



Men's tennis vs Women's tennis.

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ABSTRACT

Data from men's and women's singles at the four Grand Slam events are presented to quantify differences between men's tennis and women's tennis. The most obvious difference is the serve speed, but there are also differences in all other aspects of the game including the number of aces, double faults, unforced errors, winners, tiebreak sets, games per set and points per game.

Key words: Tennis, Serve speed, Statistics, Grand Slam.

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INTRODUCTION

Men's tennis differs from women's tennis, as in many other sports, due to the fact that men are generally taller, stronger and faster. In order to quantify the differences, I examined the statistics published on the tournament web sites for each of the four Grand Slam events from 2002 to 2013. Data for men have been analysed previously by Cross and Pollard (2009, 2011). To analyse average serve speeds for women, I collected individual match data from the 2008 US Open and Wimbledon events, and the 2009 Australian and French Open events, including all 31 matches from round 3 to the final. For men serve speeds, I collected data from the 2008 US Open, and the 2009 Australian, French and Wimbledon events, including all 127 matches from round 1 to the final. In addition, I collected most of the overall event summaries for men and women from 2002 to 2013, although some of that data has been omitted from the summaries in this paper since some of the data appears to be inconsistent. Mistakes are sometimes made when collecting or recording the data. Serve speeds are not recorded on every court, the number of unforced errors is not shown in the French Open Event table, and winners are not always recorded or counted for every match.

SERVE SPEEDS

The average serve speeds of match winners is slightly higher than the average serve speeds of match losers, but only by 2 or 3 km/hr in general. Consequently, I have quoted in Table 1 the average speeds for all players in all matches for which serve speeds were collected, including both match winners and match losers. Players advancing from one round to the next are counted more than once in the match averages. Averaged over all four events, the average first serve speed for men is 184.1 km/hr and for women is 158.5 km/hr. The average second serve

speed for men is 150.4 km/hr and for women is 133.4 km/hr. On average, the first serve speed for men is 25.6 km/hr faster than for women, and the average 2nd serve speed is 17.0 km/hr faster.

| EVENT | AUS 2009 | | FRE 2009 | | WIM 2009 | | US 2009 | |
|----------------------|----------|-------|----------|-------|----------|-------|---------|-------|
| | M | W | M | W | M | W | M | W |
| N | 164 | 62 | 184 | 62 | 150 | 62 | 156 | 60 |
| V ₁ km/hr | 182.3 | 156.8 | 185.0 | 156.8 | 186.6 | 161.9 | 182.5 | 158.4 |
| V ₂ km/hr | 148.0 | 132.0 | 150.0 | 133.7 | 155.3 | 136.8 | 148.3 | 131.0 |

Table 1. Average first (V₁) and second (V₂) speeds averaged over N players.

A different comparison of serve speeds can be made using the serve speed rankings provided on the web for each Grand Slam event. The top 20 players are listed in order of maximum serve speed, rather than average serve speed. Results for 2013 are shown in Table 2 by taking the average top serve speed of all 20 ranked players. Averaged over all four events, the average top serve speed for men is 218.6 km/hr and for women is 185.6 km/hr, a difference of 33 km/hr.

| EVENT | AUS 2009 | | FRE 2009 | | WIM 2009 | | US 2009 | |
|------------------------|----------|-------|----------|-------|----------|-------|---------|-------|
| | M | W | M | W | M | W | M | W |
| N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| V _{max} km/hr | 219.3 | 185.9 | 217.9 | 184.3 | 217.5 | 185.3 | 219.9 | 186.9 |

Table 2. Maximum serve speeds, in km/hr, averaged over the top 20 players in 2013.

ACES AND DOUBLE FAULTS

It is not surprising that men serve more aces and fewer double faults than women. In addition, men serve about twice as many aces as double faults, while women serve about twice as many double faults as aces (Wimbledon being an exception). The results for each Grand Slam event are shown in Fig. 1. The results are shown as points per ace and points per double fault and were calculated from the total number of points, aces and double faults at each event, summed over all seven rounds up to and including the final. For example, at the Australian Open, one in every 13 points on average (approximately) is won with an ace for men. For women, one in every 30 or so points is won with an ace. Also at the Australian Open, men lose one in every 30 points on average by serving a double fault, while women lose one point in 18 by serving a double fault. It is easier for both men and women to serve an ace at Wimbledon, and harder to serve at ace at the French Open.

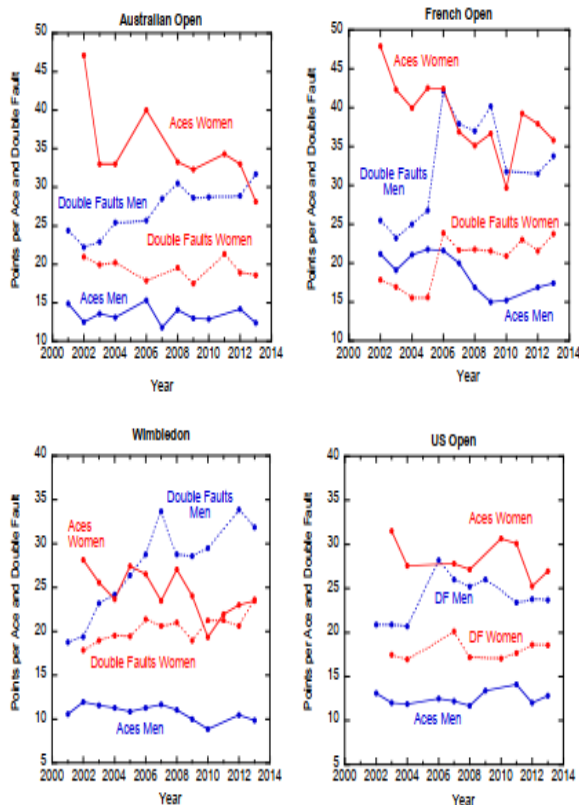


Figure 1. Points per ace and points per double fault.

TIEBREAK SETS

Figure 2 shows the total number of sets divided by the total number of tiebreak sets at each Grand Slam event. At the Australian Open, roughly every 7th set on average is a tiebreak set for men, and roughly every 13th set is a tiebreak set for women. The main difference between the four events is that

there are more tiebreak sets at Wimbledon for the men, but not for the women.

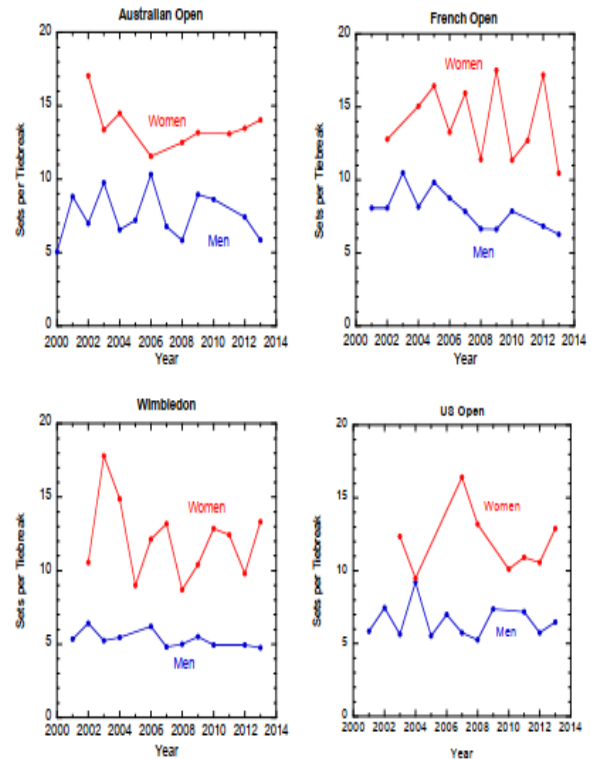


Figure 2. Sets per tiebreak set.

POINTS PER GAME AND GAMES PER SET

Figure 3 shows the average number of points per game and the average number of games per set at each Grand Slam event. At all four events, there are about 6.3 points per game on average for men and about 6.6 points per game on average for women. The minimum number of points in a game is four. The average number of games in a set is about 10 for men and about 9 for women. The latter result is surprising, since men require fewer points to win a game than women, but they require more games to win a set. The essential reason is that men have faster serves so they win games more easily, but so do their opponents.

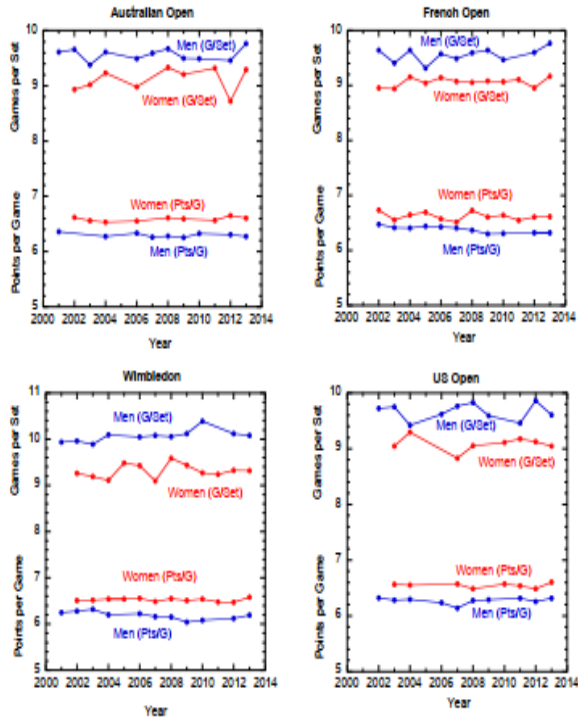


Figure 3. Points per game and games per set

SERVE BREAKS

Since men serve faster than women, men tend to win their serve more easily. A serve break for men is therefore a more significant result. Figure 4 shows the total number of games in each Grand Slam event divided by the total number of games that resulted in a serve break. On average, there is a break of serve roughly every fifth game in men’s tennis, and roughly every third game in women’s tennis, depending on the actual event.

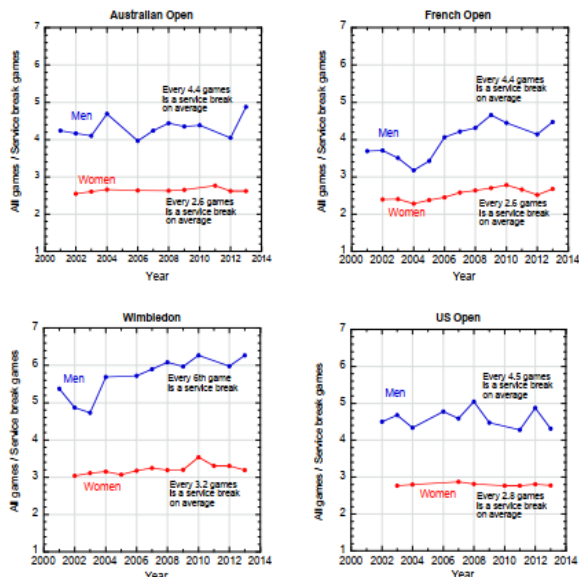


Figure 4. Ratio of total games to serve break games at each Grand Slam event.

SERVE GAMES WON

Figure 5 shows the percentage of serve games won by men and women at each Grand Slam event. Men win about 80% of their serve games, and women win about 65% of their serve games, the figures being slightly higher at Wimbledon.

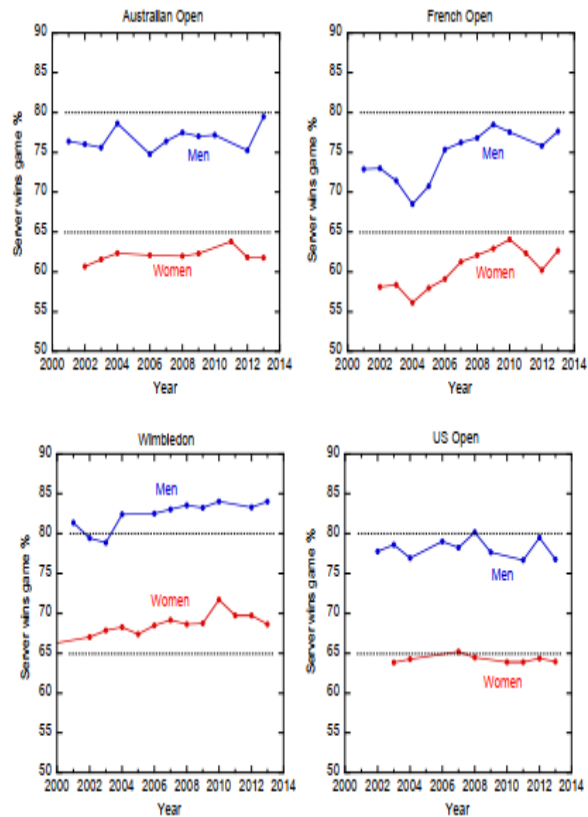


Figure 5. Percentage of service games won by server, 2000-2013. Men win about 80% of their serve games on average, and women win about 65% of their serve games.

WINNERS

Figure 6 shows the average number of points per winner. Data for the French Open are inconsistent and are not included. The results show that women hit fewer winners than men, although the difference is not as pronounced as it is for service aces. It is perhaps surprising that at the men’s event at Wimbledon in 2010, every second point on average was won with a winner. There were 30,251 points played, and 15,157 winners were recorded. Usually, about 10,000 winners are recorded for the men’s singles event at Wimbledon. It is possible that the definition of a winner was changed in that year since there was a similar unusual increase in the number of winners for the women in 2010.

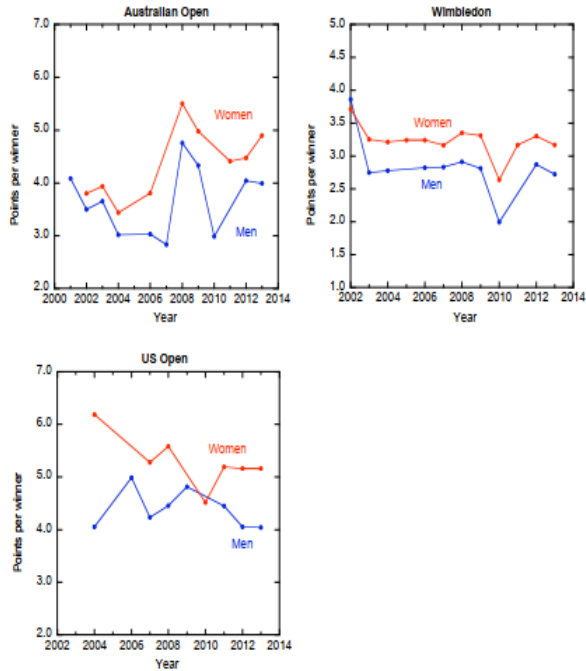


Figure 6. Points per winner.

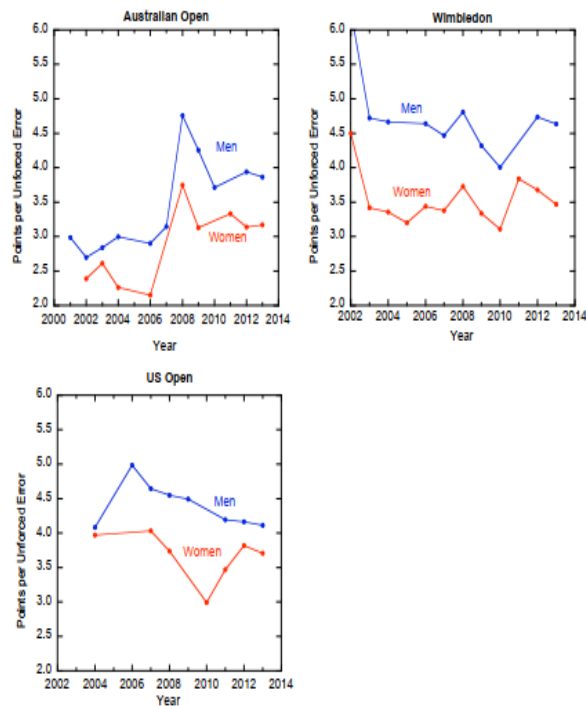


Figure 7. Points per unforced error.

UNFORCED ERRORS

Figure 7 shows the average number of points per unforced error. Unforced errors are not reported for the French Open. The results show that men make fewer unforced errors, approximately one unforced error every four points, compared with about one unforced error every 3.5 points for women.

CONCLUSIONS

No case is made in this paper that men’s tennis is better or more or less interesting than women’s tennis or even mixed tennis. The evidence presented shows that men’s tennis is measurably different from women’s tennis in almost every respect. The differences can be attributed to different physical characteristics of men and women, allowing men to serve and run faster than women. Coaches who recognise and who can quantify those differences should be able to make better decisions when advising their students.

REFERENCES

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