Congestive Heart Failure: Pathophysiology

- Typically caused by
  - Coronary artery disease
  - Hypertension
  - Valve damage
- Which then
  - Decreases Stroke volume and Cardiac Output
- Compensations include
  - Increased heart rate
  - Structural Changes
    - Dilated Cardiomyopathy: heart gets bigger but gradually loses its leverage
    - Hypertrophic Cardiomyopathy: heart gets thicker but gradually gets stiffer
  - Kidneys sense low cardiac output
    - Release renin, which results in a rise in Angiotensin II. Angiotensin II stimulates release of aldosterone from the adrenal cortex.
    - Aldosterone results in salt and water reabsorption/retention in the kidney, causing Volume Overload
- Volume Overload
  - **pulmonary congestion is caused by left heart failure**—traffic jam of backed-up blood waiting to enter poor-pumping left heart increases pressure in lungs and causes plasma to enter tissues (pulmonary edema). Think LEFT = LUNGS
  - **systemic congestion is caused by right heart failure**—traffic jam of backed-up blood waiting to enter poor-pumping right heart causes peripheral edema.

- Treatment typically consists of medications to decrease blood pressure and lessen the load on the heart. Diuretics (water pills), beta blockers, calcium channel blockers, etc. may be prescribed.