

A close-up photograph of Clayton Wiggins, a young man with light brown hair and blue eyes, looking directly at the camera with a slight smile. He is holding a white ceramic cup of dark coffee with his right hand. The background is blurred, showing hints of a red and white striped pattern.

ESPRESSO

Clayton Wiggins
and Catherine
Stanley

PATRONUM

Background

- According to the FDA, 80% of adults in the U.S. consume caffeine every day
- Caffeine has been shown to act as a behavioral stimulant and increase alertness
- It works by blocking adenosine (a CNS depressant) from binding
- A single shot (1 oz) of espresso from Starbucks has 75mg of caffeine
- We want to quantify the effects that caffeine has on reaction time by measuring the reaction time of our subjects before and after ingesting a shot of espresso



Hypothesis

If our subjects ingest caffeine,
then their reaction time will
decrease

Procedure

1. Instruct the subjects to refrain from eating before the experiment and then give them all the same food (Nature Valley Sweet & Salty Nut Bar in our case)
2. Warm up the IXTA and open the HumanNerveConduction file in LabScribe
3. Have the subjects face away from the screen and instruct them to press the button on the marker as soon as they hear the signal key
4. Repeat step 3 for each subject and record their base reaction times
5. Instruct the subjects to drink one shot of espresso
6. Wait at least 15 minutes for caffeine to take effect
7. Repeat step 3 again for each subject and record their new reaction times

Our Subjects

Subject 1 is a male regularly takes caffeine pills and drinks coffee

Subject 2 is a female who regularly drinks caffeinated tea

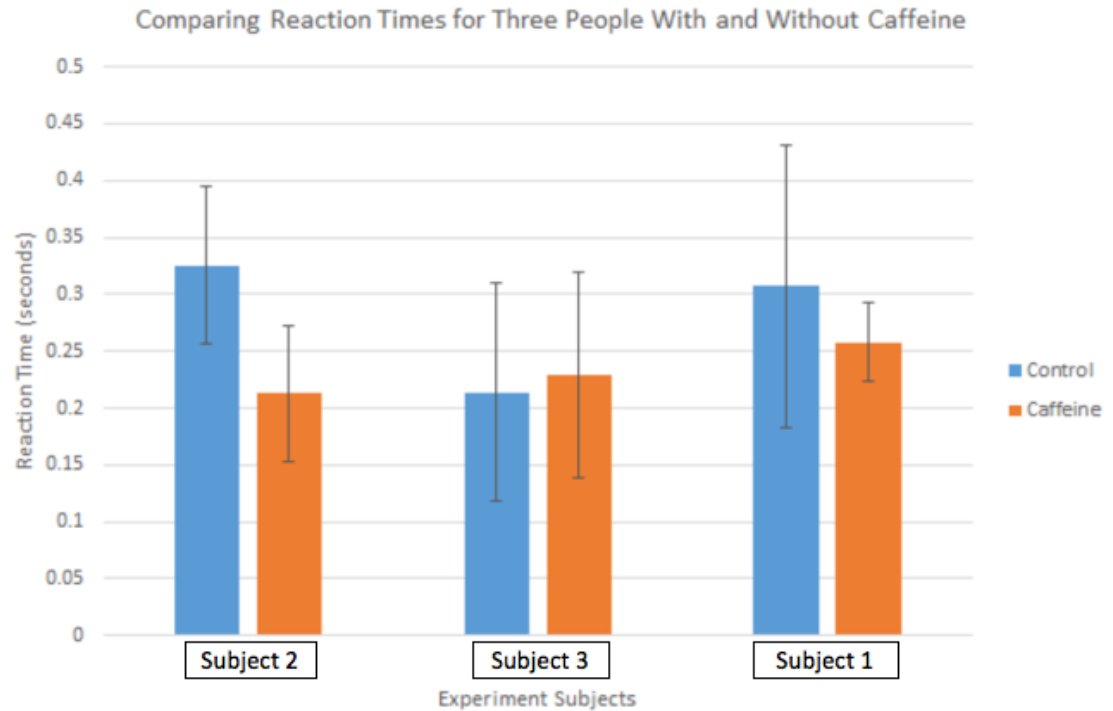
Subject 3 is a female who does not drink any caffeinated beverages regularly

Results

Subject 2's reaction time
decreased by 42%

Subject 1's reaction time
decreased by 18%

Subject 3's reaction time
increased by 7%

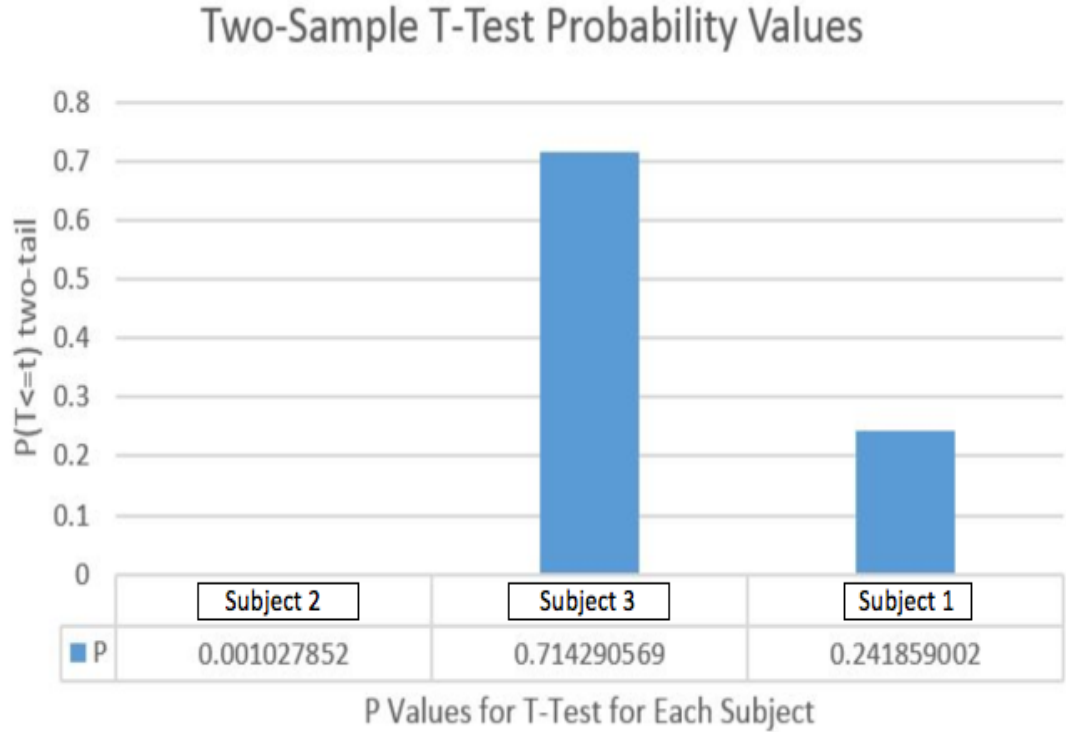


Results continued

Subjects 1 and 3 had statistically insignificant results

Subject 2's results are the only ones we should accept

Overall, the results were inconclusive



Discussion

Our hypothesis was proven to be false

Response to the effects of caffeine may vary based on sex, weight, genetics, tolerance, and a number of other variables

For future experiments it would be helpful to control more of these variables

For example, using subjects who all consume the same amount of caffeine on a daily basis or simply don't consume caffeine at all

Using a larger sample size would also be useful in creating a more precise experiment

Sources

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