

# THE EFFECT OF CAFFEINE ON MOOD AND MEMORY IN FEMALES GETTING $\leq 6$ HOURS OR $\geq 8$ HOURS OF SLEEP

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## 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

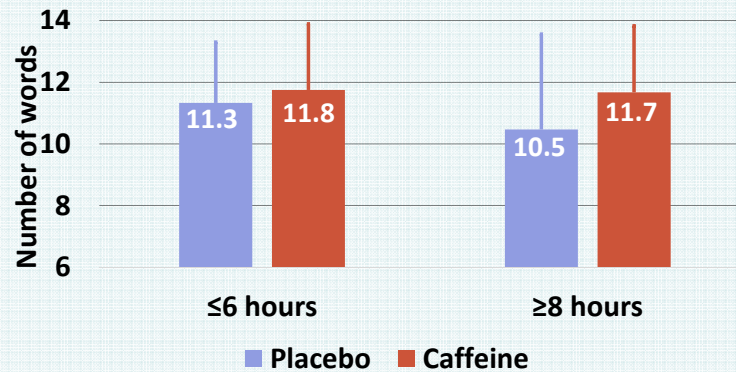
## Purpose

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

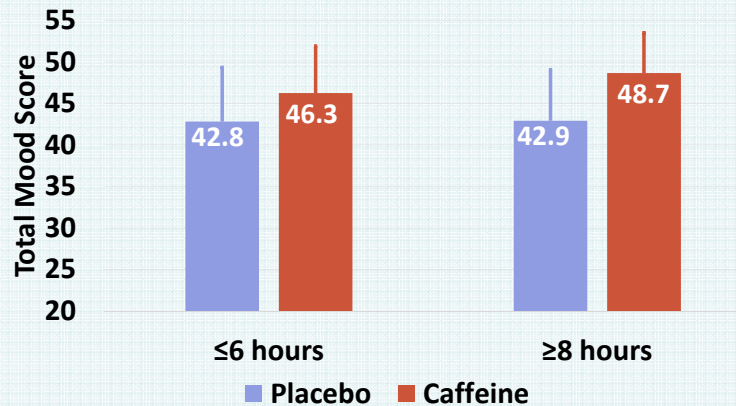
## Methods

- 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  $\leq 6$  hours (n=12) or  $\geq 8$  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  $\leq 6$  hours and by 8% in the group sleeping  $\geq 8$  hours (p=0.08)
- Positive mood scores increased by 2.2% in the group sleeping  $\leq 6$  hours and by 17.6% in the group sleeping  $\geq 8$  hours (p=0.01) (alert, concentration, energetic, talkative, happy, friendly)
- Negative mood scores decreased by 10.3% in the group sleeping  $\leq 6$  hours and by 2.7% in the group sleeping  $\geq 8$  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

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