



# CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

<b>Name(s)</b> Victoria Ehsan; Roeszele Nieves-Ellis	<b>Project Number</b> <b>J0705</b>
<b>Project Title</b> Assessing Responses to Music in Alzheimer's and Dementia Patients	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> Both of our grandparents suffer from dementia. Dementia is a broad category of brain diseases that cause a long-term and often gradual decrease in the ability to think and remember. The memory losses are great enough to affect a person's daily functioning. The goal of this experiment was to document the effects of music on individuals with dementia. For our project, we tested to see if music could evoke memories in test subjects in their eighties with any form of dementia, especially Alzheimer's. We recorded changes in focus, facial expressions and body movements. We played popular music from the test subjects' younger years, and recorded their responses.</p> <p><b>Methods</b> For our project, we tested more than 50 dementia patients. We tested each subject by asking questions from a questionnaire we developed. We then played a 50s music playlist from Pandora. While each test subject listened to the music, we documented their responses. We carefully observed the test subject before, during, and after the music was played to determine whether there was a significant difference in alertness and activity. Then we asked the test subjects questions again from our questionnaire to see if their answers changed. When the playlist was done, we recorded what we had noticed about each patient. We thanked each patient and moved on to the next test subject and repeated the procedures.</p> <p><b>Results</b> Before the music played, the test subjects were often silent and unresponsive. They sat slouched with their eyes closed. When asked a question, the reply was either a murmur or there was none. Once the music began, the test subjects became more alert and communicative. Their eyes opened, and they sat up in their seats. They began to sing, move their feet and arms and clap. After the song was over, the patients often talked about their days in school when they were doing their hair, at band practice, or at a dance. They were much more talkative with us as well as with their peers. Their new liveliness inspired others, and soon the room was teeming with conversations and laughter.</p> <p><b>Conclusions</b> In conclusion, our hypothesis was supported by the results. Based on our findings, it appears music could be used as a valid therapy for inspiring alertness and communication in individuals suffering from dementia.</p>	
<b>Summary Statement</b> The goal of the project was to document the effects of music on individuals with dementia.	
<b>Help Received</b> Thanks to our parents who drove us to the test sites, and thanks to our science teacher who provided guidance.	