



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Alexandria Barnum; Courtney Bishop; Emily Wright</b>	<b>Project Number</b> <b>S1202</b>
<b>Project Title</b> <b>Baby Boomers Bounce Back: The Impact of Practice on the Degenerative Effects of Aging</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this project is to counteract specific degenerative effects of age. The decline of mobility, visual motor skills, and reaction rates can severely inhibit the quality of life for the aged. Simple exercises performed on a weekly basis will measurably improve the reaction rates, balance, and hand-eye coordination of older adults.</p> <p><b>Methods/Materials</b> Physical therapists were consulted in order to design activities that should improve balance, reaction rates, and hand-eye coordination. Eight tests were designed, and are listed as follows: The Timed Up and Go (TUG) test, the ten step heel-toe walk, the one leg stance test, the handwriting test, the bead stringing test, the bead translation to palm test, the ruler drop test, and a computer reaction rate test designed to measure reaction rates in milliseconds. Twenty-five test subjects age sixty and older were selected for this trial. Baseline measurements for the eight tests were collected. Participants were retested two more times in five weeks. Twenty of the subjects were the "practice group." The remaining five control subjects did not practice and were tested three times.</p> <p><b>Results</b> Average percent differences from the practicing group to the control group are as follows: Handwriting analysis- 19.9% improvement, bead stringing test- 7.9% improvement, bead translation to palm- 1.8%, heel-toe walk times- 16.02%, heel-toe missed steps- 36.9%, right leg stance- 12.6%, left leg stance-1.3%, TUG test- .91%, ruler drop-1.1%, laptop reaction times- 73.2%. Visual motor skills improved 4.6% more in those who had practiced. Mobility/balance improved 15.5%, and reaction rates improved 36.1%.</p> <p><b>Conclusions/Discussion</b> Every category addressed in this project improved with practice. The most dramatic improvement was observed in mobility. It is important to note that the active group improved in every test. Mobility (balance), visual motor coordination, and reaction rates can be measurably improved in geriatric patients.</p>	
<b>Summary Statement</b> The purpose of this project is to observe if weekly practice of visual motor skills, mobility, and reaction rates can delay degeneration and improve geriatric subjects' ability to perform tasks involving these skills.	
<b>Help Received</b> Physical and occupational therapists at Antelope Valley Healthcare Center were consulted on test designs, Mother helped construct display board, Teacher and Mother helped during testing sessions.	