Analyse et Capture du Mouvement

TP 3 – Electrocardiogramme

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Rappels

Analyse et capture du mouvement :

- Mesure des grandeurs cinématiques et dynamiques (position, vitesse, accélération, forces) via des systèmes comme VICON, CODAMOTION, Centrales Intertielles (IMU), LeapMotion, Plateforme de Force, etc.

- Mesure des grandeurs physiologiques (rythme cardiaque, volume et fréquence respiratoires, électromyogramme, activité cérébrale, chaleur…) avec des appareils de mesure adéquat.

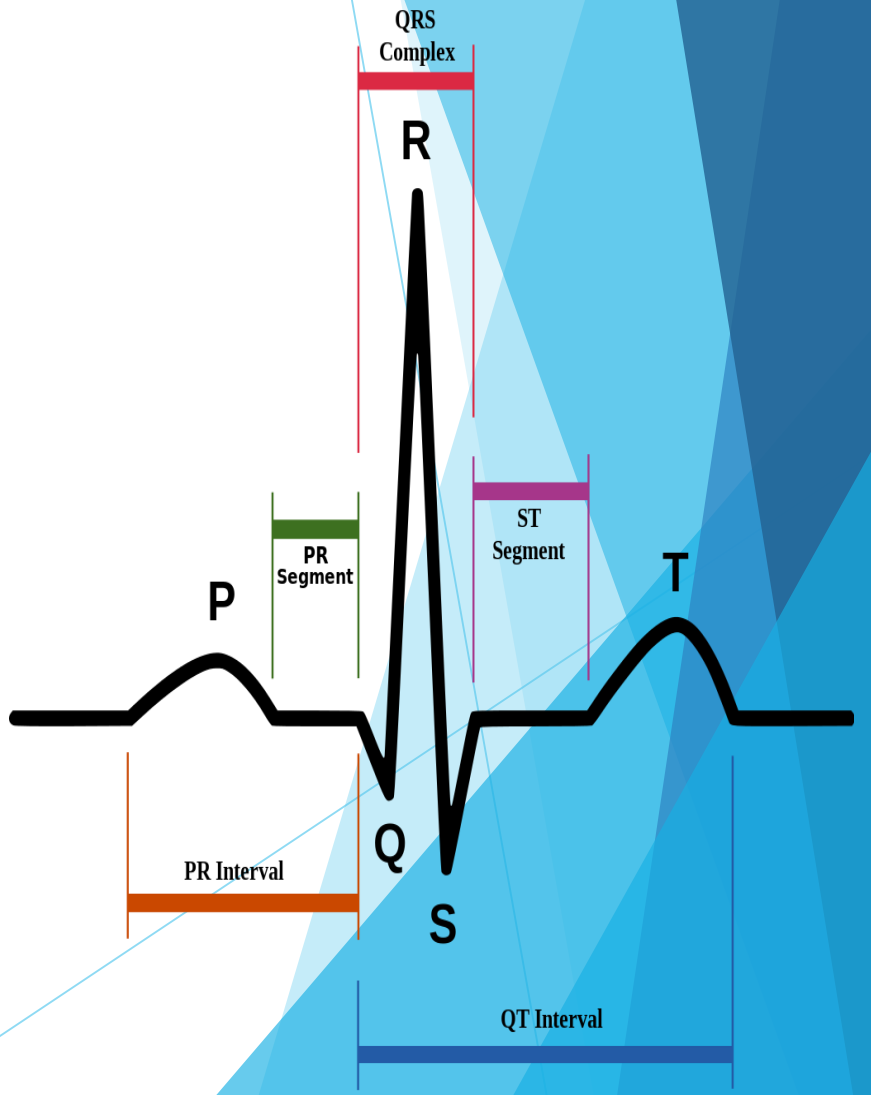
Électrocardiogramme : qu'est-ce ?

Outil de mesure permettant de déterminer :

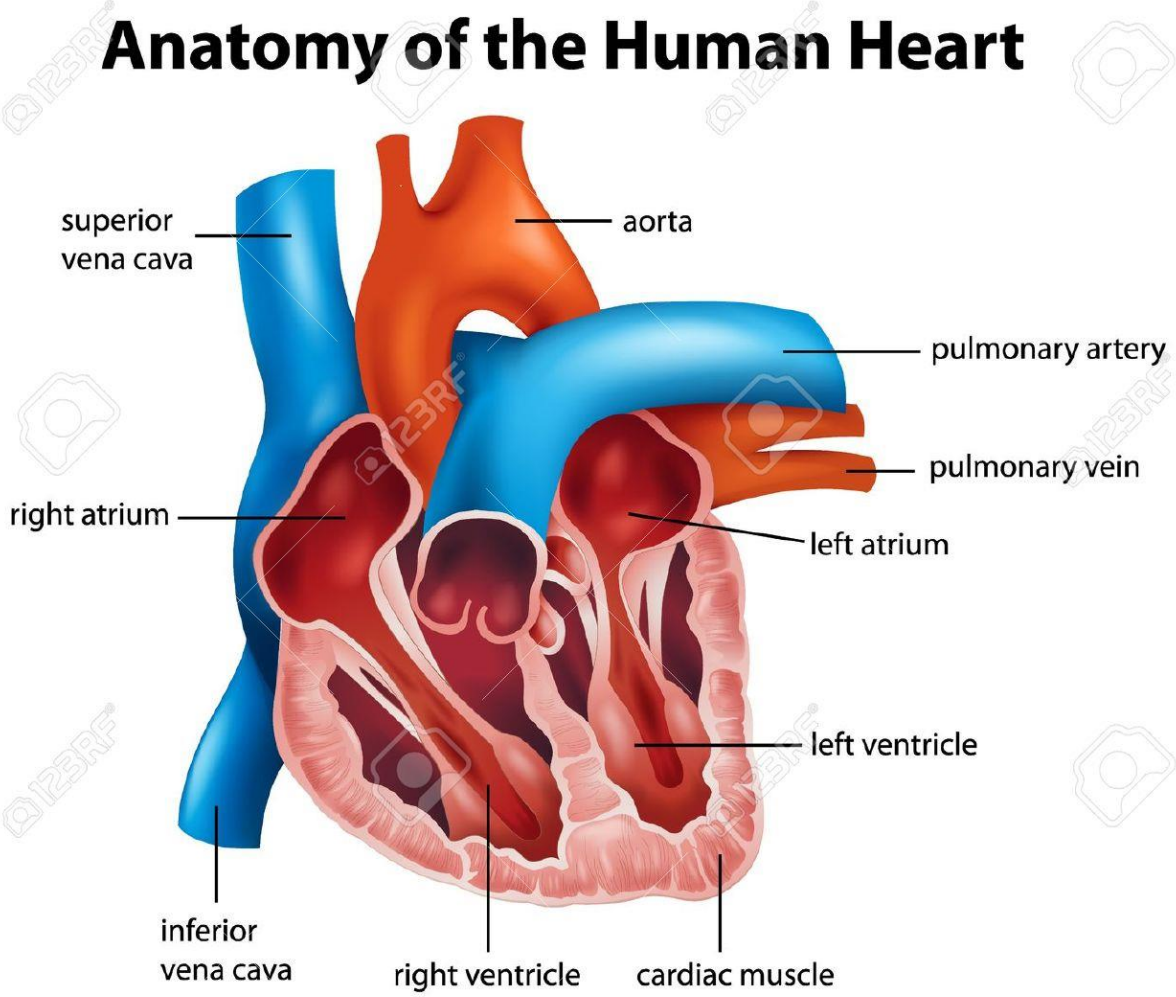
- l'allure temporelle des complexes cardiaques QRS
- la détection des ondes P et T
- la fréquence cardiaque

The normal duration (interval) of the QRS complex is 0.08 and 0.10 seconds (80 and 100 ms). When the duration is between 0.10 and 0.12 seconds it is intermediate or slightly prolonged. A QRS duration of greater than 0.12 seconds is considered abnormal.

The T wave occurs after the QRS complex and is a result of ventricular repolarization. T waves should be upright in most leads

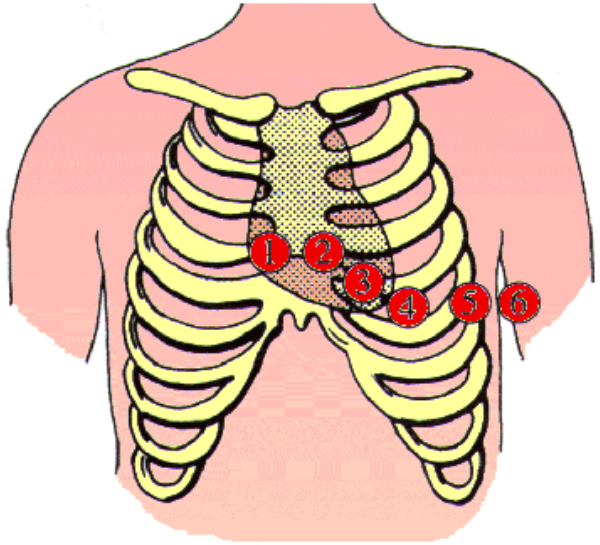


Anatomie du cœur : rappels

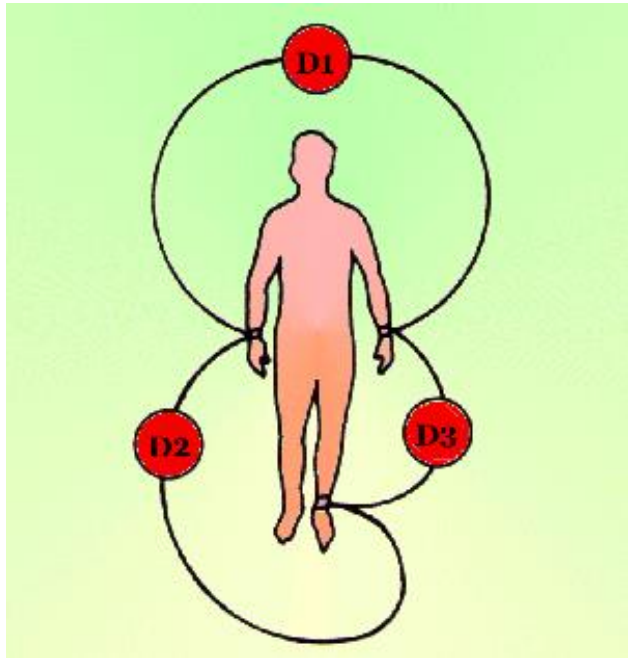


Les courbes d'ECG : des courbes artificielles reconstituées à partir de dérivations

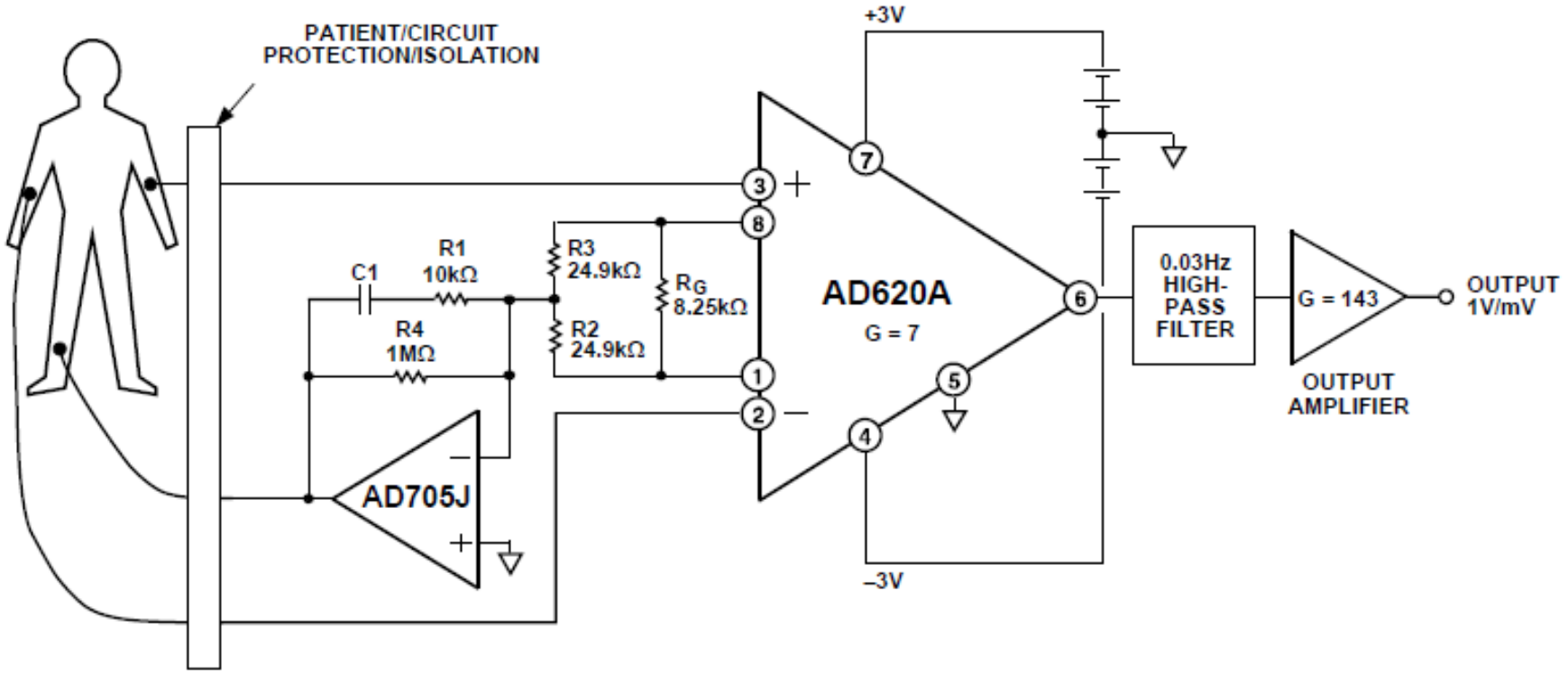
Les dérivations précordiales



Les dérivations d'Einthoven (frontales)



ECG D’einthoven



Pathologies détectables (liste non exhaustive) :

- The ST segment is scrutinized on the ECG for the detection of myocardial ischemia.
- Abnormal ST segments are reviewed based on the cause in the ECG criteria review sections and include anterior, posterior and inferior myocardial infarctions, left ventricular hypertrophy, pericarditis and Brugada syndrome.
- Prolongation of the QT interval can occur from multiple medications, electrolyte abnormalities (hypocalcemia, hypomagnesemia and hypokalemia) and certain disease states (i.e. intracranial hemorrhage).
- Many abnormal T wave patterns exist which are reviewed in more detail in the ECG criteria review sections. These include hyperkalemia, Wellens syndrome, left ventricular hypertrophy with repolarization abnormalities, pericarditis (stage III), arrhythmogenic right ventricular dysplasia (ARVD) and hyperacute T waves during myocardial infarction.
- During states of tachycardia the TP segment is shortened and may be difficult to visualize altogether.

Questions ?