

Pulse Rate & Blood Pressure Lab

Anatomy & Physiology

Materials:

Textbook
Clock or watch w/ second hand
Sphygmomanometer
Stethoscope
Rubbing alcohol
Absorbent cotton

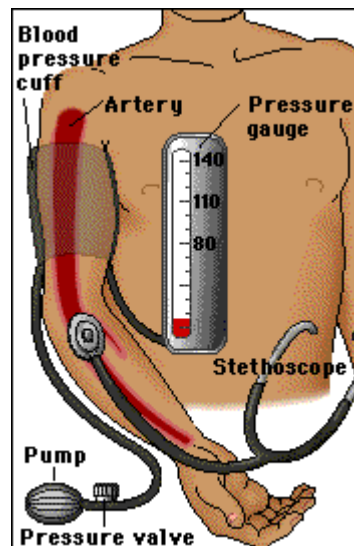
Purpose of this lab: To examine the pulse, determine the pulse rate, measure blood pressure, and investigate the effects of body position and exercise on pulse rate and blood pressure.

Procedure A—Pulse Rate.

1. Using your textbook or lab handout, *complete Part A* of your lab report.
2. Examine your lab partner's radial pulse. To do this, follow these steps:
 - a. Have your partner sit **quietly**, remaining as relaxed as possible.
 - b. Locate their pulse by placing your index and middle fingers over the radial artery on the anterior surface of the wrist. Do not use your thumb for sensing the pulse because you may feel a pulse coming from an artery in the thumb itself.
 - c. Note the characteristics of the pulse. That is, could it be described as regular or irregular, strong or weak, hard or soft?
 - d. To determine the pulse rate, count the number of pulses that occur in 1 minute. This can be accomplished by counting pulses in 15 seconds and multiplying that number by 4.
3. Repeat the procedure and determine the pulse rate in each of the following conditions:
 - a. immediately after standing
 - b. 3-5 minutes after standing quietly
 - c. immediately after 2 minutes of exercise (omit if the person has health problems).
 - d. 3-5 minutes after exercise has ended.
4. Switch places and repeat steps 2 and 3 above.
5. *Complete Part B* of your lab report.

Procedure B—Blood Pressure.

1. Measure your lab partner's arterial blood pressure. To do this, follow these steps:
 - a. Obtain a sphygmomanometer and a stethoscope.
 - b. Clean the earpieces and diaphragm of the stethoscope with cotton moistened with 70% alcohol.
 - c. Have your partner sit quietly with bare upper limb resting on a table at heart level. Have the person remain as relaxed as possible.
 - d. Locate the brachial artery at the antecubital space (see below). Wrap the cuff of the sphygmomanometer around the arm so that its lower border is about 2.5 cm above the end of the elbow. Center the bladder of the cuff in line with the brachial pulse.



- e. Palpate the radial pulse. Close the valve on the neck of the rubber bulb connected to the cuff, and pump air from the bulb into the cuff. Inflate the cuff while watching the sphygmomanometer and note the pressure when the pulse disappears. (This is a rough estimate of the systolic pressure.) Immediately deflate the cuff.
 - f. Position the stethoscope over the brachial artery. Reinflate the cuff to a level 30 mm Hg higher than the point where the pulse disappeared during palpation.
 - g. Slowly open the valve of the bulb until the pressure in the cuff drops at a rate of about 2 or 3 mm Hg per second.
 - h. Listen for sounds (Korotkoff sounds) from the brachial artery. When the first loud tapping sound is heard, record the reading as the systolic pressure. This indicates the pressure exerted against the arterial wall during systole.
 - i. Continue to listen to the sounds as the pressure drops, and note the level when the last sound is heard. Record this reading as the diastolic pressure, which means the constant arterial resistance.
 - j. Release all of the pressure from the cuff.
 - k. Repeat the procedure until you have two blood pressure measurements from each arm, allowing 2-3 minutes of rest between readings.
 - l. Average your readings and enter them in *Table 1 of Part C* of your lab report.
2. Measure your partner's blood pressure in each of the following conditions (Record results in Table 2 of Part C of your lab report):
- a. 3-5 minutes after standing quietly.
 - b. immediately after 3 minutes of exercise (omit if the person has health problems).
 - c. 3-5 minutes after exercise has ended.
3. *Complete Part C* of your lab report.