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CASE STUDY // WHOOP RECOVERY SCORE AS A PREDICTOR OF BASKETBALL PERFORMANCE IN NCAA, DIVISION I COLLEGIATE ATHLETES

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Introduction

The WHOOP Recovery Score is a summary statistic encompassing several metrics known to be predictive of an athlete's readiness to take on strain. These include resting heart rate, heart rate variability, and various measures of sleep quality and duration sufficiency. While fitness increases on the order of weeks or months, Recovery fluctuates throughout the day. The following case study shows that collegiate basketball game performance, specifically shooting accuracy, is correlated with the WHOOP Recovery Score on game-day mornings. These findings, the interpretations of their meanings, and the implications for coaches and training staff are discussed below.

Recovery Score and Performance

The analysis presented here uses data collected by seven members of a Division I college basketball team through 24 games of their 2015-2016 season. **Figures 1 and 2** show that both field goals and free throw performance are correlated with the WHOOP Recovery Score.

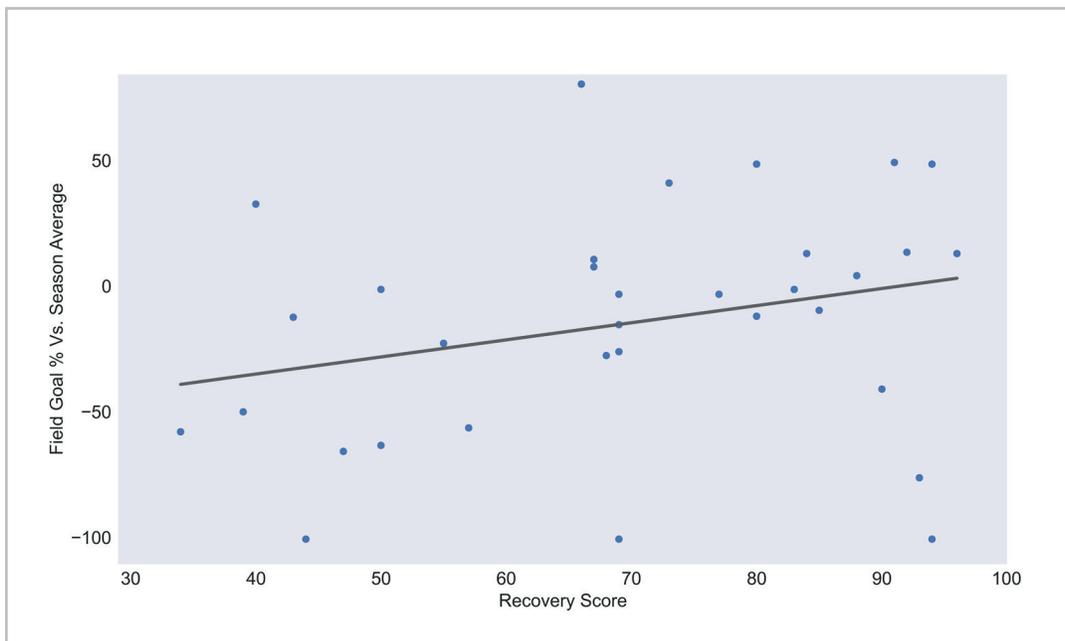


Figure 1. A difference of 50 Recovery Score percentage points predicts about a 35% difference in field goal shooting accuracy compared to their season's average. The blue dots represent the performance of an athlete during one of 24 game analyzed in this report. The y-axis shows the percent difference between the field goal shooting accuracy for that game, and the athlete's average performance for the season. The x-axis shows the WHOOP Recovery Score obtained the night before the game. The solid line is a least squares linear fit through the points.



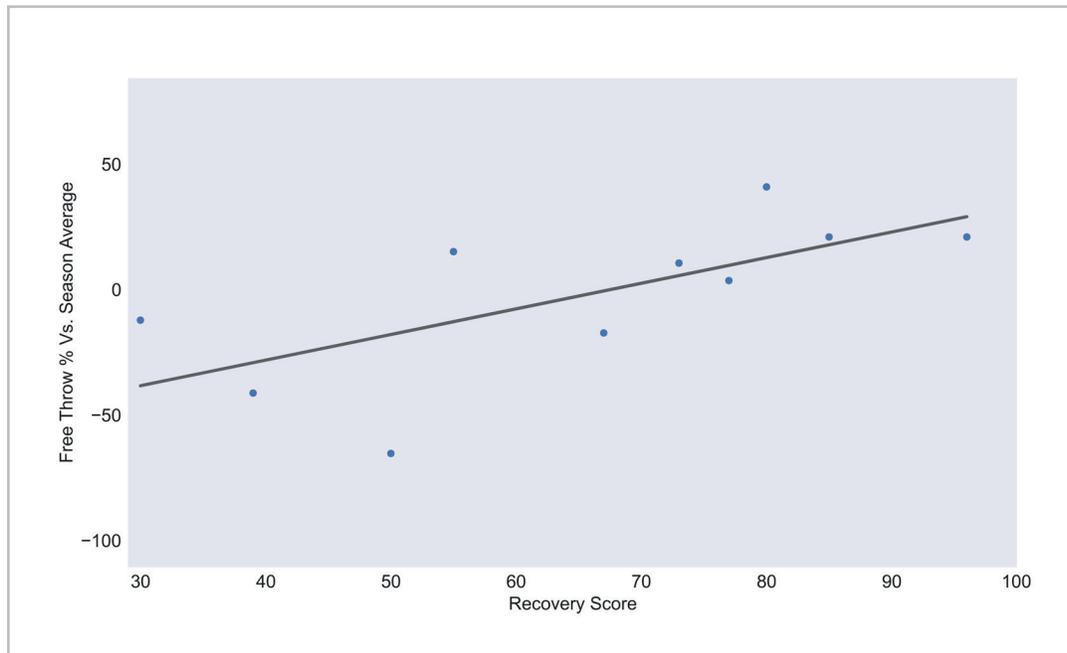


Figure 2. A difference in 50 Recovery Score percentage points predicts about a 50% difference in free throw shooting accuracy compared to their season’s average. The blue dots represent the performance of an athlete during one of the games analyzed in this report. The y-axis shows the percent difference between the free throw shooting accuracy for that game, and the athlete’s average performance for the season. The x-axis shows the WHOOP Recovery Score obtained the night before the game. The solid line is a least squares linear fit through the points.

An assumption implicit in our analysis is that the shooting percentage measurements are consistent enough to form a basis for comparison with Recovery Scores. Figure 3 shows that for our data, field goal shooting accuracy was correlated with free throw accuracy indicating that athletes show consistent performance across these metrics for each game. The data here thus supports our hypothesis that some of the variance in game-day performance can be explained by an athlete’s readiness to take on strain as measured by the WHOOP Recovery Score.



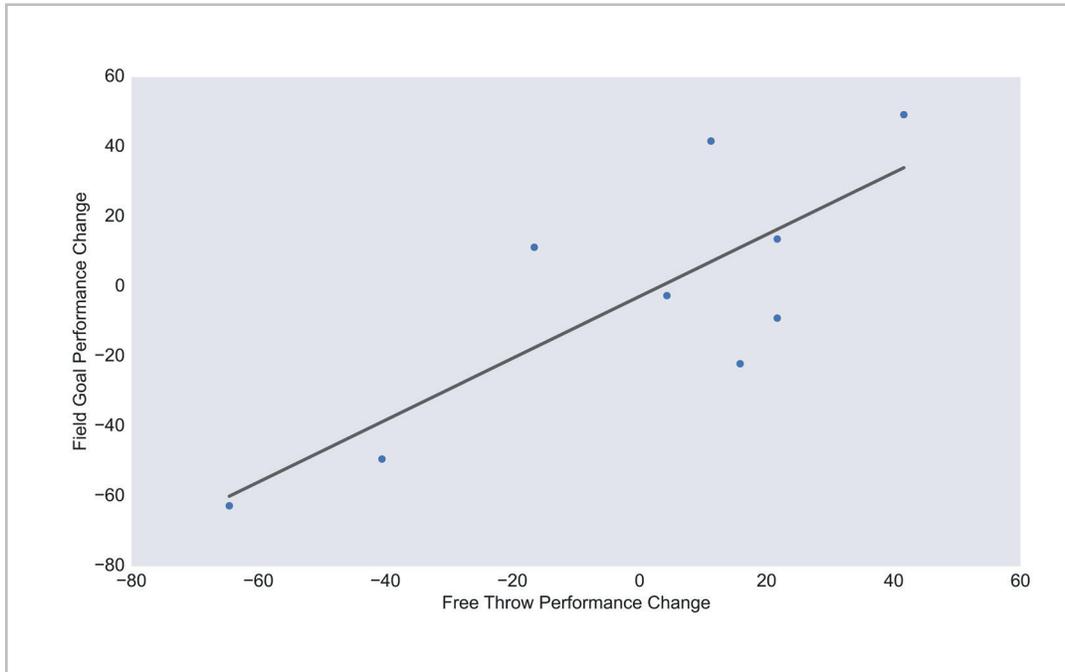


Figure 3. Each point in this figure represents the performance of one athlete during a single game. The y-axis shows the percent difference between the field goal shooting accuracy for that game, and the athlete’s average performance for the season. The x-axis shows the same percent difference but for free throw performance. Only data points where the athlete had at least 5 attempts at field goals and 5 attempts at free throws were included.

Conclusion

The data presented here show that a difference of 50 Recovery Score percentage points predicts about a 35% difference in field goal shooting accuracy and about a 50% difference in free throw shooting accuracy compared to an athlete’s seasonal average. It is very promising that such strong correlations exist with our small sample of data from only a single season. We are excited for future seasons where we can expand the analysis to include significance tests and more rigorous methods.



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