The Effect of Sweeteners in Drosophila Melanogaster's Locomotion.

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WHAT IS THIS INVESTIGATION ABOUT?

- This research aims to measure how much locomotion is affected in Drosophila melanogaster considering the alimentation.
- The experiment was divided in three groups:
  - ✓ Control group
  - ✓ Group fed with natural sugar
  - ✓ Group fed with artificial sugar

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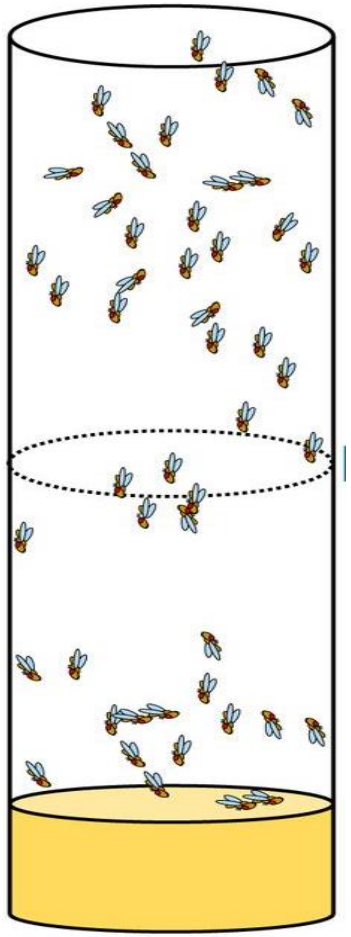

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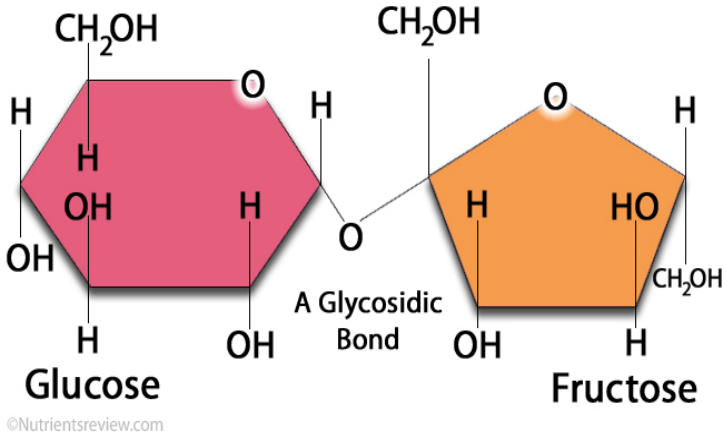
RESEARCH PROBLEM

- According to the sweetener, artificial or natural, or standard laboratory food, how much is the locomotion of the fly Drosophila Melanogaster affected?



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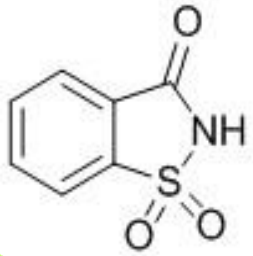
Natural Sweetener

Artificial Sweetener



Saccharin

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VARIABLES

Variables

Independent:

- Standard laboratory food
- Natural Sweetener
- Artificial Sweetener.

Dependent:

- Flies consuming standard laboratory food
- Flies consuming standard laboratory food with natural sweetener
- Flies consuming standard laboratory food with artificial sweetener
- Locomotion

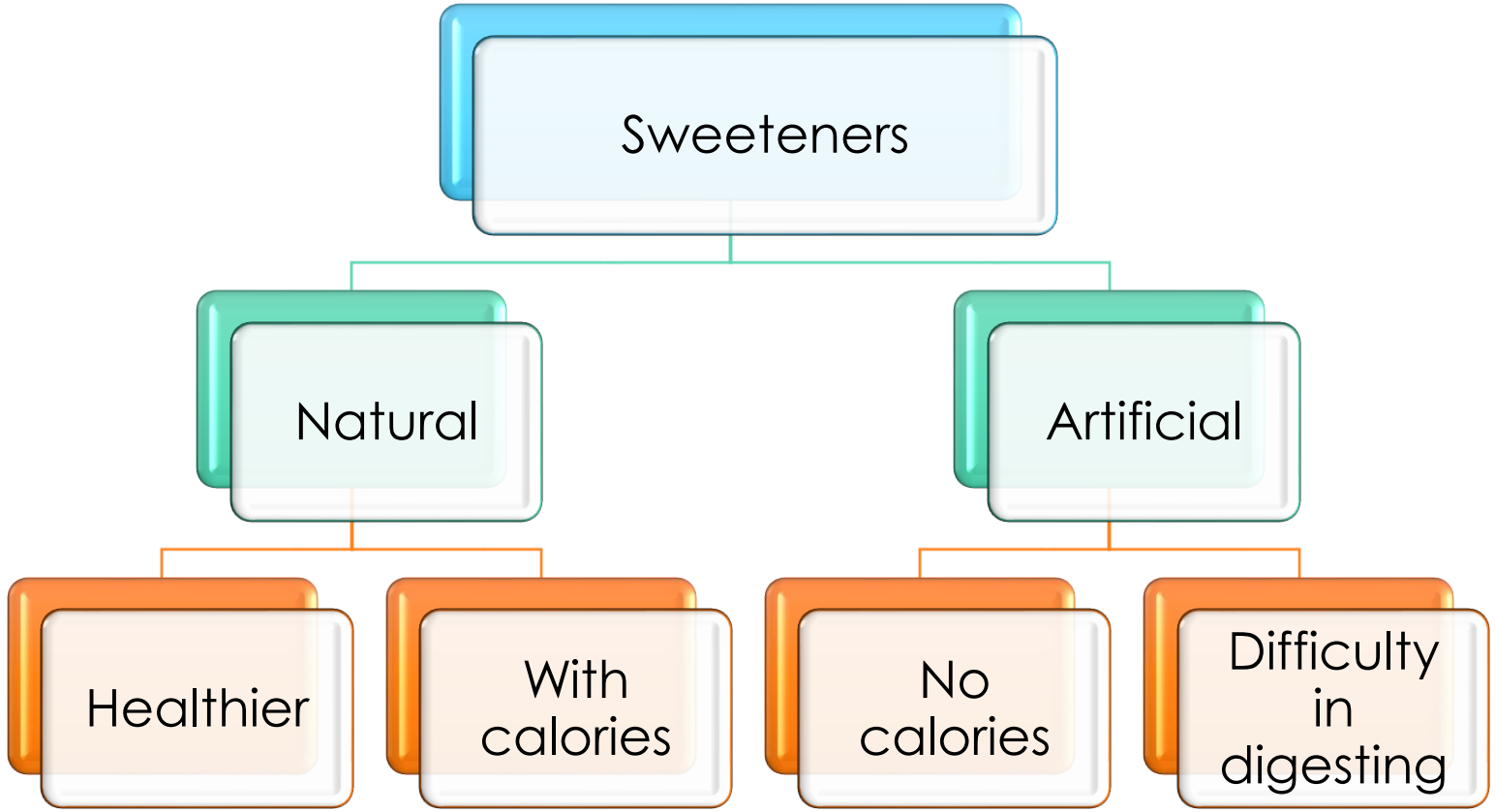
Controls

Positive

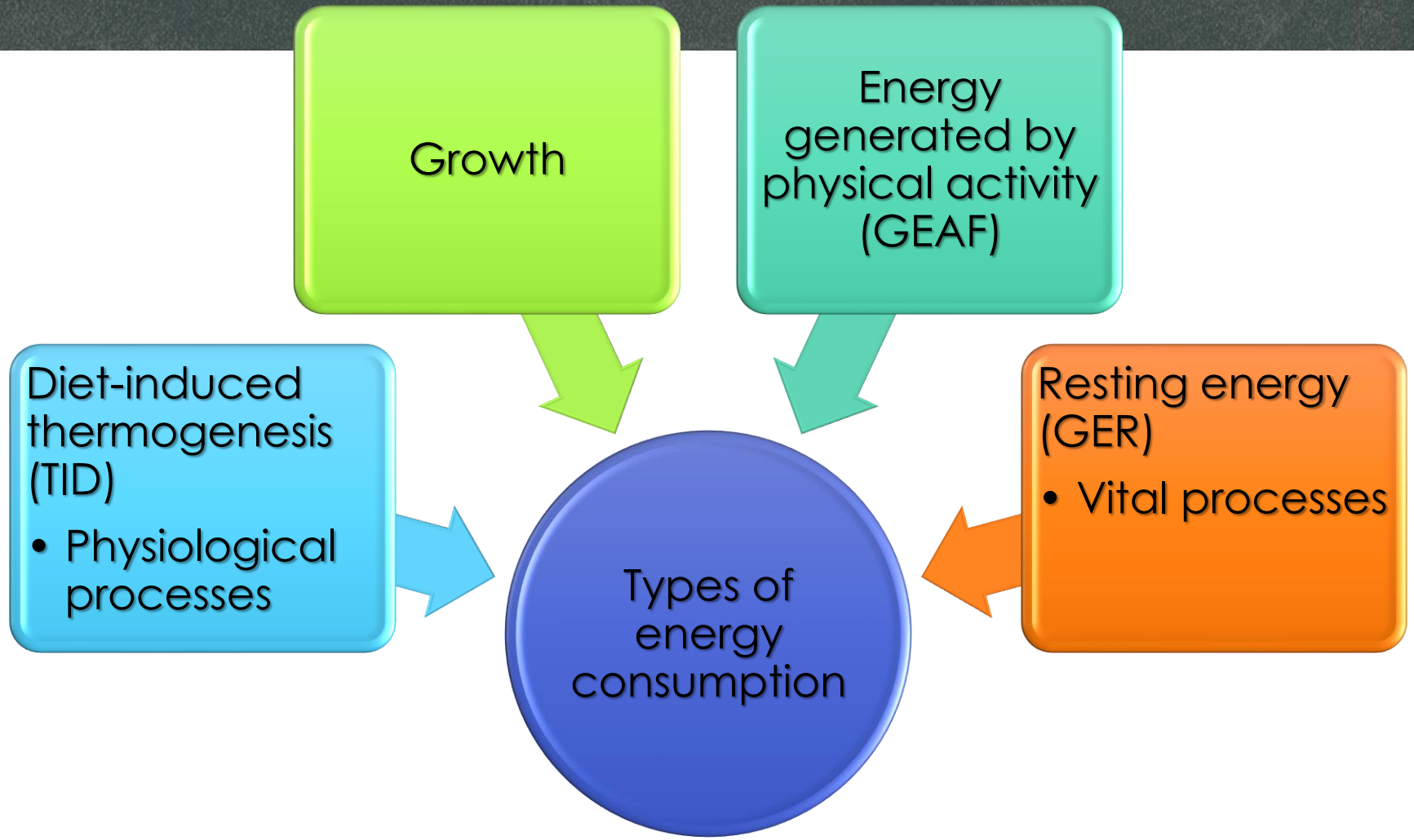
- Temperature

INTRODUCTION

- Our body needs energy to carry out different processes.
- The energy we consume is acquired through sleep and food.
- In our diet, some of the main energy nutrients we consume are sugars, also known as sweeteners.

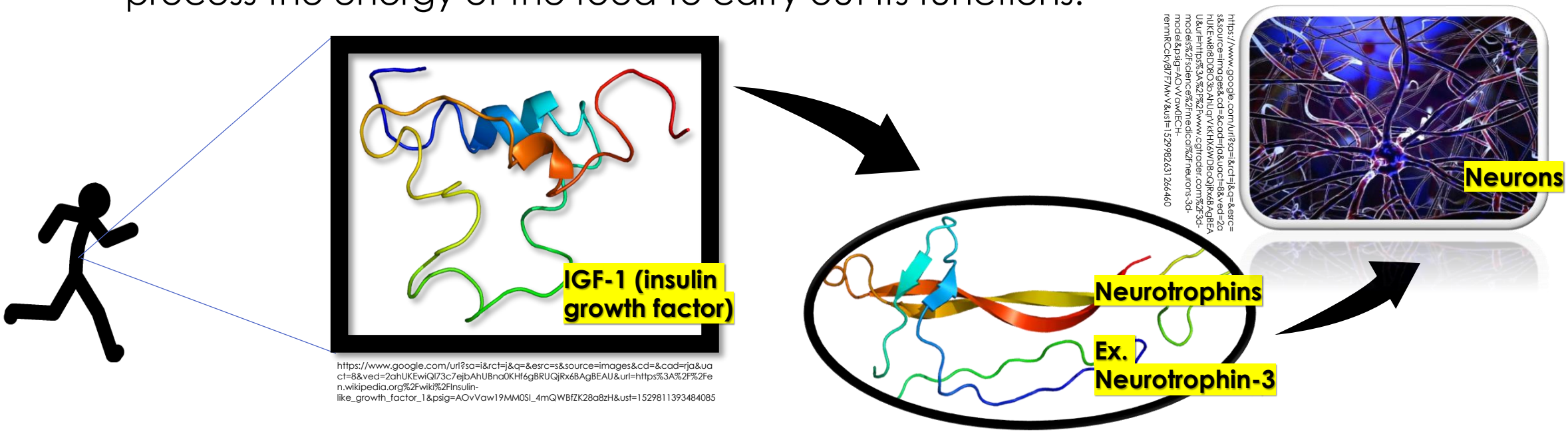


INTRODUCTION



INTRODUCTION

- A good physical and active development creates an increase in cognitive processes.
- These two categories depend on the TID, since they need the body to process the energy of the food to carry out its functions.



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METHODOLOGY

1. Preparation of the food

Standard laboratory food.

Standard laboratory food + sucrose

Standard laboratory food + saccharine

2. Breed the flies

Used CO_2 to put the flies to sleep.

18 vials, 6 from each group.

We breed them for two weeks.

3. Measure the locomotion

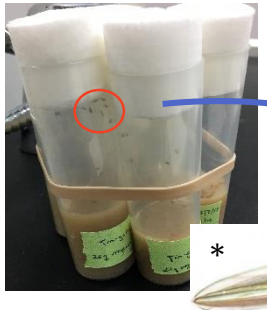
An infrared laser calculated how many times the fly passed through it.

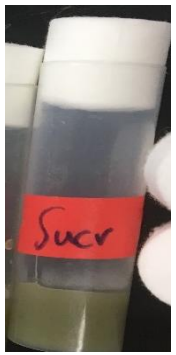
The flies were observed for 13 days.

4. Collecting the data

Monitors sent data to MadLab. The data was transferred to GraphPad to create graphs organized graphs.

METHODOLOGY

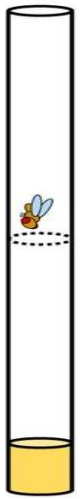




X6
6♂ea.
8♀ea.

2 weeks

CO_2 needle and plate to put them to sleep to transfer them



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12 monitors with 32 slots each

64♂ & 64♀ from each group

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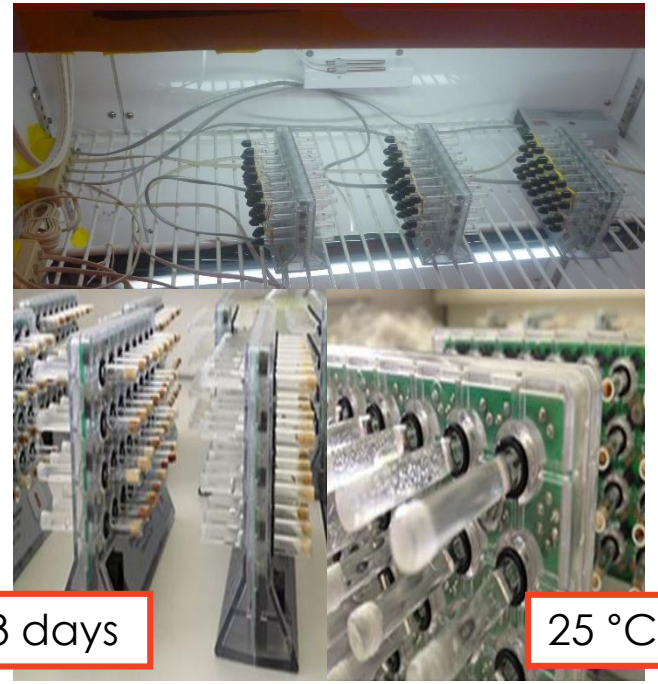

13 days

25 °C

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METHODOLOGY

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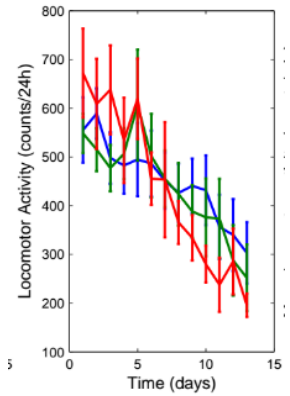
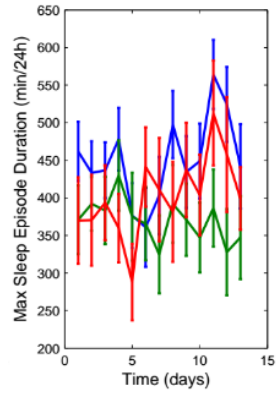
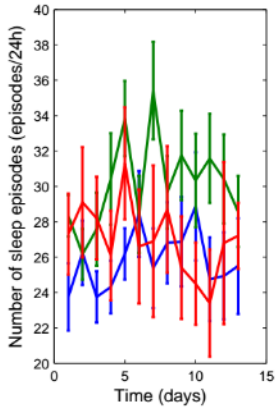
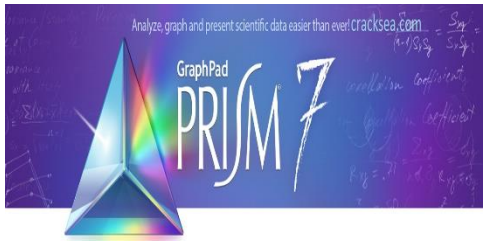




MadLab

Program made by graduate students





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Used GraphPad for more organized graphs

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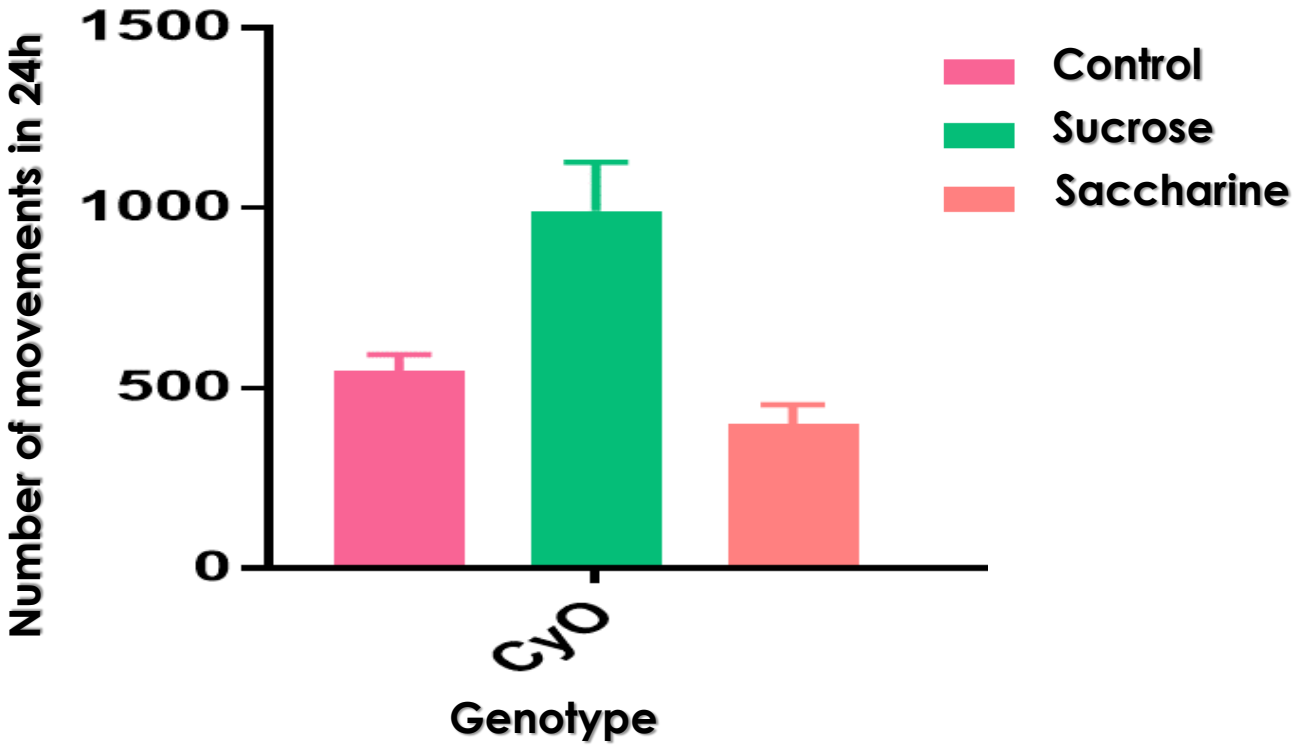
RESULTS

ANALYSIS

Locomotion activity in males



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ANALYSIS

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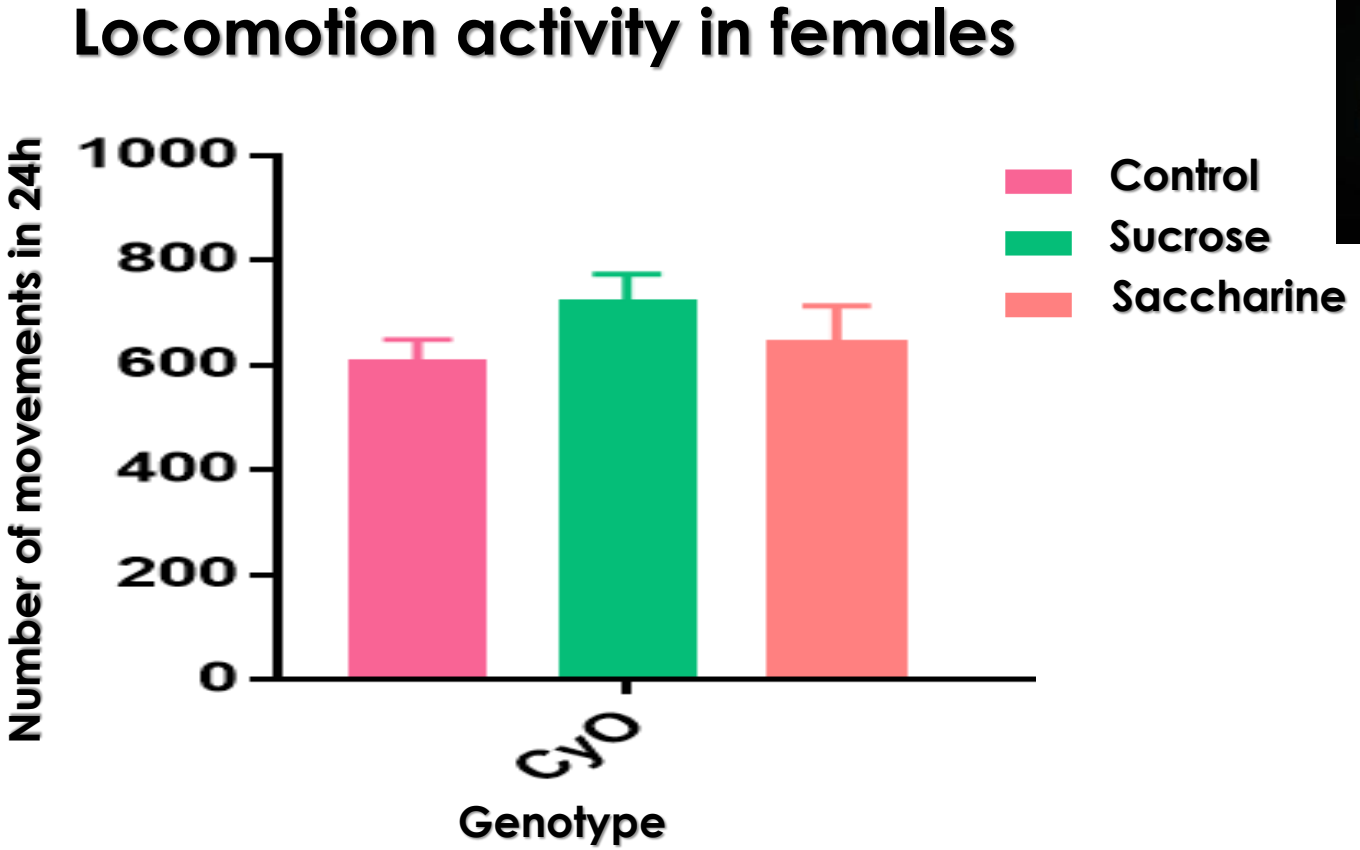
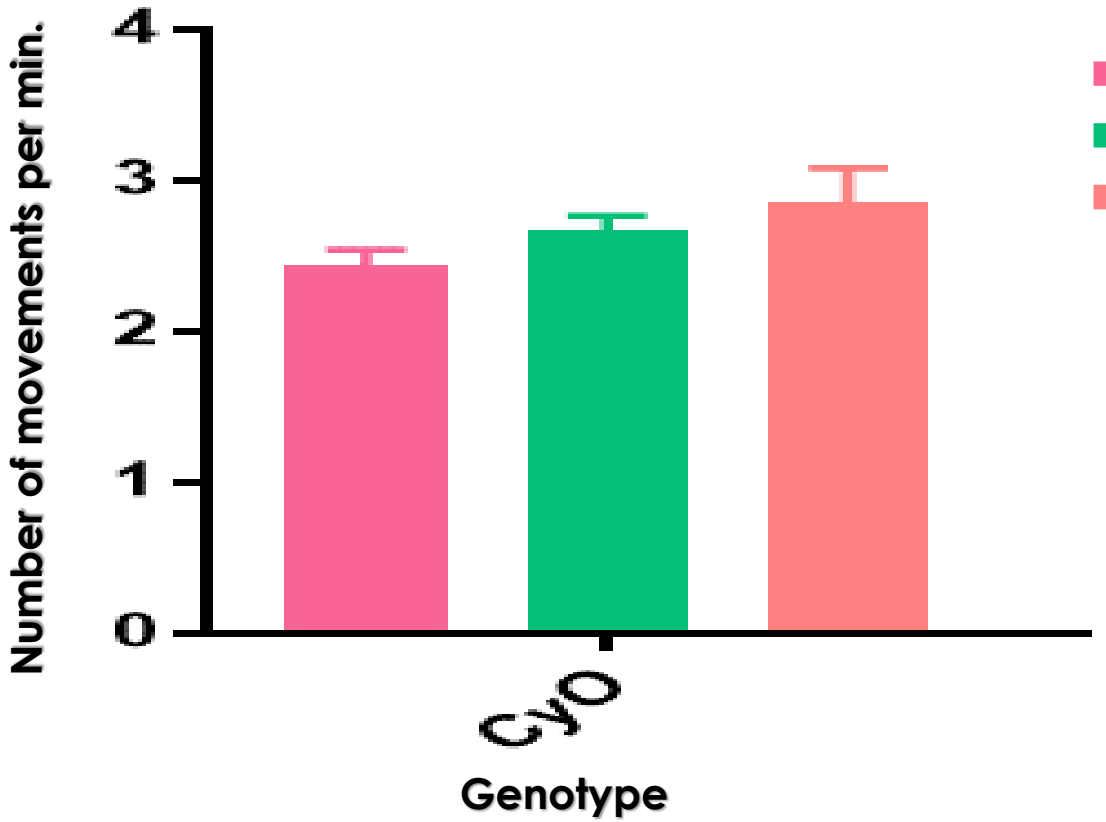


ANALYSIS

Average locomotive activity during active periods in females



ANALYSIS

Average locomotive activity during active periods in males

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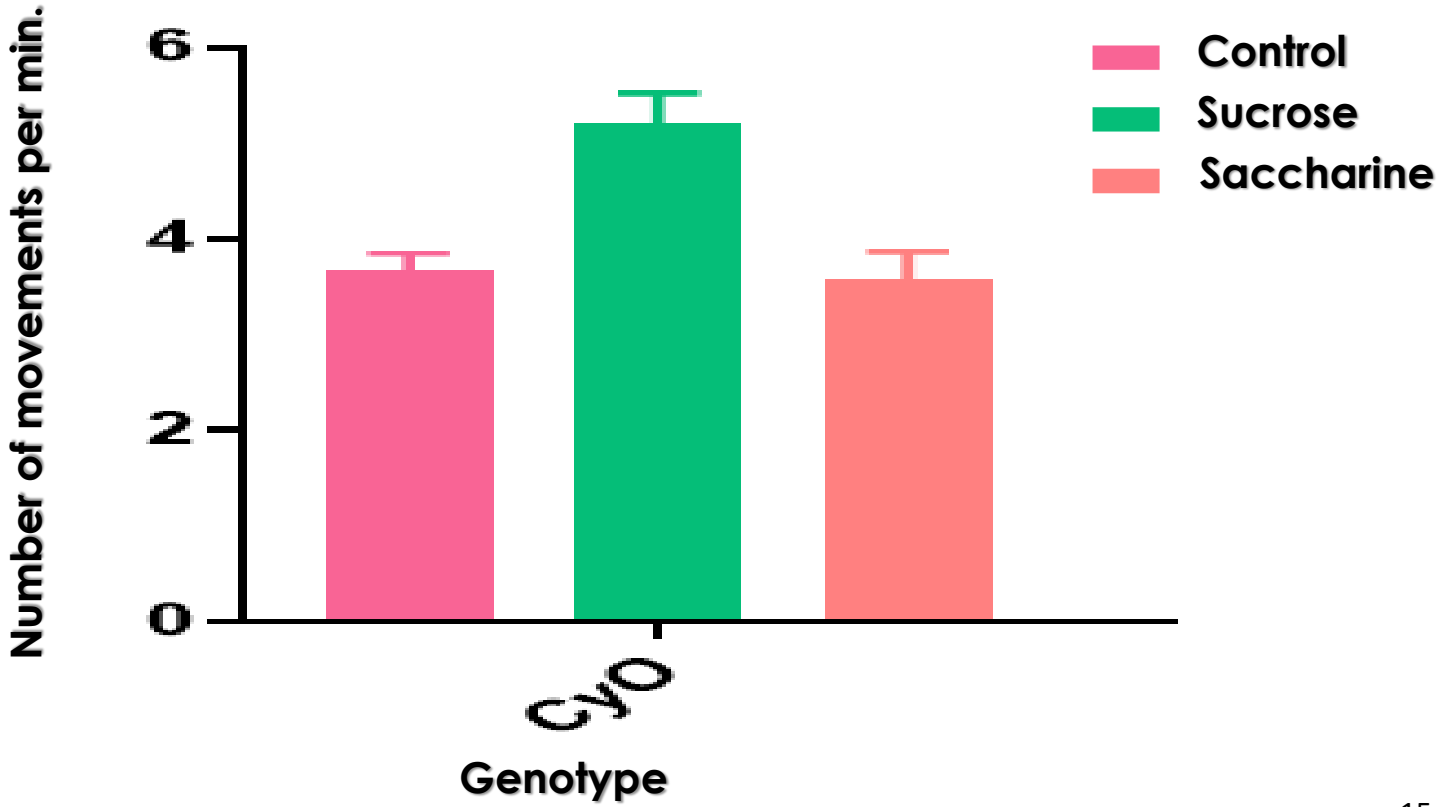

CONCLUSIONS

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- The sweetener that most affected locomotion was the natural sweetener, sucrose.
- Overall, the graphics showed that the flies that consumed the natural sweetener moved more in comparison to the control group or the group consuming saccharine.
- The sweeteners we should consume if we lack sleep but need energy to carry out our daily tasks efficiently are natural sweeteners.

WHAT I LEARNED/ APICABILITY

- The routines of teenagers and college students has become more complex. They need copious amounts of energy to carry out their routines efficiently.
- The importance of physical activity in relation to the cognitive processes imply that the right foods must be ingested to perform the tasks with higher performance.

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FUTURE RESEARCH

- My experience with this investigation has been enriching and more than amazing. I plan to continue investigating in the genetic field. Due to the changes the world and society is going through, my vision is to improve the human performance on daily tasks to make them more competent and use their full potential.

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THANK YOU FOR YOUR TIME!