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Exploring possession-based performance indicators in different levels of basketball

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INTRODUCTION:

Basketball possessions are the foundations for scoring. The number of possessions in a game reflects the pace of the game and opposing teams tend to have similar number of possessions in a game. Therefore, possessions provide a useful basis for evaluating the effectiveness of team performances. Possession efficiency (PE) is the percentage of possessions that have at least one field goal attempt. Floor percentage (FP) is the percentage of possessions that have at least scored 1 point. Both are considered the offensive performance indicators. The recovered balls per ball possession (RB), calculated as the ratio of the sum of the steals, opponents turnovers, and fractions of blocked shots to the total of the possessions, reflects the defensive performances. The purpose of the study was to analyze PE, FP, RB, and the proportion () of blocks that turned possessions, between winning and losing teams in different levels of basketball.

METHODS:

We analyzed 150 games of the 2020~2021 NBA (30 games from the playoff), 92 games of the 2019 FIBA men's World Cup (FIBA) (48 games from the preliminaries), and 56 games of the 2021 FIBA Under-19 World Cup (U19) (24 games from the preliminaries). Two independent observers recorded data from two games that were not part of the study for reliability testing. Cohen's Kappas were 0.92 and 0.9 for the intra- and inter-observer reliability, respectively. Data was recorded for 298 games by one principal observer. Outcome (2) by stage (2) mixed design MANOVAs were used to analyze the three possession variables for the NBA, FIBA, and U19 games. Additional one-way ANOVA was used to analyze the proportion () of blocks that turned possessions among the 3 groups of games.

RESULTS:

The winners had significantly higher FP than the losers in all 3 groups ($p < .001$). A similar trend was also observed on the RB for the NBA, U19, and the preliminary stage of FIBA games ($p < .05$). The stage effect on RB was also significant for the 3 groups, and the rate was higher at the advanced stage for U19, while the opposite was true of the other two groups. For PE, the advanced stage of the FIBA showed significantly higher rate than the preliminary stage, ($p < .001$). Lastly, there was a significant group effect on ($p < 0.001$) where both NBA (0.71) and FIBA (0.64) were significantly higher than U19 (0.48).

CONCLUSION:

The higher rates of FP and RB of the winners demonstrate that the data derived from possessions not only serve as the indicator for offensive performance, but also for the defensive performance. In addition, the increasing possession converting rate of blocks from less than 50% in U19 to over 70% in NBA seems to suggest that blocking is an important defensive tactic that not only prevents scoring by the opponent, but also allows a greater degree of recovering the ball possession in high level basketball.

Topic: Coaching

Presentation Poster

