The Effect of Sleep on Emotions and Athletic Performance

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INTRODUCTION

Prior studies have shown the number of hours of sleep obtained positively impacts athletic performance in college student athletes. This study investigated the effect of sleep on emotional states and athletic performance on high school students. The number of hours of sleep the subjects obtain each night for two weeks was recorded along with their athletic performance in either swimming (lap times) or basketball (free throw percentages). Emotional states were also obtained from the Profile of Mood States (POMS) test. All responses were self- recorded by the participants. Relationships between sleep and athletic performance, as well as sleep and mood, were estimated.

The POMS test consists of 65 descriptive words or statements of common feelings. The Total Mood Disturbance (TMD) score of around 88 is considered a very elevated score, which "...indicates that [the participant] is experiencing problems with his [or her] current emotional functioning. An examination of all scale scores will identify those mood states that are most problematic for him [or her]." (6). Furthermore, very high or very low scores could indicate problems with emotional states. TMD scores, "can be calculated by adding the scores for Tension, Depression, Anger, Fatigue and Confusion and then subtracting the score for Vigour" (7).

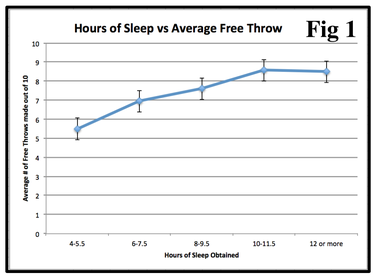
BACKGROUND AND SIGNIFICANCE

- Previous studies [1,2, 3,4,5] on sleep and athletic performance have found a positive association between hours of sleep obtained and athletic performance.
- Gunn and Paly High Schools are high achieving in athletics, but the academic environment is also competitive and rigorous.
- In such an environment, it is possible that teenagers are not getting enough sleep. However, as noted above, obtaining an adequate amount of sleep is a key factor in a student athlete's success [5].
- How does the amount of sleep PAUSD high school student athletes obtain affect their athletic performance and emotions?
- In this experiment, the effect of hours of sleep obtained on both athletic performance and emotions was measured. Furthermore, the subjects of this experiment were also different age ranges. The subjects were high school student athletes participating in the sports of basketball and swimming.
- The Profile of Mood States test was used to measure emotional states because The POMS test is widely used by many experiments measuring emotional states [1].

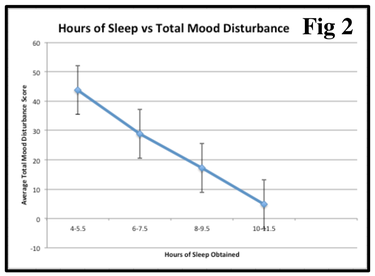
RESEARCH METHODOLOGIES

1) Subject pool was drawn from Gunn Basketball Team and the PASA Swim Team (14 Basketball Players & 12 Swimmers)
2) Each participant was given a questionnaire to record their demographics (and years of experience with sport)
3) In a separate form, the participants recorded the hours of sleep they obtained the night before
4) The basketball players recorded the number of free throws made out of ten
5) The swimmers recorded their 50 meter freestyle lap times
6) Both groups recorded their scores for the POMS test, which was administered online

RESULTS AND ANALYSIS - BASKETBALL

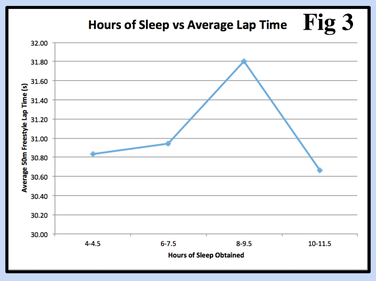


According to figure 1, the more hours of sleep a basketball player obtained, the higher the free throw percentage was.

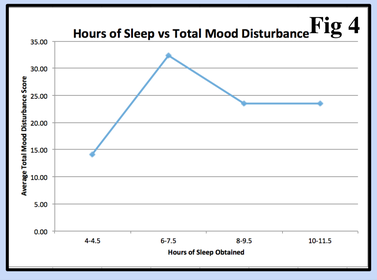


According to figure 2, the more hours of sleep a basketball player obtained, the lower the POMS total mood disturbance score (TMD).

RESULTS AND ANALYSIS - SWIMMING



According to figure 3, there is no consistent relationship between hours of sleep obtained and lap time.



According to figure 4, there is no consistent relationship between hours of sleep obtained and total mood disturbance score.

SUMMARY/ CONCLUSION

Although, as expected, the basketball data shows a positive association between hours of sleep obtained and average free throw percentages, there was not enough data to verify this result as statistically significant. The swimming group data also suffers from this issue.

For the basketball group, increased amount of sleep results in improved mood. But for the swimming group amount of sleep did not seem to affect the mood positively or negatively.

Overall, the answers to the questions raised in this study remain inconclusive. However, these questions are still interesting and require further research.

If the study were redesigned so that the participants were incentivized to take their assignment more seriously or if the study were done in a lab setting where there would be more control over data collection, then it would provide an opportunity to answer the questions raised conclusively.

ACKNOWLEDGEMENTS / REFERENCES

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4) All images were pulled from google images.