Lab 11 – Cardiovascular Measurements

Bio 125

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Purpose

The purpose for this activity was to record and compare the heart and pulse rate of a person and/or a group between resting and exercise periods.

Through these activities we recorded the changes in the heart and pulse rate of a group of students (men vs women) while doing the exercise and at resting. Blood pressure was also measured and recorded at normal and relaxed sitting position and then after standing for a few minutes.

Specifics

11-A: Determination of blood pressure.

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. Next, place the stethoscope securely over the brachial artery. Close the pressure valve and begin pumping up the rubber ball. 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. Slowly open the pressure valve and listen for the pulse sounds to reappear as the pressure drops. These are known as Korotk off sounds. The first sound heard signals the systolic BP. Record this value from the scale.

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. Alternate with your lab partner and repeat these procedures. Next, measure the BP of each of you immediately upon standing. Lastly, measure the BP three minutes after standing and record your values.

11-B: Demonstration of a measure of physical fitness

Select six students, three men and three women. Each student will take his/her resting pulse rate for one minute and record this value. Each student will then do the physical activity assigned. Immediately upon returning to the laboratory, each student will record his/her pulse after

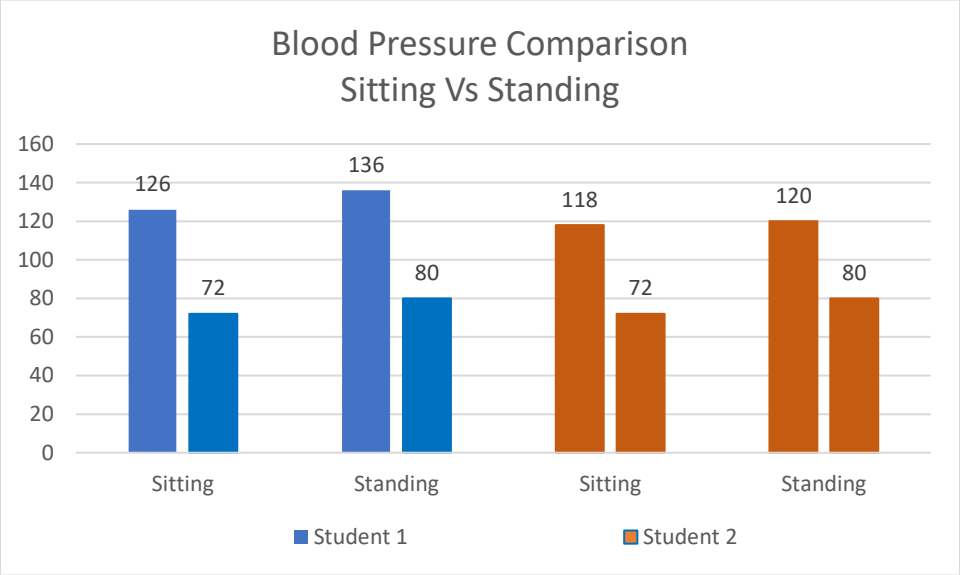
exercise. Each student will take his/her pulse at one-minute intervals until the resting pulse is reestablished. Determine the target heart rate range for each student. To determine your target heart rate range, do the following calculations for the Karvonen formula. 220–your age = maximum heart rate (max HR). Max HR–resting HR = 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 = (HR reserve x 60%) + resting HR = low target heart rate (HR reserve x 80%) + resting HR = high target heart rate

Include your calculations for your target heart rate in the results section of your report.

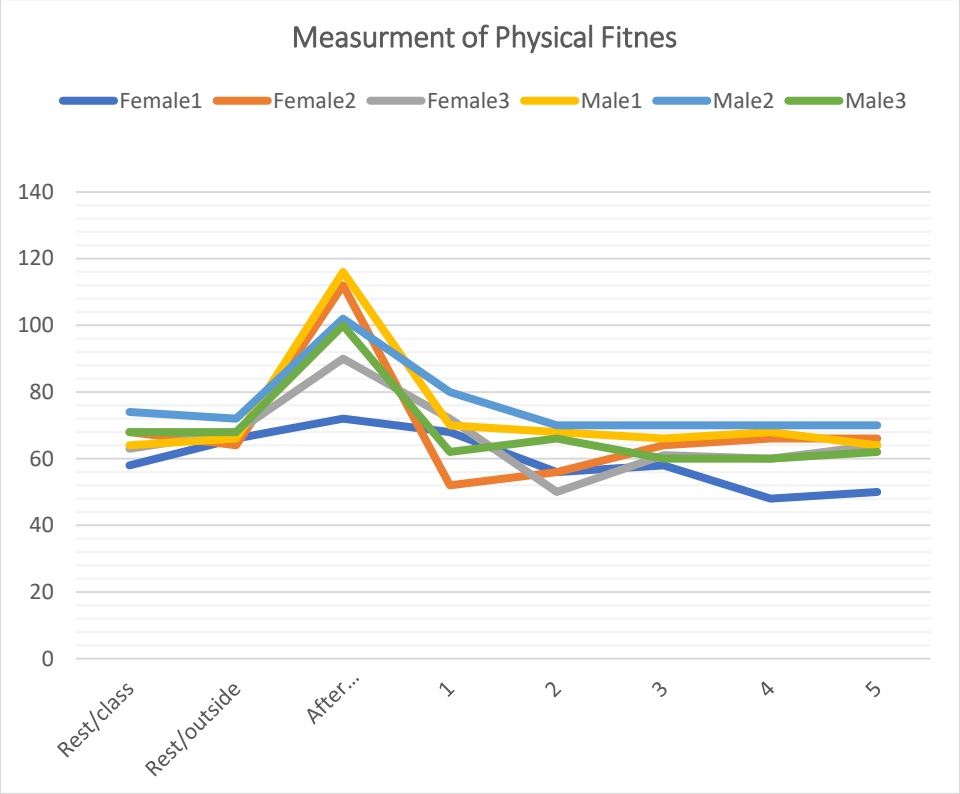
Results

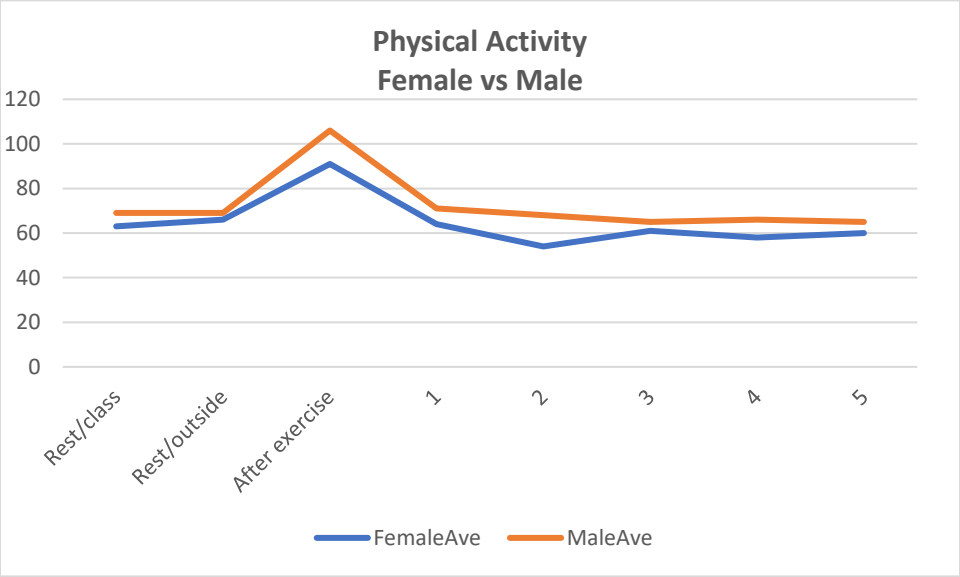
Bio125/LAB11HR.ipynb at main · RosalbaN/Bio125 (github.com)

11-A: Determination of blood pressure.



11-B: Demonstration of a measure of physical fitness





Discussion

It was a very nice activity.

Conclusion

Through these activities, I had a better understanding of cardiovascular measurement and how physical activity alters and affects the heart and pulse rate.

I enjoyed doing this activity, especially when measuring the blood pressure because I was able to practice and remember the steps on how to measure it when using the sphygmomanometer.