Blood Pressure Homeostasis

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Introduction:

Homeostasis is the process by which the body maintains stable internal conditions. It does this by receiving feedback from receptors in the body and acting on that data to maintain equilibrium. Blood pressure is one of the many things that the body must regulate. The body, specifically the vasomotor center, regulates blood pressure by receiving feedback from pressoreceptors, located in the aorta and carotid arteries, and increasing heart rate or constricting blood vessels to change blood pressure, The kidneys also, when aldosterone is released, retain sodium, which increases blood volume and blood pressure. When blood pressure is too high, you are at risk for diseases like hypertension, heart attacks, and heart failure. When your blood pressure is too low, you are at risk for things like hypotension. The average blood pressure between 120 over 80 and 140 over 90. The higher number is the blood pressure when your heart is beating and the lower number is your blood pressure between beats. Things like stress, exercise, watching videos, and even listening to music can affect your blood pressure. A study reported in *Heart*, a *British Medical Journal* publication, it says that depending on the tempo, music can change your blood pressure. Our hypothesis is that the slower the tempo, the more your blood pressure will reduce. This means that things like classical and country music will reduce your blood pressure the most, and heavy metal and dubstep may actually increase your blood pressure.

Abstract:

We did a study about homeostasis, blood pressure, and music tempo. Our hypothesis was the slower the tempo of the music, the more your blood pressure would lower. Our results did not prove this. They showed that the more the person liked the song, the more their blood pressure dropped.

Materials and Procedure:

Procedure:

1.) Test two subjects with different body types and heights
2.) Blindfold the subjects
3.) Take their blood pressure before listening to any music
4.) Record blood pressure
5.) Listen to the first two minutes of the first song (in the order below)
6.) Test blood pressure after the two minutes
7.) Record blood pressure levels
8.) Test every minute until 3 minutes after the song
9.) Record the blood pressure every minute
10.) Repeat steps 5-8 until all songs have been listened to
11.) Goal is to measure change and record data changes in all subjects
12.) Repeat with other subject

Materials:

- Blood pressure monitor (sphygmomonometer)
- Assorted music from youtube
- Headphones
- Computers to take results

Results:

Our data showed that the more a person liked the songs provided, the lower their blood pressure. Our hypothesis said that the slower the tempo of the music, the lower blood pressure. The data did not add up with this. Our second test subject, had his favorite song as Darth Vader. His blood pressure ranged from 85/60 to 106/66. His least favorite song was the Big Green Tractor, and his blood pressure for that song ranged from 97/63 to 113/71. As shown in our data, the more liked the song is, the lower blood pressure.

Work Cited and Acknowledgements:

Work Cited:

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http://www.webmd.com/hypertension-high-blood-pressure/guide/diastolic-and-systolic-blood-pressure-know-your-numbers#1
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Conclusion:

From our data, we have concluded that the pace of the song does in fact affect a person's blood pressure. Other than this, we also learned that how much the person likes the song affects their blood pressure and overtakes the pace. This is given example with the Darth Vader song, where we thought it would increase their blood pressure but it actually decreased it. This contradicts our hypothesis but still gives us accurate results as to what affects someone's blood pressure. What we can conclude from this is that the more the person enjoys the song, the lower their blood pressure goes.