# Rested or Rusty?

# Analyzing the Impact of NBA Schedules on On-Court Performance

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## INTRODUCTION

- Focused on the impact of the condensed NBA playing schedule on a teams on court performance
  - How do limited rest days between games change performance?
- Literature shows that the NBA has altered schedules to address the player's lack of rest
  - Back-to-back games still represent approximately 15% of all games
- Studies show that player performance is impacted by a tightly packed schedule
  - Decrease in reaction time and accuracy
  - Increase in injuries and illnesses, proven through the COVID bubble season
- Traveling between time zones can also impact on court performance
- Background research suggested that the condensed schedule would negatively impact athletic performance, ultimately decreasing a team's winning percentage

## HYPOTHESIS

- As the amount of rest days an NBA team has prior to a game increases, the team's probability of winning that game will increase

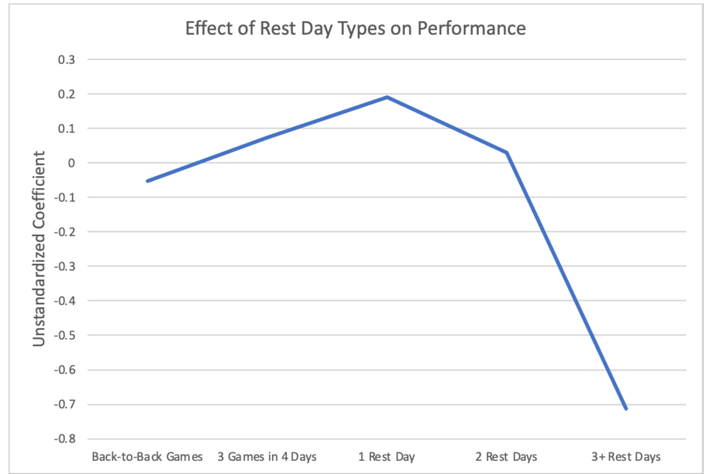
## METHOD

- Analysis of schedules from the past 5 full NBA seasons
- Hierarchical Regression Model utilized to investigate the potential influence of rest days on teams' on-court performance, using overall win percentage as the measure
- Predictor variables: '3+ Rest Days,' '2 Rest Days,' '1 Rest Day,' '3 Games in 4 Days,' and 'Back-to-Back Games'
  - '3 Games in 4 Days & Back-to-Back Game' was left out as a reference variable
  - Number of games played and adjusted efficiency differential (AED) measures for each variable type

## DESCRIPTIVE STATISTICS

Table 1.
*Descriptive Statistics*

| Variable | *n* | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Overall Win Percentage (%) | 150 | 17.33 | 79.78 | 48.759 | 14.907 |
| 3+ Rest Days | 150 | 2 | 8 | 4.500 | 1.330 |
| 2 Rest Days | 150 | 2 | 21 | 11.45 | 3.656 |
| 1 Rest Day | 150 | 28 | 48 | 38.37 | 3.945 |
| 3 Games in 4 Days | 150 | 5 | 16 | 9.76 | 2.222 |
| Back-to-Back Games | 150 | 0 | 8 | 3.66 | 1.775 |
| Adjusted Efficiency Differential with 3+ Rest Days | 150 | -37.1 | 27.9 | -.143 | 11.696 |
| Adjusted Efficiency Differential with 2 Rest Days | 150 | -26.8 | 25.4 | .830 | 9.358 |
| Adjusted Efficiency Differential with 1 Rest Day | 150 | -18.4 | 16.4 | .387 | 8.449 |
| Adjusted Efficiency Differential with 3 Games in 4 Days | 150 | -22.9 | 18.0 | .006 | 8.855 |
| Adjusted Efficiency Differential with Back-to-Back Games | 150 | -35.7 | 28.0 | -.917 | 11.522 |




## RESULTS

- Our model explains 78.5% of the variance in on-court performance
- Opponent quality and location (home or away) were more significant indicators of whether a team won
- Teams with 1 day of rest had the greatest chance of winning the game, contrary to our hypothesis

Table 2.
*Hierarchical Regression Analysis Results*

| Predictor Variables | Model 1 | Model 2 |
|---|---|---|
| *Opponent- and Location-Related* | | |
| Adjusted Efficiency Differential with 3+ Rest Days | .456**** (6.276) | .459**** (6.251) |
| Adjusted Efficiency Differential with 2 Rest Days | .177* (1.689) | .176 (1.591) |
| Adjusted Efficiency Differential with 1 Rest Day | .269* (1.752) | .283* (1.779) |
| Adjusted Efficiency Differential with 3 Games in 4 Days | .327*** (2.754) | .307** (2.540) |
| Adjusted Efficiency Differential with Back-to-Back Games | .316**** (5.034) | .314**** (4.925) |
| *Rest-Related* | | |
| 3+ Rest Days | | -.713 (-1.432) |
| 2 Rest Days | | .029 (.136) |
| 1 Rest Day | | .190 (.989) |
| 3 Games in 4 Days | | .073 (.209) |
| Back-to-Back Games | | -.052 (-.137) |
| *F*-statistics | 101.897**** | 50.684**** |
| $R^2$ | .780 | .785 |
| $\Delta R^2$ | .780**** | .005 |

Note: Unstandardized coefficients reported (β); t-values in parentheses; * $p < .10$; ** $p < .05$; *** $p < .01$; **** $p < .001$

## CONCLUSIONS

- Excess rest days and a lack of rest days have a similar, negative effect
  - Peak performance comes after 1 day of rest between games
  - Teams are out of practice and "rusty" after 3+ days of rest
  - Teams are worn out with multiple consecutive games without rest

## RECOMMENDATIONS

- Sleep disturbances among NBA players and staff
  - Professional sleep clinicians to help address fatigue concerns
  - Implementation of recovery strategies
- Reevaluation of NBA schedule
  - Team load management decisions
- Future research
  - Game by game data (rather than season long data)
  - Examine win streaks, individual game performance in differing rest scenarios