

Introduction

In a paragraph, define the components of an electrocardiogram, or ECG, and how it relates to heart sounds. What were the differences in using the Push Button Switch and Cardio Microphone? Which method was more effective? What did you learn from this experiment? Briefly describe the techniques you used to measure these variables.

Results

Attach a copy of your completed data worksheets at the end of this experiment.

ECG at Rest

In the space below, to the left, draw a bar graph (or cut and paste from data pad) showing the mean amplitudes of the P waves, QRS complexes, and T waves while the volunteer was at rest. To the right, draw a bar graph showing the mean durations of the P waves, QRS complexes, and T waves while the volunteer was at rest.

Effects of Human Error on ECG

In the space below, draw a bar graph (or cut and paste from Data Pad) showing the time between the R wave and first heart sound and the T wave and the second heart sound when recorded by the Push Button Switch and Cardio Microphone.

Effects of Human Variability on ECG

In the space below, draw a bar graph (or cut and paste from Data Pad) showing the class means for P amplitude, P duration, QRS amplitude, QRS duration, T amplitude, and T duration.

Conclusions

Answer the following questions in complete sentences.

1. Describe the events that are occurring in the heart during the following times: P wave, QRS complex, and T wave.
2. Did the amplitudes of the ECG waves vary greatly between individuals in the class? What about the duration of the ECG waves?
3. Think about the students in your class who participated in this experiment. What factors do you think could have an effect on the ECG cycle and heart rate? Consider the volunteers' sexes, ages, and fitness levels along with your own ideas.
4. Explain why the QRS complex appears before the 'lub' sound.
5. Explain why the 'dub' sound occurs after the T wave.

6. Explain why there may be errors in the timing of your heart sounds.