

## Physiology 3202 Notes April 3, 2006

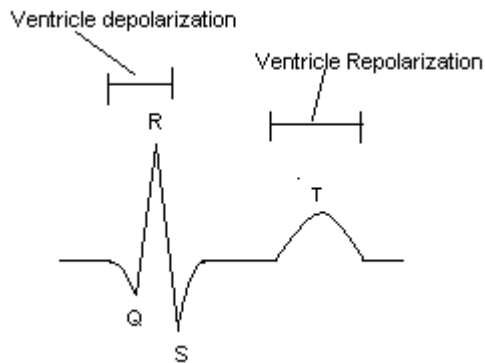
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### 1. Heart Vector

- Current Dipole
  - i. Represents entire electrical activity of the heart (one “equivalent” source)
- Rational for one source = Simplicity

### 2. Einthoven and the ECG

- String Galvanometer (coated glass string)
  - i. Trace ECG
- ECG Lead- Voltage difference between 2 electrodes = 1 lead
- Source of Noise
  - i. Muscle
  - ii. Respiration (Volume Conductor changes) lungs fill with air
  - iii. Ambient 60 Hz electromagnetic background noise
- Frequency of interest - 0.01-100Hz
  - i. Ambient 60 Hz is within this range and therefore can't be thrown out



### 3. Change in QRS shape equals a change in activation shape

- Order of activation of the tissue
- Source of electrical activity and its direction