

**“Overview of Arrhythmias”**  
**Arrhythmia Alliance patients day**  
**Heart Rhythm Congress October 2017**

**Dr Julian Boullin**

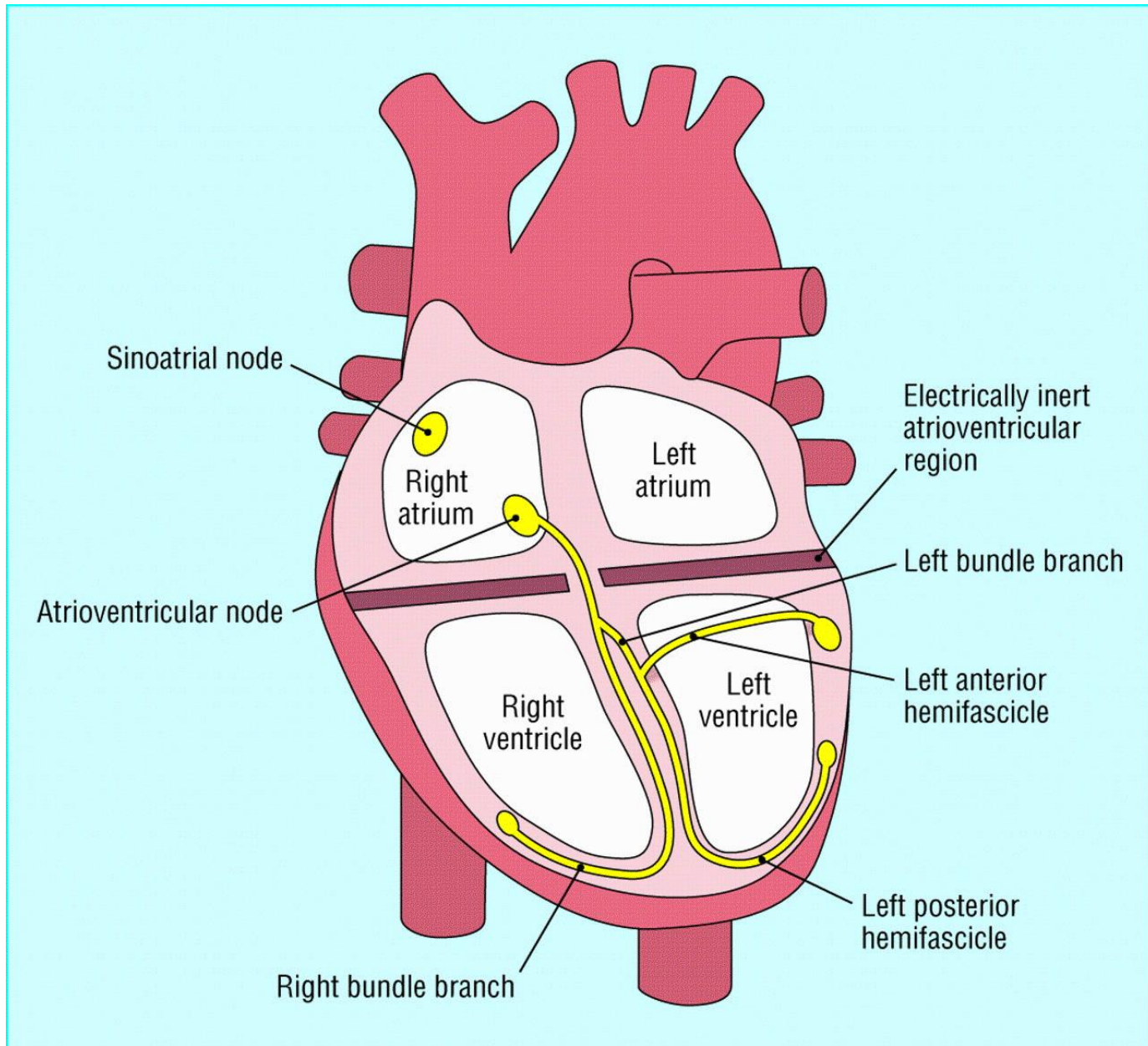
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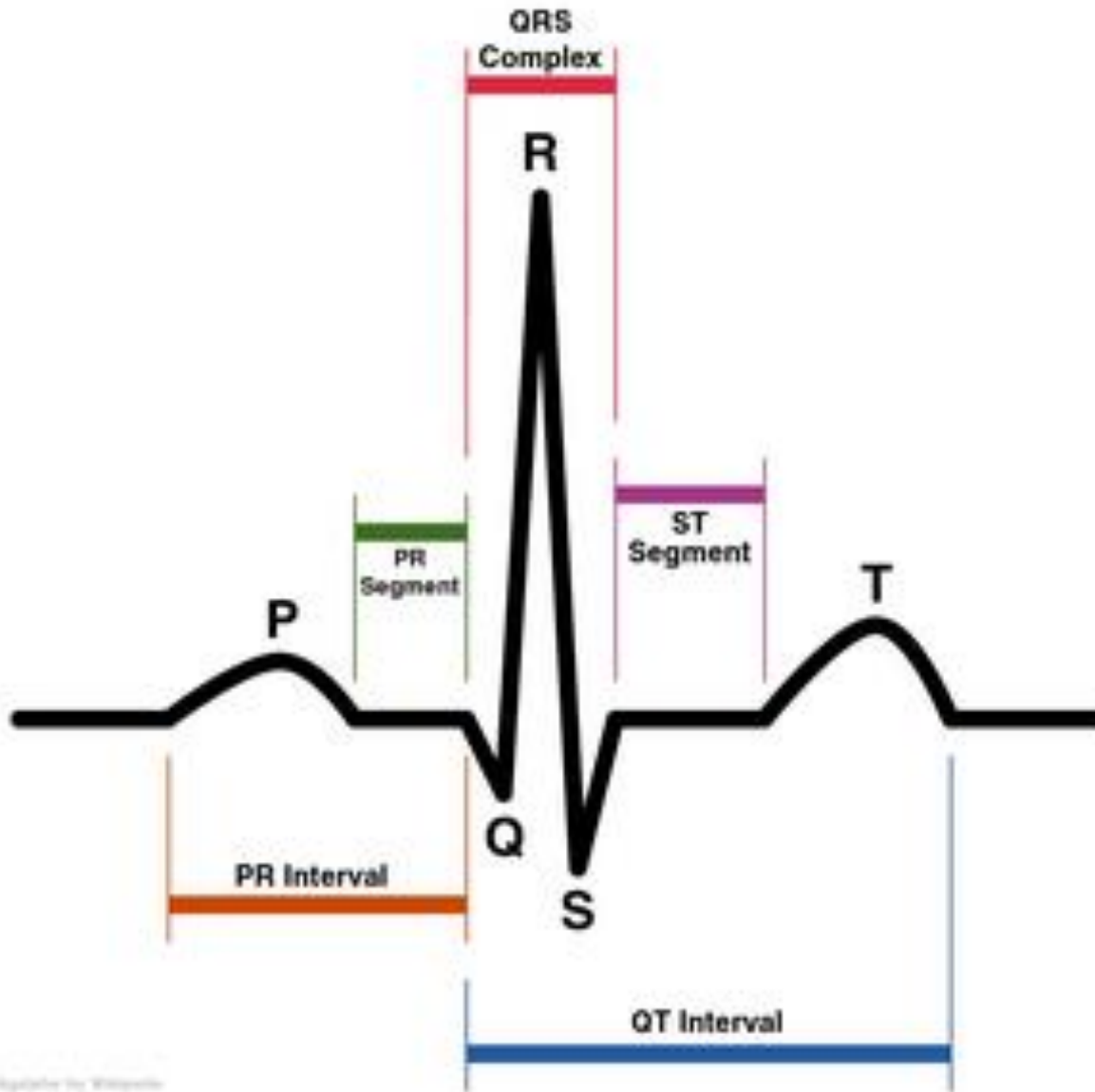
# What is an arrhythmia?

- A change from the normal sequence of electrical impulses i.e. abnormal beats
- The electrical impulses may happen too fast, too slow, or erratically – causing the heart to beat too fast, too slowly, or erratically
- When the heart doesn't beat normally, it may not pump blood as effectively and so may cause symptoms
- Range from completely harmless to life-threatening

# Normal "Sinus" rhythm

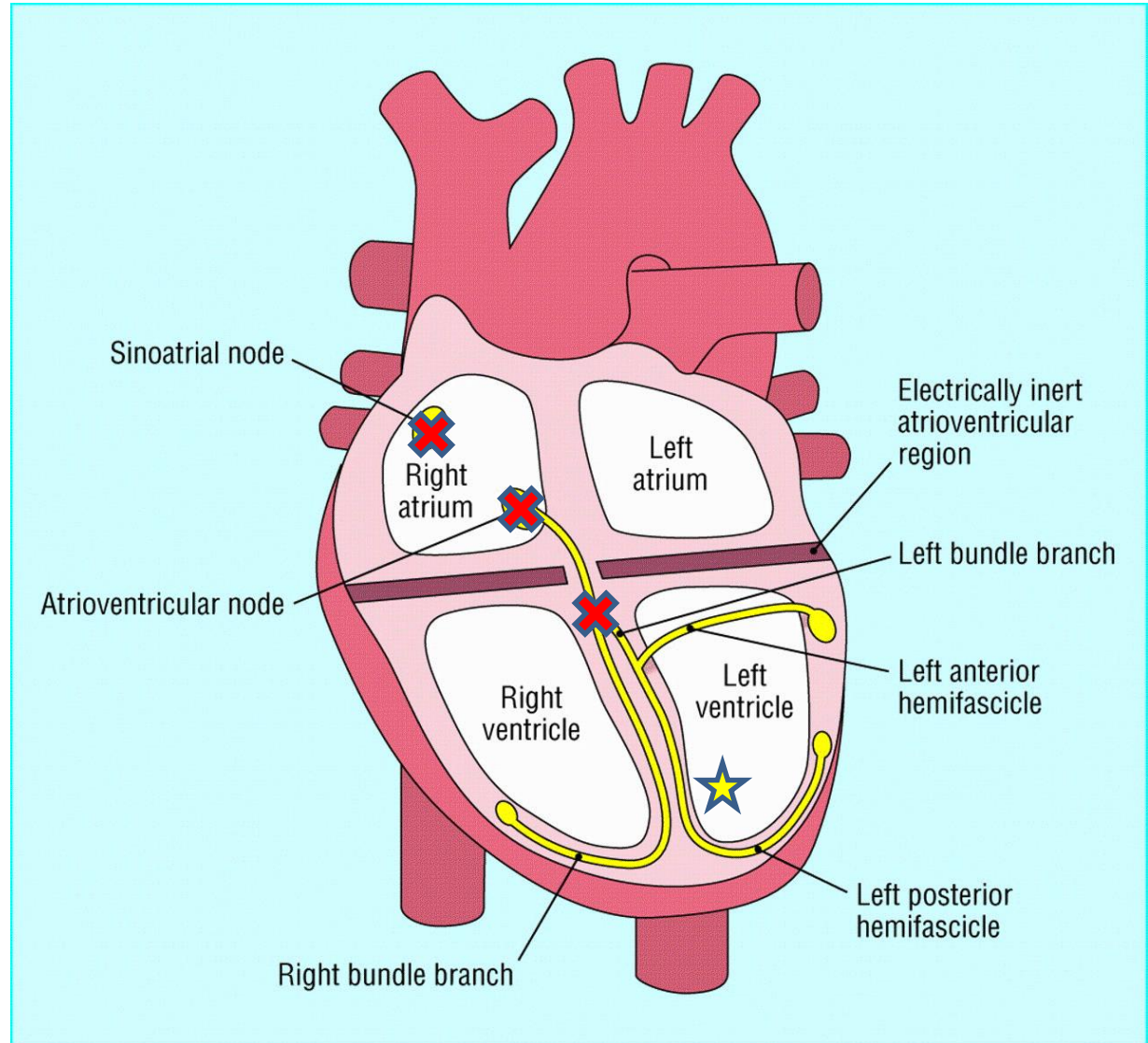


# The ECG



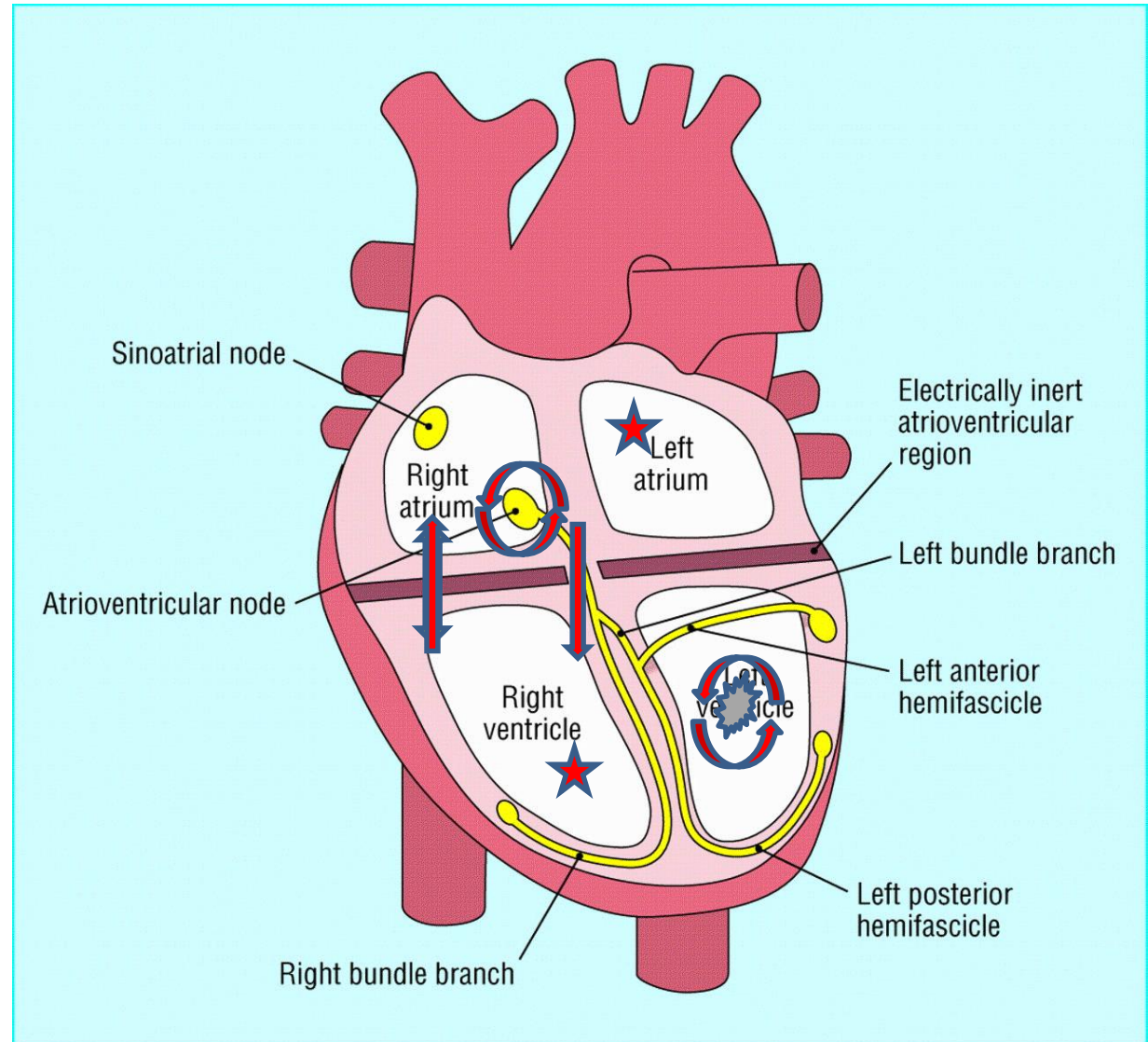
# Bradycardia

- Bradycardia is when the heart rate is slow <60bpm
- Heart Block – when conduction signals pass weakly from the atria to ventricles or completely fails to transmit



# Tachycardia

- Tachycardia is when the heart rate is fast >100bpm
- Can occur in the atria, ventricles or as a circuit between both
- Focal
- Re-entry

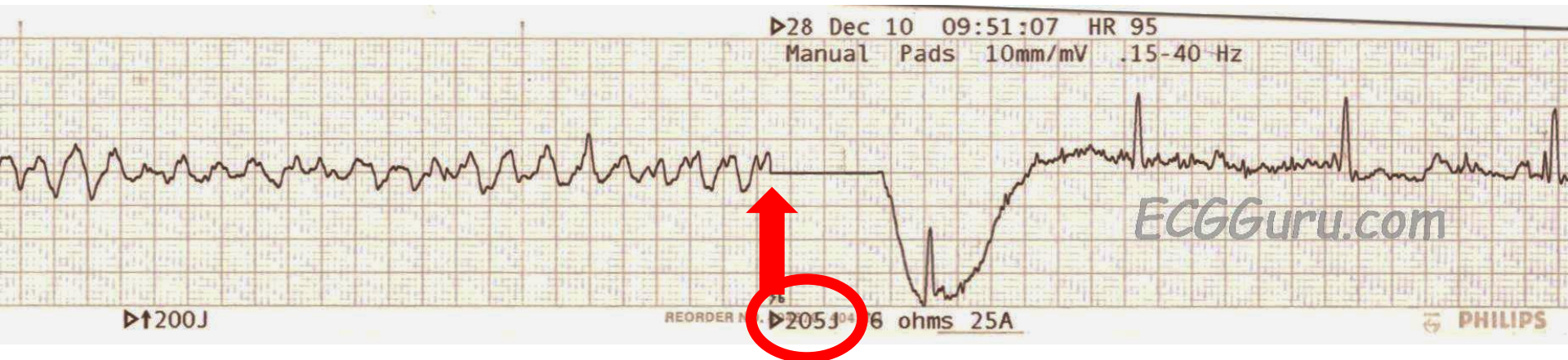


# Fibrillation

- The rapid, irregular, and unsynchronized contraction of muscle fibers
- Can occur in the atria or ventricles

# Ventricular Fibrillation (VF)

- Erratic signals cause the ventricles to quiver
- The heart can not pump blood and “cardiac arrest” will follow with collapse and sudden death unless this is immediately corrected

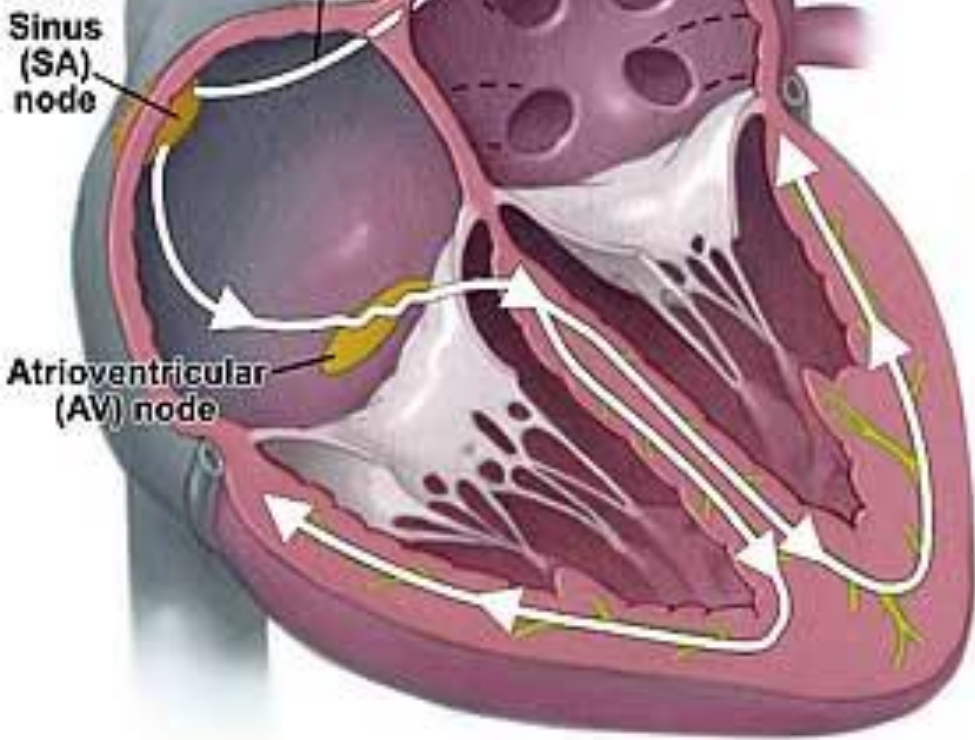




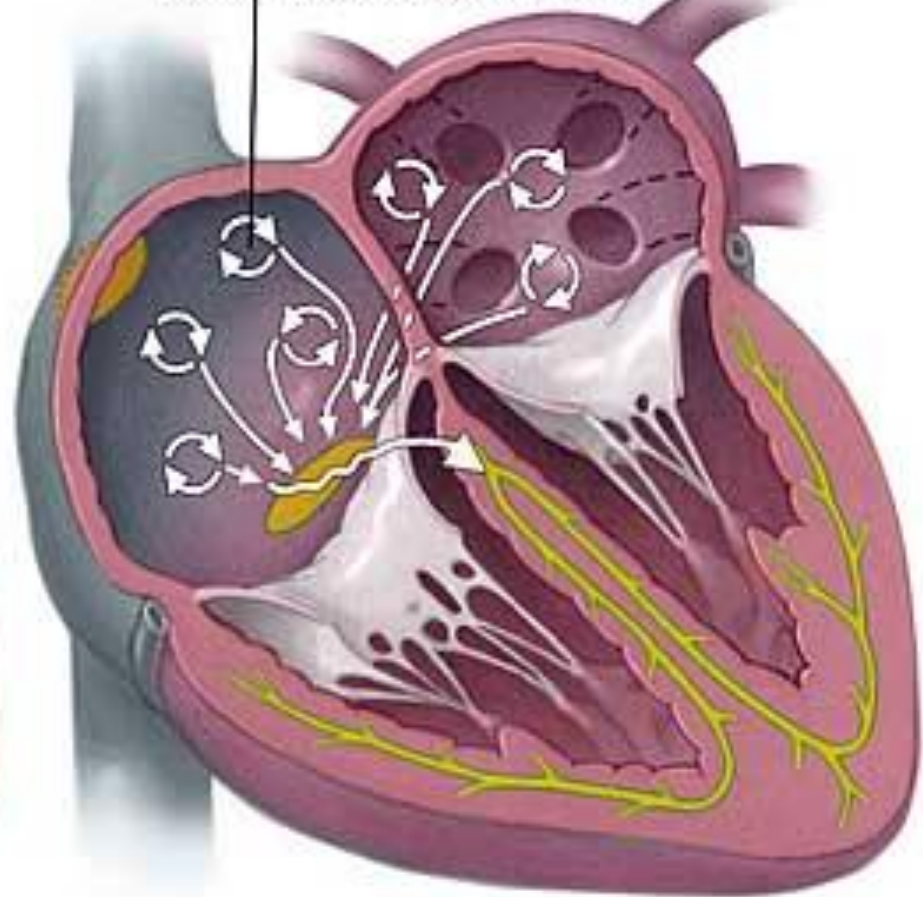
# Atrial Fibrillation

- The commonest arrhythmia
- Increasingly so with age
- The atria fibrillate and send irregular and usually more rapid impulses to the ventricles causing an irregular and fast pulse
- Symptoms vary with some people being free of any symptoms whilst others may have very limiting symptoms such as palpitations, tiredness and breathlessness

**Normal electrical pathways**



**Abnormal electrical pathways**



**Normal sinus rhythm**



**Atrial fibrillation**



# Diagnosis

- Symptoms
- ECGs
- ECG monitors
  - AKA Holters/ambulatory ECG's/wearable ECGs
- Implanted devices

# Arrhythmias - Conclusion

- Can be fast, slow or irregular
- Can occur if:-
  - The heart's natural pacemaker develops an abnormal rate or rhythm
  - The normal conduction pathway is interrupted
  - Another part of the heart takes over as pacemaker
- Can involve the atria, ventricles or both
- Range greatly
  - asymptomatic to severe symptoms and,
  - not harmful to life-threatening