

# Osmosis and red blood cells assignment



**ASSIGN  
BUSTER**

Any factor that decreases oxygen levels in the body increases the level of the hormone Retrospection which stimulates the homeopathic stem cells to produce a higher amount of Red Blood Cells whilst simultaneously increasing the pace of which the Orb's mature. (Bianca, 2013) Osmosis is the " passive movement of water through a comparable membrane from a compartment of relatively low osmotic pressure to a compartment of relatively high osmotic pressure, toward equilibrium. (Kigali, 2011) A comparable membrane is a membrane that is impermeable to certain solutes whilst simultaneously permeable to water. The osmotic pressure that causes osmosis is generated by this impermeable solution, with the higher amount of impermeable solute causing a greater amount of osmotic pressure. (Kigali, 2011) Osmosis can greatly affect both animal and plant cells. When either of these cells are placed in a medium the possible consequences include Hemolytic, crenation or a retention of their original size. (Atomic, unknown) In order to retain the original size of the cell the water concentration inside of it must stay the same as the surrounding medium, this will cause a dynamic equilibrium between the number of molecules of water entering and leaving the cell; therefore making it an isotonic solution.

Materials 30 ml of Horse blood (Fresh as possible) 25 disposable pipettes 1 Compound light microscope 25 Slides ex. Test tube holder 25 Cover slips 1% aqueous solution of chloride ml Distilled water 25 test tubes White Board Marker ml 2% saline solution ml 1% saline solution ml 0. 8% saline solution ml 0. 3% saline solution Method 25 test tubes were sterilized and placed in rows of 5. Each row of five was then labeled with a percentage being 2%,

1%, 0.8%, 0.3% and 0%, each individual test tube from each group was then labeled from a-e.

Each of the 2% test tubes labeled a-e were filled with ml of 2% saline solution. Each of the 1% test tubes labeled a-e were filled with ml of 1% saline solution. Each of the 0.8% test tubes labeled a-e were filled with ml of 0.8% saline solution. Each of the 0.3% test tubes labeled a-e were filled with ml of 0.3% saline solution. Each of the 0% test tubes labeled a-e were filled with ml of distilled water. The horse blood was retrieved from the refrigerator and ml of blood was placed in every single test tube. The blood was then placed in an incubator at room temperature of 24 degrees Celsius.

An hour later the blood was retrieved from the incubator and results were recorded on the appearance of the blood. The blood was then placed back into the incubator for another 24 hours. After 24 hours the blood was again taken out of the incubator and results were recorded about the sediment and supernatant of the blood. A disposable pipette was then used to retrieve a blood and a drop was placed on a clean slide and then a cover slip was placed over that. The blood was then observed underneath a microscope and results regarding the form of the cells were recorded. This was then done for every slide.

Results Table 1: observations of Red Blood Cells in a 2% aqueous solution | Salt dilution of 2% aqueous solution | After 1 hour | Sediment after 24 hours | Supernatant after 24 hours | Microscope cells form | A | Cloudy. Small amount of clear liquid on top. | Thick | Clear | Creation B | Cloudy. Small amount of clear liquid on top. | Thick | Clear | Creation | C | Cloudy. Largest

amount of clear liquid on top. I Thickest here I Clear I Creation I top. I Thick D  
I Cloudy. Largest amount of clear liquid on top. I Thick I Clear E I Cloudy.  
Small amount of clear liquid on top.

I Thick I Clear Average observation: I Cloudy. Small amount of clear liquid on  
I Clear I Creation I Table 2: observations of Red Bal Cells in a 1% aqueous  
solution Salt dilution of 1% aqueous solution I After 1 hour I Sediment after  
24 hours I Supernatant after 24 hours I Microscope cells form I A I Cloudy.  
Large amount of separation with water and blood cells. I Thick I Clear I  
Rounded Biconcave discs I B I Cloudy. Large amount of separation with water  
and blood cells. I Thick I Clear I Rounded Biconcave discs Icily Cloudy.  
Significant amount of separation with water and blood cells.

The cells in the 2% and 1% solutions both proved to be hypersonic  
environments for the Red Blood Cells, causing them to shrivel and shrink in  
size much like the Red Blood Cell in the hypersonic environment n appendix  
2. The 0.8% solution proved to be the correct medium for an isotonic  
environment with the intracellular and extracellular fluids are in osmotic  
equilibrium across the cell membrane which allows the RBC's to retain their  
shape and size. The results also showed in tables 4 and 5 the hypotonic  
environment created by the Red Blood Cells being submerged in a solution  
with little to no sodium concentration, this caused the Red Blood Cells to  
rupture and released hemoglobin into the water, which explains the clear red  
supernatant of the solutions after one and twenty-four hours.

This supernatant can be compared in appendix one which shows the blood in  
a hypotonic environment on the left with a much darker and thicker

sediment in comparison to the right test tube containing Red Blood Cells in a hypotonic environment. Conclusion Overall this experiment proved my hypothesis correct with Red Blood Cells that where submersed in a high concentration of saline solution it will create a hypersonic environment and therefore cause the cell to rupture due to the process of osmosis. It also proved the background information to be correct with the 0. % saline solution being the only isotonic environment for the red blood cells.

Recommendations There were no unexpected results in this experiment; however there are multiple changes that could be made in order to improve the quality of results.

The lack of quantities data proves to be a flaw in the results, with the high amount of Red Blood Cells making it impossible to count the amount of cells that shrunk, ruptured or maintained their size. In future experiments it is suggested that a much higher dilution of the red blood cells is used so that each shape of Red Blood Cell in the same solution can be counted and a more accurate. Bibliography Bianca, C. (2013). How Blood Works. Retrieved August 24, 2013, from how stuff works: <http://science.housework's.com/life/human-biology/blood> . HTML This website, whilst being a commercial website, was extremely informative and helped with a lot of the science behind the experiment. It had no bias and was aesthetically pleasing.

Com/life/human-biology/blood . HTML This website, whilst being a commercial website, was extremely informative and helped with a lot of the science behind the experiment. It had no bias and was aesthetically pleasing.

It offered information about the author who is a MD. Chemistry Daily. (2007, 04 1). Sodium Chloride. Retrieved 8 24, 2013, from Chemistry Daily: [http://www.asymmetrically.com/chemistry/sodium\\_chloride](http://www.asymmetrically.com/chemistry/sodium_chloride) Chemistry daily is an aesthetically pleasing website with no bias. It was written in 2007, however <https://assignbuster.com/osmosis-and-red-blood-cells-assignment/>

the information correlates with other sources and there isn't a lot of recent data on Sodium chloride. It was an informative and reliable source. Atomic. (unknown). Osmosis: background. Retrieved August 24, 2013, from Atomic: [http:// www. Atomic. Org/app/modules/sites/Osmosis\\_old/Background . HTML](http://www.Atomic.Org/app/modules/sites/Osmosis_old/Background.HTML) Atomic is a website that was extremely useful for background research.

It was an aesthetically pleasing website with no bias and up to date information. It is a reliable and credible resource. It was from a . Org website, making it an organization. Kigali, A. B. (2011). Osmosis. Retrieved 8 24, 2013, from Cell Biology : [http://climatology. Statesmanlike. Org/ node/64](http://climatology.Statesmanlike.Org/node/64) The organization has a lot of informative information to do with osmosis. It is up to date with a credible author. The website site was aesthetically pleasing with links to both other credible data and information about it's author.

Mcgill. (unknown). Blood Laboratory . Retrieved 8 24, 2013, from The McGill Physiology Virtual Lab: [http://www. Medicine. McGill.](http://www.Medicine.McGill.A/physic/blab/blood/referral_n.HTML)

[A/physic/blab/blood/referral \\_n. HTML](http://www.Medicine.McGill.A/physic/blab/blood/referral_n.HTML) This Bessie was extremely useful in finding out information about Red Blood Cells. Whilst there was no date on the website the information correlated with other sources. This site had no bias and was aesthetically pleasing. WebMD. (2010). Heart Health Center. Retrieved August 24, 2013, from WebMD: [http://www. WebMD.](http://www.WebMD.Com/heart/anatomy-picture-of-blood)

[Com/heart/anatomy- picture-of-blood](http://www.WebMD.Com/heart/anatomy-picture-of-blood) Web MD is an extremely useful medical website with lots of up to date information regarding red blood cells. It had credible information and the website had no bias. The format of the website was also aesthetically pleasing. Appendices Appendix 1 Appendix 2