

# DO SPORTS DRINKS REALLY HYDRATE YOU BETTER THAN WATER?

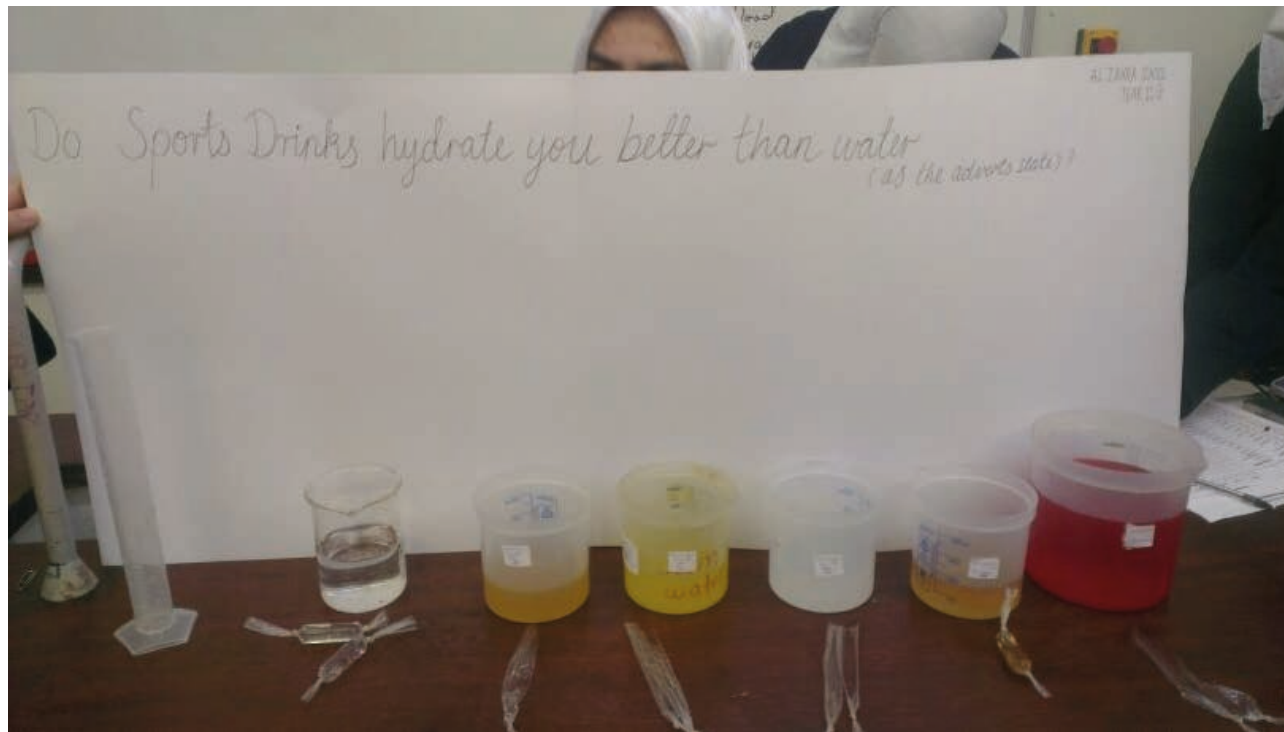


<http://www.youtube.com/watch?v=fJgb1VWKzrA>

Figure 1



# HYPOTHESIS



## VARIABLES

- ◉ Independent variable:
  - Type of drink
- Dependent variable: Measuring the change in mass (g) of the visking tubing containing the different drinks.
- ◉ Control variables:
  - Volume of drink in the visking tubing.
  - Volume of surrounding blood solution
  - Time visking tubing was left in the “blood” solution.

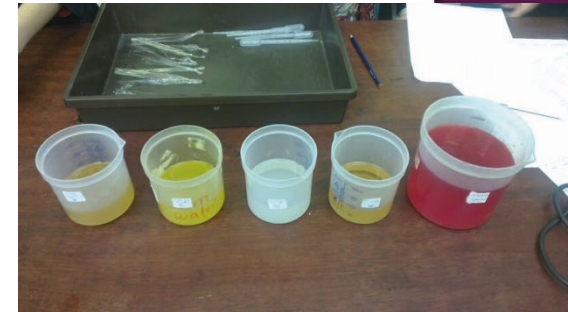
## APPARATUS

- ◉ Measuring cylinder
- ◉ 6 beakers
- ◉ Visking tubing
- ◉ Types of drink:
  - Water
  - Sports drinks A-D
  - Blood solution (22% glycerol to water)
- ◉ Stop watch
- ◉ Weighing balance



## EXPERIMENTAL PROCEDURE

1. Set up 5 beakers with visking tubes inside.
2. Measure a set volume of model blood: ( 33% Glycerol and rest water)
3. Measure the same volume of each drink into the visking tubing in each beaker.
4. Weigh the mass of visking tubing on a scale.
5. Place the visking tubing inside the beaker and leave it in there for five minutes.
6. Repeat for all drinks.
7. Take the visking tubing out and weigh it again and calculate the difference in its mass.
8. Compare the results with the other drinks.





# PRACTICAL

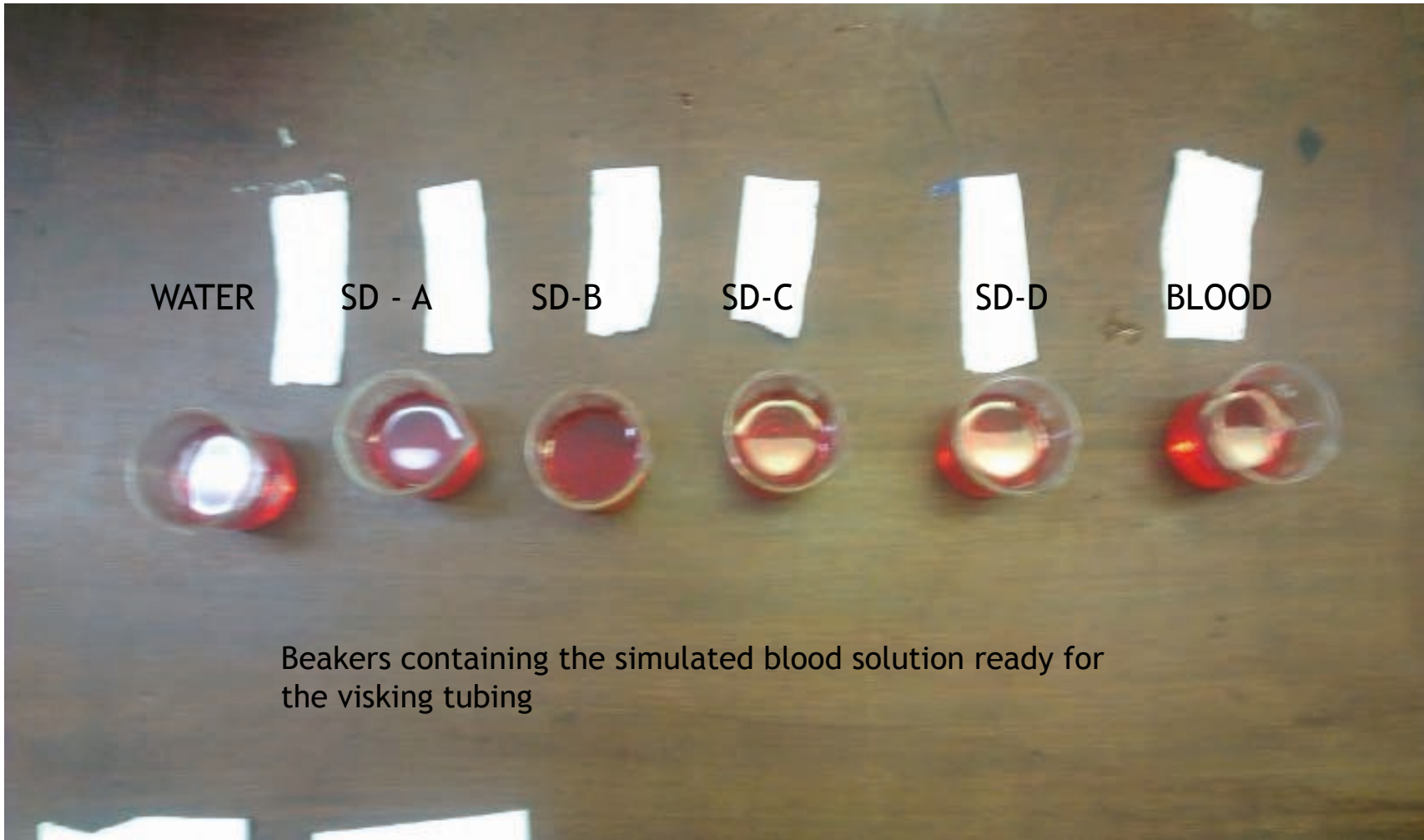


Visking tubing containing water



Different sports drinks, water and simulated blood solutions ready in the visking tubing





Beakers containing the simulated blood solution ready for the visking tubing

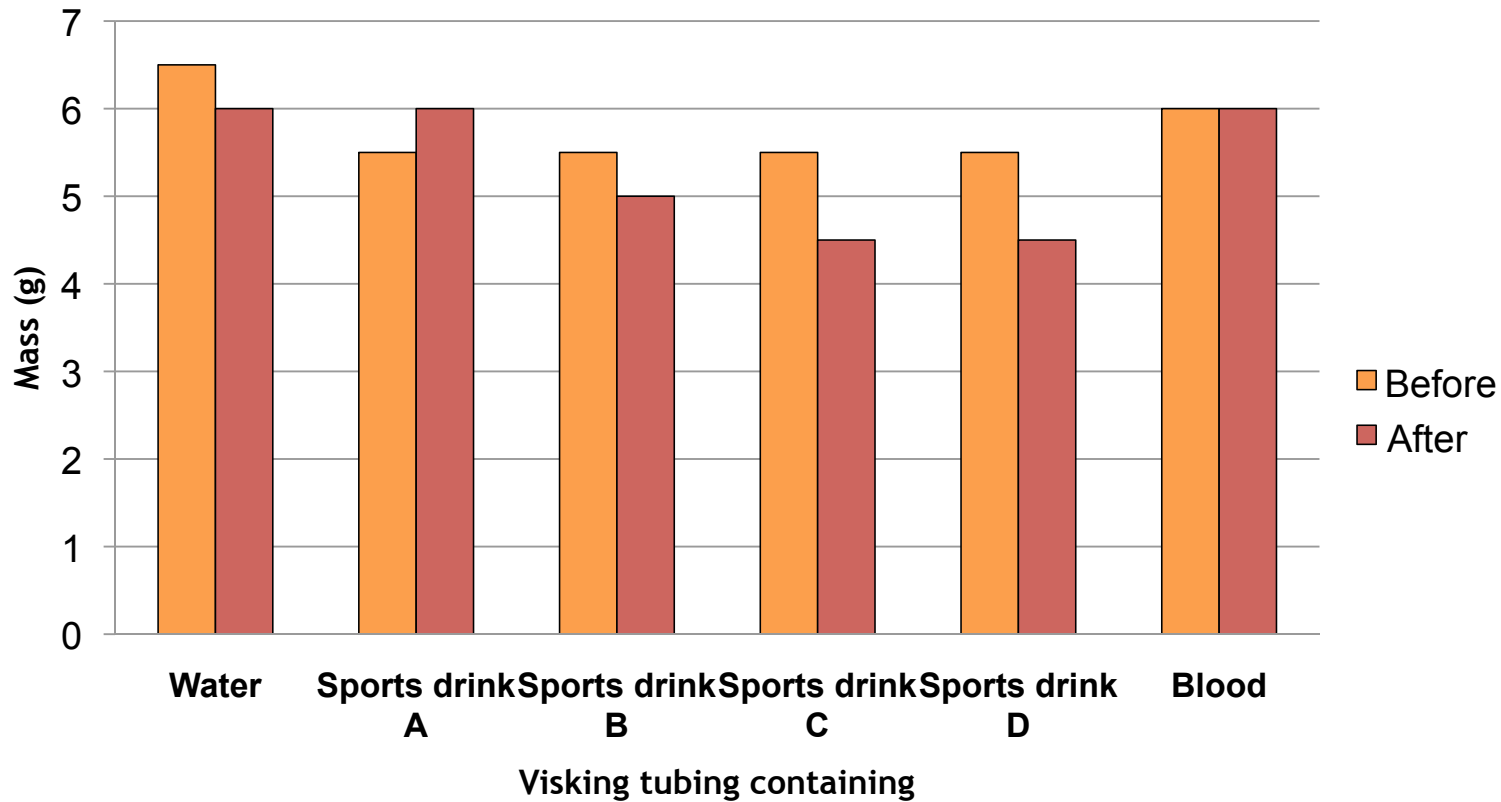
# RESULTS

Type of drink	Mass Before (g)			Mass After 5 minutes (g)		
	Trial 1	Trial 2	Average	Trial 1	Trial 2	Average
Water	7	6	6.5	6	6	6
Drink A	6	5	5.5	6	6	6
Drink B	5	6	5.5	5	5	5
Drink C	6	5	5.5	5	4	4.5
Drink D	6	5	5.5	5	4	4.5
Blood	6	6	6	6	6	6





# A GRAPH TO SHOW THE DIRECTION OF OSMOSIS WHEN DIFFERENT DRINKS WERE SUBMERGED IN THE SIMULATED BLOOD SOLUTION.



# CONCLUSION

- ◉ We were looking to see if sports drinks were really better at hydrating the body than water as advertised by big companies.
- ◉ Four different branded sports drinks were compared to water. A simulation of blood was prepared to mimic what would actually happen in the human body.
- ◉ As a control one of the visking tubes contained blood. This was to ensure that the experiment was working properly. As the concentration of the solution inside and outside of the tubing was the same there should have been equal net movement of water via osmosis in both directions. This was apparent by the results as the mass didn't change in either of the trial runs.



- ◉ The results showed that sports drinks C and D were the best at hydrating, as the water moved into the blood more than with any of the other drinks.
- ◉ Sports drink A actually dehydrated the blood, as water moved out of the blood solution.
- ◉ It was also apparent, that water was not the most effective at hydrating blood. Therefore supporting the claims made by the Sports drinks companies to be true, that, they are better at hydrating the body than water.



THANK  
YOU



## REFERENCES

- ◉ Figure 1

[http://3.bp.blogspot.com/\\_NAzaPXldz1o/THGDgZJC-II/AAAAAAAAABMk/uYxf0QwqfT0/s1600/Healthy+Hydration.jpg](http://3.bp.blogspot.com/_NAzaPXldz1o/THGDgZJC-II/AAAAAAAAABMk/uYxf0QwqfT0/s1600/Healthy+Hydration.jpg)

- ◉ Simulated Blood

<http://williamlabs.com/aabb-topics-guidelines/simulated-blood-products-10-glycerol-in-water-is-not-one-size-fits-all/>

