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[Rafael Conde-Ripoll](#) , [Iván Martín-Miguel](#) , [Bernardino J. Sánchez-Alcaraz](#) * , [Adrián Escudero-Tena](#)

Posted Date: 25 August 2025

doi: 10.20944/preprints202508.1788.v1

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Article

Determining Shot Effectiveness in Padel: Exploring Differences Between Winning and Losing Teams

Rafael Conde-Ripoll ¹, Iván Martín-Miguel ², Bernardino J. Sánchez-Alcaraz ^{3,*} and Adrián Escudero-Tena ²

¹ Universidad Europea de Madrid, Spain

² University of Extremadura, Spain

³ University of Murcia, Spain

* Correspondence: bjavier.sanchez@um.es; Tel.: +34 868888812

Abstract

Background: Padel is currently played in more than 150 countries, leading to a significant increase in scientific studies about performance analysis in recent years. The study of the shot effectiveness (winner vs errors) will provide an important information to players and coaches to know the performance in a match or competition. **Objectives:** The aims of this study were to (i) analyze winners, forced errors, unforced errors, and forced error generators based on set results and serving situation; (ii) examine differences in shot types and effectiveness between set-winning and set-losing pairs; and (iii) investigate differences in shot types that generate forced errors between set-winning and set-losing pairs. **Methods:** Data were collected from 41 professional matches (men's and women's) at the World Padel Tour Finland Padel Open website. Descriptive (frequency and percentage) and inferential analyses (chi-square (χ^2), Cramer's V coefficient (Vc), subsequent Z-tests and corrected standard residuals (CSR)) were performed. **Results:** The results revealed that pairs generate more winners and forced error generators when serving, while forced errors are more prominent when returning. The winning pair achieved more winners (men: CSR=7.7; women: CSR=7.4), whereas the losing pair committed more errors (men: forced errors (CSR=4.3) and unforced errors (CSR=3.8); women: forced errors (CSR=4.8) and unforced errors (CSR=2.8)). Additionally, the winning pair generated more forced errors (men: 56.5%; women: 60.0%) than the losing pair (men: 43.5%; women: 40.0%). **Conclusions:** These findings are crucial for coaches and players, as they provide insights into sex-specific technical-tactical aspects, thereby enhancing the effectiveness of training strategies.

Keywords: racquet sport; performance analysis; game actions; efficacy

1. Introduction

Padel is a doubles racquet sport that follows the tennis scoring system but is played on an enclosed synthetic glass and metal court (10 × 20 m), allowing for the use of side and back walls [1]. Currently played in over 150 countries, the sport has experienced a surge in scientific research, particularly in performance analysis [2]. Among the various professional circuits, the World Padel Tour (WPT) stands out as the most prominent, hosting over 20 events worldwide each season. As a result, WPT players have been the primary focus of research, with studies highlighting performance differences based on sex [3,4] and effectiveness [5–7].

The effectiveness of the last shot in a point has been analyzed in professional men's and women's padel [8,9]. These studies have concluded that points can end with a winning shot, a forced error, or an unforced error. This last-shot effectiveness varies between sexes. For instance, in men's padel, the percentage of winning shots (44.4%) was higher than that of unforced errors (30.9%) and forced errors (24.7%). In contrast, in women's padel, unforced errors (39.6%) occurred more frequently than winning shots (35.3%) and forced errors (25.0%) [10].

Differences between the winning and losing pairs regarding the effectiveness (considering winners, differentiating errors between forced and unforced, and considering also forced error generators) and shot type have only been reported by Conde-Ripoll, Sánchez-Alcaraz et al. [11] in local men's tournaments in Finland, where only minor variations were observed. For instance, the winning pair demonstrated a higher number of winners using the forehand double-wall shot, while forced errors were more frequently caused by counter-wall shots, and the losing pair committed more unforced errors with the backhand volley. However, this research was restricted to high-level male players and did not account for the serving situation. Therefore, there remains a research gap concerning how shot effectiveness and shot type differ between set-winning and set-losing pairs in both professional men's and women's padel, particularly when considering the role of the serve.

Moreover, previous studies have highlighted distinctions between winning and losing pairs in men's and women's professional padel in terms of winners and errors [12]. However, this study did not differentiate between forced and unforced errors, did not examine forced error generators, and did not consider the serving situation, thereby leaving a relevant research gap. In addition, Sánchez-Alcaraz, Courel-Ibáñez et al. [5] reported that winning pairs tend to succeed in relatively long points and avoid committing unforced errors in the early stages of a rally, whereas losing pairs struggle in extended exchanges and frequently commit unforced errors early in the point. Although this study differentiated between forced and unforced errors, it focused exclusively on male professional players and did not consider either the serving situation or shot typology. Therefore, further research is needed to explore the effectiveness of specific shots—including forced error generators—and their impact on match outcomes in both men's and women's professional padel.

The padel serve is a crucial opportunity for the serving pair to take control of the point, allowing them to reach the net position before their opponents. Previous studies have shown that approximately 80% of points are won at the net [13], highlighting the tactical significance of the serve in establishing a dominant position early in the rally. Notably, men tend to capitalize on this advantage more effectively, winning more points while serving, whereas women excel in point acquisition during the return phase [14]. Additionally, the serve advantage diminishes for men around the 9th or 10th shot and for women by the 8th shot [14]. Despite this, the relationship between the serving situation and the effectiveness of the final shot, or the shot that generates a forced error, remains underexplored in the literature. Given the tactical importance of the serve, there is a clear gap in the current understanding of how serving situations influence shot effectiveness, including forced error generators, in both men's and women's professional padel. Therefore, further research is warranted to investigate how these factors vary depending on the serving situation in professional padel.

After reviewing the existing scientific literature on the effectiveness of the final shot in men's and women's professional padel (winners, unforced errors, and forced errors), several studies have analyzed this variable [8,9]. However, a more in-depth analysis is necessary, incorporating its relationship with the serve, shot typology, and other relevant variables. Additionally, the concept of a *forced error generator*—a shot that induces a forced error in the opposing pair—has been explored in other racket sports [15], but has received limited attention in padel [11]. This is noteworthy, as forced error generators can lead to point outcomes similar to winners; in both cases, the player wins the point either by inducing a mistake due to the shot's high difficulty or by hitting an unreturnable shot. Therefore, it is essential to identify and analyze the types of shots that generate forced errors in professional padel to gain a more complete understanding of shot effectiveness.

In light of the limited research analyzing the interplay between shot effectiveness, forced error generators, and contextual variables such as the serving situation and set outcome in professional padel, this study aimed to address these gaps. Specifically, the aims were (i) to analyze winners, forced errors, unforced errors, and forced error generators based on set results and serving situation in both men's and women's padel, (ii) to examine differences in shot types and effectiveness between set-winning and set-losing pairs; and (iii) investigate differences in shots that generate forced errors between set-winning and set-losing pairs, according to shot typology.

2. Materials and Methods

Sample

Data were collected from 41 matches (comprising 4,829 rallies in total) from the professional men's qualifying draw (n = 9; two first-round, three second-round, and four third-round matches) and main draw (n = 13; four first-round, three second-round, three quarterfinals, two semifinals, and one final) and from the women's qualifying draw (n = 8; three first-round, three second-round, and two third-round matches) and main draw (n = 11; three first-round, two second-round, two quarterfinals, two semifinals, and one final) at the WPT Finland Padel Open tournament. The matches took place at the PadelOne Arena in Nokia, Finland. The male players (n = 62; age = 27.49 ± 6.86 years; height = 180.2 ± 6.7 cm; laterality: 7 left-handed, 55 right-handed) and female players (n = 57; age = 26.21 ± 6.47 years; height = 168.2 ± 5.8 cm; laterality: 3 left-handed, 54 right-handed) had professional experience competing in WPT tournaments, with a mean of 258.29 ± 173.37 matches played for men and 176.77 ± 139.56 matches played for women. No injuries were reported during the matches analyzed. All procedures adhered to the ethical standards in sports and exercise science research [16] and were approved by the local Ethics Commission.

Study Variables

The following variables were defined and analyzed based on their categorical core and degree of openness [17]:

- Sex: men's and women's categories were established.
- Serving situation: this variable differentiates between the serving pair and the returning pair. Each point begins with a serve from one player in a pair, designating them as the serving pair, while their opponents are the returning pair.
- Set result: a difference was made between the pair that won the set and the pair that lost the set. Prior investigations have examined facets of scoring within professional panels [18,19]. These studies used the set as a unit of measurement, instead of the match, owing to substantial data discrepancies when considering the play of two versus three sets. As per regulations [1], securing victory in a pad match entails a pair winning two sets before their opponents. Thus, in the context of a three-set match, outcomes might incite confusion because each pair would claim a set win and loss prior to the decisive third set.
- Effectiveness of the last shot: It was classified between winner, forced error, and unforced error. Each of these categories was defined based on studies by Sánchez-Alcaraz et al. [10]. A winner is the action where a player wins the point with a direct shot (i.e., after bouncing on the other side of the net correctly, the ball bounces once again; or the ball is hit on the body of the opponent before being out). A forced error is the action where the player loses the point due to an error in a highly difficult shot, and with a poor position for its execution due to the opponent's prior shot. Finally, an unforced error is the action where the player loses the point due to an error in a situation of little difficulty and with good space-temporal disposition for execution.
- Forced error generators: shots that induce a forced error in the opposing pair. This variable was used in previous studies.
- Typology of the shot: a difference was made among bandeja, smash, recovery smash, forehand volley, backhand volley, forehand bajada, backhand bajada, forehand, backhand, back wall forehand, back wall backhand, side wall forehand, side wall backhand, double wall forehand, double wall backhand, serve, contrapared, out of court, and others (cadete, willy...). Each category was defined based on previous studies [4]. Table 1 shows the definition of each type of shot.

Table 1. Shot type and its definition.

Shot type	Definition
Forehand	Shot executed after the ball bounces on the body area of the dominant side.

Backhand	Shot executed after the ball bounces on the body area of the non-dominant side.
Side wall forehand	A shot in which the ball, after bouncing on the ground, impacts on one of the side glasses of the court before being hit with the dominant side.
Side wall backhand	A shot in which the ball, after bouncing on the ground, impacts on one of the side glasses of the court before being hit with the non-dominant side.
Back wall forehand	A shot in which the ball, after bouncing on the ground, hits one of the bottom panes of glass before being hit by the dominant side.
Back wall backhand	A shot in which the ball, after bouncing on the ground, hits one of the bottom panes of glass before being hit from the non-dominant side.
Double wall forehand	A shot in which the ball, after bouncing on the ground, impacts first on one glass and then on another (side-bottom or bottom-side) before being hit with the dominant side.
Double wall backhand	A shot in which the ball, after bouncing on the ground, impacts first on one glass and then on another (side-bottom or bottom-side) before being hit with the non-dominant side.
Contrapared	A shot intentionally executed against the back or side glass of one's own court, seeking to redirect the ball into the opponent's court.
Forehand bajada	Offensive shot in which the ball, after bouncing on the ground and bouncing on the glass, is hit with the dominant side at chest height or above.
Backhand bajada	Offensive shot in which the ball, after bouncing on the ground and bouncing on the glass, is hit with the non-dominant side at chest height or above.
Forehand volley	Shot made from the dominant side without a previous bounce.
Backhand volley	Shot made on the non-dominant side without a previous bounce.
Bandeja	Aerial shot similar to the forehand volley, with an impact range of 1:30 to 3 o'clock.
Smash	A high-powered aerial shot, typically struck between 11:30 and 1 o'clock, which aims to return the ball to one's own court after bouncing on the ground and bouncing off the back wall of the opponent's court.
Recovery smash	A smash that is taken after an opponent's power smash. That is, the opposing player makes a smash, the ball bounces on the ground and bounces on the wall(s) of the home field and then the player makes a smash.
Serve	The serve is carried out from behind the serving line and is the initial hit that is made to start each point. Once the serving player throws the ball on the ground, he/she will hit the ball below the waist.
Out of court	Is any shot where a player hits the ball out of the court, both the ball and the player being out of the court.
Other (cadete, willy...)	Any other shot that has not been defined above as a shot between the legs (Willy) or any other shot not categorized.

Process

This study follows an empirical research methodology and is classified as a descriptive study. It falls within the observational research category and is characterized as nomothetic, punctual, and multidimensional [20]. A trained observer—a PhD student in Sports Sciences, certified padel coach, and experienced researcher in the field—conducted live observations of the matches and recorded study variables using an ad-hoc instrument. To ensure data accuracy, an intra-observer reliability analysis was performed at the end of the data collection process. The observer reanalyzed a random sample of six matches, hosted on the WPT TV website (<https://www.worldpadeltourto.com/>), covering 10–20% of the total study sample, as recommended by Igartua [21]. The mean intra-observer reliability was 0.93, indicating an almost perfect agreement [22]. Additionally, a second observer—

also a PhD student in Sports Sciences, certified padel coach, and experienced researcher— independently analyzed the same sample of six random matches to assess inter-observer reliability.

Statistical Analysis

A descriptive analysis was conducted to determine the frequency and percentage of occurrences for each study variable. Cohen's Kappa coefficient (κ) was calculated for intra- and inter-observer reliability. An inferential analysis followed, utilizing contingency tables and the chi-square (χ^2) test to assess associations between variables (shot effectiveness with set result and serve situation). The strength of these associations was measured using Cramer's V coefficient (V_c) [23]. According to Crewson [24], the strength of association is classified as small (<0.100), low (0.100 – 0.299), moderate (0.300 – 0.499), or high (>0.500). Additionally, Z-tests were performed to compare column proportions, with p-values adjusted to $<.05$ using the Bonferroni correction. Contingency tables facilitated the identification of associations between variable categories through corrected standard residuals (CSR), where residuals $> |1.96|$ indicated cells with significantly more or fewer cases than expected [23]. The significance level was set at $p < 0.05$, and all statistical analyses were performed using SPSS 27.0 for Windows.

3. Results

Table 2 presents the inter-observer and intra-observer reliability scores for each study variable. The mean inter-observer reliability was 0.90, also classified as almost perfect (Landis & Koch, 1977).

Table 2. Cohen's Kappa coefficient (κ) for each of the study variables.

Study variables	Inter-observer	Intra-observer
	κ	κ
Effectiveness of the last shot	.81	.88
Forced error generators	.81	.88
Typology of the shot	.80	.84

Table 3 shows the shot effectiveness according to the result as a function of the service situation. A significant relationship was found between the serving situation and the effectiveness of the last shot for both winning ($\chi^2 = 110.375$; $df = 2$; $p < .001$; $V_c = 0.282$) and losing pairs ($\chi^2 = 127.127$; $df = 2$; $p < .001$; $V_c = 0.300$) in men, and for both winning ($\chi^2 = 35.815$; $df = 2$; $p < .001$; $V_c = 0.192$) and losing pairs ($\chi^2 = 34.788$; $df = 2$; $p < .001$; $V_c = 0.181$) in women. Winning and losing pairs produced more winners when serving in both men (CSR = 9.8) and women (CSR = 4.8; CSR = 2.8). They also generated more forced errors. Both winning and losing pairs committed more forced errors when returning in men (CSR = 8.4; CSR = 9.5) and in women (CSR = 5.4; CSR = 5.9). The winning pair committed more unforced errors when returning in men (CSR = 2.7), while the losing pair committed more unforced errors when serving in women (CSR = 3.2).

Table 3. Winners, forced errors, unforced errors and forced error generators according to the set result. Serve vs. return.

	Men											
	Winning pair						Losing pair					
	At serve			At return			At serve			At return		
	N	%	CSR	N	%	CSR	N	%	CSR	N	%	CSR
Winner	416	57.6a	9.8	209	31.4b	-9.8	309	42.6a	9.8	126	18.4b	-9.8
Forced error	115	15.9a	-8.4	236	35.4b	8.4	153	21.1a	-9.5	306	44.8b	9.5
Unforced error	191	26.5a	-2.7	221	33.2b	2.7	263	36.3a	-0.2	251	36.7a	0.2

	Women											
	Winning pair						Losing pair					
	At serve			At return			At serve			At return		
	N	%	CSR	N	%	CSR	N	%	CSR	N	%	CSR
Forced error generator	306	66.7		153	33.3		236	67.3		115	32.7	
Winner	244	48.7a	4.8	159	33.5b	-4.8	166	29.2a	2.8	106	21.7b	-2.8
Forced error	82	16.4a	-5.4	147	30.9b	5.4	143	25.1a	-5.9	206	42.2b	5.9
Unforced error	175	34.9a	-0.2	169	35.6a	0.2	260	45.7a	3.2	176	36.1b	-3.2
Forced error generator	206	59.1		143	40.9		147	64.2		82	35.8	

Note. N: number; %: percentage; CSR: corrected standard residuals; CSR>1.96: Bold; a, b: indicate significant differences in the Z tests for comparison of column proportions from $p < .05$ adjusted according to Bonferroni.

Table 4 shows the shot effectiveness according to the serving situation as a function of the result. A significant relationship was found between the set result and the effectiveness of the last shot when serving ($\chi^2 = 32.592$; $df = 2$; $p < .001$; $Vc = 0.150$) and when returning ($\chi^2 = 31.302$; $df = 2$; $p < .001$; $Vc = 0.152$) in men, and when serving ($\chi^2 = 43.842$; $df = 2$; $p < .001$; $Vc = 0.202$) and when returning ($\chi^2 = 20.431$; $df = 2$; $p < .001$; $Vc = 0.146$) in women. The winning pair produced more winners both when serving and when returning in men (CSR = 5.7; CSR = 5.5) and in women (CSR = 6.6; CSR = 4.1). They also generated more forced error. Losing pairs committed more forced errors when serving and when returning in men (CSR = 2.5; CSR = 3.5) and in women (CSR = 3.5; CSR = 3.6). Losing pairs committed more unforced errors when serving in men (CSR = 4.0) and in women (CSR = 3.6).

Table 4. Winners, forced errors, unforced errors and forced error generators according to the serve. Winning vs. losing pair.

	Men											
	At serve						At return					
	Winning pair			Losing pair			Winning pair			Losing pair		
	N	%	CSR	N	%	CSR	N	%	CSR	N	%	CSR
Winner	416	57.6%a	5.7	309	42.6%b	-5.7	209	31.4a	5.5	126	18.4b	-5.5
Forced error	115	15.9%a	-2.5	153	21.1%b	2.5	236	35.4a	-3.5	306	44.8b	3.5
Unforced error	191	26.5%a	-4.0	263	36.3%b	4.0	221	33.2a	-1.4	251	36.7a	1.4
Forced error generator	306	56.5		236	43.5		153	57.1		115	42.9	
	Women											
	At serve						At return					
	Winning pair			Losing pair			Winning pair			Losing pair		
	N	%	CSR	N	%	CSR	N	%	CSR	N	%	CSR

	At serve						At return					
	Winning pair			Losing pair			Winning pair			Losing pair		
	N	%	CSR	N	%	CSR	N	%	CSR	N	%	CSR
Winner	244	48.7a	6.6	166	29.2b	-6.6	159	33.5a	4.1	106	21.7b	-4.1
Forced error	82	16.4a	-3.5	143	25.1b	3.5	147	30.9a	-3.6	206	42.2b	3.6
Unforced error	175	34.9a	-3.6	260	45.7b	3.6	169	35.6a	-0.2	176	36.1a	0.2
Forced error generator	206	58.4		147	41.6		143	63.6		82	36.4	

Note. N: number; %: percentage; CSR: corrected standard residuals; CSR>1.96: Bold; a, b: indicate significant differences in the Z tests for comparison of column proportions from p<.05 adjusted according to Bonferroni.

Table 5 shows the shot type and its effectiveness depending on the result in men's padel. A significant relationship was found between the set result and the effectiveness of the last shot ($\chi^2=59.552$; $df=2$; $p<.001$; $Vc=0.146$) in men. The winning pair achieved more winners (CSR = 7.7) and the losing pair committed more errors (forced errors (CSR = 4.2) and unforced errors (CSR = 3.9)). Regarding the type of shot, no specific shot was associated with a higher number of winners or errors for either the winning or losing pair, except in a few cases. The losing pair recorded more winners than the winning pair when using the forehand bajada (CSR = 2.0). The winning pair made more forced errors than the losing pair when executing the recovery smash (CSR = 2.8). Additionally, the losing pair committed more forced errors than the winning pair when performing the forehand volley (CSR = 2.3) and the back wall forehand (CSR = 2.0).

Table 5. Differences between the winning and losing pair in men's professional padel according to the type of shot and its effectiveness.

	Winner			Forced error						Unforced error								
	Winning pair			Losing pair			Winning pair			Losing pair			Winning pair			Losing pair		
	CS			CS			CS			CS			CS			CS		
	N	%	R	N	%	R	N	%	R	N	%	R	N	%	R	N	%	R
Total	62	59.	7.7	43	41.	-7.7	35	43.	-	45	56.	4.3	41	44.	-	51	55.	3.8
shots	5	0a		5	0b		1	3a	4.3	9	7b		2	5a	3.8	4	5b	
Bandeja	79	12.	-	58	13.	0.3	0	0.0	-	1	0.2	0.9	79	19.	-	10	21.	0.7
		6a	0.3		3a			a	0.9		a			2a	0.7	8	0a	
Smash	27	43.	-	19	45.	0.6							19	4.6	-	32	6.2	1.1
		8a	0.6		7a									a	1.1		a	
Recovery smash	20	3.2	-	18	4.1	0.8	6	1.7	2.8	0	0.0	-						
		a	0.8		a			a			b	2.8						
Forehand volley	94	15.	1.4	52	12.	-1.4	29	8.3	-	61	13.	2.3	67	16.	0.8	74	14.	-
		0a			0a			a	2.3		3b			3a			4a	0.8
Backhand volley	86	13.	0.9	52	12.	-0.9	88	25.	1.1	10	21.	-	53	12.	-	69	13.	0.3
		8a			0a			1a		0	8a	1.1		9a	0.3		4a	

Forehand	8	1.3	-	13	3.0	2.0							22	5.3	-	29	5.6	0.2
d bajada		a			b									a	0.2		a	
Backhand	2	0.3	0.3	1	0.2	-0.3	1	0.3	1.1	0	0.0	-	3a	0.7	0.7	2	0.4	-
d bajada		a			a			a			a	1.1		a			a	0.7
Forehand	21	3.4	1.7	7	1.6	-1.7	20	5.7	-	43	9.4	1.9	49	11.	-	63	12.	0.2
d		a			a			a	1,9		a			9a	0.2		3a	
Backhand	11	1.8	0.5	6	1.4	-0.5	28	8.0	-	44	9.6	0.8	59	14.	0.5	68	13.	-
d		a			a			a	0.8		a			3a			2a	0.5
Back	4	0.6	-	4	0.9	0.5	29	8.3	-	58	12.	2.0	24	5.8	0.8	24	4.7	-
wall		a	0.5		a			a	2.0		6b			a			a	0.8
forehand																		
Back	3	0.5	-	7	1.6	1.9	34	9.7	1.5	31	6.8	-	13	3.2	0.2	15	2.9	-
wall		a	1.9		a			a			a	1.5		a			a	0.2
backhand																		
d																		
Side wall							11	3.1	0.6	11	2.4	-	4	1.0	-	6	1.2	0.3
forehand								a			a	0.6		a	0.3		a	
Side wall				2	0.5	0.9	15	4.3	0.8	15	3.3	-	9	2.2	-	13	2.5	0.3
backhand		0.2	-		a			a			a	0.8		a	0.3		a	
d	1	a	0.9															
Double				6	1.4	0.1	25	7.1	0.7	27	5.9	-	6	1.5	0.7	5	1.0	-
wall		1.3	-		a			a			a	0.7		a			a	0.7
forehand	8	a	0.1															
Double				5	1.1	1.2	27	7.7	1.3	35	5.4	-	4	1.0	0.7	3	0.6	-
wall					a			a			a	1.3		a			a	0.7
backhand		0.5	-															
d	3	a	1.2															
Contrap							24	6.8	0.6	27	5.9	-	1	0.2	1.1	0	0.0	-
ared								a			a	0.6		a			a	1.1
Out of	6	1.0	0.1	4	0.9	-0.1	10	2.8	1.8	5	1.1	-	0	0.0	-	1	0.2	0.9
the court		a			a			a			1a	1.8		a	0.9		a	
		5	0.8	1.2	1	0.2	-1.2						0	0.0	-	2	0.4	1.3
Serve		a			a									a	1.3		a	
							4	1.1	-	11	2.4	1.3						
Other								a	1.3		a							

Note. N: number; %: percentage; CSR: corrected standard residuals; CSR > 1.96: Bold; a, b: indicate significant differences in the Z tests for comparison of column proportions from $p < .05$ adjusted according to Bonferroni.

Table 6 shows the shot type and its effectiveness depending on the result in women's padel. A significant relationship was found between the set result and the effectiveness of the last shot in women ($\chi^2(2) = 58.053, p < .001, V_c = 0.169$). The winning pair achieved more winners (CSR = 7.4), while the losing pair committed more errors (forced errors (CSR = 4.8) and unforced errors (CSR = 2.8)). Regarding the type of shot, the winning pair recorded more winners than the losing pair when using the backhand volley (CSR = 3.3). The winning pair also committed more forced errors than the

losing pair when using the forehand (CSR = 2.1) and the side-wall backhand (CSR = 2.1). Conversely, the losing pair committed more forced errors than the winning pair when using the backhand (CSR = 2.1). In terms of unforced errors, the winning pair made more unforced errors than the losing pair when executing the forehand bajada (CSR = 2.4), while the losing pair committed more unforced errors than the winning pair when performing the double-wall forehand (CSR = 2.0).

Table 6. Differences between the winning and losing pair in women's professional padel according to the type of shot and its effectiveness.

	Winner						Forced error						Unforced error					
	Winning pair			Losing pair			Winning pair			Losing pair			Winning pair			Losing pair		
	N	%	CS	N	%	CS	N	%	CS	N	%	CS	N	%	CS	N	%	CS
Total	40	59.	7.4	27	40.	-	22	39.	-	34	60.	4.8	34	44.	-	43	55.	2.8
shots	3	7a		2	3b	7.4	9	6a	4.8	9	4b		4	1a	2.8	6	9b	
Bandeja	81	20.	0.0	55	20.	0.0	0	0.0	-	1	0.3	0.8	93	27.	0.2	11	26.	-
		1a			2a			a	0.8		a			0		5	4a	0.2
Smash	10	25.	0.3	67	24.	-							11	3.2	-	22	5.0	1.3
		8a			6a	0.3								a	1.3		a	
Recovery smash	1	0.2	-	3	1.1	1.4	0	0.0	-	1	0.3	0.8						
		a	1.4		a			a	0.8		a							
Forehand volley	77	19.	-	64	23.	1.4	18	7.9	-	39	11.	1.3	46	13.	-	72	16.	1.2
		1a	1.4		5a			a	1.3		2a			4a	1.2		5a	
Backhand volley	68	16.	3.3	22	8.1	-	48	21.	0.8	64	18.	-	48	14.	0.9	51	11.	-
		9a			b	3.3		0a			3a	0.8		0a			7a	0.9
Forehand bajada	23	5.7	1.0	11	4.0	-							27	7.8	2.4	17	3.9	-
		a			a	1.0								a			b	2.4
Backhand bajada	1	0.2	-	1	0.4	0.3							2	0.6	-	5	1.1	0.8
		a	0.3		a									a	0.8		a	
Forehand d	18	4.5	-	15	5.5	0.6	25	10.	2.1	21	6.0	-	40	11.	1.1	40	9.2	-
		a	0.6		a			9a			b	2.1		6a			a	1.1
Backhand d	10	2.5	-	12	4.4	1.4	17	7.4	-	45	12.	2.1	34	9.9	-	48	11.	0.5
		a	1.4		a			a	2.1		9b			a	0.5		0a	
Back wall forehand	6	1.5	-	8	2.9	1.3	26	11.	1.2	29	8.3	-	17	4.9	0.5	18	4.1	-
		a	1.3		a			4a			a	1.2		a			a	0.5
Back wall backhand	5	1.2	-	7	2.6	1.3	16	7.0	-	39	11.	1.7	10	2.9	0.3	11	2.5	-
		a	1.3		a			a	1.7		2a			a			a	0.3
Side wall forehand		0.2		0	0.0	-	14	6.1	1.0	15	4.3	-	6	1.7	-	9	2.1	0.3
	1	a	0.8		a	0.8		a			a	1.0		a	0.3		a	
Side wall backhand							15	6.6	2.1	10	2.9	-	5	1.5	-	14	3.2	1.6
								a			b	2.1		a	1.6		a	

d

Double wall	2	0.7	0.9	18	7.9	-	35	10.0	0.9	0	0.0	-	5	1.1	2.0
forehand	1	a	0.9					0a			a	2.0		b	
Double wall	4	1.5	0.9	19	8.3	-	31	8.9	0.2	4	1.2	-	7	1.6	0.5
backhand	3	a	0.9					a			a	0.5		a	
Contrapared				10	4.4	0.0	15	4.3	0.0	1	0.3	1.1	0	0.0	-
	4	1.0	0.9	1	0.4	-				0	0.0	-	1	0.2	0.9
Serve of the court		a		a	0.9						a	0.9		a	
Out of the court				2	0.9	0.4	2	0.6	-						
					a			a	0.4						
Other				1	0.4	-	2	0.6	0.2	0	0.0	-	1	0.2	0.9
					a	0.2		a			a	0.9		a	

Note. N: number; %: percentage; CSR: corrected standard residuals; CSR > 1.96: Bold; a, b: indicate significant differences in the Z tests for comparison of column proportions from p<.05 adjusted according to Bonferroni.

Table 7 shows the forced error generator shot type depending on the result in men's padel. The winning pair generated more forced errors (56.5%) compared to the losing pair (43.5%). Regarding the type of shot, no specific shot was associated with a higher number of forced errors for either the winning or losing pair, except for the smash, where the losing pair generated more forced errors than the winning pair (CSR = 2.3).

Table 7. Forced error generators. Differences between the winning pair and losing pair in men's professional padel according to the type of shot.

	Winning pair			Losing pair		
	N	%	CSR	N	%	CSR
Total forced error generators	458	56.5		352	43.5	
Bandeja	147	32.1a	-0.3	116	33.0a	0.3
Smash	35	7.6a	-2.3	44	12.5b	2.3
Recovery smash	1	0.2a	0.9	0	0.0a	-0.9
Forehand volley	86	18.8a	-0.7	73	20.7a	0.7
Backhand volley	89	19.4a	1.8	51	14.5a	-1.8
Forehand bajada	15	3.3a	-1.7	20	5.7a	1.7
Backhand bajada	3	0.7a	-0.7	4	1.1a	0.7
Forehand	17	3.7a	1.2	8	2.3a	-1.2
Backhand	16	3.5a	-0.2	13	3.7a	0.2
Back wall forehand	11	2.4a	1.0	5	1.4a	-1.0
Back wall backhand	7	1.5a	1.3	2	0.6a	-1.3
Side wall forehand	2	0.4a	0.4	1	0.3a	-0.4
Double wall forehand	4	0.9a	0.0	3	0.9a	0.0

Double wall backhand	5	1.1a	1.3	1	0.3a	-1.3
Contrapared	1	0.2a	-0.2	1	0.3a	0.2
Serve	17	3.7a	1.2	8	2.3a	-1.2
Out of the court	2	0.4a	0.4	1	0.3a	-0.4

Note. N: number; %: percentage; CSR: corrected standard residuals; CSR > 1.96: Bold; a, b: indicate significant differences in the Z tests for comparison of column proportions from $p < .05$ adjusted according to Bonferroni.

Table 8 shows the forced error generator shot type depending on the result in women's padel. The winning pair generated more forced errors (60.0%) compared to the losing pair (40.0%). Regarding the type of shot, no specific shot was associated with a higher number of forced errors for either the winning or losing pair, except for the double-wall backhand, where the losing pair generated more forced errors than the winning pair (CSR = 2.2).

Table 8. Forced error generators. Differences between the winning pair and losing pair in women's professional padel according to the type of shot.

			Winning pair			Losing pair		
			N	%	CSR	N	%	CSR
Total	forced	error	348	60.0		232	40.0	
generator								
Bandeja			107	30.7a	1.0	62	26.7a	-1.0
Smash			40	11.5a	1.5	18	7.8a	-1.5
Forehand volley			76	21.8a	-0.2	52	22.4a	0.2
Backhand volley			37	10.6a	-1.2	32	13.8a	1.2
Forehand bajada			20	5.7a	-1.0	18	7.8a	1.0
Backhand bajada			6	1.7a	0.4	3	1.3a	-0.4
Forehand			23	6.6a	1.9	7	3.0a	-1.9
Backhand			7	2.0a	-0.5	6	2.6a	0.5
Back wall forehand			5	1.4a	-1.0	6	2.6a	1.0
Back wall backhand			4	1.1a	-0.6	4	1.7a	0.6
Side wall forehand			1	0.3a	-0.3	1	0.4a	0.3
Side wall backhand			2	0.6a	0.2	1	0.4a	-0.2
Double wall forehand			1	0.3a	-1.8	4	1.7a	1.8
Double wall backhand			1	0.3a	-2.2	5	2.2b	2.2
Contrapared			1	0.3a	0.8	0	0.0a	-0.8
Serve			16	4.6a	-0.5	13	5.6a	0.5
Out of the court			1	0.3a	0.8	0	0.0a	-0.8

Note. N: number; %: percentage; CSR: corrected standard residuals; CSR > 1.96: Bold; a, b: indicate significant differences in the Z tests for comparison of column proportions from $p < .05$ adjusted according to Bonferroni.

4. Discussion

Authors should discuss the results and how they can be interpreted from the perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible. Future research directions may also be highlighted.

The aim of this study was to analyze shot effectiveness in padel and comparing with set result. Main results showed differences in shot effectiveness regarding between winning a losing team, in male and female padel.

The data on serve situations (Table 3) indicate that professional male and female players exhibit superior performance when serving compared to when returning, as evidenced by a higher number of winners and forced errors induced in their opponents. Conversely, when returning, players tend to commit more forced errors. This discrepancy can be attributed to the strategic advantage conferred by the serve, which facilitates the serving pair's ability to reach the net position before their opponents [25]. Given that a greater proportion of points are won from this area [13], an aggressive serve strategy appears to be advantageous. Therefore, serving players should prioritize an offensive approach, while returning players should focus on not letting easy balls so that serving players cannot hit winners or forced error generators with ease.

The findings also reveal that the set-winning pair consistently produces a greater number of winners and shots that generate forced errors (Table 4), while the set-losing pair exhibits a higher incidence of both forced and unforced errors in both serving and returning contexts. Notably, to the best of our knowledge, no previous studies have analyzed winners, errors (forced and unforced), and shots that generate forced errors with specific attention to both set outcomes and serving situations in men's and women's padel. Existing literature has generally distinguished between winners and errors without differentiating between forced and unforced errors or identifying the shot responsible for generating forced errors [3,4,26]. Nevertheless, these studies consistently conclude that winning pairs generate more winners, whereas losing pairs commit more errors, aligning with the present findings.

The findings of this study indicate that the bandeja and smash are the primary shots with which both male and female padel players achieve winners and induce forced errors (Tables 5 and 6). However, the bandeja also ranks among the shots with the highest frequency of unforced errors. Previous research has established that bandejas and smashes account for approximately 52–58% of winning actions in professional padel [27], underscoring their pivotal role in successful technical-tactical execution. Moreover, Escudero-Tena, Parraca et al. [28] have highlighted that smashes are particularly effective when executed flat or with topspin, down the line, when the ball exits the court by three or four meters, and when performed in proximity to the net. Conversely, errors are more prevalent when smashes are executed with backspin (bandejas), directed cross-court, fail to clear the net, or directly hit the fence or glass in the opponent's court. Additionally, shot distance from the net appears to influence error rates, with greater distances correlating with a higher likelihood of mistakes. Furthermore, Sánchez-Alcaraz, Pérez-Puche et al. [29] reported that the bandeja is the most frequently employed shot in padel, with a continuity rate approaching 90%, while flat and topspin smashes yield the highest success rates in terms of winners. Given these insights, players should approach the bandeja as a controlled, rally-sustaining shot, prioritizing accuracy to minimize unforced errors. In contrast, smashes should be strategically utilized as definitive point-ending shots, optimizing their capacity to produce winners and force errors from opponents.

Volleys (forehand and backhand) are among the most characteristic shots with which male and female padel players achieve winners and generate forced errors (Table 5 and 6). However, they simultaneously exhibit the highest incidence of both forced and unforced errors among all shot types. Consistent with prior studies, volleys are recognized as highly effective technical-tactical actions for generating winners, yet they also represent strokes with elevated error susceptibility [4]. Therefore, when positioned at the net, players should utilize volleys to maintain control of the rally, seeking to induce forced errors or execute winners only in advantageous situations (e.g., high balls relative to the net or easily attackable shots when opponents are in a compromised position). Conversely, when faced with more difficult scenarios (e.g., low balls relative to the net or fast incoming shots directed at the body), players should adopt a more conservative strategy to mitigate the risk of errors. Additionally, previous research has indicated that both male and female players exhibit a higher propensity for errors—both forced and unforced—when executing forehand or backhand shots from

the middle and back of the court, compared to other shots leading to point conclusions [4]. To address this issue, training should emphasize reducing unforced errors by refining forehand and backhand execution from these areas. For instance, in tactically favorable scenarios, players should strive to establish point dominance while maintaining a margin for error, such as by disguising their intent, feinting a slow low shot to the opponent's feet (commonly referred to as a *chiquita* in padel), and instead executing a deep lob—a high, arcing shot designed to pass opponents and regain the net position. This combination of deception and depth reflects the importance of shot selection and variation observed in our findings.

This study has several limitations that should be considered when interpreting the results. First, score differences between pairs during a game or set may influence the findings, as players' behavior could vary depending on whether the score is even or unbalanced, particularly in decisive moments such as break points. Additionally, factors such as sample size and playing conditions (e.g., altitude, humidity, outdoor vs. indoor surfaces) may serve as situational variables that require control. Future research should aim to increase the sample size and consider a broader range of contextual variables, including score differentials, critical points (e.g., break points, match points), and match outcomes. Examining how shot effectiveness varies depending on these score-related contexts could provide valuable insights into performance strategies and decision-making under pressure.

This study provides key insights practical applications for optimizing performance in professional padel, with direct implications for training and strategy. Since serving players generate more winners and force more errors, training should emphasize aggressive, varied serves to disrupt returns and facilitate net control. Returners, in turn, should focus on using deep high shots (lobs), soft low shots aimed at the opponents' feet (known as *chiquitas*), or fast balls directed at the body to neutralize the server's advantage and regain positional balance. Shot selection is also crucial: while the *bandeja* and smash are key for winning points, the *bandeja* carries a high error risk and should be used strategically. Similarly, volleys play a decisive role but demand refined shot selection to balance offensive play and consistency. Reducing unforced errors is essential, especially in baseline strokes and net play under pressure. External conditions such as altitude, humidity, and court surface also influence effectiveness, requiring adaptable strategies. Ultimately, optimizing training based on sex, shot selection, and error reduction can enhance tactical efficiency and competitive success in professional padel.

5. Conclusions

Professional male and female padel players adopt an aggressive approach when serving, often producing winners and shots that generate forced errors in their opponents. Set-winning pairs generate a higher number of winners and forced error generators, while set-losing pairs tend to commit more forced and unforced errors in both serving and returning situations.

Regarding shot types, no significant overall differences were observed in the types of shots leading to winners, forced/unforced errors and shots that generate forced errors. However, some sex-specific exceptions emerged:

Among women, winning players more frequently produced winners with the backhand volley, while losing players used the double-wall backhand more often to generate forced errors. Winning players made a higher number of forced errors with the backhand volley, and a higher number of unforced errors with the forehand *bajada*, while losing players made a higher number of unforced errors with the double-wall forehand.

Among men, losing players more frequently produced winners with the forehand *bajada* and forced error generators with the smash. Losing players also made a higher number of forced errors with the recovery smash, while winning players made a higher number of forced errors with the forehand volley a back wall forehand.

Finally, the most decisive shots—those most associated with winners and forced-error generators—were the *bandeja*, smash, and forehand and backhand volleys. However, the backhand

volley also accounted for the highest number of forced errors. As for unforced errors, they were most commonly committed with bandejas, volleys (both sides), and forehand/backhand groundstrokes.

Author Contributions: Conceptualization, R. C-R., I. M-M. and A. E-T.; methodology, R. C-R. and B.J S-A.; software, I. M-M. and A. E-T.; validation, R. C-R.; formal analysis, R. C-R., I. M-M.; investigation, B.J S-A. and A. E-T.; data curation, R. C-R.; writing—original draft preparation, R. C-R. and A. E-T.; writing—review and editing, I. M-M. and B.J S-A.; visualization, A. E-T.; supervision, R. C-R.; project administration, R. C-R. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of University of Extremadura (166//2023) on December 15, 2023.

Informed Consent Statement: Informed consent was not required due to the public availability of the data.

Data Availability Statement: No data available

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. International Padel Federation Padel Game Regulations Available online: <https://www.padelfip.com/documents/> (accessed on 13 July 2025).
2. Sánchez-Alcaraz, B.J.; Cánovas, J.; Sánchez-Pay, A.; Muñoz, D. Research in padel. Systematic review. *Padel Sci. J.* **2023**, *1*, 71–106, doi:10.17398/2952-%202218.1.71.
3. Lupo, C.; Condello, G.; Courel-Ibáñez, J.; Gallo, C.; Conte, D.; Tessitore, A. Efecto Del Género y Del Resultado Final Del Partido En Competiciones Profesionales de Pádel. [Effect of Gender and Match Outcome on Professional Padel Competition]. *RICYDE Rev. Int. Cienc. Deporte* **2018**, *14*, 29–41, doi:10.5232/ricyde2018.05103.
4. Escudero-Tena, A.; Almonacid, B.; Martínez, J.; Martínez-Gallego, R.; Sánchez-Alcaraz, B.J.; Muñoz, D. Analysis of Finishing Actions in Men's and Women's Professional Padel. *Int. J. Sports Sci. Coach.* **2024**, *19*, 1384–1389, doi:10.1177/17479541221139970.
5. Sánchez-Alcaraz, B.J.; Courel-Ibáñez, J.; Muñoz, D.; Infantes-Córdoba, P.; Sáenz De Zumarán, F.; Sánchez-Pay, A. Análisis de las acciones de ataque en el pádel masculino profesional. *Apunts Educ. Física Deporte* **2020**, 29–34, doi:10.5672/apunts.2014-0983.es.(2020/4).142.04.
6. Prieto-Lage, I.; Reguera-López-de-la-Osa, X.; Durán-Rodríguez, N.; Silva-Pinto, A.J.; Argibay-González, J.C.; Gutiérrez-Santiago, A. Assessing the Probability of Winning a Point in Men's Padel: A Comprehensive Analysis. *Appl. Sci.* **2024**, *14*, 6642, doi:10.3390/app14156642.
7. Romero, G.; González-Silva, J.; Conejero, M.; Fernández-Echeverría, C. Determinant Actions in Men's Professional Padel Performance. *Int. J. Perform. Anal. Sport* **2024**, *24*, 698–713, doi:10.1080/24748668.2024.2361534.
8. Courel-Ibáñez, J.; Sánchez-Alcaraz Martínez, B.J.; Cañas, J. Game Performance and Length of Rally in Professional Padel Players. *J. Hum. Kinet.* **2017**, *55*, 161–169, doi:10.1515/hukin-2016-0045.
9. Mellado-Arbelo, Ó.; Vidal, E.B.; Usón, M.V. Analysis of game actions in professional male padel. *Cult. Cienc. Deporte* **2019**, *14*, 191–201, doi:10.12800/ccd.v14i42.1332.
10. Sánchez-Alcaraz, B.J.; Jiménez, V.; Muñoz, D.; Ramón-Llin, J. External training load differences between male and female professional padel. *J. Sport Health Res.* **2021**, *13*, 445–454.
11. Conde-Ripoll, R.; Sánchez-Alcaraz, B.J.; Martín-Miguel, I.; Bustamante-Sánchez, Á.; Crespo, M.; Escudero-Tena, A. Decisive Shots: Unveiling Disparities between Winning and Losing Pairs in High-Level Men's Padel. *Appl. Sci.* **2024**, *14*, 8499, doi:10.3390/app14188499.
12. Martín-Miguel, I.; Muñoz, D.; Escudero-Tena, A.; Toro-Román, V.; Sánchez-Alcaraz, B.J. Differences in Performance Parameters between Winning and Losing Pairs in Men's and Women's Professional Padel. *Int. J. Sports Sci. Coach.* **2024**, *19*, 1339–1348, doi:10.1177/17479541231213544.

13. Courel-Ibáñez, J.; Sánchez-Alcaraz, J.B.; Cañas, J. Effectiveness at the Net as a Predictor of Final Match Outcome in Professional Padel Players. *Int. J. Perform. Anal. Sport* **2015**, *15*, 632–640, doi:10.1080/24748668.2015.11868820.
14. Sánchez-Alcaraz, B.J.; Muñoz, D.; Pradas, F.; Ramón-Llin, J.; Cañas, J.; Sánchez-Pay, A. Analysis of Serve and Serve-Return Strategies in Elite Male and Female Padel. *Appl. Sci.* **2020**, *10*, 6693, doi:10.3390/app10196693.
15. Martínez-Gallego, R.; Guzmán, J.F.; James, N.; Ramón-Llin, J.; Crespo, M.; Vuckovic, G. The Relationship between the Incidence of Winners/Errors and the Time Spent in Different Areas of the Court in Elite Tennis. *J. Hum. Sport Exerc.* **2013**, *8*, S601–S607, doi:10.4100/jhse.2013.8.Proc3.05.
16. Harriss, D.J.; MacSween, A.; Atkinson, G. Ethical Standards in Sport and Exercise Science Research: 2020 Update. *Int. J. Sports Med.* **2019**, *40*, 813–817, doi:10.1055/a-1015-3123.
17. Anguera, M.T.; Hernández-Mendo, A. Técnicas de análisis en estudios observacionales en ciencias del deporte. *Cuad. Psicol. Deporte* **2015**, *15*, 13–30.
18. Sánchez-Alcaraz, B.J.; Courel Ibáñez, J.; Díaz, J.; Grijota, F.J.; Muñoz, D. Efectos de la diferencia en el marcador e importancia del punto sobre la estructura temporal en pádel de primera categoría. *J. Sport Health Res.* **2019**, *11*, 151–160.
19. Sánchez-Alcaraz, B.J.; Siquier-Coll, J.; Toro-Román, V.; Sánchez-Pay, A.; Muñoz, D. Análisis de los parámetros relacionados con el marcador en el circuito world padel tour 2019: diferencias por género, ronda y tipo de torneo Outcome parameters analysis in world padel tour 2019: differences regarding gender, round and tournament. *Retos* **2021**, *29*, 200–204, doi:10.47197/restos.v0i39.78402.
20. Thomas, J.R.; Martin, P.E.; Etnier, J.L.; Silverman, S.J. *Research Methods in Physical Activity*; Eighth edition.; Human Kinetics: Champaign, IL, 2023; ISBN 978-1-71820-102-6.
21. Igartua-Perosanz, J.J. *Métodos Cuantitativos de Investigación En Comunicación*; Bosch: Barcelona, 2006;
22. Landis, J.R.; Koch, G.G. The Measurement of Observer Agreement for Categorical Data. *Biometrics* **1977**, *33*, 159–174.
23. Field, A. *Discovering Statistics Using IBM SPSS Statistics*; 5th ed.; SAGE Publications Ltd., 2018;
24. Crewson, P. *Applied Statistics Handbook*; AcaStat Software, 2006; Vol. 1.;
25. Ramón-Llin, J.; Guzmán, J.; Martínez-Gallego, R.; Vučković, G.; Muñoz, D.; Sánchez-Alcaraz, B.J. Comparison of Service Tactic Formation on Players' Movements and Point Outcome between National and Beginner Level Padel. *PLOS ONE* **2021**, *16*, e0250225, doi:10.1371/journal.pone.0250225.
26. Ramón-Llin, J.; Guzmán, J.; Martínez-Gallego, R.; Muñoz, D.; Sánchez-Pay, A.; Sánchez-Alcaraz, B.J. Stroke Analysis in Padel According to Match Outcome and Game Side on Court. *Int. J. Environ. Res. Public Health* **2020**, *17*, 7838, doi:10.3390/ijerph17217838.
27. Sánchez-Alcaraz, B.J.; Ramón Llin, J.; González, R.; Martínez Gallego, R.; Sánchez Pay, A. Análisis de la acción del globo en pádel masculino y femenino profesional: estudio piloto. *Padel Sci. J.* **2022**, *1*, 39–54, doi:10.17398/2952-2218.1.39.
28. Escudero-Tena, A.; Parraca, J.A.; Sánchez-Alcaraz, B.J.; Muñoz, D.; Sánchez-Pay, A.; García-Rubio, J.; Ibáñez, S.J. Análisis de los remates finalistas en pádel profesional. *E-Balonmano Com J. Sports Sci.* **2023**, *19*, 117–126, doi:10.17398/1885-7019.19.117.
29. Sánchez-Alcaraz, B.J.; Perez-Puche, D.T.; Pradas, F.; Ramón-Llín, J.; Sánchez-Pay, A.; Muñoz, D. Analysis of Performance Parameters of the Smash in Male and Female Professional Padel. *Int. J. Environ. Res. Public Health* **2020**, *17*, 7027, doi:10.3390/ijerph17197027.

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