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Lab 11- D=Blood Pressure

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Purpose: In this laboratory, we will measure the effects of postural change and exercise on these cardiovascular parameters using several different types of equipment. We will be taking our blood pressure with our partner and record it. A method of determining the physical fitness of an individual will be demonstrated.

Procedure:

#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 Korotkoff.

#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. 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 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.

Results:

My blood pressure sitting:

1) 130/60

2) 130/60

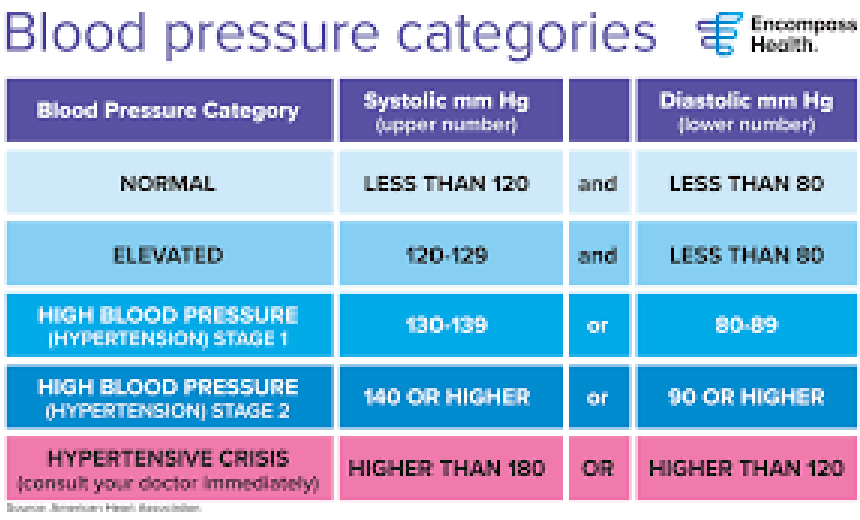
3) 128/70

Standing blood pressure:

1) 125/70

2 125/70

3)125/70



Discussion: When my partner took my blood pressure on my right arm while I was sitting down it was 130/60 and did it again on the left arm and read 130/60. When my partner took my

blood pressure standing, I got a reading of 125/70 three times. Typically, systolic blood pressure falls slightly upon standing up

Conclusion: The blood pressure is usually taken with the patient seated. As the cuff inflates, it squeezes the arm. Blood flowing through the artery stops for a moment. The health care provider opens a valve on the hand pump to slowly release the air in the cuff and restore blood flow. The provider continues to listen to blood flow and pulse and records the blood pressure. Systolic blood pressure is measured when the heart ventricles contract. Diastolic blood pressure is measured when the heart ventricles relax. The transition from supine to standing causes a drop in arterial blood pressure.

Lab 11-B

Purpose: The purpose for this exercise is to determine the measurement of physical fitness and to resume a normal resting pulse rate shortly after a brieif period of exercise. We will compare these changes in heart rates between males and females who exercise regularly and students who do not and determine the target rate range for exercise for these students.

Procedure:

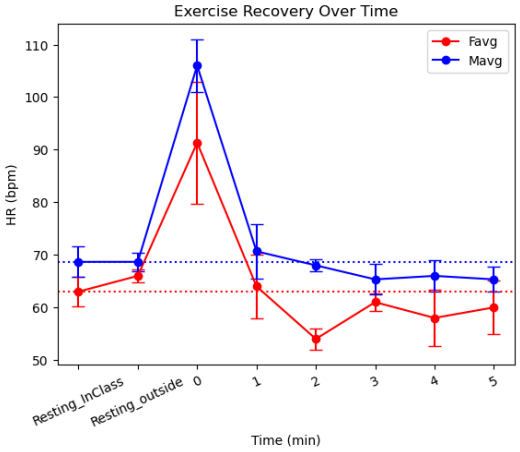
1. Select three students who exercise regularly and three students who do not. Each student will take his/her resting pulse rate for one minute and record this value.
2. Each student will then run the track twice at a fast but comfortable pace.
3. Immediately upon returning to the laboratory, each student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

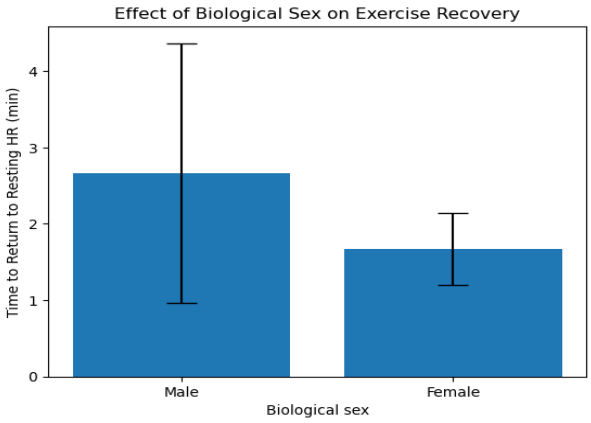
heart rate range, do the following calculations for the Karvonen formula (only use numbers rounded off to **whole numbers**):
a. 220 –your age = maximum heart rate (max HR)

b. Max HR –resting HR = HR reserve (to find your resting heart rate, take your pulse before going out of bed each morning for three days and then take the average)
c. target heart rate range = (HR reserve x 60%) + resting HR = low target heart rate (HR reserve x 80%) + resting HR = 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 x 60%) + 65 = 81 + 65 =146
(135 x 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 everyone.

Results:





Discussion:

It took males more Jme to come back to resting vs females. This could be possibly because males are more active physically than females.

Conclusion:

In conclusion, physical fitness does fluctuate your heart rate based on the activity you are doing. This just showed us that males have a long resting Jme vs female.