

Chapter 3 – The Cellular Environment: Fluids and Electrolytes, Acids and Bases

1. Identify the fluid compartments of the body
2. Compare and contrast the effect of forces favoring or opposing the movement of water between body compartments including the following: capillary hydrostatic pressure, interstitial oncotic pressure, plasma oncotic pressure and the interstitial hydrostatic pressure.
3. Identify the direction of solvent movement given the concentrations of the intracellular and extracellular fluids.
4. Describe how the following events contribute to the development of edema: decreased capillary oncotic pressure, increased capillary permeability, increased capillary hydrostatic pressure, and lymph obstruction.
5. Define isotonic (isoosmotic), hypertonic (hyperosmotic), and hypotonic (hyposmotic) water and solute alterations.
6. Identify the terminology associated with the deficit or excess of the following electrolytes: sodium, potassium, calcium, phosphate, and magnesium.
7. Identify the major clinical manifestations of abnormal levels of sodium, potassium, calcium, phosphate, and magnesium.
8. Describe the role of pH, $p\text{CO}_2$, and HCO_3^- in evaluating acid-base imbalances.
9. Identify the stimulus and compensatory mechanisms for metabolic acidosis, respiratory acidosis, metabolic alkalosis, and respiratory acidosis.
10. Differentiate between metabolic acidosis, respiratory acidosis, metabolic alkalosis, and respiratory acidosis given appropriate clinical testing data.
11. Describe what is meant by the “anion gap” and explain the significance of an abnormal anion gap in metabolic acidosis