

ECG Basics

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Electrocardiography(ECG) is the process of recording the electrical activity of the heart over a period of time using electrodes placed on a patient's body.

It is routinely used to assess the electrical and muscular functions of the heart.

In a conventional 12 lead ECG, ten electrodes are placed on the patient's limbs and on the surface of the chest.

The ECG tracing consists of three basic waveforms: the P wave, the QRS complex, and the T wave. These units of electrical activity can be further broken down into these segments and intervals: the PR interval, the ST segment, and the QT interval.

The P wave is the first component of a normal ECG waveform. It represents atrial depolarization or conduction of an electrical impulse through the atria. The PR interval tracks the atrial impulse from the atria through the AV node, bundle of His, and right and left bundle branches. The QRS complex follows the P wave and represents depolarization of the ventricles, or impulse conduction. The ST segment represents the end of ventricular conduction or depolarization and the beginning of ventricular recovery or repolarization. The peak of the T wave represents the relative refractory period of repolarization or ventricular recovery.

Interpretation of ECG requires a sequential and systematic approach such as the eight steps.

- 1) Determine rhythm
- 2) Calculate rate
- 3) Evaluate the P wave
- 4) Calculate the PR interval
- 5) Evaluate the QRS complex
- 6) Evaluate the T wave
- 7) Calculate the duration of the QT interval
- 8) Evaluate other components, include ST segment and U wave.