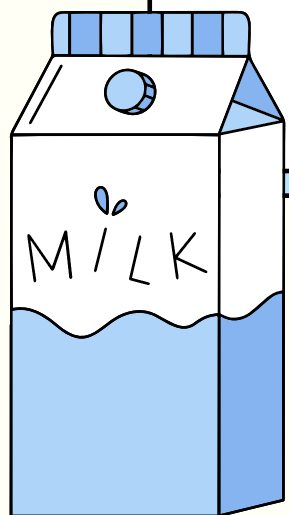


GLUEECOSE?



Exploring Lactose Intolerance



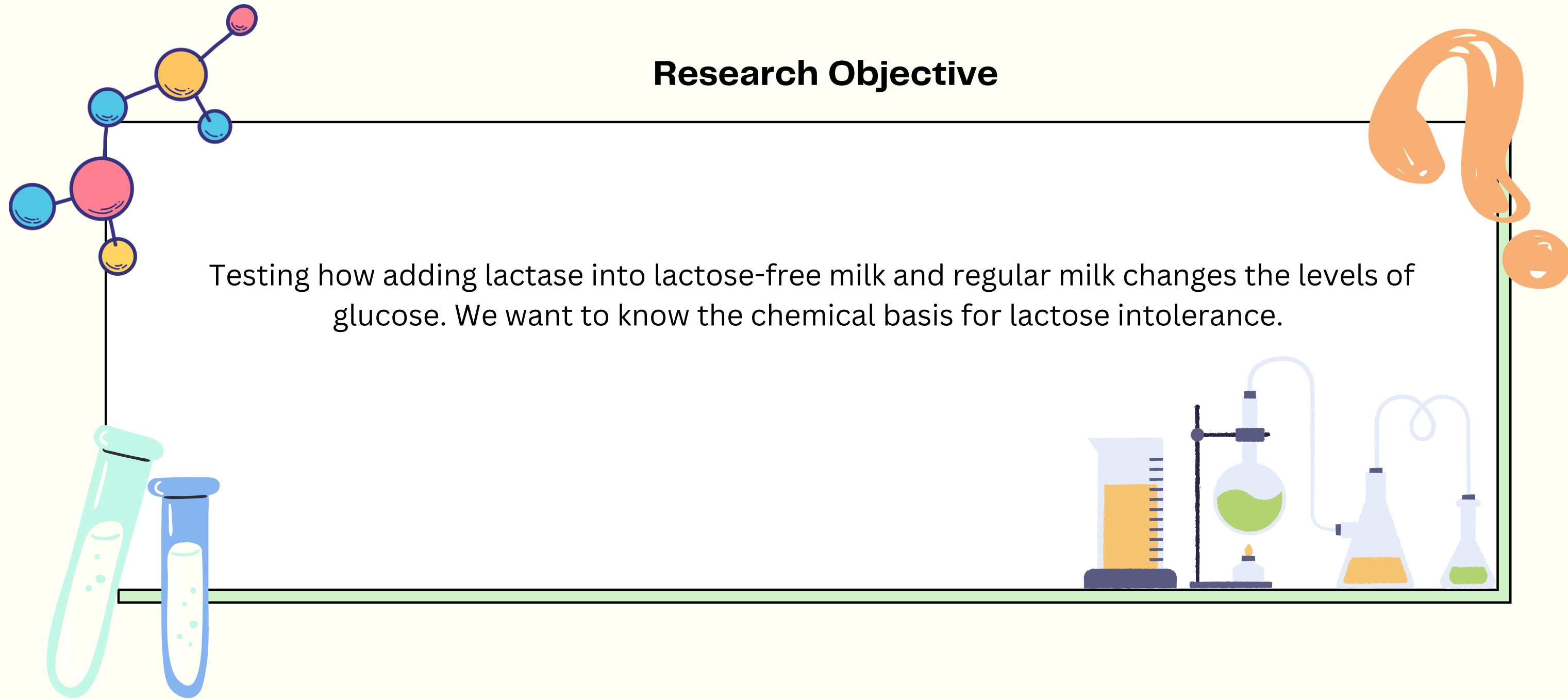
V/S



By: Maya
Rafalovsky

Research Objective

Testing how adding lactase into lactose-free milk and regular milk changes the levels of glucose. We want to know the chemical basis for lactose intolerance.



Hypothesis

Hypothesis:

I am interested in exploring deeper into lactose intolerance. I think that regular milk with no lactase in it will have the highest amount of glucose. I think this because lactase breaks down the lactose so that means there will be close to no glucose in the other tests.

Equipment



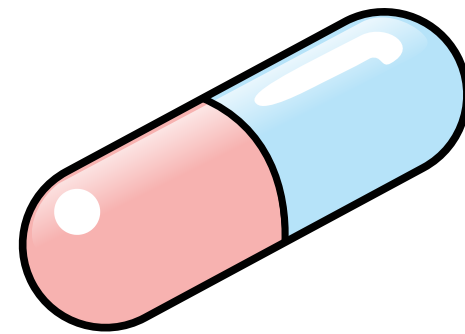
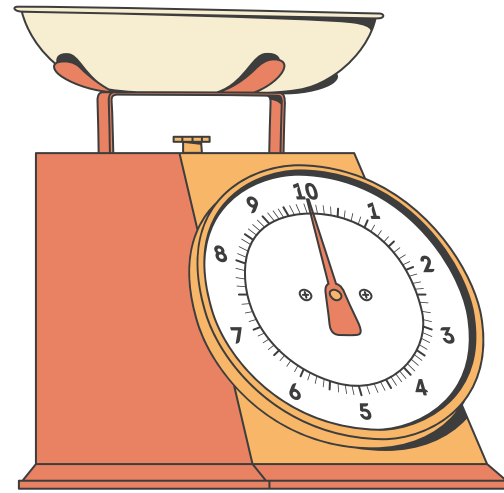
You might want to use one of these to be more precise!



- **Graduated cylinder, 100 mL (1)**
- **Glucose powder (30 g) (1)**
- **Urinalysis test strips that measure glucose**
- **Small plastic or glass cups**
- **Measuring cup (metric) or beaker**
- **Spoon**
- **Permanent marker**
- **Regular milk (the percent fat should not matter, but you should use the same percent fat for the regular and lactose-free milk)**
- **Lactose-free milk (the percent fat should not matter, but you should use the same percent fat for the regular and lactose-free milk), should be 100% lactose free; available at most grocery stores**
- **Lactase drops**
- **Stopwatch**
- **Room-temperature tap water**
- **Lab notebook**

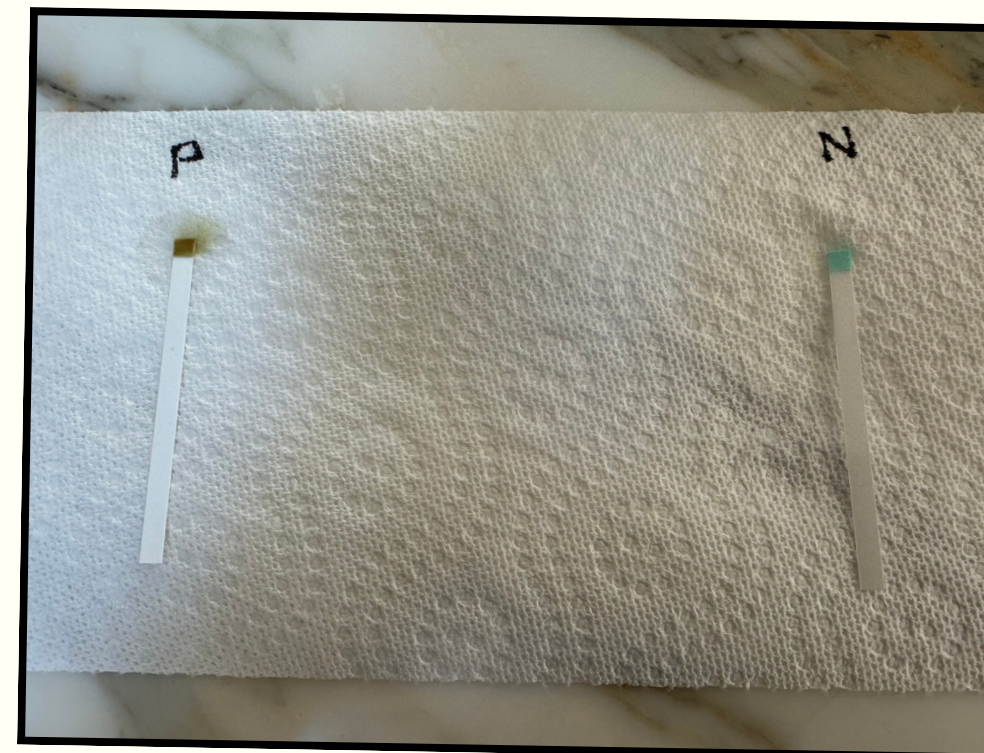
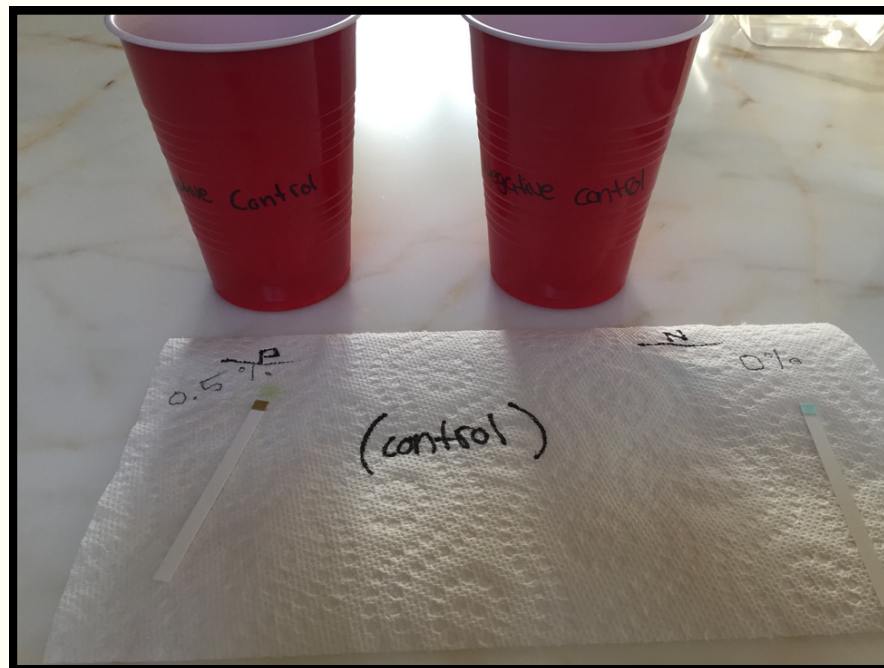
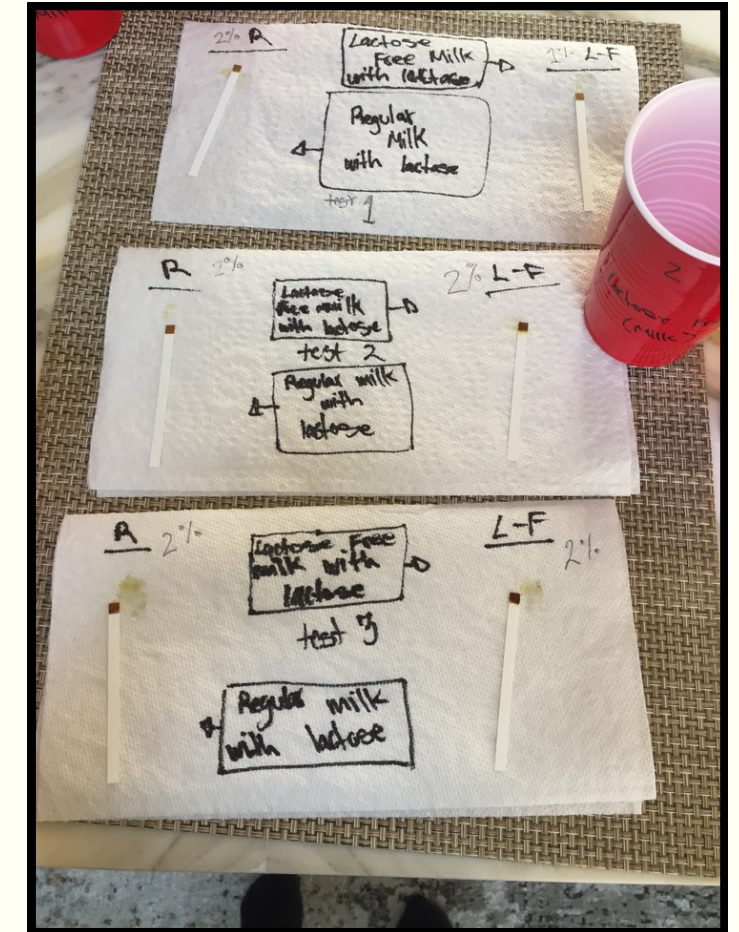
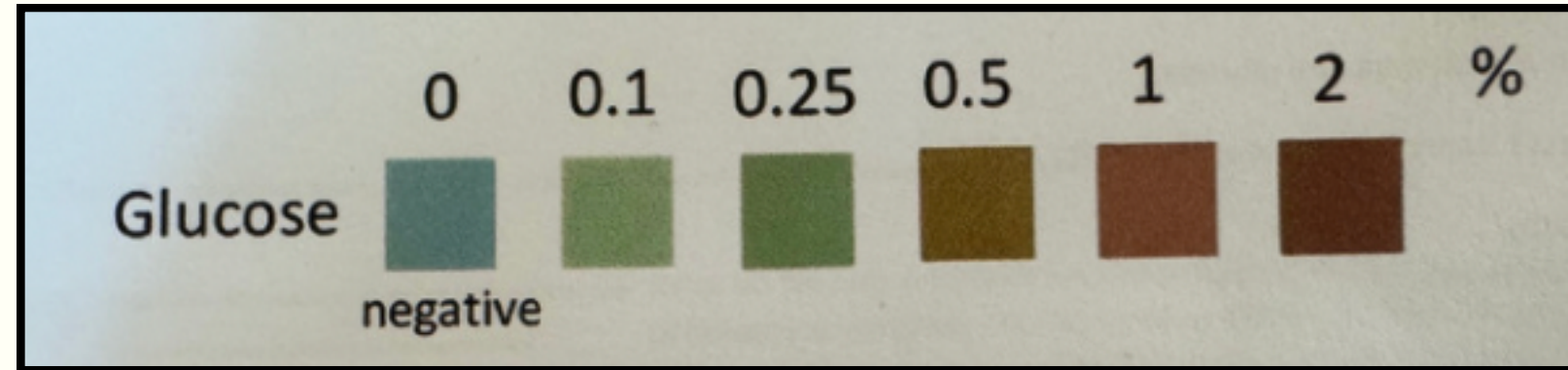
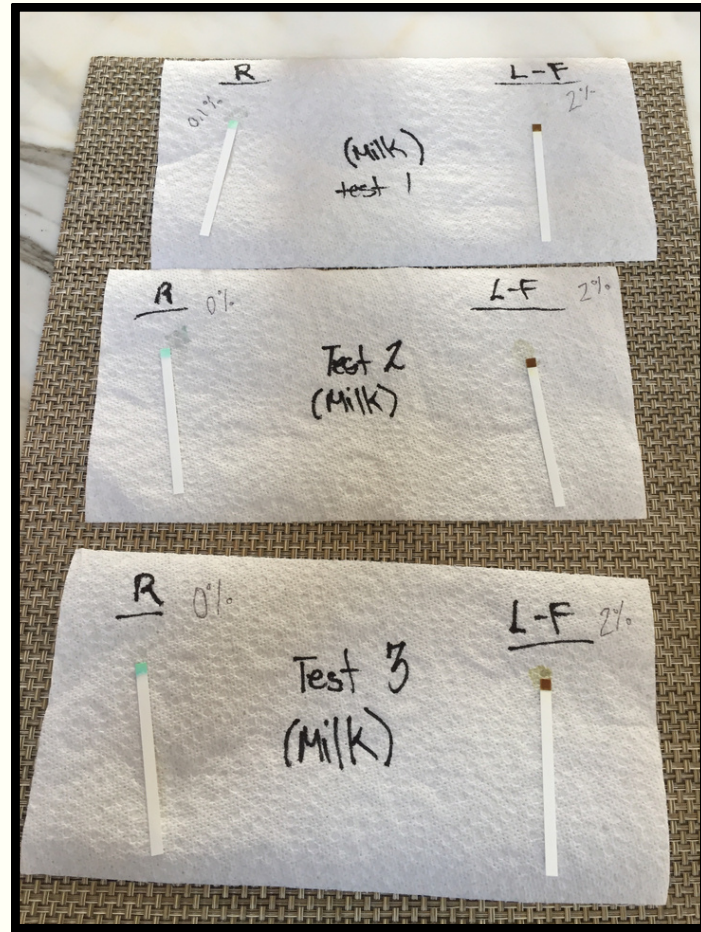
Procedure

○ ○ ○ ○



- Take a plastic cup and label it “Positive Control”
- Put 2 g of glucose powder into the cup
- Add 100 mL of water and stir until the glucose has dissolved.
- Take another cup and fill it with 100 ml of water
- Test both of the liquids with separate glucose strips for 3 seconds each, then wait 30 seconds to see results.
- Label two small cups with lactose-free milk and regular milk.
- Get 20 mL of each milk and pour each milk (lactose-free and regular) in the corresponding cup
- Determine the glucose concentration in the regular milk sample using a test strip. Then do the same for the lactose free milk.
- Add a drop of enzyme solution into the regular milk and rub back and forth with your hands for two minutes and time yourself with a stopwatch.
- Then do the same for the Lactose free milk. Test this liquid with a test strip and record answers.

Process of the Experiment



Quad Chart

Purpose

The purpose of my experiment was to explore lactose intolerants and to find out the difference (in glucose) of regular versus lactose free milk. With and without lactase in it.

Results

The results of my experiment is:
Regular and Lactose free milk with lactase have the same amount of glucose in it when added.
Lactose free milk has 2% more glucose than regular milk, which has 0% glucose.

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- Then do the same for the Lactose free milk. Test this liquid with a test strip and record answers.

Analysis

If you put Lactase in Regular milk, it will turn into lactose free milk, but if you put lactase into lactose free milk it won't do anything.
There is no glucose in regular milk, but there is 2% in lactose free milk.

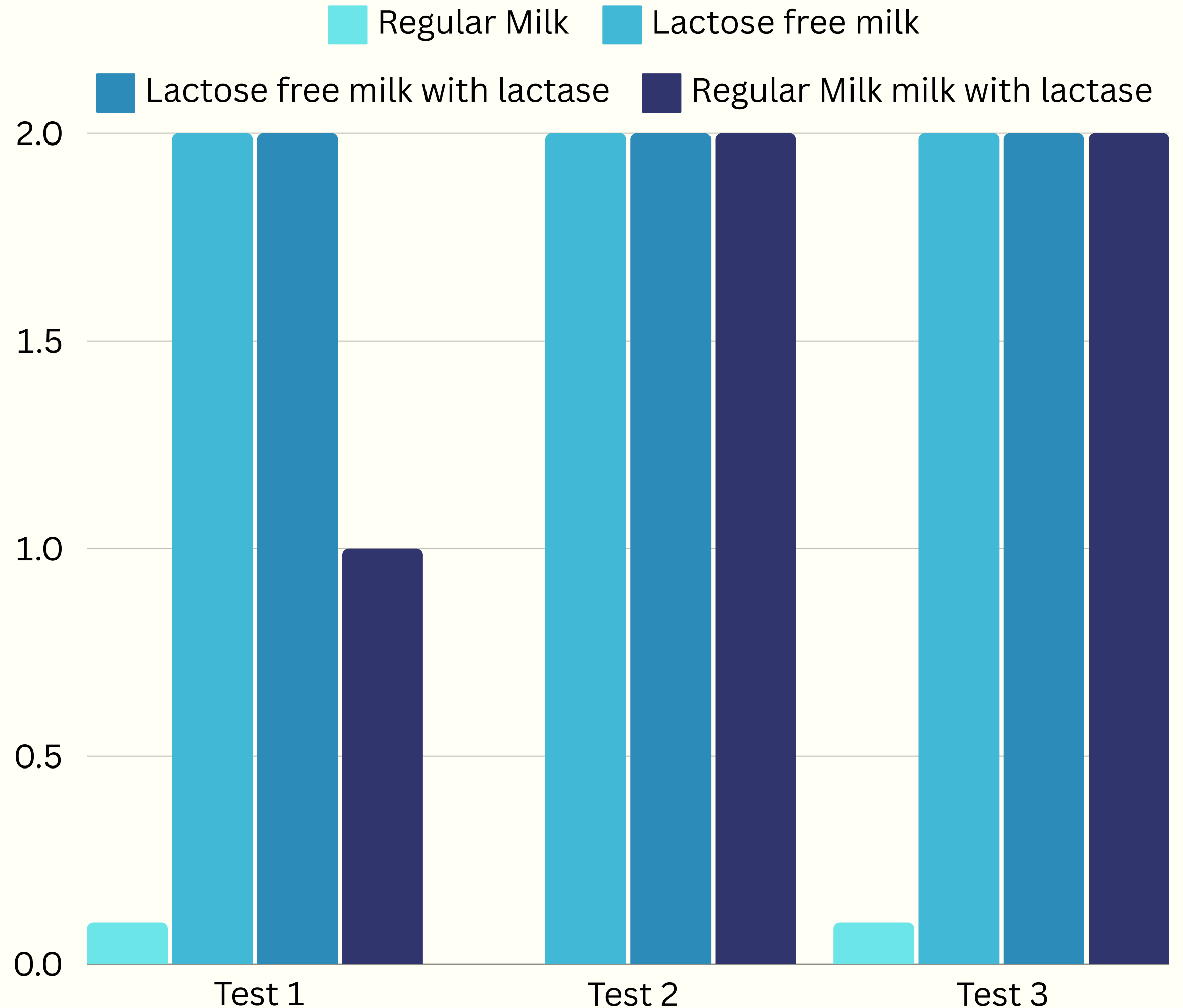
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○ ○ ○ ○

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Experiment Data

○ ○ ○ ○



Bibliography

- ○ ○ ○



[This is the main source I used](#)

[Lactose Intolerance - John Hopkins
Medicine](#)

I also used resources at home and
knowledge from past experiences.

Future work

In the future if I ever get the chance to do this experiment again I would definitely spend more time on how to change the experiment to make it different than how it was originally. I would probably do tests on other liquids other than milk, and maybe change the amount of glucose or lactase in the liquids.

Thank you!

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Hope you enjoyed!