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The Relationship of Sleep Quality and Sleep Quantity To Athletic Performance

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Introduction

- Athletes need more sleep than non-athletes in order to recover after training and achieve top performance.²
- In short-term laboratory studies, athletes that increased their sleep quality and quantity also experienced marked improvements in mood and athletic performance.²
- Many competitive athletes are more likely to experience poor sleep quality, compared to non-athletes, due to training load and stress.¹

Purpose

- The purpose of this study was to compare sleep quantity, sleep quality, and mood to athletic performance over an entire season.

Methods

Participants

- Twenty-nine Division III female athletes (ages 18-22) from Swimming (n=9) or Track & Field (n=20) teams.

Profile of Mood States (POMS)

- Two hours before each meet, subjects completed a POMS questionnaire.

Sleep Cycle App

- Participants used the app nightly to track the sleep quality and quantity of the athletes; athletes reported the data weekly.
- The app computed sleep quality as a percentage based on hours slept and the pattern of sleep.

Athletic Performance

- Athletic performance (AP) was normalized as a percentage of the athlete's personal best performance.



Results

- A significant positive correlation was found between sleep quality (76.83 ± 10.86) and athletic performance (-0.043 ± 0.033 ; $r(78) = 0.051$, $p < 0.05$).

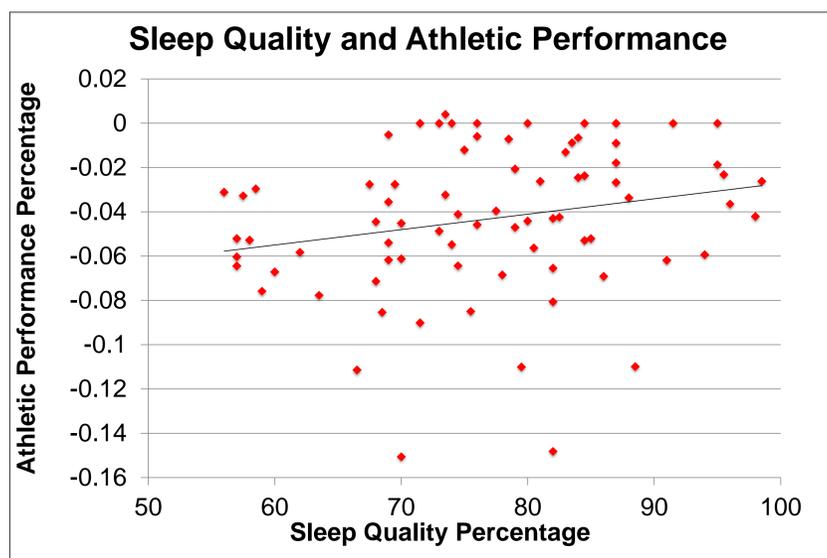


Figure 1. Sleep Quality Percentage and its relation to Athletic Performance Percentage

- A significant positive correlation was found between mood (55.49 ± 17.02) and athletic performance (-0.043 ± 0.033 ; $r(78) = 0.064$, $p < 0.05$).

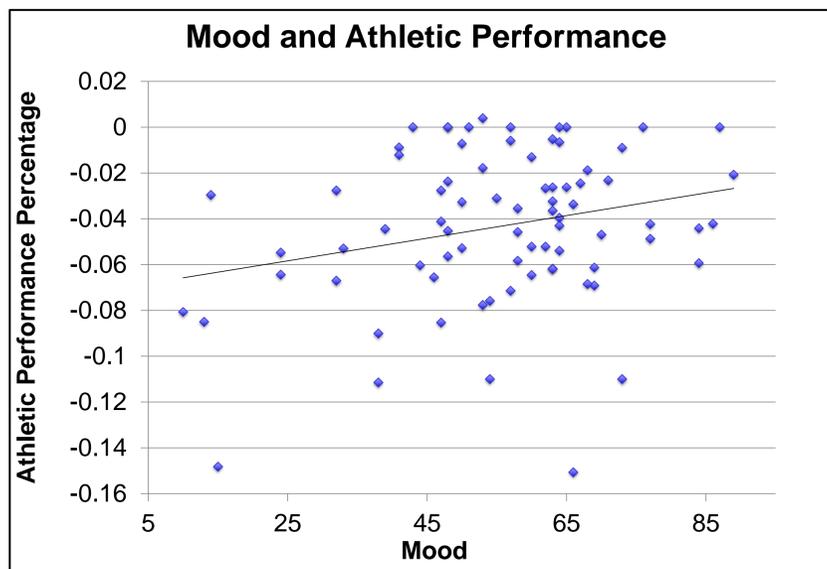


Figure 2. Mood and its relation to Athletic Performance Percentage

Discussion

- Athletes that had higher quality sleep the two nights prior to competition had better performances, relative to their personal best times/distances. This is congruous with prior research, where athletes who slept more had better performances.²
- Athletes that were in a better mood had better performances, relative to their personal best times/distances, which is consistent with previous research.³
- Results suggest that while sleep quality, sleep quantity, and mood are all factors in athletic performance, each component on its own accounts for a small amount of the overall variability.
- Limitations of this research include variability in Sleep Cycle App, as well as lack of continuation with participants throughout the season.

Future Research

- Future research could include taking additional factors into consideration, such as training load, nutritional information, and other factors that may affect performance.
- Establish method of determining where the athlete should be performing, and compare results to actual performance.

Conclusion(s)

- Higher quality sleep is associated with an increased mood and increased performance, though sleep quality is just one of many factors that impacts performance.
- Athletes should prioritize sleep when aiming to achieve top performance.

Literature Cited

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