CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J1021

Project Title
Does Rock and Roll Really Move Your Soul? The Effect of Music on Heart Rate

Abstract

Objectives/Goals
The objective of this project is to determine if and how much the heart rate of twelve to thirteen year old females changes when listening to four different types of music; Hard Rock, Country, Classical and Meditative music.

Methods/Materials
Five minutes of music that represented each type of music to be tested were selected. A heart rate monitor was placed on twelve females between the ages of 12 and 13 years. As each participant listened to the different types of music by headphone, their heart rate was recorded at one minute intervals. For each type of music the change in heart rate after five minutes, the maximum increase/decrease in heart during the five minutes, and the average change in heart rate were calculated and then averaged for all participants. The averages by music type were then compared.

Results
Although each participant had varying degrees of response to each type of music, the average heart rate of the participants after listening to five minutes of each type of music changed as follows: Hard Rock increased the heart rate by 9.88%, while Country music increased the heart rate by 5.79%. Both Classical and Meditative music decreased the heart rate. The decrease with Classical music was .6% and the decrease in the heart rate with Meditative music was 2.23%. There were the same levels of increase or decrease in both the average heart rate over five minutes and the maximum change in heart rate during the five minutes.

Conclusions/Discussion
These days it is not unusual to see teenagers with headphones plugging their ears, nodding along to the music. Music is a constant in their lives, but how is this music affecting them? This experiment demonstrated that the different types of music affects heart rate differently. Music with faster rhythm increased the heart rate and music with slower rhythm decreased the heart rate. The data suggests that certain types of music may be better suited to different activities. Perhaps try Hard Rock to get your teenager moving in the morning or some Country music while studying, as it would keep them alert but not over-stimulated.

Summary Statement
This project determines the effect of four different types of music; Hard Rock, Country, Classical and Meditative, on the heart rates of 12 to 13 year old females.

Help Received
Mother helped with typing and finding research material.