this reason, the server must reach the net quickly after serving (volley as third shot), even closer to the net than his/her partner, who may be further behind to make a more comfortable execution of the tray or smash. Other studies seem to confirm this fact, since the server is the player who travels the most distance during the point, as concluded by Ramón-Llín et al.³⁷ in

their study. Also, since the server has a significant advantage, the objective of the return is to prevent the serving pair from winning the rally quickly, and this could be achieved with good lob depth, regardless of direction, and good pace of straight shots, predominantly directed towards the server.³⁸

On the other hand, the importance of the point (non-key moment, key moment or golden point) and the service position (traditional or Australian) influence the third shot (forehand volley, backhand volley, tray or smash or back wall shot) in professional padel according to the sex of the players and according to the player who performs it (server or server's partner). Some research has analysed the importance of the point,^{13,20} indicating that it is an influential factor in the analysis of the game in men's and women's padel. These studies show that while in men's padel the difference between errors and winning shots increases as the importance of the point increases, in women's padel it decreases. In addition, they observe an increase in the use of the lob in non-decisive points. Sánchez-Alcaraz et al.³⁹ state in their study that the importance of the point on the match scoreboard plays players increase the rest time between points, and that it may be due to both tactical aspects in the preparation of the point and the need for good physical recovery of the player.³⁹ Thus, players must pay special attention to the different moments of the game, creating training routines in which specific situations are established, that is, training with scoreboard simulation.

Table 3. Type of the third shot in men's and women's professional padel according to the player who performs it and the tactical service position.

Type of third shot	Server							
	Traditional position				Australian position			
	Men		Women		Men		Women	
%	CSR	%	CSR	%	CSR	%	CSR	
Forehand volley	30.4	1.8	24.2	-1.8	31.7	0.6	29.8	-0.6
Backhand volley	36.2a	5.3	18.3b	-5.3	42.8a	3.8	30.3b	-3.8
Tray or smash	27.9a	-4.9	45.9b	4.9	20.4a	-3.1	29.5b	3.1
Back wall shot	5.5a	-2.8	11.5b	2.8	5.0a	-3.0	10.4b	3.0
Partner of the server								
Type of third shot	Traditional position				Australian position			
	Men		Women		Men		Women	
	%	CSR	%	CSR	%	CSR	%	CSR
Forehand volley	23.5	1.6	18.2	-1.6	20.7a	2.9	11.3b	-2.9
Backhand volley	30.9	0.8	27.9	-0.8	29.3a	5.5	9.6b	-5.5
Tray or smash	38.9	-1.0	42.8	1.0	39.1a	-4.7	60.0b	4.7
Back wall shot	6.8	-1.9	11.2	-1.9	10.9a	-2.6	19.2b	2.6

CSR = corrected standardised residual; a, b = indicate significant differences in Z-tests for comparison of column proportions from $p < 0.05$ adjusted according to Bonferroni.

Table 4. Type of the third shot according to sex and who performed it.

Type of third shot	Men					
	Server			Partner of the server		
	n	%	CSR	n	%	CSR
786	57.54			580	42.46	
Forehand volley	245	31.2a	3.7	129	22.2b	-3.7
Backhand volley	315	40.1a	3.8	175	30.2b	-3.8
Tray or smash	185	23.5a	-6.1	226	39.0b	6.1
Back wall shot	41	5.2a	-2.5	50	8.6b	2.5
Women						
Type of third shot	Server			Partner of the server		
	n	%	CSR	n	%	CSR
	748	59.50		509	40.50	
Forehand volley	203	27.1a	5.1	76	14.9b	-5.1
Backhand volley	184	24.6a	2.2	98	19.3b	-2.2
Tray or smash	279	37.3a	-4.8	259	50.9b	4.8
Back wall shot	82	11.0a	-2.1	76	14.9b	2.1

CSR = corrected standardised residual; a, b = indicate significant differences in Z-tests for comparison of column proportions from $p < 0.05$ adjusted according to Bonferroni.

Likewise, various manuscripts have stated that the service position is a parameter that affects the analysis of the men's and women's professional padel game.^{19,21,22} Thus, players win a higher percentage of points on serve when they use the traditional tactic against the Australian one, especially in the third set. In addition, using an Australian strategy will force the server to go further, finding him or herself, at the moment of the return, at a greater distance from the net. Therefore, coaches should encourage their players to work on game situations in which they vary different serving strategies (traditional and Australian) seeking to finish the point in the fewest number of shots possible, thus increasing their chances of success.

This study has a number of limitations that must be taken into account when interpreting the results. In the first place, only matches from six circuit tournaments have been analysed, where altitude and environmental conditions could affect the results. Subsequent studies should take these contextual parameters into account, allowing the patterns used by the players to be differentiated based on the characteristics of the competition venue. Moreover, it would be interesting to differentiate between winners and losers, in order to establish performance patterns related to the result. Finally, future research should jointly analyse the characteristics of the serve and the return to determine stable game patterns in professional padel.

Table 5. Type of third shot in men's and women's padel depending on who performed it and the importance of the point.

Type of third shot	Men									
	Non-key moment				Key moment				Golden point	
	Server		Partner of the server		Server		Partner of the server		Server	
	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR
Forehand volley	31.2a	2.8	22.7b	-2.8	32.4	1.6	24.1	-1.6	29.3a	2.0
Backhand volley	42.2a	3.0	32.2b	-3.0	35.9	1.2	29.3	-1.2	37.1a	2.2
Tray or smash	21.6a	-5.0	37.0b	5.0	24.7a	-2.3	36.8b	2.3	30.2a	-3.0
Back wall shot	5.0	-1.9	8.1	1.9	7.1	-0.9	9.8	0.9	3.4	-1.7
	Women									
	Non-key moment				Key moment				Golden point	
	Server		Partner of the server		Server		Partner of the server		Server	
	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR
Type of third shot	59.19		40.81		60.72		39.28		58.98	
Forehand volley	28.3a	3.4	17.8b	-3.4	25.9a	3.7	8.2b	-3.7	23.8	1.9
Backhand volley	25.2a	2.6	17.5b	-2.6	24.7	-0.6	28.2	0.6	21.9	1.4
Tray or smash	35.3a	-3.8	48.8b	3.8	37.6a	-2.0	50.0b	2.0	45.7a	-2.1
Back wall shot	11.2a	-2.0	16.0b	2.0	11.8	-0.5	13.6	0.5	8.6	-0.8

CSR = corrected standardised residual; a, b = indicate significant differences in Z-tests for comparison of column proportions from $p < 0.05$ adjusted according to Bonferroni.

Table 6. Type of third shot in men's and women's padel according to who performed it and the tactical service position.

Type of third shot	Men									
	Traditional position					Australian position				
	Server		Partner of the server			Server		Partner of the server		
	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR
Forehand volley	30.4a	2.0	23.5b	-2.0	31.7a	3.2	20.7b	-3.2		
Backhand volley	36.2	1.4	30.9	-1.4	42.8a	3.6	29.3b	-3.6		
Tray or smash	27.9a	-3.0	38.9b	3.0	20.4a	-5.4	39.1b	5.4		
Back wall shot	5.5	-0.7	6.8	0.7	5.0a	-3.0	10.9b	3.0		
	Women									
	Traditional position					Australian position				
	Server		Partner of the server			Server		Partner of the server		
	%	CSR	%	CSR	%	CSR	%	CSR	%	CSR
Type of third shot	56.89		43.11		62.08		37.92			
Forehand volley	24.2	1.8	18.2	-1.8	29.8a	5.4	11.3b	-5.4		
Backhand volley	18.3a	-2.8	27.9b	2.8	30.3a	6.1	9.6b	-6.1		
Tray or smash	45.9	0.8	42.8	-0.8	29.5a	-7.6	60.0b	7.6		
Back wall shot	11.5	0.2	11.2	-0.2	10.4a	-3.1	19.2b	3.1		

CSR = corrected standardised residual; a, b = indicate significant differences in Z-tests for comparison of column proportions from $p < 0.05$ adjusted according to Bonferroni.

Conclusions

There are differences in the shot following the return in men's and women's padel, as men use more forehand and backhand volleys and women use trays or smashes and back wall shots more. Thus, the game strategy differs according to the sex of the athletes in professional padel. In addition, while the server is the one who plays the most third shots following a straight return in men's and women's padel (forehand volleys and backhand volleys), the server's partner is the one who plays the most third shots following a lob return in the men's and women's categories (trays or smashes and back wall shots).

Furthermore, the importance of the point influences the differences that occur between men and women in the third shot in professional padel; and the service position is also a factor that affects the shot following the return in men's and women's professional padel. Thus, the importance of the point and the service position are parameters that coaches must consider to create specific and real competition tasks or situations that players must constantly face in order to be prepared: looking for the serving players to finish the points during the competition in the fewest possible shots and thus increase their chances of success; and, on the contrary, the returning players to prevent the serving pair from winning the point quickly at the net, through a good depth on lobs (to get the net) or good timing on straight shots.

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