

Module #1 Exploration

Note: Students with health problems or heart problems should be exempted from these activities.

Start by having the class brainstorm physical activities and the effects they believe the activities will have on blood pressure and pulse rate. Have them write down their hypotheses in the form of: "If I do ..., then my blood pressure will ... and my pulse rate will ..."

Divide the class into randomly selected groups of four. Depending on the time available, each group may do all five activities described below or each group may do a single activity. In either case, results should be shared among the groups.

Prior to the start of each activity, blood pressure and pulse rate measurements should be taken using the blood pressure cuff and the procedure outlined for measuring pulse pressure.

POSTURE: Activity 1

1. Write a hypothesis predicting what will happen to blood pressure and pulse rate after 3 minutes of being in a reclining position.
2. Measure the pulse rate and blood pressure of the participant before he or she assumes the reclining position. This will be the baseline measurement. After the participant has been in the reclining position for 3 minutes, take blood pressure and pulse rate readings and record these values in the table below.
3. How did the blood pressure and pulse rate change?
4. What factors could have contributed to the change in blood pressure and pulse rate?

POSTURE: Activity 2

1. Write a hypothesis predicting what will happen to blood pressure and pulse rate upon standing up after being in a reclining position for 3 minutes.
2. After the participant has been in the reclining position for about 3 minutes, have the participant stand up and immediately take blood pressure and pulse rate readings.
3. How did the blood pressure and pulse rate change?
4. Why would there be a difference in these readings compared to the readings when reclining.

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POSTURE

Activity 1	Blood pressure (mm Hg)	Pulse (beats/min)
	(Trial 1)	
Before reclining	_____	
Reclining (After 3 min)	_____	
Activity 2		
Immediately on standing from the reclining position	_____	

EXERCISE: Activity 3

1. Write a hypothesis predicting what will happen to blood pressure and pulse rate after 5 minutes of vigorous exercise.
2. The exercise can vary from stepping on and off a step stool or some simple sprints up and down a confined area. If using the step stool, have each participant conduct the activity over a period of 5 minutes. Take blood pressure and pulse rate readings and record these values in the table below.
3. How did the blood pressure and pulse rate change?
4. What factors could have contributed to the change in blood pressure and pulse rate?

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EXERCISE

Activity 3	Blood pressure (mm Hg)	Pulse (beats/min)
Before using step stool for 5 minutes	(Trial 1)	

Immediately after using step stool for 5 minutes.		

COLD STIMULUS: Activity 4

1. Write a hypothesis predicting what will happen to blood pressure and pulse rate after 6 minutes of cold exposure.
2. Measure the blood pressure and pulse rate of the participant as he or she sits quietly. Obtain a basin and thermometer. Fill the basin with ice cubes and add some water. When the temperature of the ice bath reaches 5° C, immerse the subject's other hand (the non-cuffed limb) in ice water. With the hand still immersed, take blood pressure and pulse readings at 2-minute intervals for a period of 6 minutes. Record the values in the table below.
3. How did the blood pressure and pulse rate change?
4. What factors could have contributed to the change in blood pressure and pulse rate?

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COLD STIMULUS

Activity 4	Blood pressure (mm Hg)	Pulse (beats/min)
Before inserting hand in cold water	(Trial 1)	
	_____	_____
2 minutes after inserting hand		
	_____	_____
4 minutes after inserting hand		
	_____	_____
6 minutes after inserting hand		
	_____	_____

CAFFEINE: Activity 5 (optional)

1. Write a hypothesis predicting what will happen to blood pressure and pulse rate after drinking a caffeinated soda.
2. Take a baseline blood pressure and pulse of the participant before he or she drinks the Mountain Dew. After the participant has consumed the drink, take measurements at intervals of 2 minutes for 6 minutes. Record the values in the table below.
3. How did the blood pressure and pulse rate change?
4. What factors could have contributed to the change in blood pressure and pulse rate?

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CAFFEINE:

Activity 5:	Blood pressure (mm Hg)	Pulse (beats/min)
Blood pressure and pulse rate before drinking caffeinated drink	_____	_____
2 minutes after drinking	_____	_____
4 minutes after drinking	_____	_____
6 minutes after drinking	_____	_____