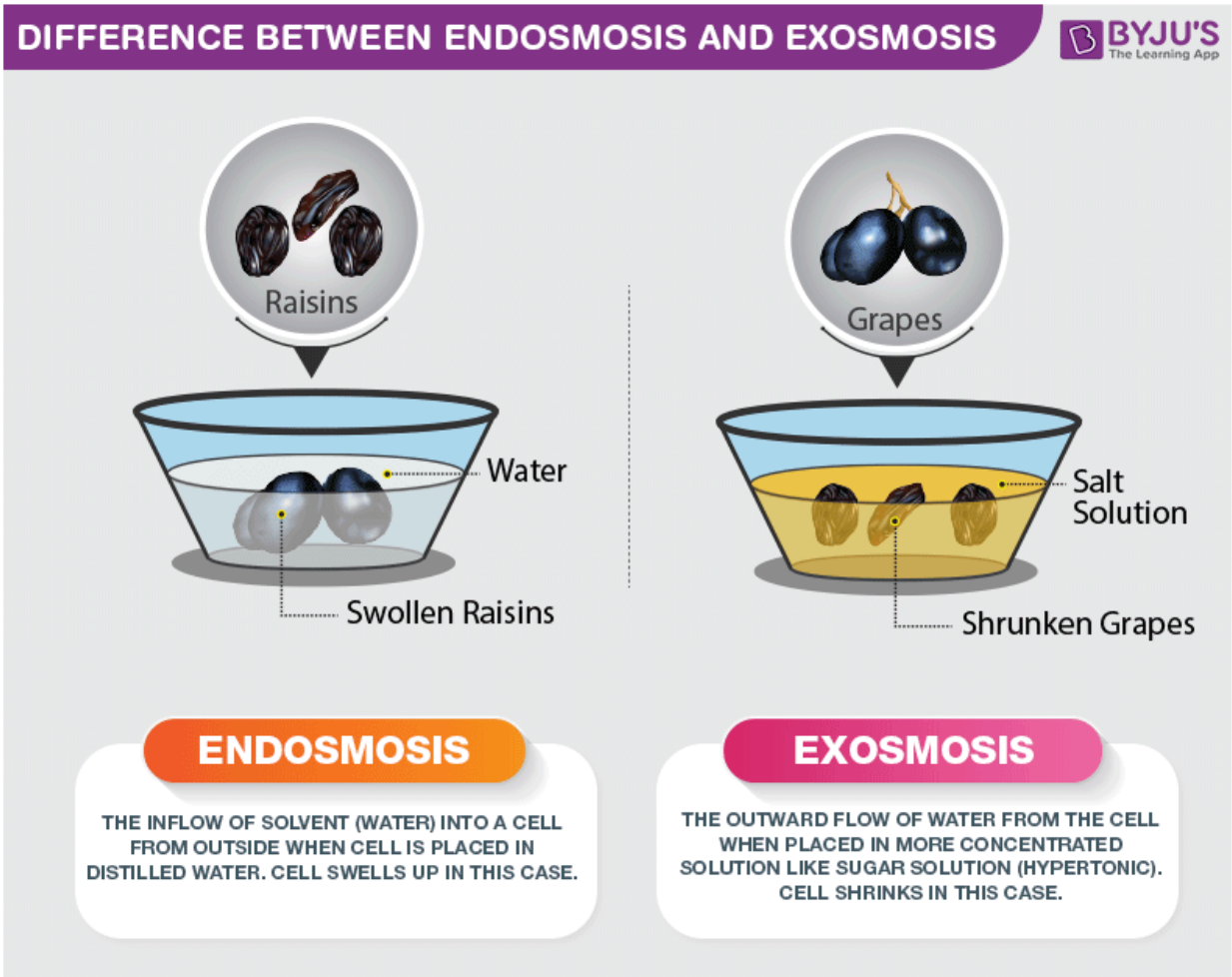
Difference Between Endosmosis And Exosmosis

the difference between Endosmosis And Exosmosis, let's brush up the basics of what exactly is "osmosis." Osmosis is the movement of a solvent (such as water) from a low solute concentration into a solution that has a higher solute concentration through a semipermeable membrane. The flow of this solution stops when equalization happens on both sides of the membrane.

Osmosis is of two types- endosmosis and exosmosis



Endosmosis

When a cell is placed in a hypotonic solution, the water moves inside a cell and swells. This movement of water inside a cell is known as endosmosis. This happens because the solute concentration of the surrounding solution is less than that inside the cytoplasm.

Exosmosis

When a cell is placed in a hypertonic solution, the water moves out of the cell and the cell becomes flaccid. This movement of water out of the cell is known as exosmosis. This happens because the solute concentration of the surrounding solution is higher than that inside the cytoplasm.

Difference Between Endosmosis And Exosmosis

Now that we have an understanding of osmosis, endosmosis and exosmosis, let's find out the striking differences between endosmosis and exosmosis. The major difference between endosmosis and exosmosis are summarized below:

Difference Between Endosmosis And Exosmosis

Endosmosis	Exosmosis
The solvent moves into the cell.	The solvent moves out of the cell.
(Endo = inside)	(Exo = outside)
Osmosis towards the inside of a cell.	Osmosis towards the outside of a cell.
Occurs when there is lower osmotic pressure.	Occurs when the osmotic pressure is higher.
Hypotonic solutions induce endosmosis in cells (distilled water is hypotonic because it contains no solute).	Hypertonic solutions induce exosmosis in cells (Intravenous Fluid is often hypertonic as it has many solutes).
Higher water potential of the surrounding areas when compared to the cytosol (the watery part of cytoplasm in a cell).	Lower water potential of the surrounding areas when compared to the cytosol.
As a result, the cell swells.	As a result, the cell shrinks.
Example: Raisins swell when placed in normal water.	Example: Raisins shrivel when placed in a concentrated salt solution.

Thus we know how the two types of osmosis, endosmosis and exosmosis are different from each other.

Turgor pressure and osmosis

In nature, the cell regulates water movement. Since water is a small molecule it can diffuse across a biological membrane. This passive movement of water molecules across the membrane from an area of low solute concentration to an area of high solute concentration is called *osmosis*. In another definition, osmosis refers to the net movement of water molecules through a

membrane from an area of *higher* water potential to an area of *lower* water potential. A positive net movement of water into the cell is what causes turgidity. In animal cells, excessive osmosis could eventuate to the bursting of the cell. In plants, the cells will not burst. In fact, plant cells need turgor for structural integrity and rigidity.

Rigidity

Turgor pressure is vital to plants, especially to those who live on a terrestrial habitat. This pressure provides them the needed turgidity and rigidity that could help them stay upright against the force of gravity while poising themselves toward the source of light.

Stomates formation

Since turgor pressure is what the guard cells make use of to create stomates, then it is crucial to transpiration, water movement, and photosynthesis.

function of turgor pressure in plants

Nastic movements

Some plants use a similar mechanism employed by stomates to assume a *sleeping position* at nighttime. During the day, these plants are upright to collect light for photosynthesis. At night, their leaves and flowers close and droop, assuming a *sleeping* position. This movement (called *nyctinasty*, a form of nastic movement) apparently is associated with the pulvinar cells at the base of a plant leaf (or leaflet) or at the apex of the petiole. This *drooping* of plants is also seen in *Mimosa pudica* wherein the leaves lose while pulvinar cells gain turgor pressure in response to touch.

Apical growth

Turgor pressure in plants is also implicated in growth. The cell wall expands with the pressure. Accordingly, this pressure is responsible for the apical growth of root tips.[4]

Seed dispersal

In *Ecballium elaterium* (squirting cucumber), turgor pressure is used for seed dispersal. The pressure build-up inside the fruit causes the fruit to detach from the stalk. As a result, the seeds and the water inside are ejected as the fruit falls off the ground.