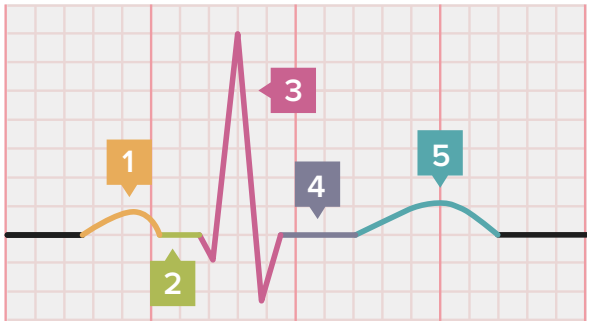
BASIC ECG INTERPRETATION

The electrocardiogram (ECG) is a tool for recording and interpreting cardiac activity through repeated cardiac cycles.

Anatomy of a normal cardiac cycle



1. **P wave:** atrial depolarization/contraction
2. **PR interval:** electrical impulse passes through AV node, where pace of conduction is slowed, allowing the ventricles to fill before contracting
3. **QRS complex:** ventricular depolarization/contraction
4. **ST segment:** ventricles remain depolarized
5. **T wave:** ventricular repolarization/relaxation

Normal sinus rhythm (NSR)

NSR is the default, healthy cardiac rhythm. The electrical impulse originates from the sinoatrial (SA) node and the ECG strip will demonstrate the following characteristics:

P wave: present before each QRS complex

PR interval: 0.12–0.20 sec

QRS duration: 0.04–0.44 sec

T wave: present

Rate: 60–100 bpm, measured from R wave to R wave

Rhythm: regular

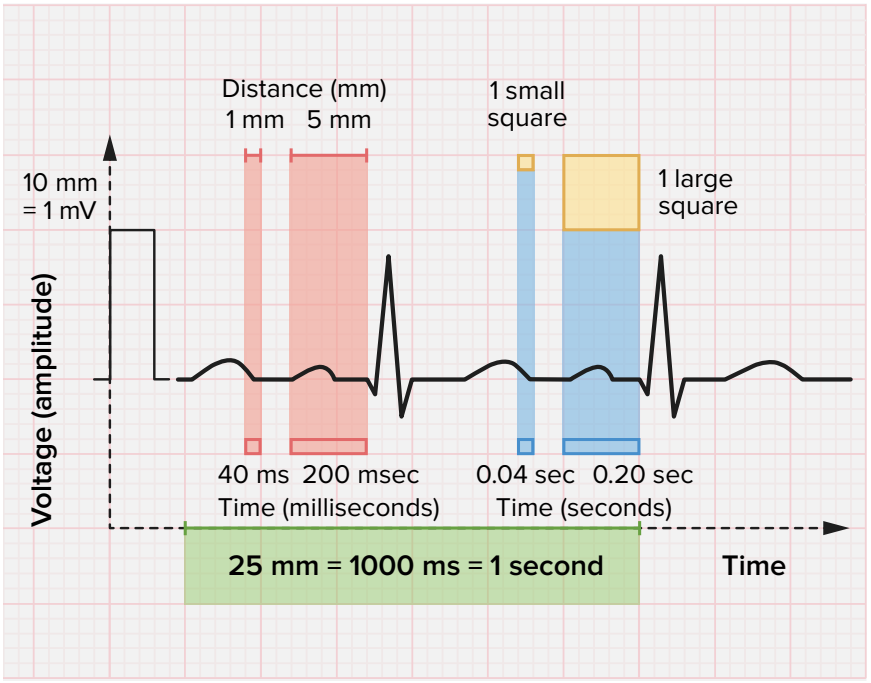
Common variations from NSR

Sinus bradycardia:
All features of a normal cardiac rhythm are present, but rate is slower than 60 bpm.

Sinus tachycardia:
All features of a normal cardiac rhythm are present, but rate is greater than 100 bpm. T wave may be "buried," or absent, at increased HR.

Interpreting the ECG strip

When a client is connected to the ECG monitor, the paper strip will emerge from the ECG machine at a rate of 25 mm per second. This rate and the system of large and small squares on the ECG strip allow measurement and interpretation of the client's cardiac activity.



One small square = 40 ms or 0.04 sec
One large square = 200 ms or 0.20 sec

The example to the right shows a PR interval (from the start of the P wave to the start of the QRS complex) of 0.20 sec, which is normal.

NOTES