

Effects of Caffeinated Pre-workout Supplement on Cognitive Interference of Undergraduate Students

Arpn Kainth, Jessi Sehra, & Wasay Ansari

Introduction

Throughout history, humans have attempted to improve their overall efficiency and performance which includes the use of stimulants such as caffeine (Repantis, Bovy, Ohla, Kühn & Dresler, 2021). Today we live in such a society that constantly demands our attention. Thus, it has never been more prevalent to avoid distractions to focus on our tasks.

Purpose

- Investigate the effect caffeine has on cognitive interference for undergraduate students on the Stroop Test, which requires participants to use cognitive control against automatic processing (Ghimire, Paudel, Khadka, & Singh, 2014).

Sampling

- Target subject population: post secondary students aged 18-30.
- Subject recruitment: convenience and snowball sampling.
- Location: Douglas College New Westminster Campus.

Tools

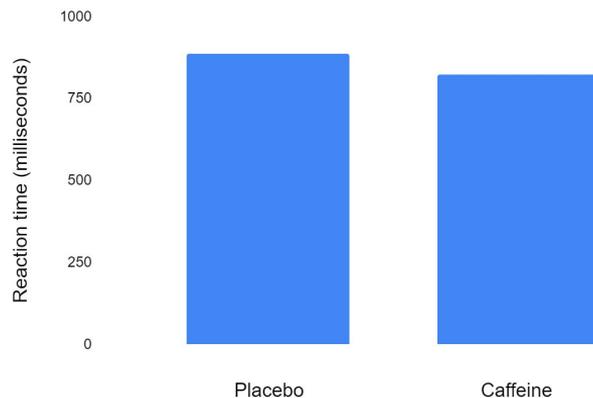
The tool we will use to measure reaction time is called the Stroop Task. The Stroop Task requires an individual to identify the font colour of the word instead of what colour the word spells out (Ghimire, Paudel, Khadka, & Singh, 2014).

GREEN → press button "r", because ink is red
YELLOW → press button "y", because ink is yellow
BLUE → press button "g", because ink is green
RED → press button "b", because ink is blue

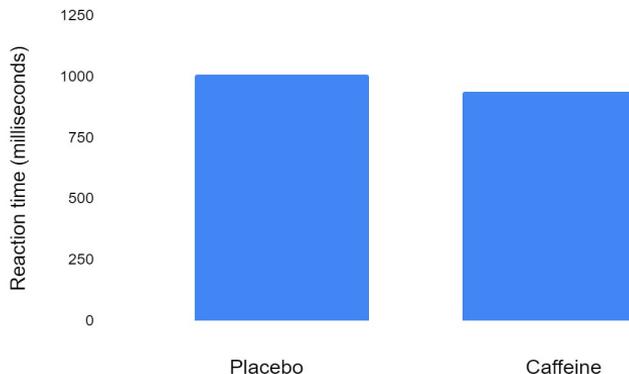
It can be difficult, because the name and the ink color are conflicting (except for yellow in the example above). So concentrate and ignore the meaning of the color words. Instead, look at the ink color. You get multiple trials and it takes around 5 minutes to complete. At the end, you get your response times.

press space bar to start...

Congruent Averages Placebo VS. Caffeine



Incongruent Averages Placebo VS. Caffeine



Equipments & Procedures

- Placebo: Crystal light flavoured water drink
- Caffeinated pre-workout supplement: C4 Sport (135 mg of caffeine)
- Researchers will provide schedules of room availability in a classroom at Douglas College in the New Westminster campus for the date and timings the experiment will occur.

Results

- Difference between the placebo crystal light relative to the caffeine C4 pre-workout supplement was not accepted as statistically significant.
- Congruent averages comparing the placebo to the caffeine indicate a p-value of 0.35.
- Incongruent averages comparing the placebo to the caffeine indicated a p-value of 0.38.

Conclusion

- Caffeine may have a minor impact in increasing focus during cognitive interference.
- Not concrete evidence as indicated by the p-value results of 0.354 for congruent trials and 0.380 for incongruent trials or 64.6% confidence and 62.0% confidence respectively.
- P-values determine results collected are statistically insignificant thus, it cannot be said that caffeine increases focus during cognitive interference.

References

- Repantis, D., Bovy, L., Ohla, K., Kühn, S., & Dresler, M. (2021). Cognitive enhancement effects of stimulants: a randomized controlled trial testing methylphenidate, modafinil, and caffeine. *Psychopharmacology*, 238(2), 441–451.
- Ghimire, N., Paudel, B., Khadka, R., & Singh, P. (2014). Reaction time in Stroop test in Nepalese Medical Students. *Journal of Clinical and Diagnostic Research*, 8(9), 14-16.