

Student Activity: Pulse Rate Lab- Do Not Write on This Sheet!

Part A — Introductory Problem

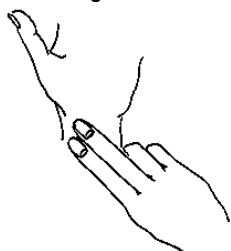
Hypothesis or Prediction

1. State a hypothesis about the effects of exercise on the resting pulse rate.
2. State a hypothesis about the recovery time (the amount of time required to return to normal resting pulse).

Materials: Clock or watch with second hand, Graph paper, Pencil

Procedure: Section One:

1. Find your pulse by placing your right index finger on the thumb side of your left wrist. Press lightly. You should feel a pulsing flow of blood. This pulsing is called the radial pulse. The radial artery is above the radius (the forearm bone on the thumb side). If you have difficulty locating your pulse on your wrist, try the carotid pulse. The carotid pulse is found by placing your index finger and middle fingers of your right hand on the side of your throat. Push these fingers up to feel the pulse.



Correct positioning of fingers

2. Practice finding your pulse a few times.
3. Sit quietly for one minute. Do not cross your legs or feet. Count your pulse for 15 seconds. Calculate your pulse rate for one minute by multiplying by 4 (15 seconds X 4 = 60 seconds). Repeat two more times. Record your observations in Table 1.
4. Determine your average pulse rate per minute. Record your pulse rate in Table 1.
5. Calculate your group's average resting pulse. Record data in Table 2.

Section Two:

1. Engage in some mild exercise for one minute: Walk around the room, do side bends, body twists or other light exercise as directed. After exercise is completed, take your pulse and record your results in Table 3. Repeat two more times to determine your average pulse rate after mild exercise.

Section Three:

1. Now engage in vigorous exercise for one minute. Do push-ups, jumping jacks, sit-ups, jog in place, or some other vigorous exercise approved by your teacher. After exercise is completed, take your pulse. Record your results in Table 3. Repeat two more times to determine your average pulse rate after vigorous exercise.
2. Repeat the vigorous exercise section of this activity to determine an average pulse rate after vigorous exercise. Immediately after exercise, sit quietly and take your pulse for 15 seconds. Continue taking the pulse again every minute for 15 seconds until it returns to the resting pulse rate or until time equals six minutes after exercise. Record all data on Table 4.
3. Complete a line graph to show what happened to your pulse rate after exercise. Put pulse rate per minute on the y-axis, and time in minutes after exercise on the x-axis.

Table 1: Individual Resting Pulse Rate

Trial	Pulse Rate/ 15 seconds	Pulse rate/ minute
1		
2		
3		
Average		

Table 2: Group's Average Resting Pulse Rate

Group Member	Average Resting Pulse rate/minute

Table 3: Individual Pulse Rate during Exercise

Trial	Mild Exercise rate/ min.	Vigorous Exercise rate/minute

Table 4: Individual Pulse Rate: Time to Return to Normal Pulse

Time (minutes) after Exercise	Pulse rate/minute
0	
1	
2	
3	
4	
5	

Questions/Analysis

1. Did your results support or reject your initial hypothesis? Explain.
2. What was the independent variable in your experiment?
3. What was the dependent variable in your experiment?
4. Identify other factors that could influence the pulse rate during exercise.
5. Why did you take a resting pulse rate?
6. What factors might determine a person's time to return to normal?
7. How are the circulatory system and respiratory working together in this lab?
8. What effect does exercise have on the amount of carbon dioxide released from the lungs?
9. How can a person's physical fitness affect the results of this activity? Explain.