Sodium and Hypertension

 Sodium and potassium carry a positive charge.

o   Potassium is the principle positively charged intracellular ion.

o   Sodium is the principle positively charged extracellular ion.

·      Chloride is the principle negative charged extracellular ion.

·      Salt or table salt: sodium chloride.

·      Functions of electrolytes:

o   Help regulate fluid balance.

o   Essential for generating and conducting nerve impulses.

·      Regulating electrolyte balance:

o   Thirst and salt appetite help ensure that appropriate proportions of salt and water are taken in.

o   Kidneys are the primary regulator of concentrations in the body.

§  Blood pressure regulation.

·      Hypertension: high blood pressure. Most common disease associated with electrolyte imbalance.

o   Called “the silent killer” because no outward symptoms.

o   Can lead to atherosclerosis, heart attack, stroke, kidney disease, and early death.

o   Caused by an increase in blood volume and/or narrowing of the blood vessels.

o   Treated with diet, exercise, and medication.

o   Healthy blood pressure: 120/80 mm of mercury or less.

o   Prehypertension: blood pressure between 120/80 and 139/89 mm mercury.

o   Hypertension: blood pressure consistently 140/90 mm mercury or above.

o   Risk Factors:

§  Genetics: family history of the disease.

§  Race: more common in African Americans.

§  Age: increases with age.

§  Overweight, particularly excess fat in the abdominal region.

§  Lack of physical activity.

§  Heavy alcohol consumption.

§  Stress.

o   Public health concern: 1/3 of American adults age 20 and older are diagnosed with it but only 53% of those diagnosed have their blood pressure under control.

·      Diet and blood pressure:

o   High sodium diets associated with hypertension.

o   Diets high in potassium, calcium, and magnesium are associated with lower average blood pressure.

o   The DASH diet: Dietary Approaches to Stop Hypertension eating plan; shown to reduce blood pressure significantly

§  Plenty of fiber, potassium, magnesium, and calcium.

§  Low in total fat, saturated fat, and cholesterol.

§  Lower in sodium than the typical American diet.

Meeting Electrolytes Needs

·      2300 mg sodium or less for adults: 2015-2020 Dietary Guidelines and UL

·      1500 mg sodium or less: people with prehypertension and hypertension.

·      Average US intake of sodium: 3440 mg/day.

o   Salt is 40% sodium and 60% potassium by weight