



# CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

<b>Name(s)</b> <b>Matthew T. Piegza</b>	<b>Project Number</b> <b>J1219</b>
<b>Project Title</b> <b>The Hearing Abilities of Men and Women Ages 15-52</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to see if hearing declines as people age (are there ringtones children can hear that parents cannot hear) and if there was any correlation between ear infections as a child or listening to music through earbuds/headphones or attending loud music concerts and the hearing abilities of men and women.</p> <p><b>Methods/Materials</b> The materials I used include: an I-pad; Nixon headphones; mosquito sounds (ranging from 8Khz-21.4Khz); paper; pen; notebook; graphs; internet connection (<a href="http://www.freemosquitoringtones.org">www.freemosquitoringtones.org</a>). I asked 40 subjects(males and females between the age range of 15-52yrs.)to participate in my study. I recorded their age and gender and asked them to put on the earphones and adjust them for comfort and fit. I prepared them for the first sound and asked them to respond with yes/no. I repeated the 13 sounds and recorded their responses. Once testing was finished, I asked them the three questions and recorded their answers.</p> <p><b>Results</b> I found that while hearing declines over age, there were differences between the hearing abilities of men versus women. Male hearing is better at its peak, but has a steeper decline than female hearing which had a more gradual decline with age. My data showed that at age twenty-nine the male hearing abilities started to decline. According to my data, hearing ability is best in mid-to late teens and after age forty there was a large drop in hearing abilities. I also found that the most damaging factor to hearing loss is not listening to loud music with headphones/earphones (my hypothesis), but was going to four or more loud music concerts as reported by my subjects.</p> <p><b>Conclusions/Discussion</b> Based on my data, I found there are differences between hearing abilities of men and women as they age. I also found that people who had protected their hearing ability (by not attending loud music concerts or listening to music through headphones/earphones), had better hearing ability than their counterparts. As for discussion of the topic: I believe hearing ability is an important topic that is often overlooked as people age. It is a common practice for people to get reading glasses as they age, but it is less common/accepted that people may need hearing aids or assistance. My data suggests that men and women need to protect their hearing and continue to monitor their hearing ability.</p>	
<b>Summary Statement</b> The differences between the hearing abilities of men and women as they age and possible factors that contribute to hearing loss..	
<b>Help Received</b> My Mom helped me with graphs. My Teacher provided overall supervision. My test subjects agreed to participate.	