



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Autri Chattopadhyay</b>	<b>Project Number</b> <b>S1103</b>
<b>Project Title</b> <b>An Analytical Study of the Effects of iPods on Hearing Loss: Continuation of Research Year 2</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my research is to find the effects certain patterns of iPod usage have on our hearing both at rest and when exercising. <b>Methods/Materials</b> I required an iPod Video, a pair stock iPod headphones, a Sony Stereo and a quiet environment. There were two parts to my experiment. First I surveyed a group of 200 individuals to see the trends of iPod use and analyze them. Then, I had actual hearing tests where a subject listened to a song and I recorded at what levels he/she could hear and then reconducted this test using the same song after iPod use. I did this after listening at rest and at exercise. This was to see a measure of the change in audible range or the occurrence of a threshold shift. <b>Results</b> I found through the survey that 86.5% of those surveyed owned an iPod. Of these 200, 58 listen at volumes of 60% or higher and 41 people listen longer than 10 hours a week. Trends showed that at 70 and 80 percent, over 65% of the users faced some hearing discrepancies. 88 people workout with their iPods and over 12% do so for more than 10 hours a week. Through the hearing tests, notices a large threshold shift at volumes of 60% or higher. Effects were minimal at 30 and 40% volume. Exercise doubled the effects on our hearing at volumes of 70% or higher, but still increased the effect of the noise at other volumes as well. <b>Conclusions/Discussion</b> Through my study, I was able to estbalish a direct correlation between volume and the degree of threshold shift. This signifies a direct relationship between the volume we use our iPods and Noise induced Hearing Loss. However contrary to my thesis, exercise did not double the effects on our hearing for all of my test subjects but only those listening at 70% or higher. I would like to raise awareness of the importance of listening at safe volumes as I do not want my generation to suffer from "self-induced" hearing loss.	
<b>Summary Statement</b> I tested to see how different patterns of iPod usage including duration, volume and exercise affect our hearing.	
<b>Help Received</b> Parents helped me build my board and drove me everywhere.	