CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
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Project Number
J1110

Project Title
Do Environmental Sounds Affect Blood Pressure?

Abstract

Objectives/Goals

The objective of my project is to determine if environmental noises affect blood pressure. If they do, there might be a link between noise and stress.

I believe that sounds with high pitches and inconsistent rhythms will raise blood pressure the most and specifically, that a baby#s cry will raise blood pressure the most because of its high pitch and inconsistent rhythmic pattern.

Methods/Materials

The materials I used were a blood pressure monitor, survey and measurement forms, a CD player with a sounds CD and headphones, and a pen to record the survey answers and results.

My procedure involved the scheduling of a person to test. When I met the individual participant, I discussed my problem and purpose and had him/her fill out a questionnaire that I handed out. I then measured the participant's blood pressure and pulse to obtain a baseline for my test and recorded it. The participant then put on a set of headphones which were connected to a CD player that had a CD with 10 sounds on it (each sound played for 30 seconds and there was a 5 second gap between each sound). The sound played for 30 seconds and thd CD was stopped after the sound completed. The participant's blood pressure and pulse was re-measured and the results were recorded. For each of the 10 sounds played, the blood pressure sleeve was removed and the participant had a rest period of two minutes. In general, the sound was played, the blood pressure was measured, the results were recorded, and the wait period was repeated . The tests were performed on 25 people between the ages of 18 and 59.

Results

My results showed that three sounds raised blood pressure in 16% of the participants. In some cases (20%), the participants baseline blood pressure measurement was higher than the measurement for any of the 10 sounds Each of the 10 sounds caused a highest blood pressure reading in at least one participant.

Conclusions/Discussion

In conclusion, I believe that different people react to different environmental sounds. 48% of my experimental group had their highest blood pressure measurement from the sounds of a phone#s busy signal, an angry cat, or a home smoke alarm.

Summary Statement

My project involves the playing of environmental sounds and the measurement of blood pressure to determine if there is a link between noise and stress.

Help Received

Neighbor (nurse practitioner) taught me how to take accurated readings of blood pressure; Mom helped with idea for board; Dad took pictures;