

March Madness odds tough for top seeds

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Bracket fanatics beware: University at Buffalo researcher Alex Nikolaev, an expert in statistical analysis, has found the odds do not favor NCAA basketball teams seeded No. 1 in the big tournament -- at least not taken as a group.

Actually, Nikolaev goes further than that. Office pool aficionados should know that all four No. 1 [seeds](#) advance to the Final Four only once every 38 years, according to Nikolaev and lead researcher Sheldon Jacobson, University of Illinois computer science professor, Adrian Lee and Douglas King.

"If you compare the likelihood of exactly zero, one, two, three or four No. 1 seeds reaching the Final Four, the rarest combination is when all four of them get to that stage," Nikolaev explains. "The second rarest is when none of them advances." Both events have occurred exactly once, in 2008 and 2006, respectively.

Nikolaev and colleagues present their analysis in the research paper "Seed Distributions for the NCAA Basketball Tournament," which will be published in a forthcoming issue of Omega, available online on the journal's website.

The results are based on analysis of the pattern of seeds that have reached the Elite 8, Sweet Sixteen and Final Four between 1985 and 2010.

The seed combinations with the better chances of reaching the Final

Four are 1-1-2-3, 1-1-1-2 and 1-1-2-2, which should occur on average once every 15, 16 and 18 years, respectively, the analysis shows.

The most common event is when exactly two No. 1 seeds reach the Final Four, which occurs on average slightly more than once every three years.

Nikolaev and co-researchers say the findings demonstrate that the distribution of seeds that win in the tournament, especially in the later rounds, could be modeled as a geometric distribution, a methodology more commonly used to predict the number of times that something will operate correctly before a failure occurs.

For example, geometric distribution is often used in manufacturing settings for quality control.

What this means, according to the researchers, is there is no clear-cut advantage given to any of the top four seeds, and even less advantage if their chances of reaching the Final Four were taken collectively.

"The No. 1 seed can never be claimed to be head-and-shoulders above the competition," Nikolaev says.

"In fact, for the geometric distribution to emerge, seed 1 must be better than the rest of the field by the same margin as seed 2 is better than the lower-seeded teams; the same is true for seeds 2 and 3, 3 and 4, and so on. Apparently, this distribution of power is characteristic of the [March Madness](#) tournament."

Provided by University at Buffalo

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