

Brenda Javier  
Lab 10: Electrocardiography  
10/13/2023

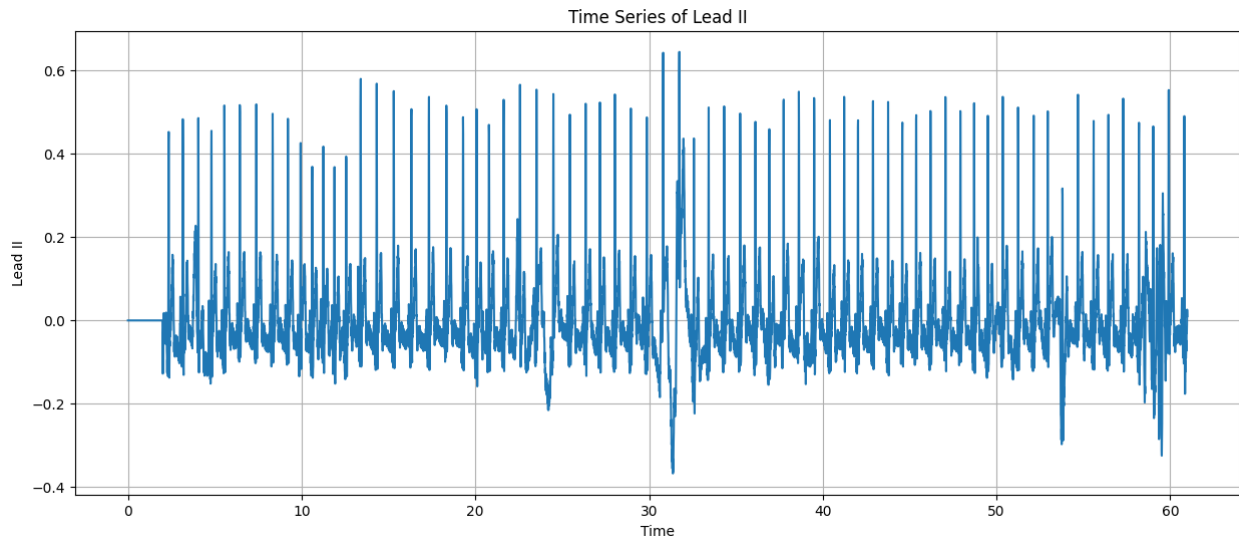
**Purpose:** The purpose of this experiment was to study the electrical activity of the heart by using an electrocardiogram (EKG or ECG). This lab helped us understand the importance of the cardiac muscle cells and how it causes the electrical activity.

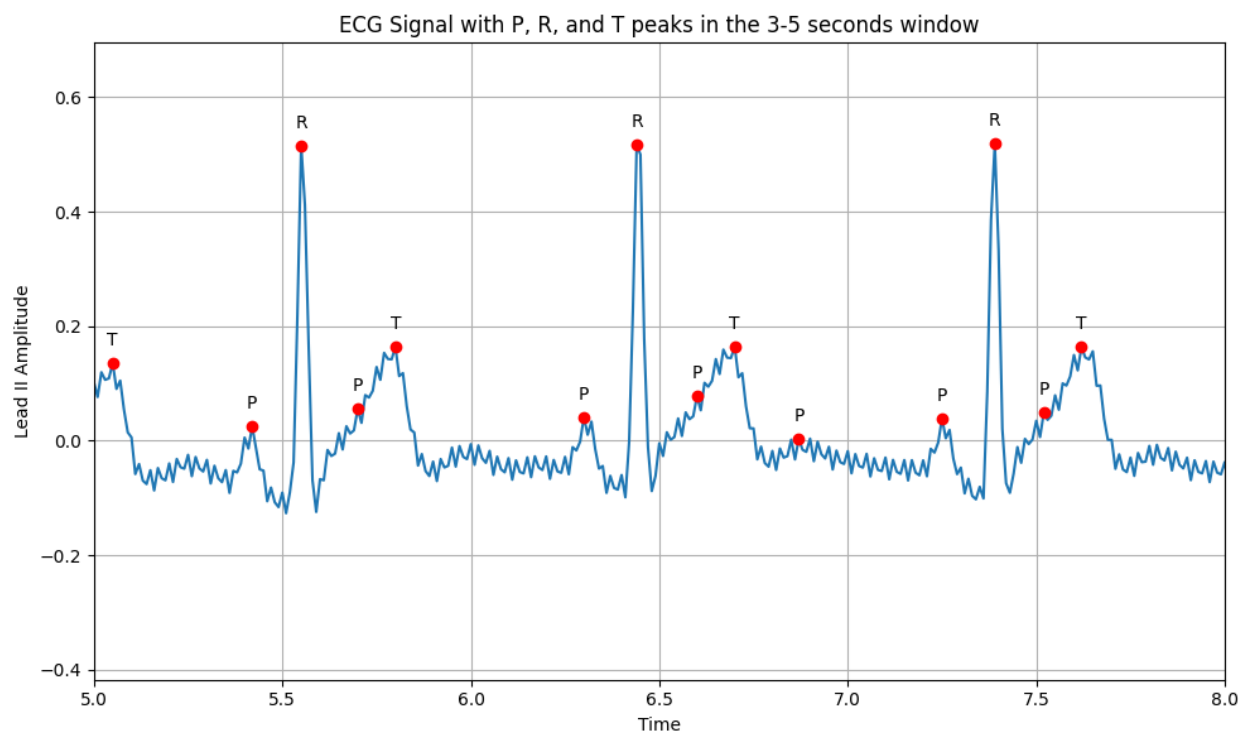
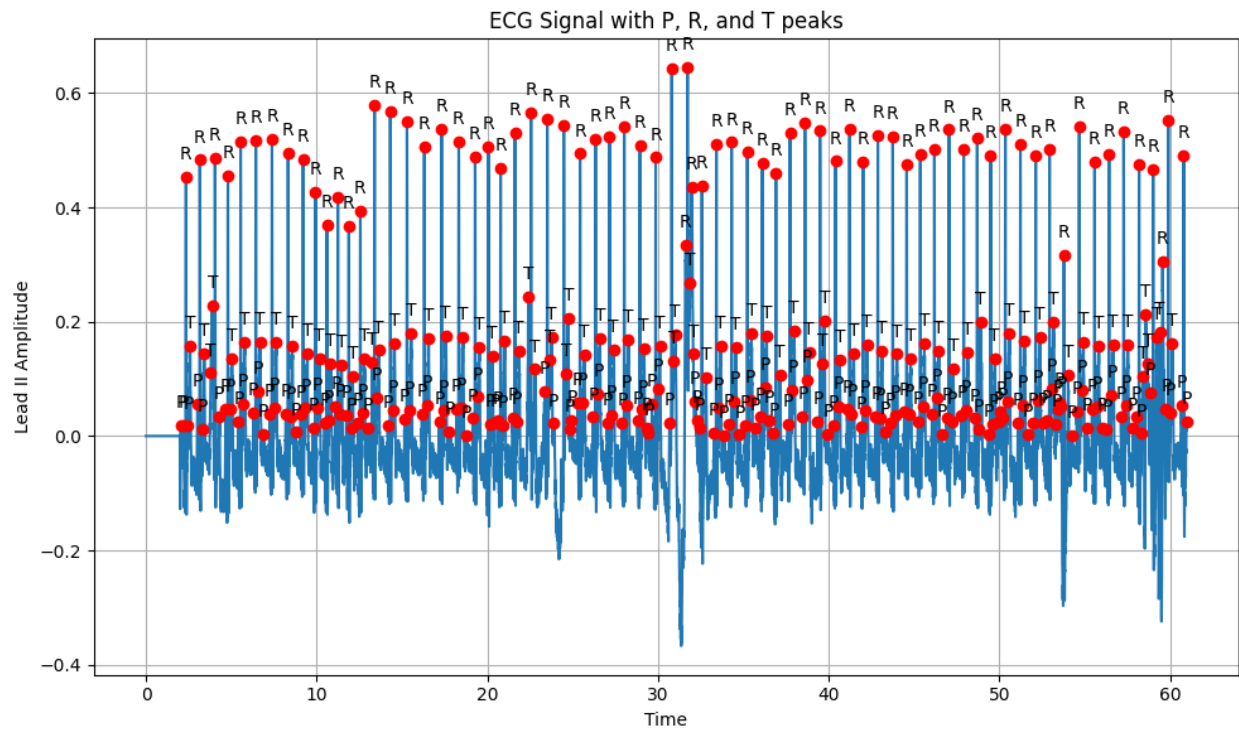
**Procedures:**

1. Be sure the IWX/214 unit is plugged in, and that the IWX/214 unit is connected to the laptop by USB cable. C-AAMI-504 EEG cable is inserted into the isolated inputs of Channels 1 and 2 of the IWX/214. three color-coded lead wires are correctly inserted in the lead pedestal of the C-AAMI-504 EEG cable. Insert the connectors on the red, black, and green electrode lead wires into the color-coded matching sockets on the lead pedestal of the ECG cable. FIRST turn on the laptop and allow it to fully boot up before you turn on the IWX/214 unit. Once the Iworx unit is on, the red indicator light on the Iworx unit should light up and you may hear the USB chime from the laptop.
2. Open the Labscribe3 program by clicking on the Labscribe3 icon on the desktop. As soon as the program opens, you should see a window pop-up that says, "Hardware found IWX214:2008-1-24," click "OK."
3. Click on "Setting" tab. About one third of the way down the drop-down window should be a tab called "Human Heart." Click on that tab and that should lead you to a tab called "ECG-HeartSounds."
4. Since Lab 10 is about ECG only, we can hide the lower "Heart Sounds" row by clicking on the  $\sigma$  symbol to the left of the row label, then clicking on the "Hide" tab, and then "Yes."
5. Remove the disposable ECG electrodes from its envelope and snap the lead wires onto the electrodes while the electrodes are still on the plastic shield. Instruct the subject to remove all jewelry from their wrists and ankles. Use an alcohol swab to clean a region of skin on the subject.
6. Apply: the black (-1) lead is attached to the right wrist, the red (+1) lead is connected to the left ankle, the green (C or ground) lead is connected to the right ankle.
7. Instruct the subject to sit quietly with their hands in their lap. If subject moves any muscle (EMGs) from the muscle will appear on the ECG recording as noise.
8. Click on record. The signal should begin scrolling across the screen.
9. When you have a suitable trace, type <Subject's Name> Lead II in the Mark box to the right of the Mark button. Press the Enter key on the keyboard after the recording has started to attach the comment to the data.
10. Click on the AutoScale tab at the upper margin of the ECG channel. Your recording should look like the figure in step #4. If the ECG waves appear too compressed, consider clicking the tab "Mark". It will say "Half display Time" this tab will spread out your ECG patterns for step 11.

11. Record for approximately one minute and then click Stop to halt recording. Label one set of the five ECG waves (P, Q, R, S and T). Notice that every cycle is similar but not identical, and the distances between the QRS complexes may alter slightly.

**Results:**





**Discussion:** In lab 10 we worked on just section "A" which was basically the recording of one's heartbeat and being able to identify the waves. This lab was interesting to work on since we were able to monitor our heartbeats, but it was little complicated to get the right program on the computer. It took my partner and I a good twenty minutes to get the right program and an extra ten to get the monitors to pick up the heartbeat. We both had trouble in sending our results to our emails. After all the hassle we were able to get good heart waves and finish the experiment in good time.

**Conclusion:** Overall it was a good experiment to do. It was interesting to learn the how the change in the electrical activity of the heart can really affect the reading of an EKG. I also learn how important placement of the three leads was in order to get a good reading.