The Importance of Break Point Percentage

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Introduction

In tennis, players alternate who serves in each game. Often players can hold their serving game while breaking your opponent's serve is far more difficult.

Goal/Hypothesis

How important are break point percentages to winning the game?

Procedure

1. We got data from
   https://github.com/JeffSackmann/tennis_atp/blob/master/atp_matches_2021.csv
2. We removed the na data
3. We calculate the winners' break point percentage by $100*((l\_bpFaced-l\_bpSaved)/l\_bpFaced)$, and losers' break point percentage by $100*((w\_bpFaced-w\_bpSaved/w\_bpFaced)$
4. We make a histogram on winners' BPP and losers' BPP and calculate the means and quartiles.
5. We also compare the different break point percentages according to surface.
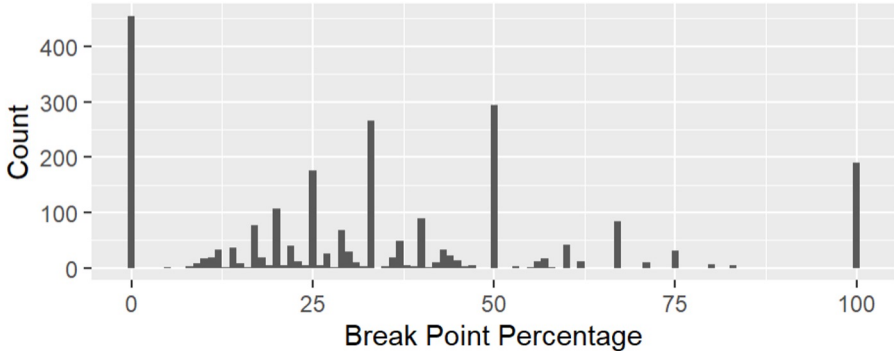
Result

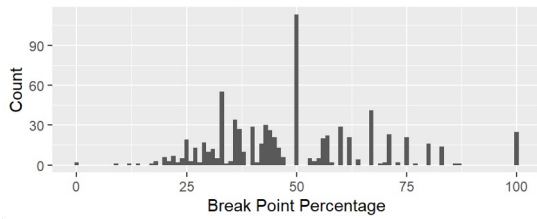Break Point Percentage of Winners
In the ATP 2021 Season
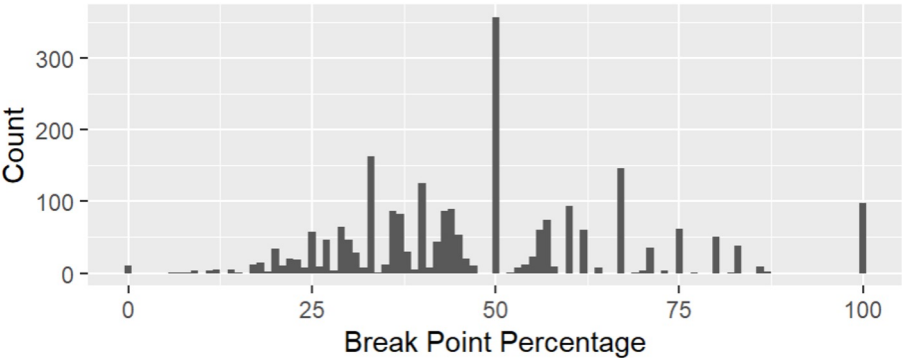
Break Point Percentage of Losers
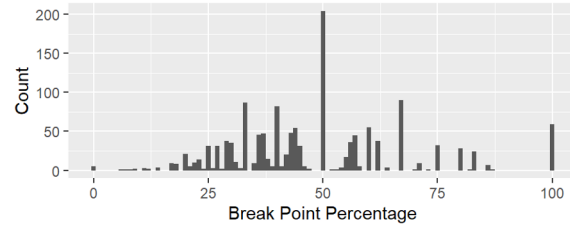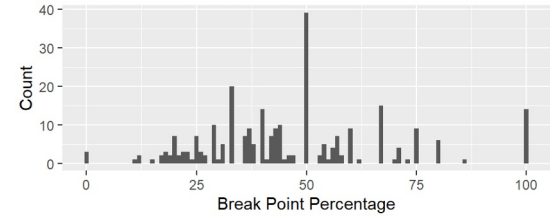In the ATP 2021 Season

Result

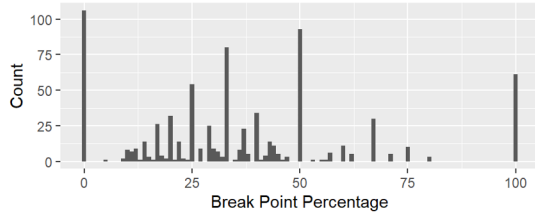Break Point Percentage of Winners
In the ATP 2021 Clay Season

Break Point Percentage of Winners
In the ATP 2021 Hard Season

Break Point Percentage of Winners
In the ATP 2021 Grass Season
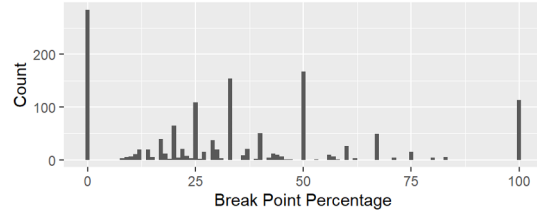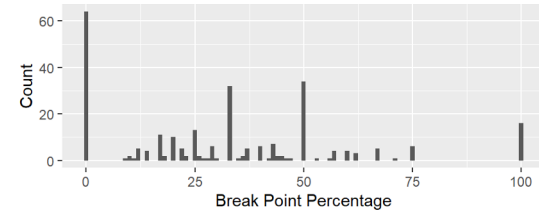
Break Point Percentage of Losers
In the ATP 2021 Clay Season

Break Point Percentage of Losers
In the ATP 2021 Hard Season

Break Point Percentage of Losers
In the ATP 2021 Grass Season

Conclusion

Winners - higher break point percentage by 14.03% overall

Slight variation across surfaces

Hypothesis - mostly true

Winners vs. losers difference

    Mental game

Appendix

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       BPP                  L_BPP
Min.    :  0.00      Min.    :  0.00
1st Qu.: 35.71      1st Qu.: 16.67
Median : 45.45      Median : 33.33
Mean    : 48.62      Mean    : 34.59
3rd Qu.: 60.00      3rd Qu.: 50.00
Max.    :100.00      Max.    :100.00
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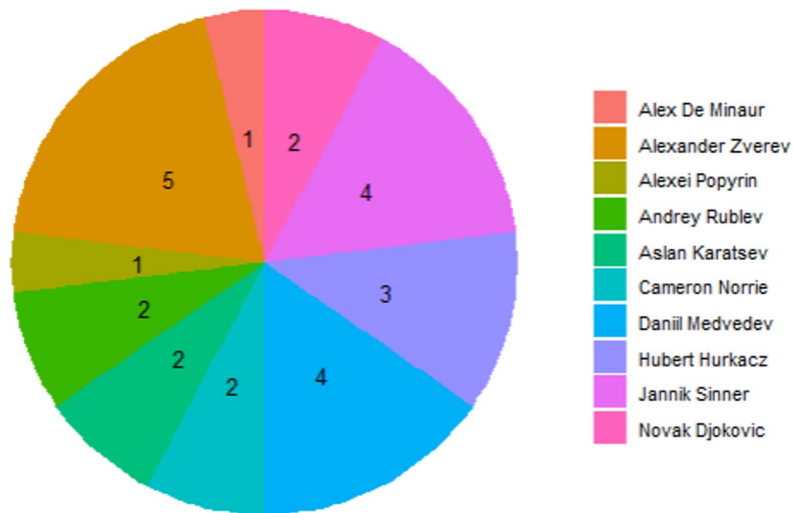
2385 matches in the 2021 ATP season

Winners		Losers	
Clay	49.2	Clay	36.
Hard	48.6	Hard	34.0
Grass	47.0	Grass	32.0

Appendix Continued

Top 10 Hard Court Players

Alex De Minaur	
Alexander Zverev	
Alexei Popyrin	
Andrey Rublev	
Aslan Karatsev	
Cameron Norrie	
Daniil Medvedev	
Hubert Hurkacz	
Jannik Sinner	
Novak Djokovic	

Top 10 Clay Court Players

Albert Ramos	
Alexander Zverev	
Carlos Alcaraz	
Casper Ruud	
Cristian Garin	
Diego Schwartzman	
Novak Djokovic	
Pablo Carreno Busta	
Rafael Nadal	
Stefanos Tsitsipas	
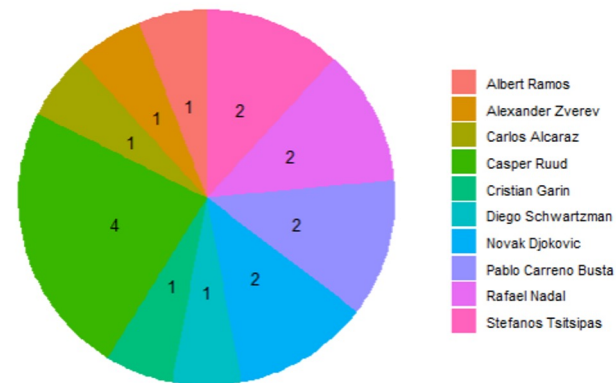
Top 10 Grass Court Players

Alex De Minaur	
Daniil Medvedev	
Kevin Anderson	
Marin Cilic	
Matteo Berrettini	
Novak Djokovic	
Ugo Humbert	