



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Leslie S. Gray</b>	<b>Project Number</b> <b>J1113</b>
<b>Project Title</b> <b>Examining the Effect of Pretreating Hair Before Going Swimming</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My project was to evaluate the effectiveness of pretreating hair prior to going swimming to minimize or prevent the uptake of chlorine/copper which tends to turn blonde hair green.</p> <p><b>Methods/Materials</b> My method would be to pretreat hair by immersing or saturating hair with 4 different variables and then soak them in pool water for 8 hours. I used my own hair that was long and I cut several inches. I chose my variables based on products that use daily: Spray on detangler, a leave-in conditioner, hair gel and distilled water. I had a control in which I did not treat at all prior to soaking in pool water. I soaked in excess of 10 strands of hair for each variable. After soaking the hair I let it dry. I determined the results by measuring the hair strength through a hair stretching method. I ran 10 tests for each variable. I recorded the amount each strand of hair stretched prior to breaking. The hair stretching method involved adding small amounts of weights (rice kernels) until the hair broke. I also recorded the amount of weight the hair strand withstood to its breaking point. Materials included human hair (my own), chelating shampoo, 4 variables (hair gel, Altima leave-in conditioner, Integrity spray on detangler, distilled water), swimming pool water, homemade hair stretching device that was a ring stand and clamp with cup hooks attached to hang hemostats from, 2 pair of hemostats, Triple Beam Balance scale, rice kernels, ziplock bag and funnel.</p> <p><b>Results</b> The results showed that Altima, a leave-in conditioner provided the best protection from exposure to pool chemicals. This conclusion is based on the highest level of the hairs ability to stretch. The hair treated with Altima allowed the hair to stretch an average of 52% of its original length. This was 10% greater than the control, which showed a 42% stretch capacity. The distilled water, Integrity spray on detangler, and hair gel had very similar results to the control with a 40%, 39%, 38% respective stretch capacity.</p> <p><b>Conclusions/Discussion</b> This was an interesting experiment that had mixed results. I was hoping to get a definitive answer to a pretreatment that showed significant results. Although Altima did have the strongest results it was surprising to me that the control (in which I did nothing to) had similar results. Through all the research, I learned that hair is fragile and anything I can do to protect my hair would be smart.</p>	
<b>Summary Statement</b> My project was to evaluate the effectiveness of pretreating hair prior to going swimming to minimize or prevent the uptake of chlorine/copper which tends to turn blonde hair green.	
<b>Help Received</b> Mr. Whittington provided equipment. My mom helped type the report.	