**A Diagnostic Tool**

The ECG is an important tool for the evaluation of cardiac function and identification of possible problems. Below is a list of only a few examples where electrocardiography would be useful in a diagnostic sense.

**P wave** – Changes in the shape and duration of the P waves may be indications of atrial enlargement.

**PR interval** – The PR interval represents the time from the onset of atrial depolarization to the onset of ventricular depolarization.

* If the PR interval is prolonged (greater than 0.2 seconds), it may be an indication of a first-degree AV block, which is due to a problem with the AV node or with the His/Purkinje system.
* On the other hand, a very short PR interval may an indication of disorders like Wolff- ParkinsonWhite (WPW) syndrome. WPW syndrome is a condition where the ventricles are prematurely stimulated; it is a pre-excitation disorder. Such disorders are due to abnormal electrical conduction in the heart.

**QRS complex** – Evaluation of the QRS complex is useful in diagnosing a number of heart problems, including cardiac arrhythmias, conduction abnormalities, ventricular hypertrophy, and myocardial infarction. For example, an elongated QRS duration (greater than 0.12 seconds) may be an indication of a problem with the Purkinje fibers. Changes in the morphology of the QRS complex are also important.

* For example, Q waves greater than 1/3 the height of the R wave may indicate a myocardial infarction.
* A split in the R wave often indicates that the ventricles are depolarizing at different times. This may be due to bundle branch damage or due to poor blood supply to the heart.