Osmosis

Osmosis is the diffusion of water through a selectively permeable membrane. Water will tend to move across the membrane until equilibrium is reached.

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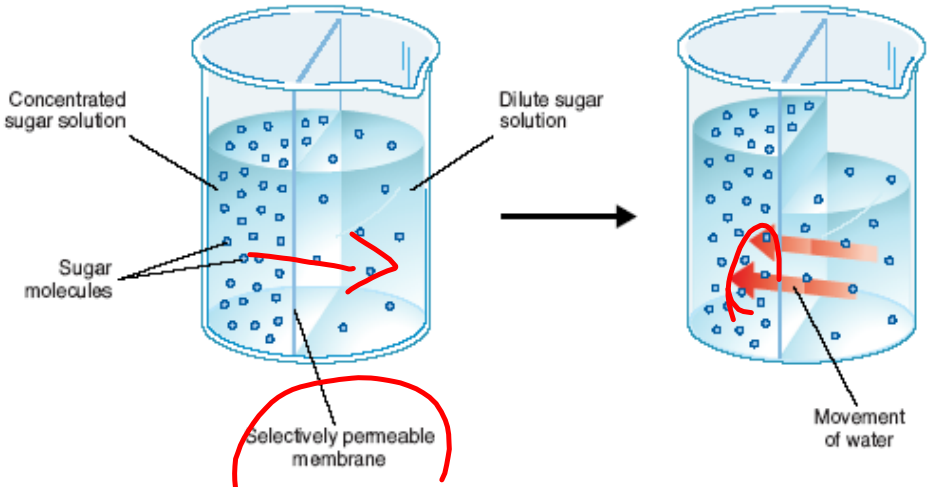
Figure 7–15 **Osmosis is the diffusion of water through a selectively permeable membrane.** In the first beaker, water is more concentrated on the right side of the membrane. As a result, the water diffuses (as shown in the second beaker) to the area of lower concentration.

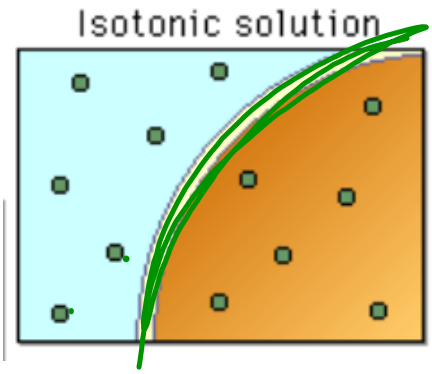


Water will tend to move across the membrane until equilibrium is reached. The concentrations of water and sugar will be the same on both sides of the membrane.

Osmosis

Same Types of Solutions (3)

Isotonic solutions are solutions in which concentration of **solutes** outside the cell is **equal** to the concentration of solute molecules inside the cell.



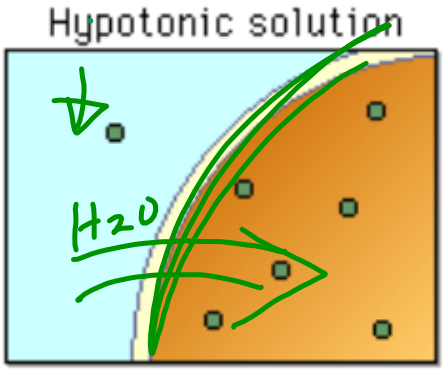
no net change in water movement

☆

less

Hypotonic solutions are solutions in which the concentration of **solutes** outside the cell is **lower** than that found inside the cell.

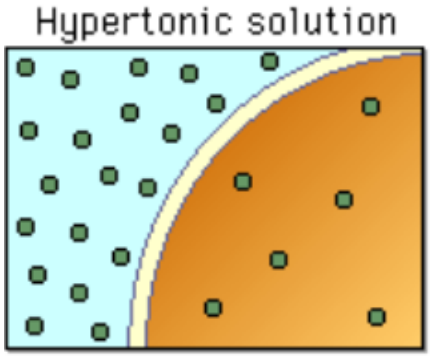
water diffuses into the cell



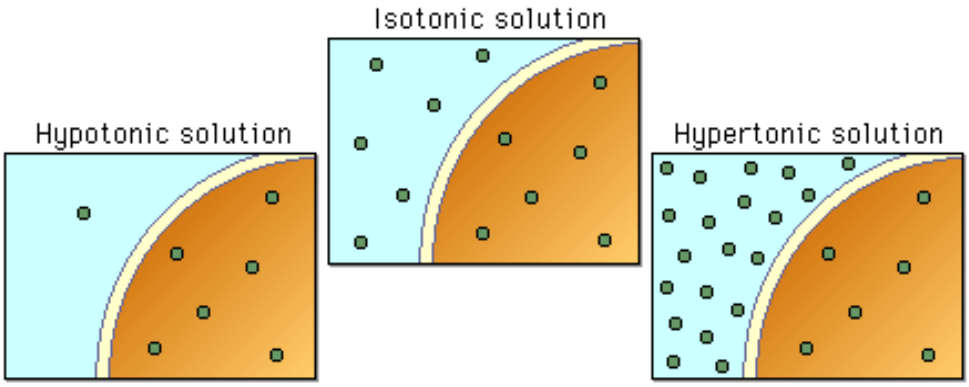
more

Hypertonic solutions are solutions in which the concentration of **solutes** outside the cell is **higher** than that found inside the cell.

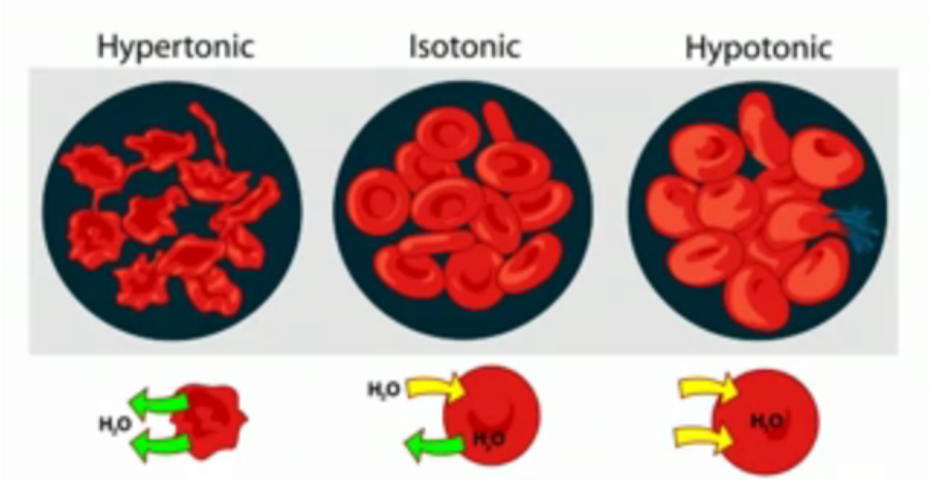
water diffuses out of the cell



Egg Demo - Osmosis


Isotonic solution
Hypotonic solution
Hypertonic solution

RED BLOOD CELLS

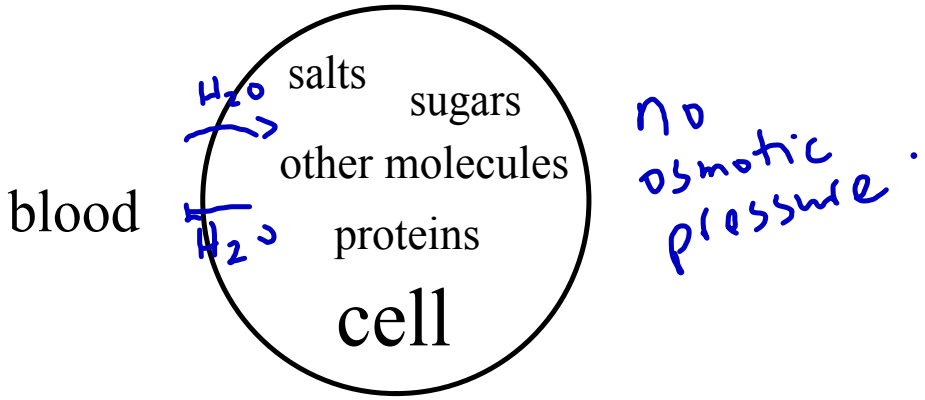


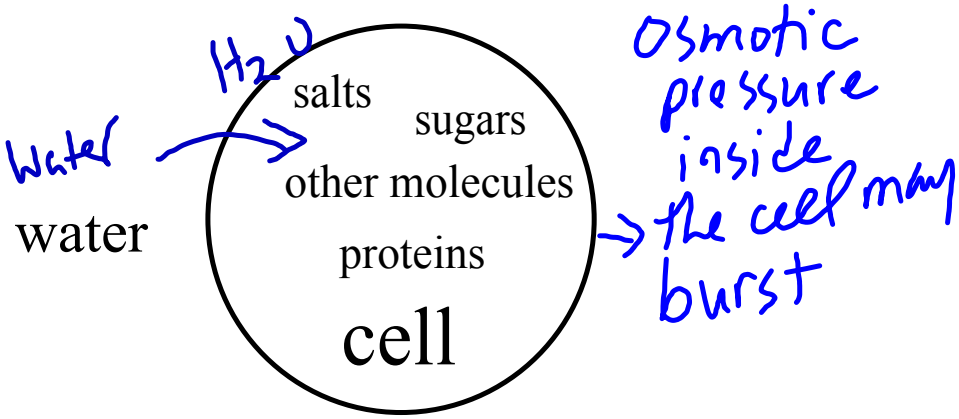
hypertonic

hypotonic

Osmotic Pressure

Osmosis exerts a pressure known as osmotic pressure on the hypertonic side of selectively permeable membranes.





<u>Turgor pressure</u> is the term for osmotic pressure exerted by water against the cell membrane and the nonliving cell wall of plant cells. The cytoplasm is pushed against the wall. This is why plants are rigid.

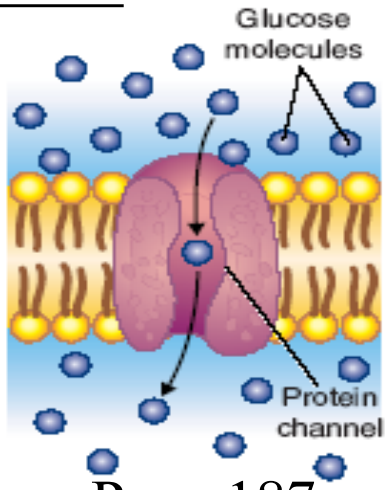
Plants that lose water wilt because their turgor pressure decreases.

Facilitated Diffusion

help

Facilitated diffusion occurs when protein carrier molecules located in the cell membrane can aid in passive transport.

high concentration of solutes -> low



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▲ **Figure 7–17** During facilitated diffusion, molecules, such as glucose, that cannot diffuse across the cell membrane's lipid bilayer on their own move through protein channels instead. **Applying Concepts** *Does facilitated diffusion require the cell to use energy?*

Attachments

Two_Types_of_Cells__Prokaryotic_and_Eukaryotic.asf

Bacteria.asf