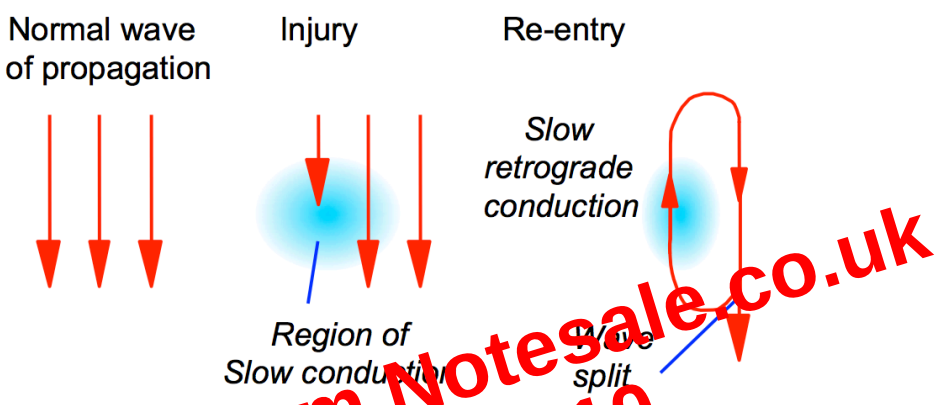
Arrhythmias

- Arrhythmia - 1 region of the heart out of step with another

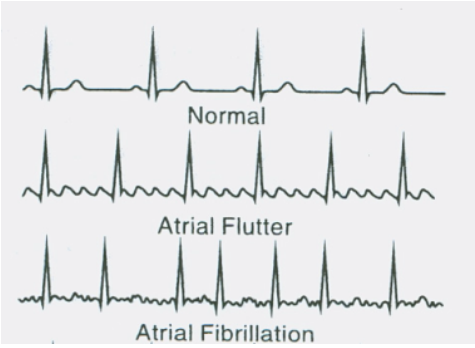
- Normal Heart beat:
  - Starts in SA node (dispersed zone of pacemaker cells)
- If heart beat originates elsewhere, result of:
  - Abnormal pacemaking (automacity) (ectopic foci - other pacemaker areas)
  - Failure of conduction to stop at the end of a heart beat (reentry)
- Caused by localised slow conduction
- Wave-front meander and become ragged
- Wave-front may split into two
- May then circle around and re-enter its original pathway

- Re-entry can initiate an arrhythmia if injury (ischaemia) causes localised slow conduction



- Middle diagram: Slower wave working through injury can re-activate the faster 2 waves which in turn can reactivate the slower wave (after their respective refractory periods)

Atrial Arrhythmias

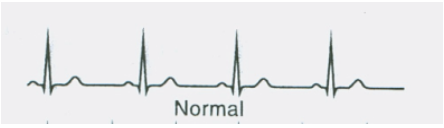


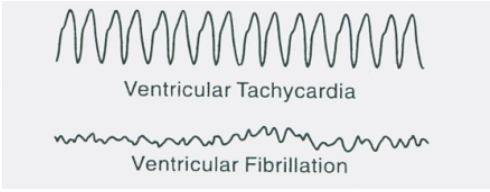
---> 50-100 bpm

---> 250-350 bpm

---> 350-600 bpm

Ventricular Arrhythmias





- Ventricular Tachycardia can lead to Ventricular Fibrillation
- Fibrillation doesn't allow blood to flow properly --> end organ hypoxia and ischaemia etc.