

## **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 pressure<sup>4</sup>.

### **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**

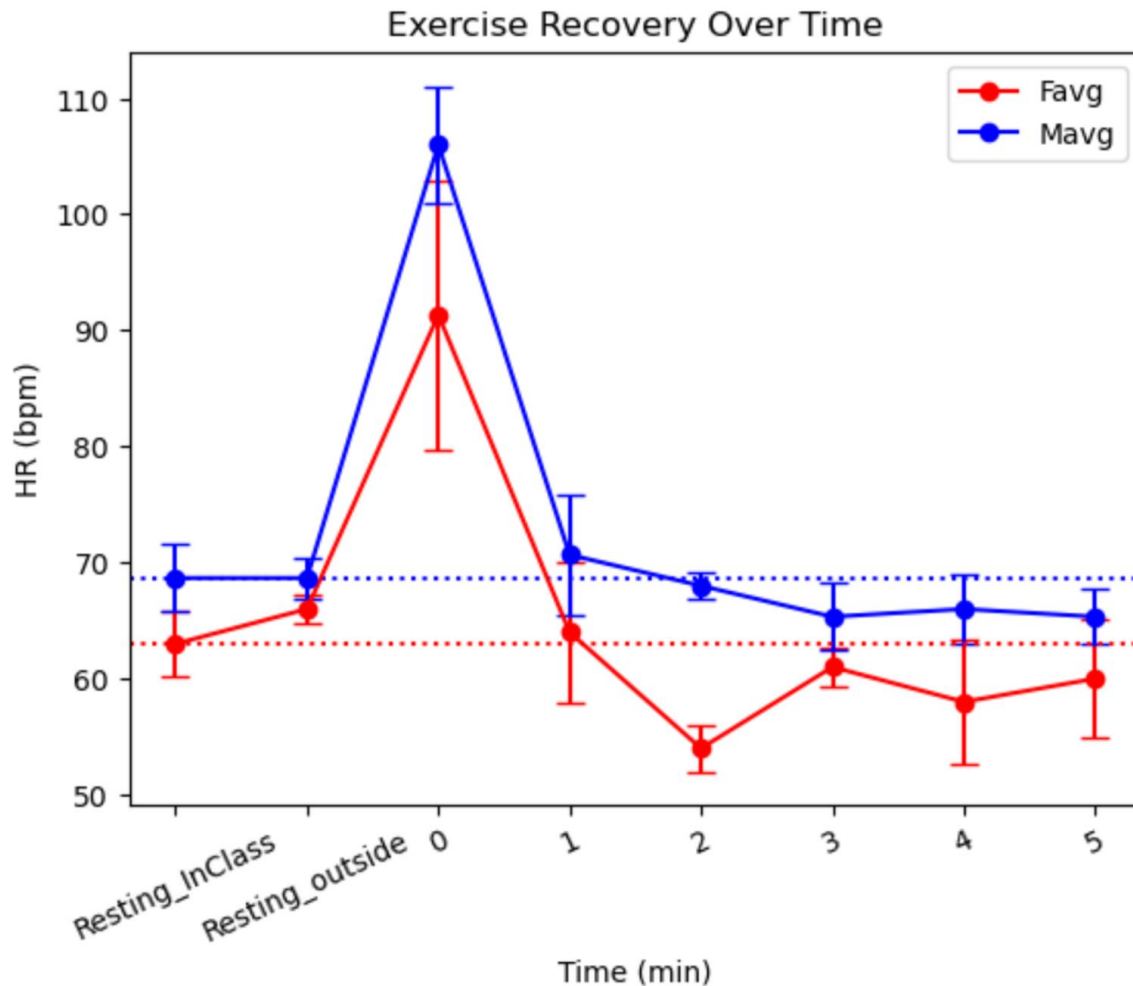
1. Select three students who exercise regularly and three students who do not. Each student will take his/her resting pulse rate for one minute and record this value.
2. Each student will then run the track twice at a fast but comfortable pace.

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):
  - a.  $220 - \text{your age} = \text{maximum heart rate (max HR)}$
  - b.  $\text{Max HR} - \text{resting HR} = \text{HR reserve}$  (to find your resting heart rate, take your pulse before getting out of bed each morning for three days and then take the average)
  - c. 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.
7. Include your calculations for your target heart rate in the results section of your report.
8. 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:

While taking the beat before the activity it began around 65 to 70 once after the activity it was at 92 to 108. We had the option to see the proportion of actual wellness in the capacity to continue a typical resting beat. We had the option to see circulatory strain of one another at resting and it was 118/76 and in standing it was at 124/90. The circulatory strain went up by simply doing a basic development of standing. We had the option to hear the ventricle systolic and diastolic and find out about them.

### Conclusion:

All in all, we had the option to quantify the border of the circulatory strain among resting and an activity state. We did that by bringing her pulse plunking down and afterward standing up. We were likewise ready to give a decent proportion of the actual wellness in an individual. we had the option to do that by having six individuals take part any movement where they headed outside and practiced we

**gauged their heartbeat consistently and they practiced for minute in a row they all did likewise. While taking their pulse we had the option to check whether they had hypertension or hypertension. We did this by standing by listening to the systolic and diastolic circulatory strain**