

## Heart Sounds (lab 7.5)

### Background information on the heart sounds

Most of the background information for understanding this lab is in lab 7.5. Read this lab for the background information and answer the lab report questions in the lab report section.

Procedure A for this lab is the same as is described in the lab manual. However, some changes have been made to procedure B. These changes are listed below.

### A) Procedure A: Apical pulse and auscultation of heart sounds with the stethoscope

1) After cleaning the ear pieces, place the stethoscope bell on the volunteer's left 5<sup>th</sup> intercostal space. Determine their apical pulse (their heart rate as measured by auscultating the heart sounds on the chest).

Apical pulse = \_\_\_\_\_ beats per minute.

2) Next, listen closely to the volume of the lub and the dub sounds. Which is louder, the lub or the dup? In the first row of the table below, write Louder in the blank for the louder heart sound and write Quieter in the blank of the quieter heart sound.

3) In the last column of row 1, write the name of the valve or valves that the stethoscope bell is closest to at this position on the volunteer's chest.

4) Repeat steps 2 - 3 but for the left 2nd intercostal space.

5) Repeat steps 2 - 3 but for the right 2nd intercostal space.

<u>Stethoscope location:</u>	<u>Lub sound:</u>	<u>Dup sound:</u>	Stethoscope is closest to <u>which valve?</u>
Left 5 <sup>th</sup> intercostal space	_____	_____	_____
Left 2nd intercostal space	_____	_____	_____
Right 2nd intercostal space	_____	_____	_____

## **B) Procedure B: Correlation of the heart sounds with the electrocardiogram**

Use the following procedure instead of procedure B in the lab manual.

- 1) Select a volunteer from your group.
- 2) Obtain a computer, a white carton containing the Vernier Lab Pro box, a smaller white carton containing the ECG probe box, and three ECG lead stickers.
- 3) Turn on the computer and set up the ECG exactly as you did for the ECG laboratory (see the handout for that lab for details of the set up). Once you have opened the LoggerPro program, don't forget to open the ECG settings file (File>Open>BiologyWithVernier>EKG). This should set the time axis for 3 seconds, but you still need to open the "Data Collect" window (a watch icon next to the green button in the upper left of the screen) to make sure that it has the following settings:
  - Mode = time-based
  - Time = 3 seconds
  - Sample at zero = Yes
  - Repeat = Yes
- 4) Click the green start button. The ECG display should begin.
- 5) Auscultate the apical pulse while watching the ECG of the volunteer. Try to match the lub and dup sounds to the P, QRS, or T waves. Don't put away your ECG until your instructor has verified your results.

Lub = \_\_\_\_\_ Dup = \_\_\_\_\_

- 6) Figure 7.21b in the lab manual shows simultaneous recordings of an ECG and the heart sounds. Note that the sounds come slight after the ECG waves that cause them. Explain why the sounds are made slightly after their ECG wave that causes them.