

ECG Events

- P-Wave:
 - ~ *atria depolarisation*
- QRS-complex:
 - ~ *ventricular depolarisation*
 - ~ *largest spike due to larger muscle mass of ventricles*
- Atrial repolarisation:
 - ~ *hidden by the QRS complex*
 - ~ *it is relatively small*
- T-Wave:
 - ~ *ventricular repolarisation*

ECG Events During the heart cycle

SA node & Atria depolarisation

AV-node depolarisation

Bundle of His depolarisation

Ventricle depolarisation

Other ECG Intervals

- P-R interval (0.12 – 0.21 sec):
 - ~ *time for action potentials to be transmitted to ventricles*
- QRS interval (0.07 – 0.11 sec):
 - ~ *depolarisation of ventricles*
 - ~ *extended time intervals suggest AV node / Bundle of His delays*
- S-T segment (0.05):
 - ~ *an isoelectric period after ventricle depolarisation*
- Q-T segment (0.3 - 0.4 sec):
 - ~ *ventricle depolarisation plus repolarisation time*

ECG following a Heart Attack

- Myocardial infarctions (heart attacks) are caused by blockages of coronary arteries
 - ~ *blood is prevented from reaching cardiac muscle (ischemia) causing necrosis*
 - ~ *ischemia depresses the ST segment*
- The ECG due to an injury (infarct) usually has an elevated ST segment
- Damage is permanent so any altered ECG characteristic will remain with the patient:
 - ~ *doctors can easily tell if a patient has had a heart attack in the past*

Sinus Node Dysfunction and AV block

- Problems with generating AV node action potentials (APs) or failure to transmit APs to the AV node
- Bradycardia: ~ *slow heart rate*
- Sinus node arrest: ~ *no p-wave*