Allison Slocum

Bio 101 Lab 3

Section 3

Introduction: A person’s pule weight can be determined by many different factors. A person has a resting heart rate, which is measured while a person is at rest and the units are beats per minute. For this lab however, we also observe a person’s target heart rate, which is a person’s heart rate in beats per minute following any physical activity. This relates to a real world aspect of a person’s physical fitness. A person’s level of fitness is related to their resting heart rate and their heart rate following exercise by comparison. People with lower resting heart rates (but within the normal range of 60-100) have a greater cardiovascular fitness. My goal is to see a trend in the difference between exercise and heart rate amongst my classmates and I. For this particular experiment the predictor variable is the exercise (in minutes) that is undergone by each student. The response variable consequently is the heart rate difference before and after exercise. My hypothesis is that with the increase in exercise time, there will be an overall increase in heart rate.

Methods; We started off by all taking our resting heart rates. To find your heart rate, palpate your radial artery, which is above your wrist, and assess the number of pulsations you feel within 30 seconds and then multiply this number by 2. This will be our control data to compare the experimental data with. Each student jogs in place first for half a minute. Then the students all record their individual pulses following the exercise. Then each student repeats these steps for each of the time variables that are 1 minute and 2 minutes of jogging.=

Results: The graphs prove my hypothesis to be accurate. Overall, the higher the minutes of exercise, the higher the pulse rate average was. Also, as the minutes of exercise increased, the standard of error, confidence interval, and standard deviation increased in all 5 of the groups. This goes to prove the link between pulse and cardiovascular fitness. With the addition of exercise, depending on their fitness, a persons pulse rate changes at different rates which causes an increase in variation as the exercise time is increased. With our individual group data, people with higher resting heart rates were subjected to much higher pulses after the same amount of exercise as compared with the people with lower resting heart rates. This makes sense because a person with a higher resting heart rate has a heart that has to work harder, so with the addition of exercise it would only be expected that these pulse rates would spike faster than someone with a lower pulse.

Discussion: People who are used to exercise are less likely to have a dramatic increase in heart rate with normal moderate levels of activity. This explains why people with lower resting heart rates are less affected by the jogging exercises (in relation to their pulse). As time was added, since there are inevitably students who have better cardiovascular fitness, there was a greater difference in the average distance from the mean (standard deviation) amongst the data of all 5 groups. However I noticed a flaw in the experiment to be the fact that students run at different paces. This causes flaws in the data because a slower runner will probably do less work and put in less energy than someone who runs faster for the full 10 minutes. Also a huge learning curve that originally messed my group up, and maybe could’ve cause issues for other groups was the fact that people didn’t understand how to assess their pulses. People weren’t aware of the fact that they must consistently multiply by 2 in order to assess pulse in beats per minute.