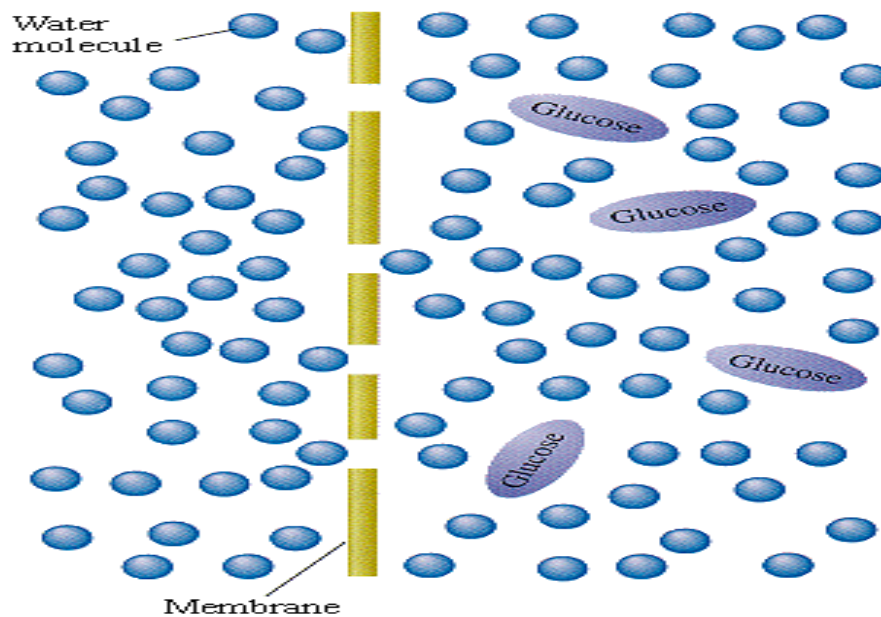


Osmosis:

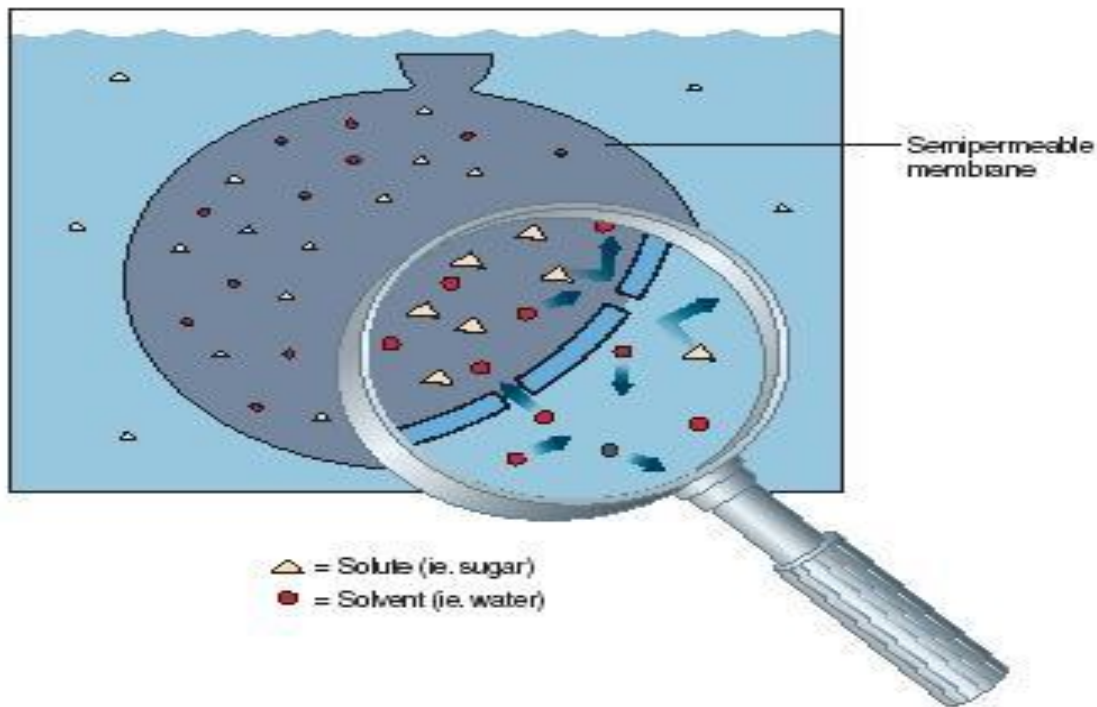
Osmosis: the movement of water molecules from an area of high concentration to an area of low concentration. More specifically, it is the movement of water across a semi-permeable membrane from an area of high water potential (low solute concentration) to an area of low water potential (high solute concentration).



Cell membranes are completely permeable to water; therefore, the environment the cell is exposed to can have a dramatic effect on the cell.

There are three kinds of membranes:

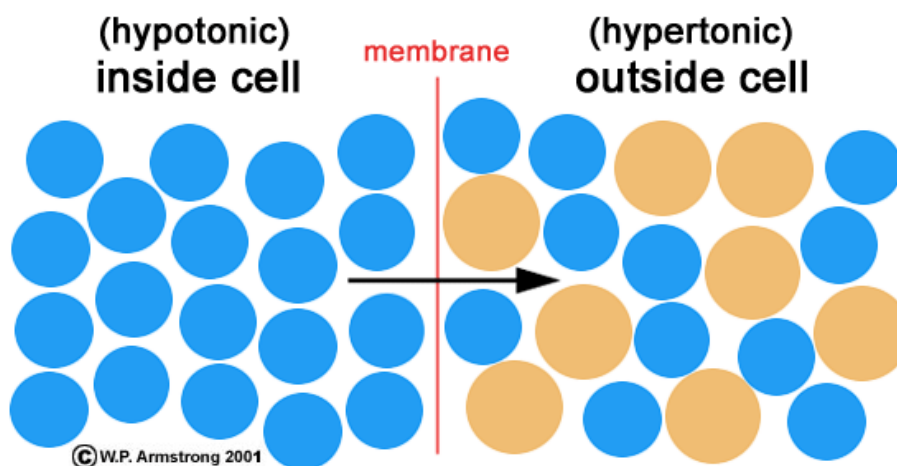
- 1- Permeable membrane: this kind of membrane allows all molecules to pass through it.
- 2- Semi- Permeable membrane: this kind of membrane allows part of the solution (water) to pass through it but not another.
- 3- Selectively permeable membrane: this kind of membrane allows only certain substances to pass through it.



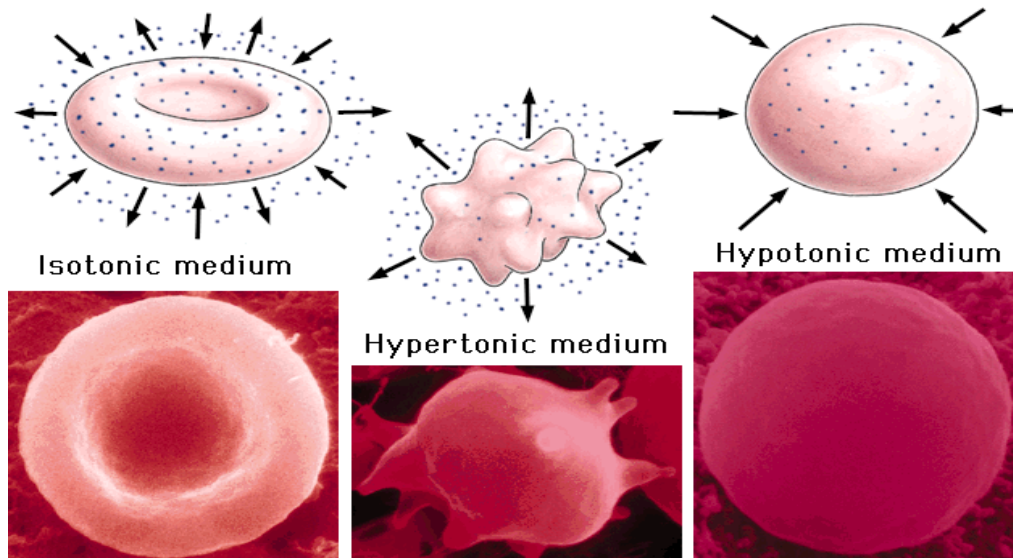
There are three kinds of solution:

1- Hypertonic Solutions: contain a high concentration of solute relative to another solution (e.g. the cell's cytoplasm). When a cell is placed in a hypertonic solution, the water diffuses out of the cell, causing the cell to shrivel.

2- Hypotonic Solutions: contain a low concentration of solute relative to another solution (e.g. the cell's cytoplasm). When a cell is placed in a hypotonic solution, the water diffuses into the cell, causing the cell to swell and possibly explode.



3- Isotonic Solutions: contain the same concentration of solute as another solution (e.g. the cell's cytoplasm). When a cell is placed in an isotonic solution, the water diffuses into and out of the cell at the same rate. The fluid that surrounds the body cells is isotonic.



We can describe these points by using red blood cells with different kinds of solution, RBC used because:

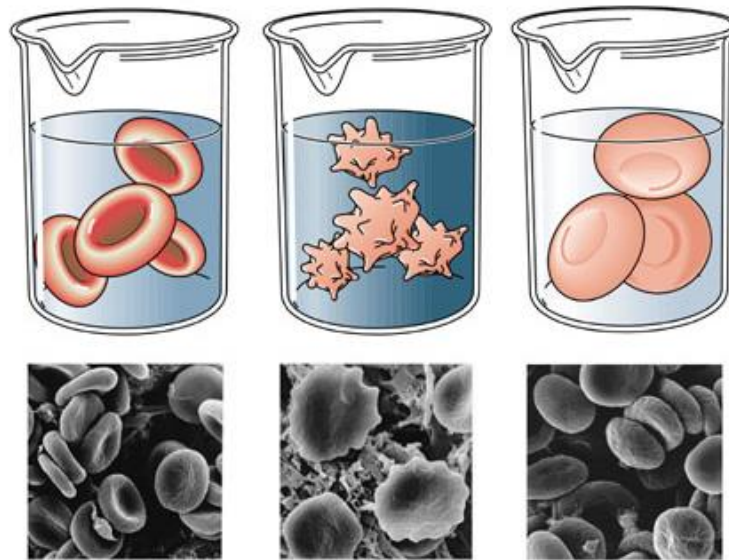
- 1- The plasma membranes of the RBC are very thin and flexible.
- 2- It has continuous cytoplasm.
- 3- The nucleus is absent.

Material and method:

Take three test tubes:

- 1- First one tube add (5cm³D.W).
- 2- In second tube add (5cm³D.W and 0.9% NaCL).
- 3- In third tube add (5cm³D.W and 5% NaCL).

Add a drop of blood to each tube. Prepare a slid from solution and explain the results.



A.
Isotonic solution
(equal concentration
of ions in solution
and cell)

B.
Hypertonic solution
(higher concentration
of ions in solution
than in cell)

C.
Hypotonic solution
(lower concentration
of ions in solution
than in cell)