



My Science Project!

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Introduction

I will be testing how different types of drinks with caffeine affect the heart rate of the human body. Note that I will be representing this information on a powerpoint.

For my experiment, I will get about 5 volunteers (my family members, including me) and give them a caffeinated drink, (before this I will get their heart rate) after about 30 minutes, I will get their heart rate, I will also check their mood, concentration, and memory. I will do that by putting them to a variety of tests. I will do this for about 3 different types of caffeinated drinks. I will see which type of caffeinated drink impacted the heart rate the most.

I will go on a variety of different websites to figure out my information, I will go on videos and check out books, I will make sure the data is correct. I will also give cool facts that will blow the judges minds!

I always wondered why people drank caffeine in the morning so that they could get energized, I wondered if there was something else that was healthier to drink so they could get energized, so I did this experiment to test if caffeine really did help.

Hypothesis

In the end I will figure out that some different types of caffeinated drinks affect the human heart. I think the pistachio latte will affect my family's heart rate the most!





Variables

Independent Variables:

- Type of caffeinated drink (Pistachio latte, Matcha green tea, Coke)

Dependent Variable:

- Heart rate
- Mood
- Concentration
- Memory

Controlled Variables:

- All drinks have the same amount of fluid (12 fl oz)



Procedure

I had to lower the number of people to test, because of Covid-19. But I know what types of caffeinated drinks I'm going to test out.

Here are the caffeinated drinks:

1. Pistachio Latte
2. Matcha Green Tea
3. Coca-Cola

I will try this all out on my sister, my mother, and my father.

Pistachio Latte: 12 fl oz, 75 mg of caffeine

Matcha Green Tea: 12 fl oz, 55 mg of caffeine

Coke: 12 fl oz, 34 mg of caffeine

I will record their Age and Gender, because if my Dad has a different circumstance to coffee and my Mom doesn't, I can take note of that, and explain why this happens after a bit of research!

Here are my hypothesis for each of the caffeinated drinks:

1. (Coffee drinks) My family is not going to do very well on the test, they will have a hard time going to sleep. They will need more!!
2. -Soft Drinks(Coke)- my family might have a small struggle on the test, I really want to know what happens on this drink!
3. I think Tea is just a little worse than coffee, I think that you would just need more!!!

Matcha Green Tea Test

Arushi

Female, 15

Time of test: Right after dinner ~6:30

Before: I was getting a small headache, but nothing minor-I could handle it, I ate my dinner like 15 minutes ago, I hope my dinner doesn't make a reaction with the green tea!

After: My first sip, ahhh.. Yum.. After a bit my headache grows, I feel a little tired, I want to go to sleep, But I can't. I way too awake! I need more of that green tea, It was so good! I start to feel very warm, my headache is very bad. I suddenly had to go to the washroom, I almost spent the night there...

Number Memory test: 4/7

Bpm: (Before) 84 (After) 79

Word Test: 8/12



Matcha Green Tea Test (Continued)



Saraswati

Female, 43

Time of test: 5:00pm

Before: I just finished teachers convention at 4:00, my last class was yoga. I took a nap for an hour, waking up to drink this green tea!

After: I took a sip, and suddenly I felt like my brain lit up! I felt pretty energized, so I ran to the kitchen and did some work. I came a little later, and started to work on my school work. I felt pretty normal, just a little energized!

Number memory test: 7/7

Bpm: (Before) 87 (After) 79

Word test: 11/12

Matcha Green Tea Test (Continued)

Rajan

Male, 43

Time of test: Right after dinner ~6:30

Before: I came downstairs from my work and ate dinner. My dinner was spaghetti, and that was heavy. I went for my routinely walk, and I came back about 20 minutes after. I wonder what's going to happen!?

After: I drank the green tea, first sip, yum! I drink the whole cup after 10 minutes, and I go back to my work feeling a bit more energized. The green tea did not affect me that much. I wonder why?

Number memory test: 6/7

Bpm: (Before) 82 (After) 72

Word test: 10/12



Pistachio Latte Test



Rajan:

Male, 43

Time of test: 9:00am

Before: I feel lazy, and maybe I could go for a power nap, I just don't want to go to bed. I feel pretty normal!

After: This tastes so good, I'm loving it! It is very addicting, I want a lot more. When I come home I feel very awake, I don't feel sleepy at all! I feel like I can finish all my work in an hour! After about 30 minutes, I start to feel fatigue, I need more coffee. I try to go to bed but I can't, I have to force myself to sleep!

Number memory test: 3/7

Bpm: (Before) 89 (After) 70

Word test: 5/12

Pistachio Latte Test (Continued)



Saraswati:

Female, 43

Time of test: 9:00am

Before: I am happy! I want to see what coffee tastes like. I feel active, ready for anything. I hope this coffee doesn't do anything bad to me!

After: I drink a little bit of the coffee, mmmmmm... tastes sooo good... I love it! After about 25 minutes, I go to bed, it's getting late. But I can't, I feel so active! I go downstairs and do some errands. I come up to bed again, but this time I have to go to the washroom really, really, badly! I took a lot of time, I wondered what happened, finally, I realized that I took my medicine before I went to get this coffee. I wonder if this caused it?

Number Memory test: 2/7

Bpm: (Before) 82

(After) 71

Word test: 4/12

Coke Test



Arushi:

Female, 15

Time of test: ~3:00 pm

Before:

I'm lazy, like I just want to sit on the couch and watch tv or youtube all day... I feel pretty normal, and I'm very excited to drink the coke!

After:

Sssiipp, mmmmmmm... YUM! At first, I just like the taste, but like 3 seconds later, I feel like I can reach the moon! I feel elated, like I just won the lottery... I feel energetic, excited, and I need more!!

Number memory test: 7/7

Bpm: (Before) 89 (After) 94

Word test: 11/12

Coke Test (Continued)

Rajan

Male, 43

Time of test: ~3:00 pm

Before: I feel pretty energetic. I just came from my routine walk. I feel awake, and I don't think of sleeping anytime soon. I just took my vitamins, so I hope this coke won't interact with it!

After: I drank a little bit, and I felt like I just had put a rainbow in my stomach! I feel very excited and energized. After a little while, I started to have some burps, some bad burps. I felt like my stomach was really full, but it wasn't. I had to lay down and take a rest. I wonder what happened?

Number memory test: 6/7

Bpm: (Before) 79 (After) 82

Word test: 12/12



Coke Test (Continued)

Saraswati

Female, 43

Time of test: ~3:00 pm

Before: I just came to my room after eating a snack (Oranges and carrots), and I went to my teachers convention meeting. I was in the meeting for about an hour. I feel pretty tired.

After: After my first sip, I felt a jolt of energy. But that did not last long, I felt normal again and went back on my rest. The coke did not have much of an effect on me!

Number memory test: 7/7

Bpm: (Before) 81 (After) 82

Word test: 11/12



What have I learned?

- They are excited before they drink
- They have to go to the washroom
- They feel sleepy but they can't go to sleep, they're too awake!
- After their first sip, they have a jolt of energy. They feel happy and energetic.
- Adults tend to have no effect to very little effect on low mg caffeinated drinks.
- They feel like they need more to keep them energized!!
- Question: My mom and dad probably had their first coffee in ages, are the effects different to a person who drinks coffee normally?
- Question: Can some types of medicine affect caffeine when it enters the body?



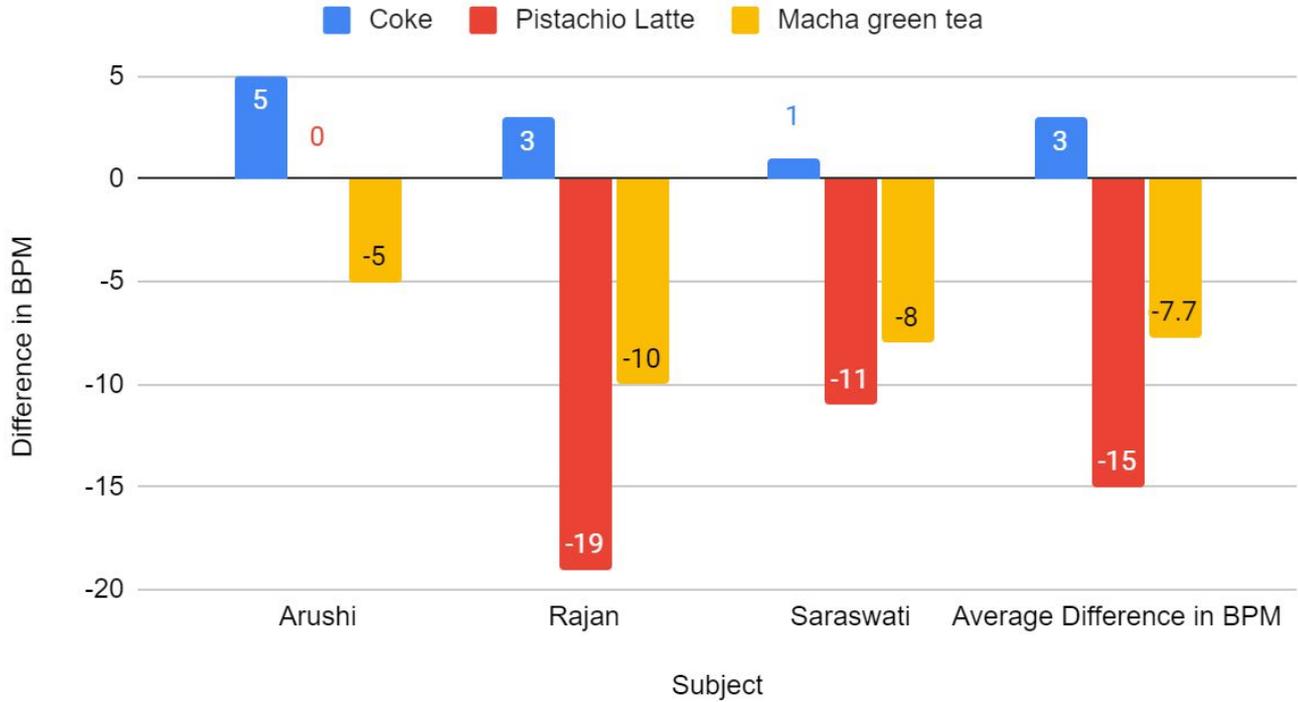
Analysis/Data

Out of all the drinks, the Pistachio latte **decreased** my family's heart rate the most. Also, the heart rate **increased** the most with coke! The Matcha green tea was just in the middle, and it generally **decreased** the heart rate. (The next slide will give a graph about this)

Speaking of which drink affected the heart rate the most, the number memory and word tests were lowest for the pistachio latte, with an average of 36%(Number memory and word test)! The coke had the the best grades, with an average of 95%(Number memory test) and 94% (Word test). Again matcha green tea is just in the middle, with an average of 81%(Number memory and word test) !



Differences in Bpm





Sources of Error

Sources of Error:

- Constructed at various times
- Human condition
- Not all participants took all three drinks.



Final Conclusion

My hypothesis was correct! I thought that the pistachio latte would affect the human heart the most, and it did!

I did not think that a latte could decrease a human heart rate very drastically. I thought that latte's were okay, and people had no problem drinking it.

Well.. I was wrong. The caffeine in latte and other caffeinated drinks can affect not just only the human heart rate, but a human's mood, concentration, and memory.



Acknowledgments

I would like to acknowledge my mom, sister and dad for taking their time out and helping me in this project and drinking the drinks, I really appreciated it!

I would also like to thanks my sister for giving me a few ideas along the way of my project, she also edited my project to!



Log book downloads

[Aryan Science Logbook.pdf](#)

I have attached this separately too.



Video



Thanks for reading

I look forward to hearing from you!



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