

Title: Lab 11- Cardiovascular Measurement

Purpose:

The purpose of this lab is to measure the parameter of the blood pressure between resting and exercise state. This will provide a good measure of the physical fitness of a person. We will be taking each other blood pressures. Hypertension, high blood pressure, these might affect the difference between systolic and diastolic blood pressure⁴.

Procedure:

11-A

1. Wrap the pressure cuff of the sphygmomanometer snugly around the upper left arm of your lab partner. Your lab partner should assume a relaxed, sitting or supine position.
2. Place the stethoscope securely over the brachial artery. Close the pressure valve and begin pumping up the rubber ball.
3. You will begin to hear the arterial pulse as you pass the diastolic pressure. Continue pumping until the pulse is not heard, approximately 10 mmHg above your partner's normal systolic pressure. The brachial artery is now totally occluded.
4. Slowly open the pressure valve and listen for the pulse sounds to reappear as the pressure drops. These are known as Korotk off sounds.
5. The first sound heard signals the systolic BP. Record this value from the scale.
6. The sound will become louder as the pressure drops until it finally starts to become muffled. Record the pressure at which the sound vanishes. This signals the diastolic BP. Record your blood pressure as systole/diastole
7. Alternate with your lab partner and repeat these procedures.
8. Next, measure the BP of each of you immediately upon standing. (NOTE: be sure to have your cuff inflated prior to standing, so that you can begin to release pressure immediately upon standing.)
9. Lastly, measure the BP three minutes after standing. Record these values for your use and on the chalkboard.
10. Discuss the orthostatic response in terms of the receptors used and the effects of postural change. Include any limitations to obtaining reliable results.

11-B

1. Select three students who exercise regularly and three students who do not. Each student will take his/her resting pulse rate for one minute and record this value.
2. Each student will then run the track twice at a fast but comfortable pace.
3. Immediately upon returning to the laboratory, each student will record his/her pulse after exercise.
4. Each student will take his/her pulse at one minute intervals until the resting pulse is reestablished. (NOTE: The best method to employ is to take the pulse rate for 15 seconds and multiply by 4.)
5. These results will be recorded on the chalkboard for discussion. Is there a difference between the exercisers and the non-exercisers? Which student(s) do you consider to be in better physical condition? Why
6. Determine the target heart rate range for each student (if the ages are available) and for yourself. The target heart rate range determines the heart rate that should be maintained for 20-30 minutes, at least 3 times per week for cardiovascular fitness. To determine your

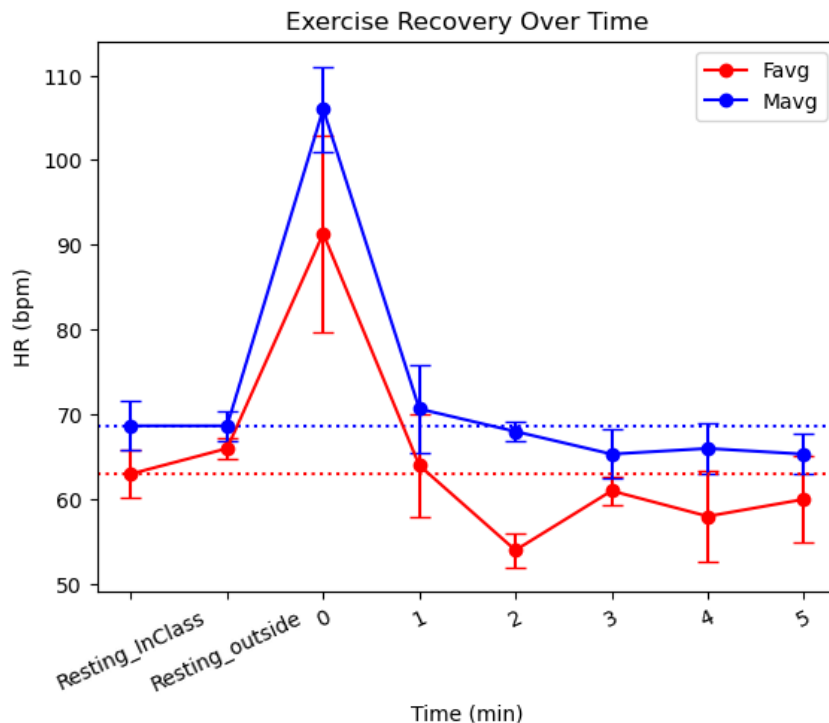
target heart rate range do the following calculations for the Karvonen formula(only use numbers rounded off to whole numbers):

- $220 - \text{your age} = \text{maximum heart rate (max HR)}$
 - $\text{Max HR} - \text{resting HR} = \text{HR reserve (to find your resting heart rate, take your pulse before getting out of bed each morning for three days and then take the average)}$
 - target heart rate range =
 $(\text{HR reserve} \times 60\%) + \text{resting HR} = \text{low target heart rate}$
 $(\text{HR reserve} \times 80\%) + \text{resting HR} = \text{high target heart rate}$
 Example: 20 year old with a resting heart rate of 65 beats per minute
 $220 - 20 = 200$ (max HR)
 $200 - 65 = 135$ (HR reserve)
 $(135 \times 60\%) + 65 = 81 + 65 = 146$
 $(135 \times 80\%) + 65 = 108 + 65 = 173$
 This student's target heart rate range would be 146–173 beats per minute.
- Include your calculations for your target heart rate in the results section of your report.
 - Evaluate the class results in terms of target heart rate and level of fitness for each individual.

Results:

Sitting blood pressure: 118/76

Standing blood pressure: 124/90



Discussion:

When taking the pulse before the exercise it started around 65 to 70 once after the exercise it was at 92 to 108. We were able to see the measure of physical fitness in the ability to resume a normal resting pulse. We were able to see blood pressure of each other at resting and it was 118/76 and in standing it was at 124/90. The blood pressure went up just by doing a simple

movement of just standing. We were able to hear the ventricle systolic and diastolic and learn about them.

Conclusion:

In conclusion, we were able to measure the perimeter of the blood pressure between resting and an exercise state. We did that by taking her blood pressure sitting down and then standing up. We were also able to provide a good measure of the physical fitness in a person. we were able to do that by having six people participate any activity where they went outside and did exercise we took their pulse every minute and they exercised for minute straight they all did the same thing. When taking their blood pressure we were able to see if they had hypertension or high blood pressure. We did this by listening to the systolic and diastolic blood pressure