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Monday, May 14, 2012

Can NBA Timeouts Decide Games? Scientists Say No

The NBA playoffs are in full swing, and eight teams have survived the first round of basketball. My home team, the Denver Nuggets, were booted from the playoffs last week after a game seven showdown against the LA Lakers (boo!), prompting faithful Nuggets fans to question what our team could have done differently.

Did we lose too many turnovers? Was there something our coach could have done? Is Kobe simply an unstoppable force?

Although no one can pin down a single reason for NBA game outcomes, physicists have ruled out one explanation: the "momentum changing" timeout.

Image courtesy CT Snow via Flickr.

Serguei Saavedra, a statistical physicist at Northwestern University, and his colleagues collected official scoring and timeout data from the NBA website. Because the NBA provided play-by-play recaps for all of the games, the researchers could compare scoring differentials before and after timeouts were called.

With data from 3,000 NBA games dating back to 2009, Saavedra and his team found no evidence that supposedly critical timeouts could lift trailing teams to victory. In fact, the

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statistical analysis revealed that teams with big leads racked up even more points after time outs were called.

The team analyzed three seasons for 30 different NBA teams, giving them a sample of 90 individual seasons. They found that 78 of these 90 seasons displayed no statistically significant correlation between timeouts and changes in scoring differential. There's a very good chance that randomly-timed timeouts could have led to the same scores.

To be fair, timeouts may be more important at different times in the game. Towards the end of the game, for instance, coaches will call a number of timeouts to take advantage of every remaining second on the clock. Did these fourth quarter timeouts help decide the winner?

No, say the researchers. Even after accounting for different quarters, there was still no significant correlation between timeouts and score changes. Furthermore, teams with higher payrolls weren't able to capitalized on timeouts any better than teams with lower payrolls.

One factor the team didn't analyze, however, was the relationship between coaches' salary and effective use of timeouts. I wonder if the millions of dollars teams spend on coaches translates into mid-game comebacks. Maybe the old whiteboard dotted with X's and O's -- a coach's go-to timeout tool -- isn't so effective after all.

You can read the research on the arXiv preprint server.

If you want to keep up with Hyperspace, AKA Brian, you can follow him on Twitter.

Posted by Hyperspace at 4:30 PM

Labels: basketball, playoffs, sports, statistics

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