Title: Determination of Blood Pressure

Purpose: Blood pressure (BP) generally refers to the pressure of blood that is applied to the arterial walls. Systolic, the highest, blood pressure results when the ventricles contract. Diastolic, the lowest, blood pressure results when the ventricles relax. Blood pressure is normally expressed as systole over diastole and in millimeters of mercury (e.g. 120 mmHg/ 80 mmHg).

Procedure:

1A. 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 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.

11B.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 nonexercisers? 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).
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. 11C. 1.Fill a large tub with ice cold water.
9. Select one student volunteer and hook him/her up to the computer.
10. Recordings of a Lead II ECG and pulse pressure from a thumb will be obtained with the student at rest for a baseline measurement.

Results:

Time	Lead II	
0	0.00	0.000000
1	0.01	0.000000
2	0.02	0.000000
3	0.03	0.000000
4	0.04	0.000000
...	...	...
3035	30.35	0.031240
3036	30.36	0.008320
3037	30.37	-0.014132
3038	30.38	0.005045
3039	30.39	0.025656

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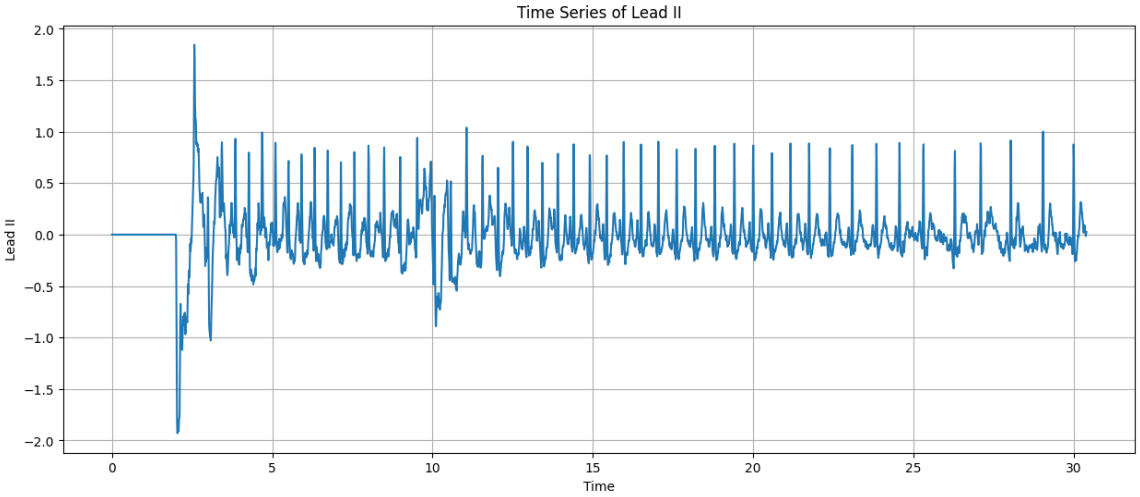

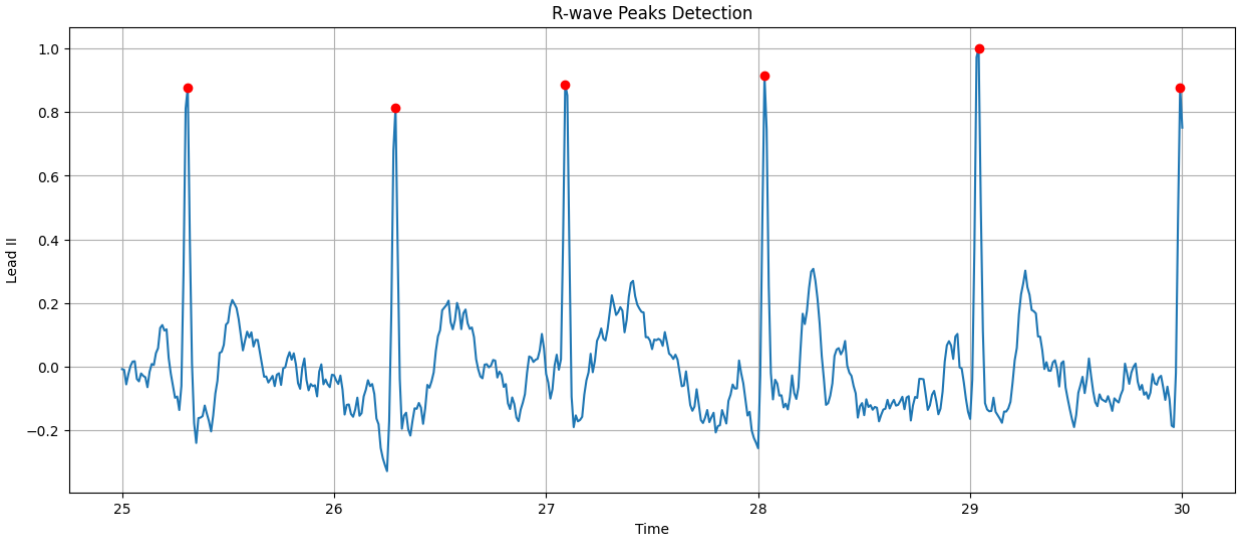

Discussion: Findings on blood pressure can differ depending on whether it is taken before or after an exercise. There was little change in our blood pressure. After sitting, we measured it while standing. We discovered that both when we were seated and when we were standing, our blood pressure was normal.

Conclusion: As the heart pumps, blood pressure gauges the pressure within the arteries. The pressure in the arteries during a heartbeat is measured by the systolic blood pressure. Diastolic, the second figure, represents the pressure within the arteries during the intervals between heartbeats.