

Optimal basketball shooting rate proposed based on mathematical model

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NBA players may be too conservative with their shots, according to a comparison with a theoretical model describing shot selection reported Jan. 25 in the online journal *PLoS ONE*.

The author, Brian Skinner of the University of Minnesota, aimed to create a model that could take into account multiple factors to determine when it was worth taking a shot. "Strategic decisions in basketball have long been made based on the [intuition](#) of the coach or players, but as advanced quantitative analyses are increasingly applied to the game it is becoming clear that many of the conventional, intuitive ideas for basketball strategy are misguided or suboptimal", says Skinner.

The results show that, when significant time is remaining in a [possession](#), only higher quality shots should be taken, and this cutoff for shot quality decreases as the time remaining decreases. However, even though the optimal model suggests that only high quality shots should be taken early in a possession, the study finds that NBA players may go to an extreme and be overly reluctant to shoot the ball early in a possession, therefore missing out on scoring opportunities.

The model takes into account factors including the perceived [probability](#) that a given shot will go in and the number and quality of shot opportunities the offense will have in the future in a given possession. It does, however, have some limitations, such as the assumption that shot opportunities arise randomly in time, which call for care in the interpretation of the results.

More information: Skinner B (2012) The Problem of Shot Selection in Basketball. *PLoS ONE* 7(1): e30776.
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