CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
J1302

Project Title
Effects of Sound on Blood Pressure

Abstract

Objectives/Goals
Noise pollution is displeasing sound created by humans, the environment, or machines that disrupts the balance or activity of human life. The experiment was designed to see if exposure to different decibel levels of different sounds would affect blood pressures and pulses of people tested. The tested hypothesis was if high decibel sound levels are listened to, then a person#s blood pressure and pulse will rise because the sound will cause effects on their circulation.

Methods/Materials
A Decibel meter, CD player/radio, an electronic sphygmomanometer, a tape measure, consent form, classical CD song, a rock CD song, and a chair were used.
An informed consent form was reviewed and signed by each person who participated. To test the hypothesis, a chair was placed sixty centimeters from a CD player/radio. One static radio station and the two CD songs (see materials list) were selected. A decibel meter was used to read the decibel level of each sound used. Safe volumes for hearing were used. To figure out the pulse and blood pressure of each person, an automatic electric sphygmomanometer was used. Blood pressure was taken at baseline and after each exposure to sound.

Results
The results supported the hypothesis. However, those who were tested reported that the static sound was most annoying, but their blood pressures and pulses were not affected by this as much. This may be because the static was steady compared to the way the other sounds varied. Also, males and females were affected differently by different sounds.

Conclusions/Discussion
In conclusion, the hypothesis was not wrong. Certain sound levels do affect a person's blood pressure and pulse. The decibel levels of particular sounds and noise pollution exposures can affect people. Protection from sound is important because it not only protects ears, but it protects people's blood pressures and pulses. Different sound exposures may affect men and women differently. All of these findings can have important application in work and leisure settings.

Summary Statement
The project was about the affects of different sounds on people's blood pressures.

Help Received
My father and my mother helped me with typing. Certification of compliance of research involving human subjects certified by science teacher, Mr. Umezu, and advisor. My father was also my advisor.