# Effects of Caffeine on Attention Variability

**Ashley M. Giglietti**
**Department of Psychology, Supervisor: Alex Daniel**

## Introduction

- Caffeine is a widely consumed stimulant, found in many foods and beverages and has been cited to have positive effects on mental awareness (Brunyé et. al 2010)
- Attention moves towards and away from stimuli
  - Engagement and Inhibition
  - Differences among clinical populations (PSTD, Phobias)
- The purpose of the present study was to examine the effects of caffeine on attention.
- Does caffeine affect our attention variability?

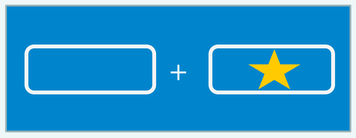
## Hypotheses

- **Hypothesis 1:** Caffeine will decrease attentional control in a cognitive test
  - Increased reaction times to incongruent cues and stimuli
- **Hypothesis 2:** Caffeine will decrease attentional variability
  - Decreased reaction time differences across a session

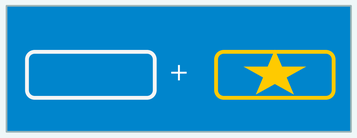
## Methods

- Participants (N = 24) were assigned two groups: caffeine vs. placebo
  - Caffeine or placebo (lactose powder) measured by body weight
  - Mixed into decaffeinated coffee
  - Waited 30 minutes before engaging in cognitive testing
- Both groups participated in cognitive tasks including digit-span (memory), trail-making (planning), and the spatial cueing task (attention)
- Measured accuracy and reaction time

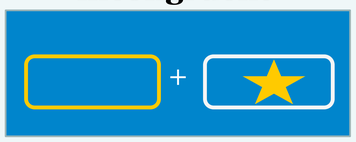
**uncued**



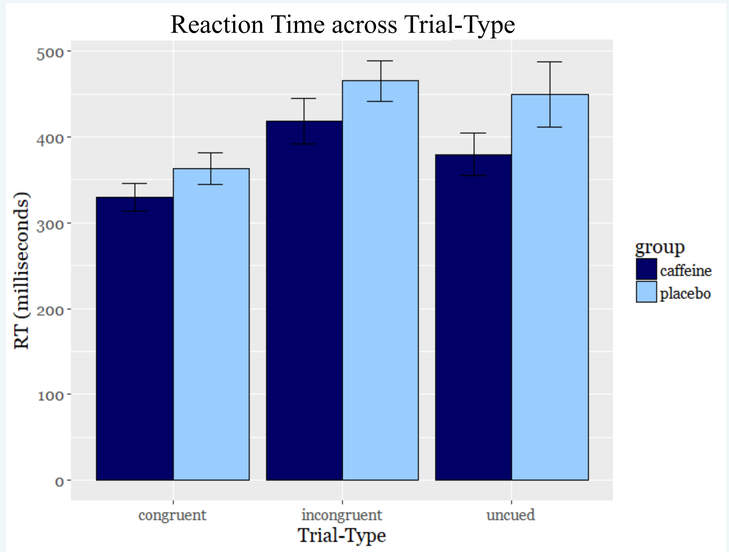
**congruent**

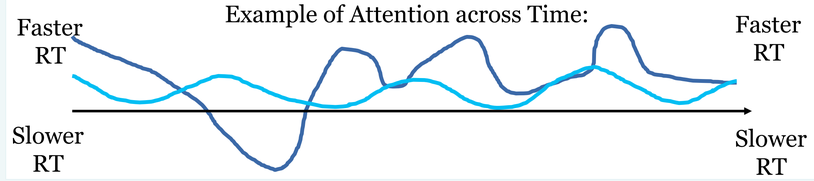


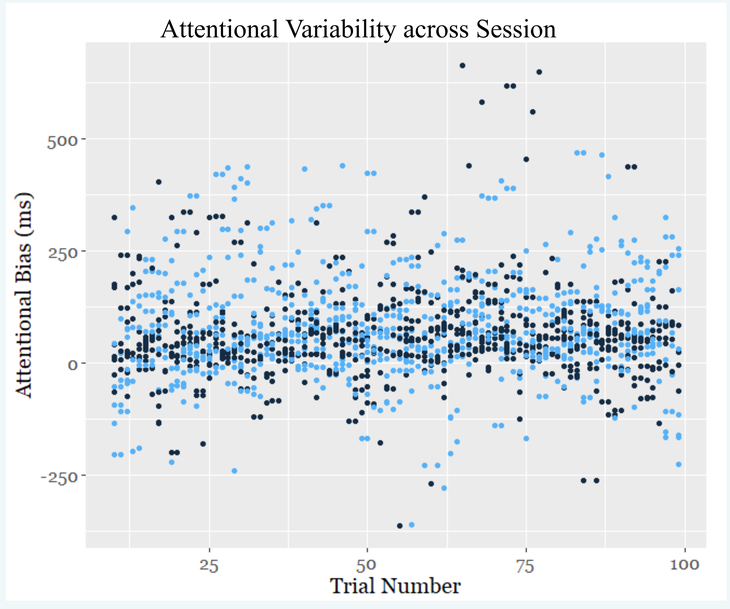
**incongruent**



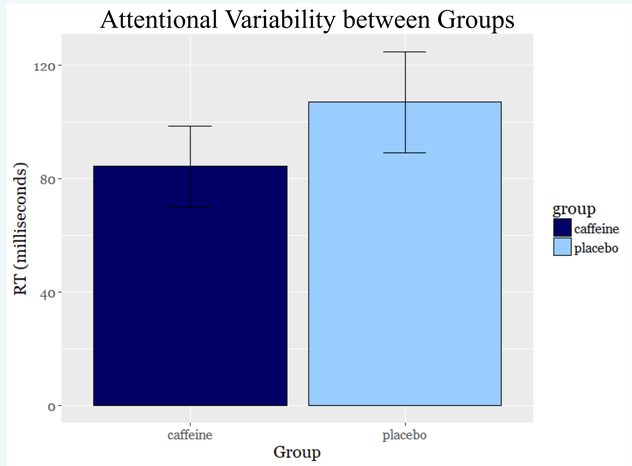
## Results




## Results cont.




- This data shows the differences between the two groups.
- Caffeine group shows less attentional variability on average.

## Discussion

- Caffeine not only enhances attention…
  - But it reduces the variability in attention over time
  - Reduced effects of inhibition
- Caffeine has an impact on reaction time and attention variability
- Difference in reaction times across Trial Type (congruent vs. incongruent) and between Group (placebo vs. caffeine)
- **Hypothesis 1:**
  - Caffeine group had faster reaction times to incongruent cues and stimuli
  - Faster overall reaction times across trials
- **Hypothesis 2:**
  - Caffeine group had faster reaction times and exhibited a decrease in attentional control
  - Less fluctuation in the difference between congruent and incongruent trials across session

### Future Directions

- Continue data collection
- Does caffeine amount proportionally affect attentional variability?
- How might time after consumption affect attention?
  - Deliver cognitive testing before caffeine, during peak and during withdrawal
- Use other cognitive tasks to examine effects of caffeine
- Control for coffee smell by mixing caffeine/lactose with milk