The Pumps and the Pipes

* Homework Assignment 2
* Flow:
  + Right Atrium
    - 0 mmHg
  + Right Ventricle
    - 5mmHg
  + Lungs
    - 30mmHg
  + Left Atrium
    - 0-5mmHg
  + Left Ventricle
    - 5mmHg
  + Body & systems
    - 120mmHg
* Cardiac Output
  + Calculating
    - Cardiac Output (CO)
      * Volume of blood pumped by each ventricle in 1 minute
        + 5L/m
    - Stroke Volume (SV)
      * Volume of blood ejected from ventricle with each beat
    - Heart Rate (HR)
      * CO = HR x SV
    - Left Ventricular Ejection Fraction (LVEF)
      * Percent of blood ejected to Aorta of the total capacity of the Left Ventricle
      * Eg:
        + 70ml / 120ml
  + Percentage
* Conduction System
  + Nodes
    - Sin
* Variations in Heart Rates
  + Bradychardia
    - Slow heart rate
  + Tachychardia
    - Fast heart rate
  + Sinus arrhythmia
    - Faster heart rate when breathing in (heart thinks there’s too much blood)
  + Premature beat (extrasystole)
  + Heart Sounds
    - Lubb: ventricular contraction
    - Dubb: ventricular relaxation
      * Sudden closure of semilunar valves
  + Signal
    - Sinoatrial node
      * Indicates signal
    - Passes through atria
      * Stimulates contraction
    - Atrioventricular (AV)
      * node delays signal
    - Atrioventricular bundle
      * ferries the signal to interventricular septum
    - Bundle branches convey signal to apex
    - Pukinje fibers
      * carry signal up through ventricles, stimulating contraction from the bottom upwards
  + Autonomic Nervous System (ANS)
    - Sympathetic nervous system Increase heart rate
    - Parasympathetic system (CN X) slows the heart rate
  + Endocrine system
    - Epinephrine and thyroxine increase heart rate
  + Stroke volume is increased by the sympathetic nervous system
* Causative factors classification
  + - Congenital heart disease
      * Present at birth
      * Fetal defects
    - Rheumatic heart disease
      * Originates from rheumatic fever in childhood or youth
    - Coronary artery disease
      * Involves the walls of blood vessels
    - Heart failure
      * Deterioration of the heart tissue
      * Usually results from high blood pressure
* Prevention of Heart Disease
  + Risk factors that cannot be modified
    - Age
    - Gender
    - Hereditary
    - Body type
  + Risk factors that can be modified
    - Smoking
    - Physical inactivity
    - Weight
    - Diet
    - Blood Pressure
    - Diabetes
    - Gout