Body fluids

Body fluids are needed to maintain body temperature, the cell shape and transporting nutrients.
The fluid gained must equal to the fluid lost.
The loss of fluid could be either sensible or insensible. Sensible loss is by urine, wounds and defecation. This loss can be measured. Insensible loss is loss of fluid through the skin and the lungs. This cannot be measured.

Fluid compartments

In an average 70 KG man, 60% of his body weight would be water. 40 per cent of this water is intra cellular. 20 per cent will be extracellular. Of this extracellular fluid, 75% is interstitial fluid –fluid surrounding the cell. The remaining 25 per cent is intravascular fluid known as plasma, the portion of the blood.

Body fluids are made up of ions such as sodium, potassium, calcium and chloride ions. Inside the cell, it is a protein rich environment. It is high in potassium. Outside the cell, there is a high sodium content, high calcium, low levels of proteins and high chloride ion content.

There are two membranes: Capillary wall membrane - which does not allow transport of proteins, but allows the movement of water and ions through its endothelial cells. The cell membrane barrier, also known as the plasma membrane barrier- which allows transport of water only but not transport proteins or ions through the lipid bilayer.

Hydrostatic pressure drives the movement of water in the capillary wall membrane. Osmotic pressure drives the movement of water within the plasma membrane.

Osmosis
Osmosis is the net diffusion of water across selectively permeable membrane. It is measured in osmoles. Wen tonicity decreases, cell lysis may occur. When tonicity increases, cells may shrivel. A normal cell is said to be isotonic. Tonicity describes the effect of solution on water movement. Fluid accumulation is known as oedema.