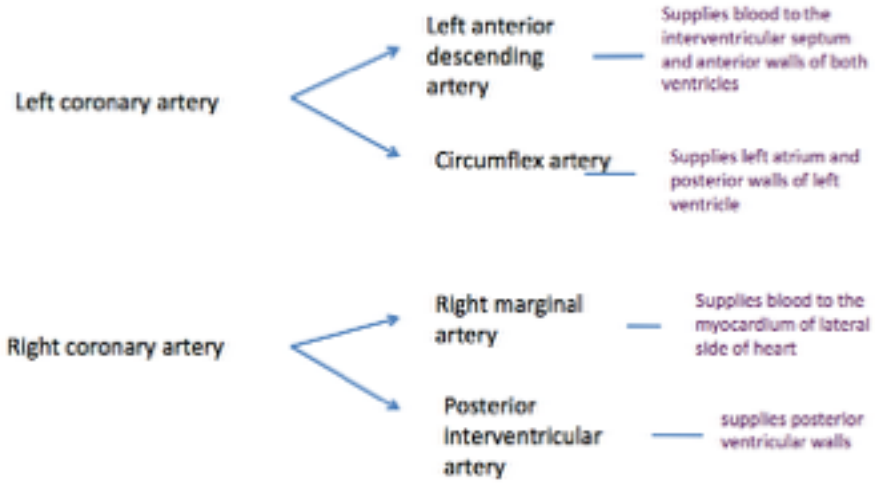
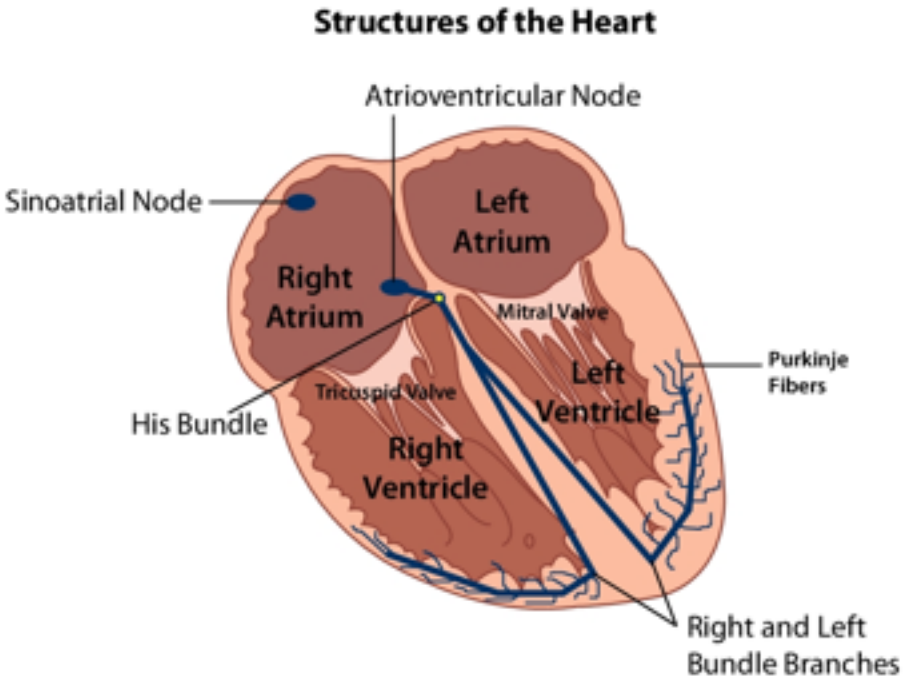
HV 3 notes
Week 1

- **Acute myocardial infarction**
- **Coronary circulation**

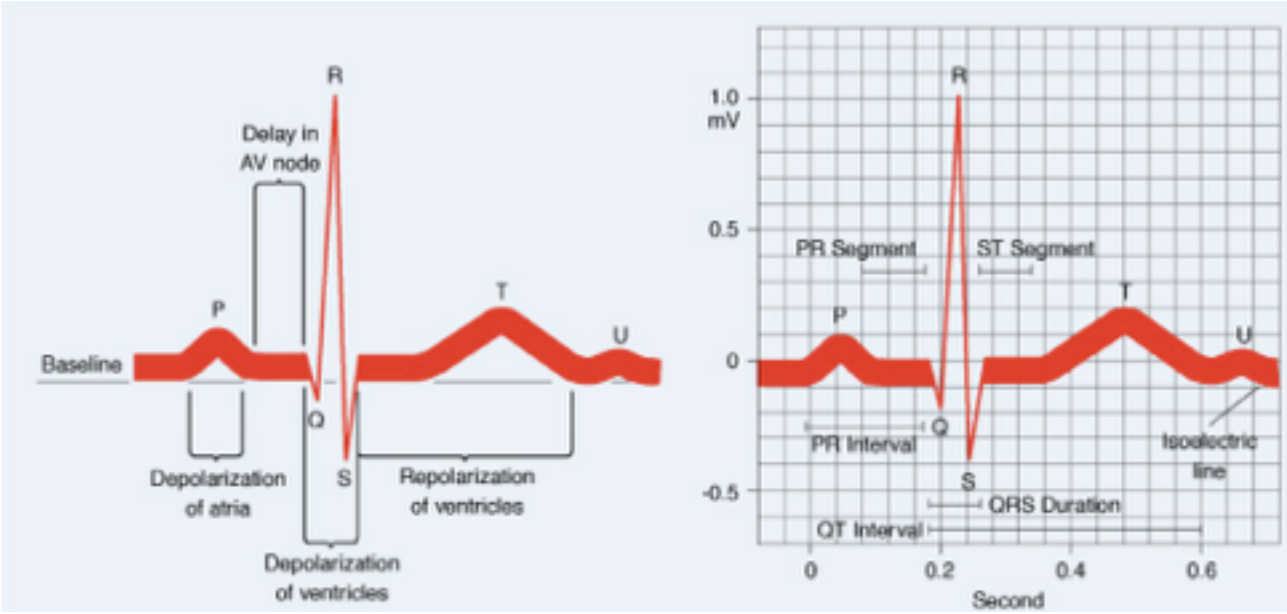
- Right and left coronary arteries that branch from the ascending aorta deliver oxygenated blood to the myocardium
- The cardiac veins collect blood from the heart muscle and empty it into the coronary sinus which returns the blood to the right atrium.
- tamponade: blood fills in pericardial sac and heart can't pump properly
- stable angina: with exercise
- unstable angina: at rest
- variant angina: at rest in cycles



- **Conducting system**
- SA node natural pacemaker initiates all heart beat and determine HR, electrical impulses from SA node spread throughout both atria causing them to contract
- The AV node serves an electrical gateway between atria and ventricle, delaying the impulse to ventricles to ensure atria have ejected all blood into ventricles before they contract
- AV bundle/bundle of His are divided into L and R which conduct impulses towards apex of heart
- Signals then passed to purkinje fibres turning upwards and spreading throughout myocardium



- **ECG**
- **P:** atrial depolarisation (when atria full of blood, SA node causes electrical signals to spread through atria and cause them to depolarise)
- **PQ:** time taken for signal to travel from SA to AV node
- **QRS:** ventricular depolarisation (atria repolarise but this is hidden by QRS)
- **ST:** plateau in myocardial action potential (when ventricles contract & pump blood)
- **T:** ventricular repolarisation
- **U:** purkinje repolarisation
- cycle repeats with every heart beat
- vertical (mm) is voltage (mV) e.g. 10mm=1mV
- horizontal (sec) is time
- small square=0.04 sec
- large square= 0.2 sec



- **Sinus tachycardia:**
  - fast HR (no change in electrical conduction)
- **Sinus bradycardia:**
  - slow HR
- **Atrial fibrillation**:
  - no p wave, irregular HR. Electrical conduction causes atria to fibrillate (contract fast and irregularly) and blood isn't pumped from atria to ventricle properly
- **Ventricular fibrillation:**
  - rapid, irregular HR. Electrical impulses cause ventricle to quiver instead of pumping blood
  - CPR & shock if unconscious (4 minutes)
- **Ventricular tachycardia:**
  - improper electrical conducting causing rapid HR beginning in ventricles
  - can develop into VF
  - give anti-arrhythmia (amiodarone), can sedate
  - shock, CPR if unconscious
- **Asystole (flatline)**
  - not shockable as there is no electrical conduction at all
  - unconscious, heart stops, no electrical activity
  - CPR adrenaline
- **Pulseless electrical activity**
  - not shockable as electrical system is working