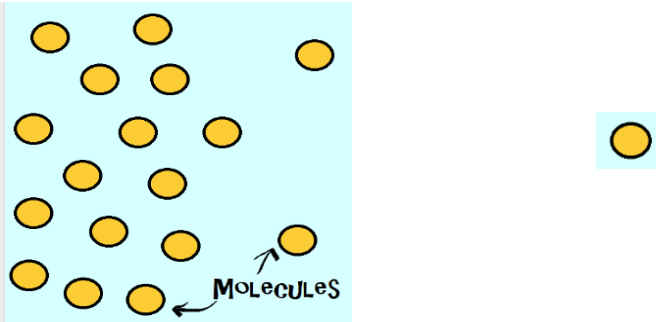
Alejandra Salazar Class Prep 9/8/25

Amoeba Sisters Video Recap of *Osmosis*

1. The below picture represents **diffusion** of molecules. Place the following labels in the diagram**: high concentration**, **low concentration**, and **an arrow** showing the direction that the molecules would travel before equilibrium is reached.

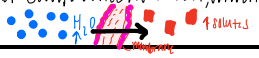


2. **Osmosis** is a type of diffusion, but it involves the movement of water. Similar to diffusion, osmosis is the movement of molecules (water molecules if osmosis) from a high concentration to a low concentration.

The video clip explains that you can also look at water as moving to a hypertonic (higher/greater) ↑↑ concentration of **solute** molecules.

Why can it also be viewed this way?

A low water concentration likely means that there is a ↑GREATER solute concentration → water has a tendency to move to areas w/a ↑higher solute concentration, which = ↓less water concentration



hypertonic: ↑solute, ↓H_2O | hypotonic: ↓solute, ↑H_2O

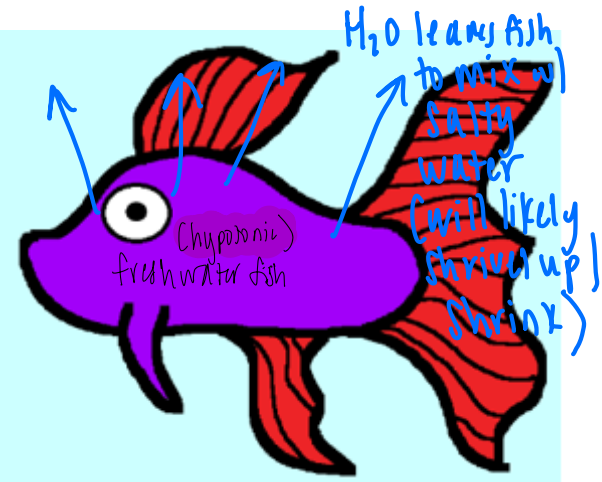
hypo = low

3. **Osmosis Scenario:** The video clip mentioned a disaster scenario of a saltwater fish being placed in fresh water.

What would occur if, instead, a freshwater fish was placed in saltwater?

Your answer needs to have an **arrow** indicating the direction of water flow in osmosis, a label for "**hypertonic**," and a label for "**hypotonic**."

salty water (hypertonic)



4. **Osmosis Scenario:** Fluid movement into the brain after traumatic brain injury can result in dangerous brain swelling.

One treatment that can be used in some of these cases is adding a hypertonic saline saline. You need to decide whether this blank should be the word hypertonic or hypotonic. Remember, you are trying to reduce the excessive fluid in the brain.

Explain your answer:

The ↑ solute concentration in the (saline) IV will help to lower the excessive fluid inside the brain towards it → fluid will drain into the bag (essentially will help to maintain the brain tissue) :)

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The Gummy Bear Mystery

Do you like gummy bears? We do! They are one of our favorite snacks, though we (try to) eat them in moderation because they are high in sugar. Consider that your sister is in a foul mood and decides to dump your gummy bears in your ice water about 30 minutes before you get home.

The gummy bears are greatly enlarged by the time you get home! Your sister and some friends have different viewpoints for what happened. Draw a diagram below showing the enlarged gummy bears in a cup of water. Place the labels "**hypertonic**" and "**hypotonic**" in your diagram. One label should be for the gummy bears and one label should be for the water.

5.

Viewpoints:

A) Your sister said that the sugar left the gummy bears, because the gummy bears were **hypertonic** compared to the water.

B) Your friend Joe said that water traveled into the gummy bears, because the gummy bears were **hypertonic** compared to the water.

C) Your friend Suzy said the sugar went into the gummy bears, because the gummy bears were **hypotonic** compared to the water.

D) Your friend Will said that water traveled into the gummy bears by osmosis, because the gummy bears were **hypotonic** compared to the water.

6. Whose viewpoint is correct in the viewpoint column? A good answer has a good defense! **Defend your answer,** and also **give reasons why the other explanations are incorrect**.

(B.) gummy = hypertonic
Joe would be correct b/c the gummy bear has a higher ↑ concentration of solutes, so water went into it and made it swell up (gummy bears are hypertonic) If the gummy was isotonic, it wouldn't have changed in size. On the other hand, if the gummy was hypotonic, the gummy would've shriveled (dried up) shrunk, which would have meant the water would have had a higher solute concentration, causing the gummy to decrease ↓ in size.

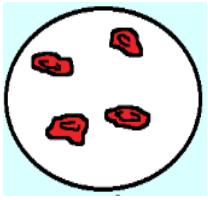
Hypertonic, Hypotonic, or Isotonic? Oh My!

These red blood cells have all been placed in different solutions! Based on their appearance after being placed in these solutions for a period of time, place on each line (A) for **hypertonic**, (B) for **hypotonic**, or (C) for **isotonic**.

7. The cells are hypertonic compared to the hypotonic solution.

SWELLING

8. The cells are hypotonic compared to the hypertonic solution.



SHRINKING

9. The cells are isotonic compared to the isotonic solution.

Stable

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