

THE EFFECT OF CAFFEINE ON MOOD AND MEMORY IN FEMALES GETTING ≤ 6 HOURS OR ≥ 8 HOURS OF SLEEP

Nicole Pagel & Amy Olson, PhD., RD, LD
Nutrition Department, College of Saint Benedict Saint John's University, MN

Introduction

- Sleep deprivation is one of the top five threats to academic achievement
- Only 29.6% of students get the recommended 8 hours of sleep
- Students who get poor quality sleep are more likely to consume caffeinated beverages in an attempt to compensate for a lack of sleep

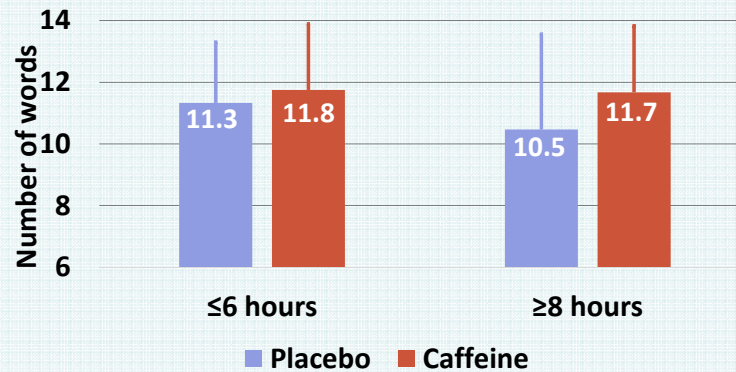
Purpose

- To determine whether caffeine can compensate for a lack of sleep

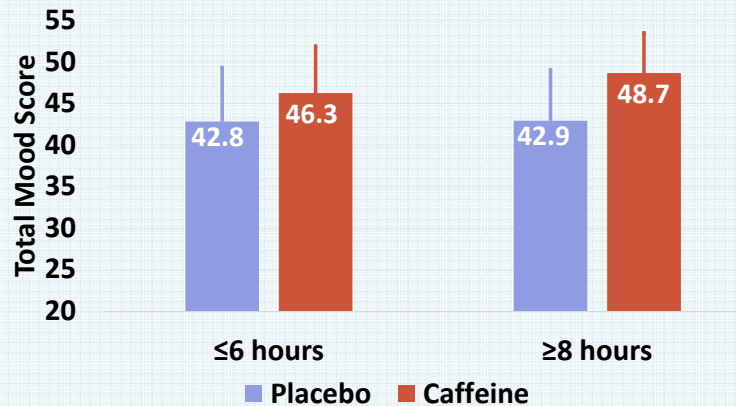
Methods

- Institutional review board and informed consent were obtained
- Subjects completed a sleep questionnaire
- Subjects were assigned to two groups based on their habitual sleep patterns, those who slept ≤ 6 hours (n=12) or ≥ 8 hours (n=15)
- Subjects consumed a flavored beverage on two occasions, once with caffeine (200 mg) and once without
- Subjects completed a word recall task (scored out of 15) and a self-reported mood questionnaire (scored out of 60)
- A 2x2 mixed ANOVA was used to analyze the data

Improvement in word recall with caffeine relative to sleep



Improvement in overall mood with caffeine relative to sleep



Results

- The mean number of words recalled increased by 2.8% in the group sleeping ≤ 6 hours and by 8% in the group sleeping ≥ 8 hours (p=0.08)
- Positive mood scores increased by 2.2% in the group sleeping ≤ 6 hours and by 17.6% in the group sleeping ≥ 8 hours (p=0.01) (alert, concentration, energetic, talkative, happy, friendly)
- Negative mood scores decreased by 10.3% in the group sleeping ≤ 6 hours and by 2.7% in the group sleeping ≥ 8 hours (p=0.03) (tired, sleepy, depressed, headache, lazy, light-headed).

Conclusions

- Caffeine improved mood and memory in both groups, but was less effective in the group lacking adequate sleep
- Adequate sleep is essential for achieving maximal benefits from caffeine
- Therefore, caffeine cannot completely compensate for a lack of sleep

Acknowledgments

Thank you to CSB Junior and Seniors who participated in my study, Linda Tennison, and Randy Hammond