

# Caffeine Excretion Rates of a Single Dose of 300 Milligrams in College Students

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## Introduction

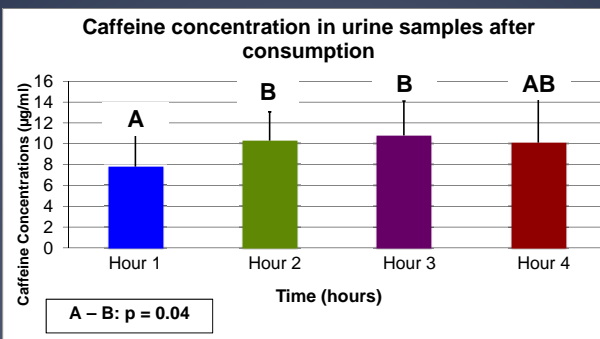
- ❖ Caffeine, 3 to 6 mg/kg, demonstrates ergogenic benefits
- ❖ NCAA limits caffeine to less than 15 µg/ml in urine
- ❖ The amount of caffeine an individual can consume before reaching the legal limit is unclear

## Purpose

- ❖ To assess the rate of caffeine excretion in different individuals using a single dose of 300 mg

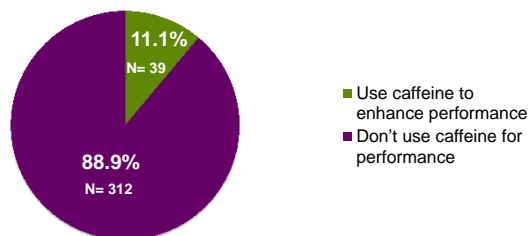
## Methods

- ❖ IRB approved this research and students (n=19) signed informed consents
- ❖ 300 mg of caffeine was provided with 12 oz. of Crystal Light
- ❖ Urine samples were collected 1, 2, 3, and 4 hours post consumption
- ❖ Specific gravity and urine volumes were recorded
- ❖ Caffeine was analyzed using an ELISA Assay
- ❖ An online survey link was emailed to students assessing physical activity and caffeine use
- ❖ Repeated one-way ANOVA and bivariate analysis was used to assess significance

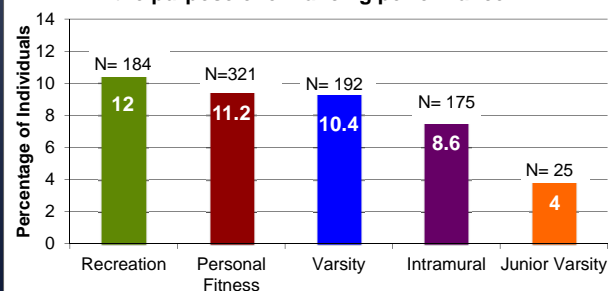


\* Different letters signify statistical significance

Percentage of individuals that use caffeine to enhance performance



Percentage of individuals who use caffeine for the purpose of enhancing performance



## Results

- ❖ Five females (148.2 +/- 6.6 lbs.) exceeded the NCAA upper limit of 15 µg/ml; dose was approximately 4.5 mg of caffeine/kg
- ❖ Participants stayed well-hydrated through testing (specific gravity: 1.0053-1.0075)
- ❖ Caffeine excretion and urine volume were negatively correlated (p = 0.011)
- ❖ 89.2% of individuals (n=351) use caffeine, but only 9.7% of the respondents reported using a pre-workout supplement and only 11% use caffeine for ergogenic benefits
- ❖ Males were more likely than females to use caffeinated pre-workout supplements and use caffeine to enhance performance (16% males; 4% females)

## Conclusions

- ❖ A dose of 300 mg of caffeine resulted in 21.5% of the individuals exceeding the 15 µg/ml of urine NCAA threshold, approximately the content of a 16 oz. Starbucks coffee



## Acknowledgements

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