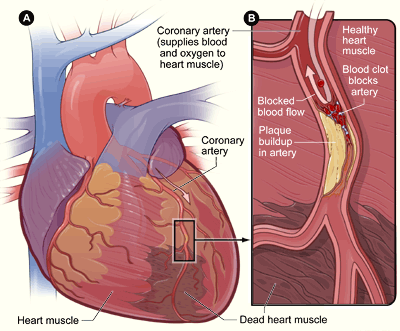
What is Heart Disease?

The more general question is what is CVD. CVD includes heart disease. Heart disease may occur due to disease or disorder of the vasculature or disease or dysfunction of the ANS, as well as diseases of the heart muscle itself.

Diseases of the vasculature tend to cause the heart to work harder and “wear-out” faster; and include:

* hardening of the arteries, known as atherosclerosis;
* narrow arteries, causing high BP and hypertension;
* clogged arteries surrounding the heart, reducing blood supply to the heart itself, known as coronary artery disease (CAD);
* peripheral arteries with walls that are too thick or that are clogged with cholesterol or blood clots, known as peripheral artery disease (PAD);
* veins in the legs that are not functioning properly, with bad valves or “lazy walls” due to weakened smooth muscle, slowing blood return to the heart, causing what is known as orthostatic dysfunction, which can lead to afternoon fatigue and cognitive impairment, evening edema, varicose or spider veins, and eventually dizziness upon standing.
  + The most common form of orthostatic dysfunction is orthostatic hypotension (OH). OH is defined as a significant drop in BP upon standing or sitting from a supine position.

P&S dysfunction may cause heart disease, by causing the heart to work harder or not enough, and include:

* Peripheral autonomic dysfunction, or neuropathy (PAN), which may contribute to:
  + PAD by not controlling the peripheral arteries properly, allowing them to be
    - too narrow, leading to Hypertension, or
    - too wide, leading to Hypotension;
  + Orthostatic dysfunction, including OH, allowing the peripheral veins to be too wide slowing blood return to the heart, or preventing the valves from engaging, causing the blood to pool in the lower legs and feet;
* Advanced Autonomic Dysfunction (AAD), also known as Diabetic Autonomic Neuropathy (DAN) in diabetics has many symptoms depending on the organ system affected. For the cardiovascular system, AAD, a mild lack of proper control of the cardiovascular system, may contribute to:
  + Orthostatic dysfunction, including OH;
  + PAD, with Hypertension or Hypotension;
  + Palpitations, including the feeling of abnormal heart beats with normal EKG (including Holter monitoring, event monitoring, or stress test);
  + Tachycardia from too much S-activity;
  + Bradycardia from too much P-activity.
* Cardiovascular Autonomic Neuropathy (CAN), the more advanced stage of AAD, also has many symptoms depending on the organ system affected. For the cardiovascular system, CAN, a severe lack of proper control of the cardiovascular system, may contribute to:
  + Hypertension from too much S-activity;
  + Hypotension from too little S-activity;
  + Tachycardia from too much S-activity;
  + Bradycardia from too much P-activity;
  + CAD due to improper ANS control of the coronary arteries;
  + Irregular heartbeats, known as Arrhythmia, including atrial fibrillation, atrial flutter, , premature atrial contractions (PACs), premature ventricular contractions (PVCs), and supraventricular tachycardia (SVT).
* Heart Diseases:
  + *Arrhythmias* are cause by improper electrical conduction pathways around the heart;
  + *Valve dysfunction* prevents the heart from pumping blood to the body efficiently;
  + *CAD or Coronary Heart Disease (CHD)*, blockages of coronary arteries due to plaque build-up from cholesterol, prevent portions of the heart from receiving proper blood supplies and may lead to
    - *Ischemia* – a type of heart attack where a portion of the heart muscle stops working because of lack of blood (oxygen), but blood is returned before that portion of the heart muscle dies.
    - *Infarct* – a type of heart attack where a portion of the heart muscle stops working because of lack of blood (oxygen), and blood is not returned soon enough and that portion of the heart muscle dies.
  + *Heart Failure* is a condition in which the heart can't pump enough blood to meet the body's needs. In some cases, the heart can't fill with enough blood. In other cases, the heart can't pump blood to the rest of the body with enough force. Some people have both problems. The term "heart failure" doesn't mean that your heart has stopped or is about to stop working. Heart failure develops over time as the heart's pumping action grows weaker. Heart failure may cause fluid to build up in the feet, ankles, legs, liver, abdomen, and the veins in the neck and may also cause shortness of breath and fatigue or tiredness.
    - *Congestive Heart Failure (CHF)*, a weakening of the heart muscle from injury, disease, or becoming “worn-out.” This weakness leads to build-up of fluid in the sac around the heart that protects the heart from rubbing against the rib cage (known as the pericardium). If this fluid is not removed fast enough, the heart is “strangled” and can no longer beat. This fluid may also fill the lungs and surrounding tissues.
  + *Cardiomyopathy (CMP)*, is a “sickness” of the heart muscle. CMP may be caused by infections of the heart muscle, direct injury or trauma to the heart muscle, may be present at birth (congenital), or may be caused by heart valve dysfunction, chronic high BP, arrhythmias, ischemia, infarction, or over-work from vascular or ANS disorders.