

Who's the best tennis player of all time? New ranking system produces some surprises

March 1 2011, By Erin White



Jimmy Connors.

(PhysOrg.com) -- Fans may think of Jimmy Connors as an "old school" tennis player, but according to a new ranking system developed by a Northwestern University researcher, Connors is best player in the history of the game. The rankings are published in *PLoS ONE*, a journal published by the Public Library of Science.

Male [tennis](#) players who played in at least one Association of Tennis Professionals match between 1968 and 2010 were evaluated through network analysis, said Filippo Radicchi, author of the study.

Ranking tennis players is a novel way to show how complex network analysis can reveal interesting facts hidden in statistical data, said Radicchi, a physicist and postdoctoral fellow in the chemical and

biological engineering department of Northwestern's McCormick School of Engineering and Applied Science.

Radicchi ran an algorithm, similar to the one used by Google to rank Web pages, on digital data from hundreds of thousands of matches. The data was pulled from the Association of Tennis Professionals website. He quantified the importance of players and ranked them by a "tennis prestige" score. This score is determined by a player's competitiveness, the quality of his performance and number of victories.

"In this particular ranking system, it's more important to win a single match against a very good player than many matches against not-so-good players," said Radicchi, who conducted the research in the lab of Luís Amaral, professor of chemical and biological engineering at the McCormick School.

Here's how the top 30 rank:

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|--------------------|---------------------|----------------------|
| 1. Jimmy Connors | 11. Boris Becker | 21. Mats Wilander |
| 2. Ivan Lendl | 12. Arthur Ashe | 22. Goran Ivanišević |
| 3. John McEnroe | 13. Brian Gottfried | 23. Vitas Gerulaitis |
| 4. Guillermo Vilas | 14. Stan Smith | 24. Rafael Nadal |
| 5. Andre Agassi | 15. Manuel Orantes | 25. Raul Ramirez |
| 6. Stefan Edberg | 16. Michael Chang | 26. John Newcombe |
| 7. Roger Federer | 17. Roscoe Tanner | 27. Ken Rosewall |
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|-----------------|--------------------|------------------------|
| 8. Pete Sampras | 18. Eddie Dibbs | 28. Yevgeny Kafelnikov |
| 9. Ilie Năstase | 19. Harold Solomon | 29. Andy Roddick |
| 10. Björn Borg | 20. Tom Okker | 30. Thomas Muster |

“One of the reasons Jimmy Connors ranks on top is because he played for more than 20 years and had the opportunity to win a lot of matches against other very good players,” Radicchi said.

He expects current greats Roger Federer and Rafael Nadal to eventually move up in the rankings if they face tough competition and continue to win matches. Radicchi, a lifelong tennis fan, plans to run this study again in 10 years to see how the rankings change.

“The rankings are a snapshot of who is at the top at this time,” Radicchi said. “Players who have yet to retire are penalized with respect to those who have ended their careers. Prestige scores strongly correlate with the number of victories, and active players haven’t played all the matches of their careers yet.”

Researching and ranking sports stars gives a glimpse at the power of complex network analysis.

“The same application could be used to rank countries involved in the global trade of certain commodities,” Radicchi said. “In general, this type of analysis can help scientists better explain and understand complicated global relationships.”

More information: www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0017249

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