



Winning or losing in wheelchair Grand Slam tournaments

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ABSTRACT

In 2016, Wimbledon included Wheelchair Tennis within their competition programme for the first time. Thus, today, this sport is present in all three main types of surface (hard, clay and grass). Competition statistics can help to understand the differences in the game depending on the surface. Therefore, the objective of this study will be to observe the possible differences in service between winners and losers in elite wheelchair tennis, both masculine and feminine players, in different surfaces. 42 matches that consisted of 101 sets in three of the 2016 Grand Slams were analysed: Australian Open (AO), Roland Garros (RG) and Wimbledon (W). Results showed that between winners and losers performance varies depending on the surface. The conclusions of this study can help coaches to adapt their training sessions in relation to the competition surface.

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INTRODUCTION

Wheelchair Tennis can be played on different surfaces (cement, carpet, grass and clay). Since 2016, wheelchair tennis has been played in all 4 Grand Slams (GSs) (Australian Open, Roland Garros, US Open and Wimbledon). There are differences in these tournaments concerning the speed of the ball after bounce, and the characteristics of the movement of the players, all that can be summarized as what we call the rhythm, which is imposed by the surface on which the game is played. 1 (paused rhythm), 2 (semi-paused rhythm), 3 (medium rhythm), 4 (medium accelerated rhythm, and 5 (accelerated rhythm). In this sense, the study of competition statistics offered important information to determine the possible differences depending on the surface (Sánchez-Pay, Palao, Torres-Luque, & Sanz-Rivas, 2015) or, to set possible performance indicators between winners and losers (Sánchez-Pay, Torres-Luque, Cabello Manrique, Sanz-Rivas, & Palao, 2015).

Some studies show significant differences in the four GS tournaments when observing the speed on the different surfaces. Roland Garros is played on clay (slow surface), Wimbledon is played on a faster grass surface, and the US Open and Australia are played on a hard surface of average speed, so technical efficiency and effectiveness vary. (Cross & Pollard, 2009).

Wimbledon 2016 saw the first singles wheelchair tournament played on grass, no studies have compared the influence of this

surface on competition statistics. Therefore, the objective of this research will be to observe the possible performance differences among elite wheelchair players in the different surfaces, and we will concentrate on one of the strokes that can make the difference: the service, both the first and the second, to prove its efficiency as a performance indicator in wheelchair tennis singles and on the different surfaces.

METHODOLOGY

The sample consisted of 48 wheelchair tennis players (24 masculine and 24 feminine). 100% of the matches played, during the 2016 season, in the Australian Open, Roland Garros and Wimbledon were analysed (table 1). It is important to point out that wheelchair Grand Slams are only played by the top 8 players in the ITF ranking (ITF, 2018). The study was made according to the Helsinki declaration, and all procedures were approved by the Bio-ethics and Research Commission of Murcia University.

	Australian Open	Roland Garros	Wimbledon
Masculine	7	7	7
Feminine	7	7	7

Table 1. Number of wheelchair matches analysed per tournament and gender.

The sample was divided into sub-groups for analysis: a) tournament: Australian Open (AO), Roland Garros (RG) and Wimbledon (W), and, b) result: winner of the set, or loser of the set.

All statistical data of the competition were drawn from the information published in the Official Websites of each tournament (www.usopen.org, www.rolandgarros.com and www.wimbledon.com), like previous studies of the analysis of competition statistics in tennis (Cross & Pollard, 2009; Knight & O'Donoghue, 2012). Wilcoxon test was performed to analyse the differences between winners and losers. The set was the analysis unit and the significance was set in $p < .05$.

RESULTS

The following figures show the differences in the variables that are the object of the research (% first service, % points won with the first and second services, and % of break points won) both, for men and women, and for those in which there are statistically significant differences ($p < .05$).

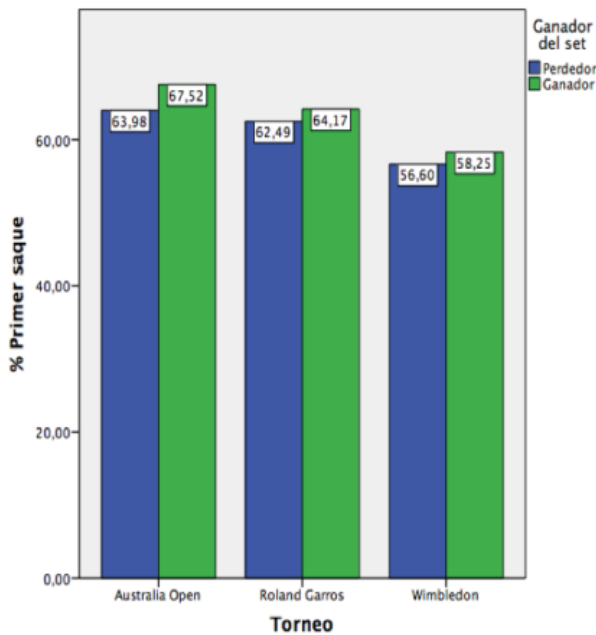


Figure 1. Description of the % of first services in masculine wheelchair tennis.

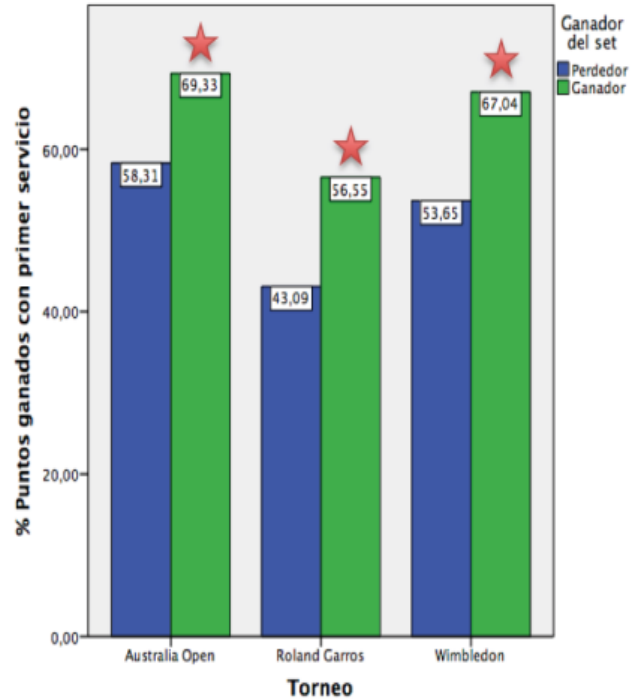


Figure 2. Description of the % of points won with the first service in masculine wheelchair tennis.

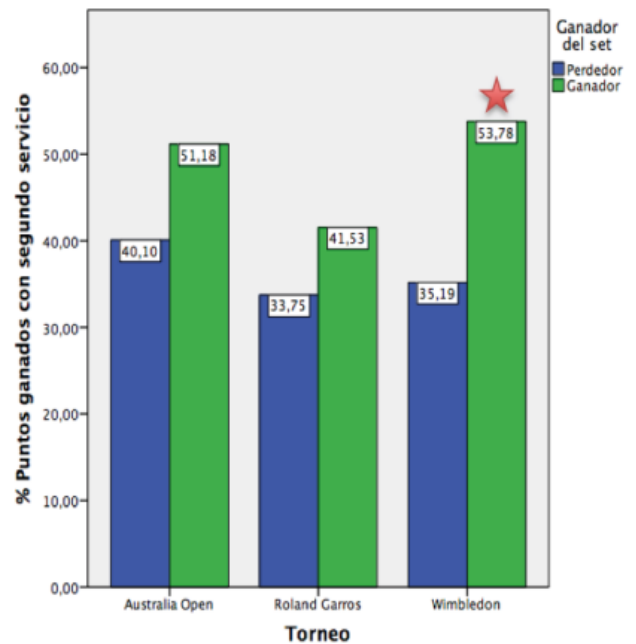


Figure 3. Description of the % of points won with the second service in masculine wheelchair tennis.

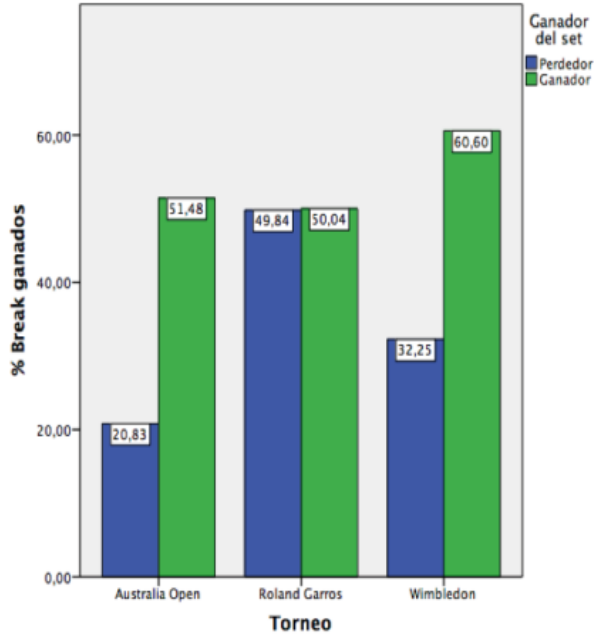


Figure 4. Description of the % of break points won in masculine wheelchair tennis.

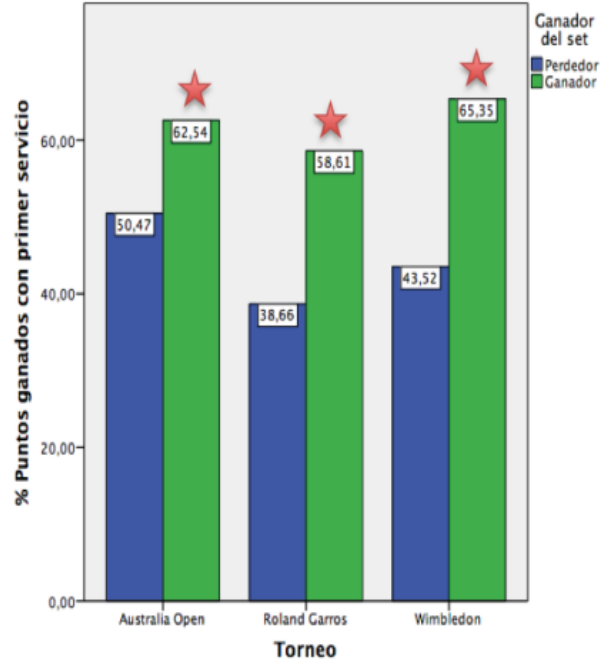


Figure 6. Description of the % of points won with the first service in feminine wheelchair tennis.

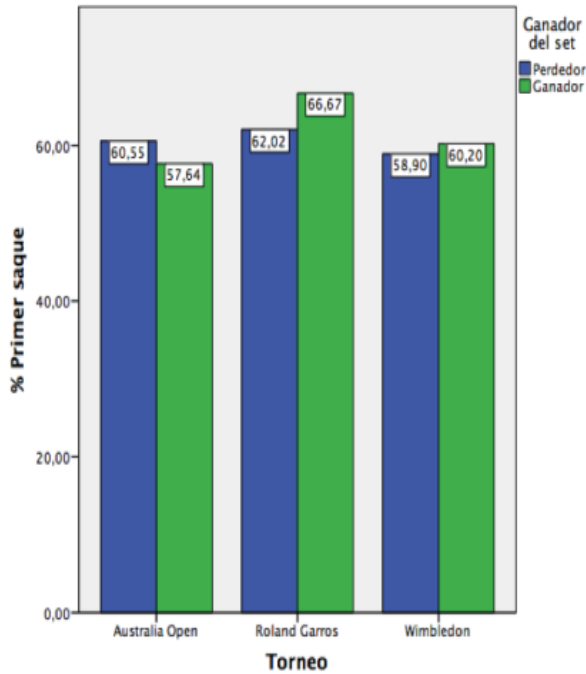


Figure 5. Description of the % of first services in feminine wheelchair tennis.

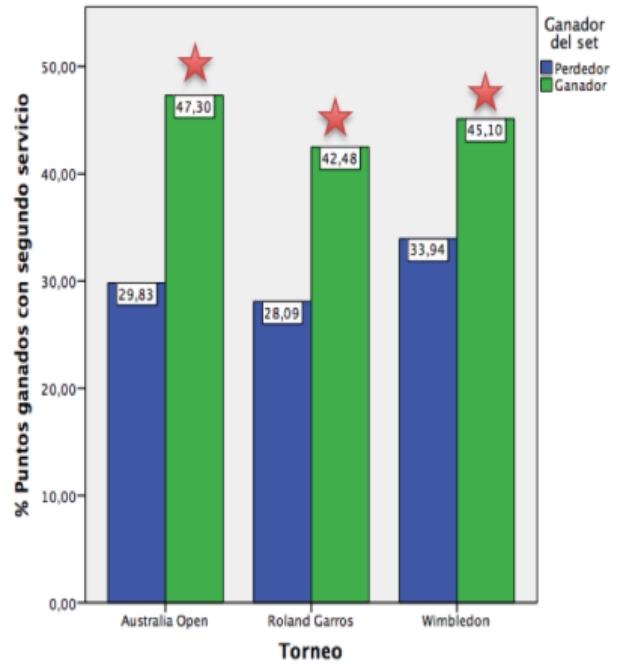


Figure 7. Description of the % of points won with the second service in feminine wheelchair tennis.

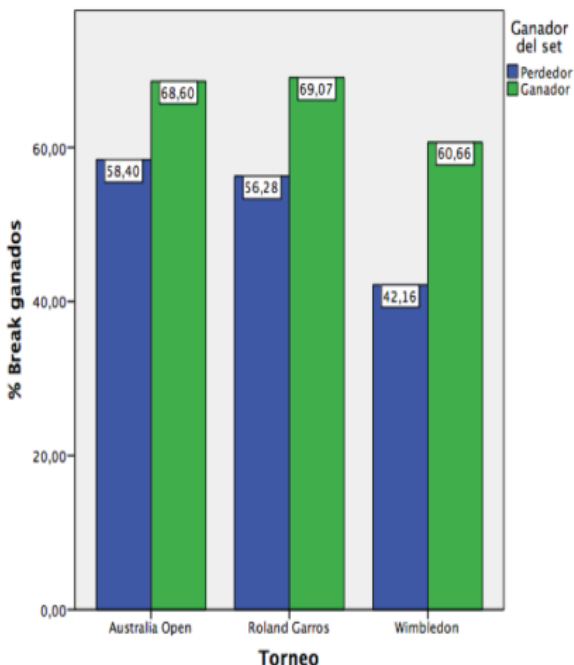


Figure 8. Description of the % of break points won in feminine wheelchair tennis.

COMMENTS

The analysis of competition statistic data provides information about the player requirements during matches, and helps to improve the quality of training in order to increase performance. (Lago-Peñas, Lago-Ballesteros, Dellal, & Gómez, 2010; Ortega, Villarejo, & Palao, 2009). Wheelchair tennis can be played on different surfaces, and up to now there existed no data about matches played on grass, so this work will try to determine the possible differences among the surfaces used, (hard, clay and grass) in Grand Slam tournaments, and to analyse the differences in service performance of elite winners and losers.

The % of first services of masculine wheelchair tennis players is slightly higher for the winner of the set than for the loser, even though there are no statistically significant differences (Figure 1). Still, the differences in the % of points won with the first service (Figure 2) are over 10% in all tournaments ($p < .05$). This difference of a little more than 10% is lower than the values found in literature between winners and losers (47vs72%) on hard courts in Paralympic Games (Sánchez-Pay, Torres-Luque, Fernandez-García, Sanz-Rivas, & Palao, 2017). This may be due to the equality in Grand Slam tournaments where only the top 8 of the international ranking are competing, that is why parity maybe greater among players. As to the second service, the values follow the same trend as with the first, except in Wimbledon, where the difference between winners and losers is higher ($p < .05$).

As to the % of break points won, Roland Garros shows no difference between the winner of the set and the loser; however, Australian Open and Wimbledon show percentages close to 30%, demonstrating that fast surfaces seem to have greater impact on the differences in level between the two players. This can be understood as an indicator of equality in the result of the matches, in which the greatest number of points per game are played, and more breaking opportunities happen in slow surfaces (RG) than in fast surfaces (Australia and US Open) (Sánchez-Pay, Palao, et al., 2015). Likewise, the fact that the service speed is not very high due to the position of the players, (hitting plane) and their restriction to use their lower limbs for the mechanics of the movement (Cavedon, Zancanaro, & Milanese, 2014; Reid, Elliott, & Alderson, 2007), cause the service to be more vulnerable than, for example, in conventional tennis, and on top of it, if the surface is slower, it equally contributes for the service not to be so tough to return, and start the rally.

On the other hand, we must bear in mind that wheelchair players, after service, have a greater difficulty to react and move quickly than able players, so the return can become a definitive stroke in many cases, mainly, when the surface contributes to the travelling speed of the ball after bounce, something, which, again, reduces the leadership of the service.

In relation to feminine wheelchair tennis, the differences between winners and losers are in line with what was said for men, even though there are more outstanding differences for the % of points won with the first and the second services, as well as the % of breaks won in all three tournaments. This can be due to the fact that there is less homogeneity in the level of the participants and matches are less even.



CONCLUSIONS

Taking into account the findings obtained from this study related to competition statistics for wheelchair tennis between

winners and losers in the different playing surfaces, the following conclusions can be drawn:

- The % of playing with the first service is similar between winners and losers, for men and women, regardless of the tournament.
- The % of points won with the first and second service in masculine wheelchair tennis is higher for the winners of the set than it is for the losers. In feminine wheelchair tennis, the differences are evident, therefore, even though less crucial in wheelchair tennis, it is very important to get an advantage with it, either in power and accuracy or in terms of moving the opponent using effect.
- Fast surfaces (Australian Open and Wimbledon) seem to impact on the level differences to a greater extent between winners and losers than in slow surfaces (Roland Garros).-

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