We recently conducted a blood pressure lab in our physiology class. It was up to us to decide how we would try to affect our blood pressure and heart rate. Jordan and I decided that we would submerge our faces in a bowl of ice water and measure the effect on our blood pressure. Blood pressure is the amount of pressure that blood applies on the walls of your circulatory system. In a blood pressure reading, there are two numbers oriented in a fraction. The top number is systolic. This means that the top number measures the amount of force being applied to arteries when the heart beats. The bottom number is diastolic. This means that the bottom number is a measurement of the amount of force being applied to arteries *between* heartbeats. After drafting up our experiment, I made a hypothesis: If I put my face in a bowl of ice water, then my blood pressure and heart rate will go up, because of the dramatic change in temperature.

Blood pressure can be manipulated in three main criteria. It can be manipulated by temperature, exercise, and stress. In my group, we manipulated blood pressure using temperature. We filled a bowl with water, put ice in the water, then took a baseline heart rate and blood pressure reading. We then put our faces in the bowl of ice water for ten seconds. Immediately after, we took readings of blood pressure and heart rate and recorded them. We repeated the procedure an additional two times to get more reliable results. Chances are, when you’re submerged in cold water, that the situation is stressful and that you want to be able to get out of it as quickly as you can. This means that you’re going to want to be able to use your muscles vigorously. An increase in blood pressure moves your blood at a higher rate, getting O­2 to muscles and removing CO2 more quickly, allowing them to move vigorously. This is why, I imagine, we evolved a blood pressure that can be manipulated.

After gathering our baseline blood pressures and heart rates, Jordan and I did three trials of our experiment. Our resulting data looked like so:

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| --- | --- | --- | --- | --- |
|  | Resting | Trial #1 | Trial #2 | Trial #3 |
| Jordan | Blood Pressure: 120/80  Heart rate: 86 BPM | Blood Pressure: 140/90  Heart rate: 102 BPM | Blood Pressure:  140/90  Heart rate: 102 BPM | Blood Pressure: 135/75  Heart rate: 90  BPM |
| Haiden | Blood Pressure: 130/90  Heart rate: 82 BPM | Blood Pressure: 160/100  Heart rate: 72 BPM | Blood Pressure: 140/90  Heart rate: 80 BPM | Blood Pressure:  135/100  Heart rate: 66 BPM |

Our table has a couple of noticeable trends. In every trial for each of the subjects, the blood pressure is higher than it was in a resting state (prior to submersion). Also, for Jordan, the heart rate measured after each trial is higher than it was in a resting state. Based on this information alone, my hypothesis is confirmed. When you look at the measured heart rates in each trial for me, however, circumstances change. My heart rate did not go up. In every instance my heart rate is *lower* than it was in its resting state. I was really blown away by this. At first I thought I had miscounted my heartbeats but after seeing those specific results set a trend over the course of three trials, I knew it wasn’t a mistake. Mary B theorized that my decrease in heart rate was due to the fact that I surf in cold water on a regular basis. She thought that my body was used to the cold water and because surfing is calming to me, my body responded accordingly. I’m going to say that my hypothesis is plausible. I feel like this experiment didn’t give me much to base a definite answer off of. My hypothesis seems to generally hold true, but as we saw, it is not always true.

Blood pressure is indicative of health. If you have a high blood pressure, it indicates that your circulatory health is poor, Its probably due to some sort of resistance, like build up of arterial plaque, which makes it harder for blood to circulate, hence the necessity for a higher pressure. A normal blood pressure indicates that your blood is circulating at a normal rate and does not have to cope with any resistance. My resting blood pressure was 130/90, which is slightly above normal. It means that my circulation is somewhat crappy. This might be due to arterial build up, but is more likely due to smoking and crappy lungs. I’m imagining that my lungs can’t get oxygen as efficiently as a pair of healthy lungs, which means that the blood is getting slightly less oxygenated than it would in a normal body, requiring the blood to move slightly more quickly in order to circulate the same amount of oxygen.