

Osmosis Lab

**Data**

**Jelly Volume (g)**

	Before	After	Percent
Water	2.45	3.86	1.58%
Salt	2.57	2.75	1.07%
Control	2.5	2.49	1.00%

**Jelly Mass (ml)**

	Before	After
Water	2	
Salt	2	
Control	2.5	

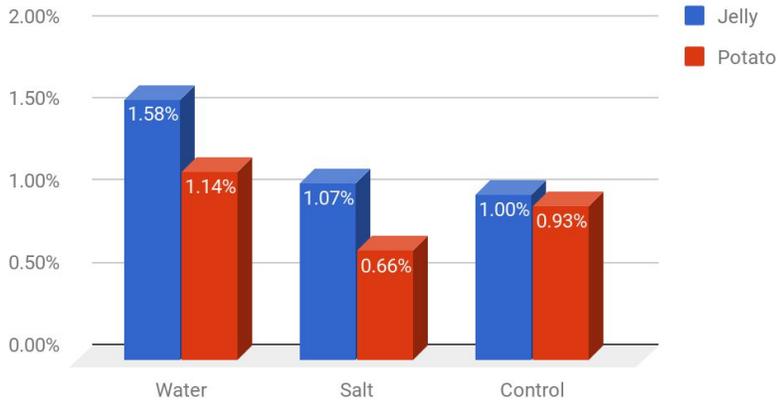
**Potato Volume (g)**

	Before	After	Percent
Water	1.31	0.93	0.71%
Salt	1.41	1.49	1.06%
Control	1.48	1.38	0.93%

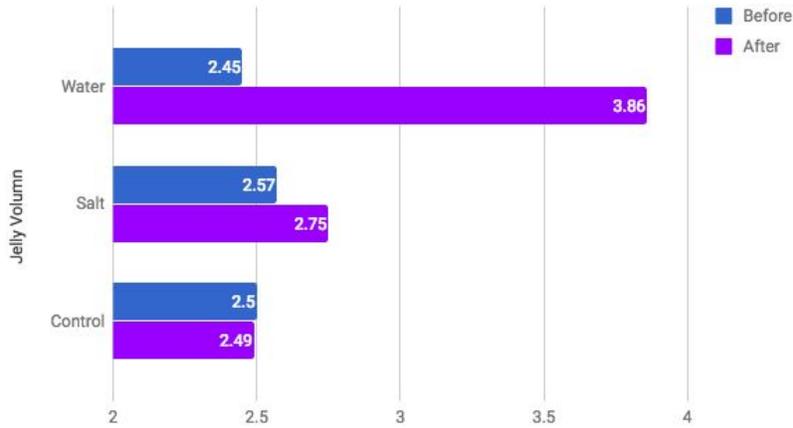
**Potato Mass (ml)**

	Before	After
Water	2	
Salt	1.5	
Control	2	

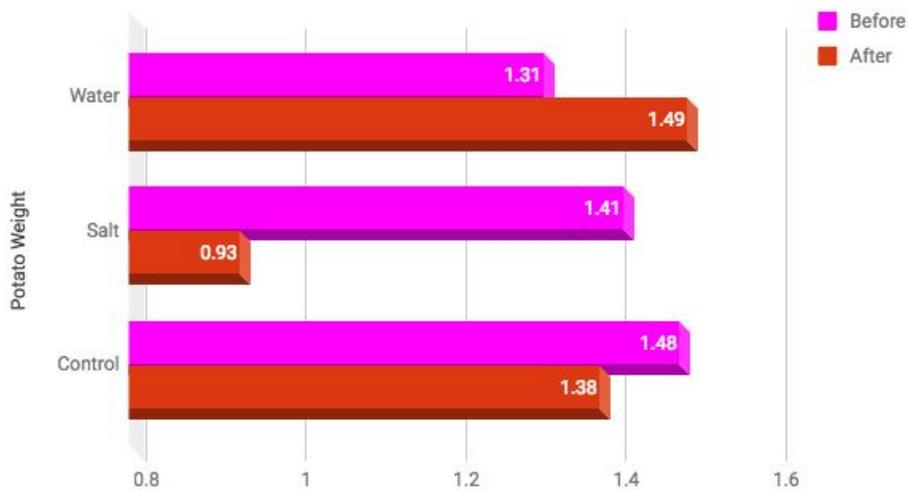
### Jelly and Potato Percentage Change



### Jelly Before & After (g)



### Potato Before & After (g)



## **Observations**

There were significant changes after the jellies and potatoes were soaked in the solution. The jellies in regular water plumped up. It appears swollen, clearer, and bigger. It is less dense and appeared softer. The jellies in salt water appeared plumper, but it was not to the extent of the other one. It still held the same buoyancy as before. The potatoes on the other hand were quite different. The potato in regular water appeared firm and crunchy. It got bigger in size and was solid. The potato in salt water was wrinkly, and soft. It was squishy and was noticeably smaller like a deflated balloon.

## **Analysis & Discussion**

Parts of my hypothesis were right and parts of them were wrong. I hypothesize that the jelly would shrink in the presence of salt water. However, the data shows that both the jelly in both the solutions had an increase in mass. Jellies in water had a 58% increase, while the jelly in salt water had a 7% increase. Therefore, both the salt water and regular water had less solute than the water. The water jelly was heavier due to the higher difference in gradient. My hypothesis that the potatoes in the salt water will shrink and the potato in water will bloat was correct. The control, that should have stayed the same weight, actually decreased in weight. This may be because of the evaporation in the few hours that it was left. The potatoes difference in percentage between the two solutions was smaller than jellies. This is because the potatoes contains more solvent ratio than the jellies. Therefore, it takes less time to reach isotonic state. It also explains why the percentage increase or decrease were different. There were some errors that could contribute to inaccurate data. The mass measurements might have been inaccurate because the lines were so far apart and not precise. Human error such as the eyes not leveled with the beaker will cause a inaccurate data. Also, we did not measure the mass after the time has passed due to misunderstanding in the instructions. We thought that we weren't supposed to measure it afterwards.

## **Conclusion**

In conclusion, this experiment looked at the effect of osmosis between two materials. It shows how hypotonic and hypertonic materials work. By using potatoes and jellies, we were able to create an experiment that will answer our hypothesis. We asked what are the effects of placing potatoes or jellies in salt solution, and regular water. I hypothesize that both the jellies and potatoes in the salt solution will shrink and the ones in regular water will swell. My hypothesis was proven wrong. The jellies in both salt and regular solution were hypertonic. Furthermore the increase in weight was different. This proved that the salt solution was more concentrated than regular water, but not as much as the jelly. The potatoes experiment was consistent with my hypothesis. The potato in salt solution was hypertonic while the potato in regular water was hypotonic.