

## APPENDIX B

### Skills Lab 1 – Circulatory System

#### Part A – Heart Sounds – How to Use a Stethoscope

A stethoscope is a piece of medical equipment that consists of earpieces and a chestpiece attached by tubing to a bell. It is used to listen to sounds inside the body such as heartbeat and breathing sounds. It is also used to measure blood pressure when used along with a sphygmomanometer. The normal heart sounds are the lub-dub sounds which together represent one heartbeat. These sounds are caused by the closing of the valves of the heart (ie. lub from the closing of the atrioventricular valves; dub from the closing of the semilunar valves). Abnormal sounds such as a quiet swoosh after the lub-dub sound is a murmur caused by the incomplete opening or closing of the valves.

Purpose: To hear heart sounds using a stethoscope.

Materials: stethoscope, rubbing alcohol and cotton balls

Safety: If you have any indication of an ear infection, do not use the stethoscope.

Method: See text reference pp. 262.

1. Sterilize the earpieces of the stethoscope by rubbing them with a cotton ball dipped in alcohol and air dry.
2. Place the stethoscope earpieces in your ear canals, facing toward your eardrums and the bell of the stethoscope directly over the point where you believe your heart is. The heart is located on the left side around the 4<sup>th</sup> to the 6<sup>th</sup> rib almost directly under the breast. Listen for your heartbeat. Move the bell all around your chest until you hear the clearest sound. Describe the sound that you hear.
3. Place the bell of the stethoscope on the inner wrist area (radial pulse), neck area (carotid pulse) and inner elbow (brachial pulse). Describe the sounds that you hear.
4. Sterilize the earpieces.

Observations:

Description of Heart Sounds	Description of Inner Wrist Sounds	Description of Neck Area Sounds	Description of Inner Elbow Sounds

Conclusions:

1. What sounds make up a heartbeat?
2. What causes these sounds in the heart?
3. Give an example of abnormal sounds you might hear in the heart and what might cause them.
5. How did the sounds you heard at different pulse sights differ from those of the heart? Explain.

## Part B – Blood Pressure – How to Use a Sphygmomanometer

The sphygmomanometer is a piece of medical equipment that gives an indirect measurement of blood pressure. It consists of an inflatable cuff, an inflation bulb, tubing, a gauge called a manometer (to register pressure in mm Hg) and a pressure release valve for deflation of the cuff. A stethoscope is used to hear the sound of blood rushing back through the brachial artery as the pressure of the cuff is released. The first tapping sound is the systolic blood pressure and the diastolic pressure is when the tapping sound is no longer heard.

Purpose: To measure blood pressure using a manual sphygmomanometer.

Materials: stethoscope, rubbing alcohol and cotton balls, manual sphygmomanometer

Safety: If you have any indication of an ear infection, do not use the stethoscope.

Do not over-inflate the pressure cuff (beyond 180 mm Hg) or leave the pressure on for longer than one minute.

Method: See text pp. 264 Figure 1.

1. Sterilize the ear pieces of the stethoscope by rubbing them with a cotton ball dipped in alcohol and air dry.
2. Place the centre of the pressure cuff over the brachial artery in the upper arm just above the elbow and wrap the cuff snugly around the arm.
3. Place the bell of the stethoscope over the brachial artery just below the elbow ensuring that it does not touch the pressure cuff (about 2.5 cm below cuff).
4. Place your first two fingers on the inner left wrist to feel for the radial pulse. (See text pp. 241).
5. Close the pressure release valve and use the bulb to inflate the pressure cuff to 180 mm Hg until you no longer feel a pulse in the left wrist.
6. Carefully open the pressure release valve slowly so that the pressure drops at 2-3 mm Hg per second.
7. As the pressure drops, listen for clear tapping sounds. When you hear clear sounds for two consecutive beats, record this reading as the systolic pressure in the chart provided.
8. Continue slowly releasing the pressure. When you no longer hear the repetitive sounds, record this reading as the diastolic pressure in the chart provided.
9. Quickly open the pressure release valve completely and remove the cuff from the arm; expel excess air in cuff.
10. Sterilize the earpieces.

Observations:

	mm Hg
Systolic Pressure	
Diastolic Pressure	

Conclusions:

1. What happens to the flow of blood in the brachial artery as you inflate the cuff? Deflate?
2. How does your blood pressure compare to the “average value” of 120/80?