Interactive Physiology Worksheet:

Fluid, Electrolyte, and Acid-Base Balance: Electrolyte Homeostasis

1. Electrolytes enter the body in the food we eat and the beverages we drink. What is the main way they leave the body? Kidneys

2. **Movement of electrolytes and water between intracellular and interstitial fluid**

   a. Electrolytes move across the cell membrane with (along) their concentration gradient through channels and against their concentration gradients through ATP & ion pumps.

   b. Electrolyte concentrations affect the movement of water between the intracellular and interstitial fluid. Increasing the sodium concentration in the interstitial fluid will cause water to move out of the cell. This process is called osmosis.

3. **Factors that affect the movement of water between the plasma and the interstitial fluid**

   a. Plasma proteins are too big to move out of the vessel wall; therefore, they would cause water to move into the plasma. This is due to the osmotic effect of the proteins, called colloid osmotic pressure.

   b. The blood pressure in the vessels forces fluid out of the blood vessels. This force is called hydrostatic pressure.

4. The exchange of fluid between the interstitial fluid and plasma is known as bulk flow.

   a. At the arterial end of the capillary, hydrostatic pressure is greater than the colloid osmotic pressure and fluid moves out of the plasma.

   b. At the venous end of the capillary, colloid osmotic pressure is greater than the hydrostatic pressure and fluid moves into the plasma. colloid osmotic

5. **Altering the sodium concentration**