



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Riley A. Callahan-Mayo</b>	<b>Project Number</b> <b>J1106</b>
<b>Project Title</b> <b>How Long Can You Hold Your Breath?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal of this experiment is to determine if an individual can hold their breath longer in warm water, cold water, or on land.</p> <p><b>Methods/Materials</b> 60 total individuals participated in this experiment, 20 in each category: 10-20; 21-40; 41+. Three environments were also needed, a pool heated to 21.1C (70F), a jacuzzi heated to 36.6C (98F), and a room heated to room temperature, 25C (77F). Three stop watches were also needed to keep time.</p> <p><b>Results</b> The results proved that every age group did better in warm than on land and both environment were better than the cold water. The 10-20 age groups' overall average for warm water was 48.35 seconds, for land it was 42.7 seconds, and for cold water it was 28 seconds. The 21-40 age groups' overall average for warm water was 62.35 seconds, for land it was 51.55 seconds, and for cold water it was 37.15 seconds. The 41 and over age groups' overall average for warm water was 69.9 seconds, for land it was 59.45 seconds, and for cold water it was 44.3 seconds.</p> <p><b>Conclusions/Discussion</b> The hypothesis in this experiment was proven correct. The results were that an overall average of 100% of the subject performed better on land than in cold water, and 71.66% of the subjects performed better in warm water than on land.</p>	
<b>Summary Statement</b> The focus of this experiment was to determine if an individual could hold their breath longer in warm water, cold water, or on land. This could help coaches and swimmers train more efficiently.	
<b>Help Received</b> The experimenter's mother and father helped gather materials and provided the testing environments. Also the experimenter would like to give a big thanks to all of the subjects that took time out of their schedule to help with this experient.	