



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kathryn (Kay) E. Smith</b>	<b>Project Number</b> <b>J0318</b>
<b>Project Title</b> <b>Myth of the Juiced Baseball</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The goal is to determine if changing the humidity of a baseball affect its performance. This experiment will test dehydration and a baseball's performance. The question is: "Does changing the amount of water or humidity of the inner portion of a baseball affect the distance it is hit?" This experiment is testing a myth that has circled around the Colorado Rockies baseball team for many years.	
<b>Methods/Materials</b> <b>Materials</b> 1. Concrete Wall; 2. Measuring Strip; 3. Pitching machine; 4. 36 Rawlings Tournament Grade Little League Baseballs (12 per group); 5. 5 Gallon Bucket filled with water; 6. Oven; 7. High-Speed Video Camera; 8. Drain Pipe.  <b>Methods</b> First, a pitching machine will be set up from 15 feet away from a concrete wall. A high-speed video camera will be set up to the side of the wall so that it will be able to record the collision between the ball and the concrete. Baseballs will be divided into three groups: super hydrated, dehydrated, and untouched (control). The baseballs will individually be put into the pitching machine, thrown at the concrete wall at about 40mph, have their collision recorded with the high-speed camera, and have the speeds at which they come off the wall measured.	
<b>Results</b> After comparing the out speeds of Group B (Super-hydrated) and Group C (Dehydrated) to the out speed of Group A (Control) through a t-test the p-values were determined as a little over 1% for Group B and a little less than 0.4% for Group C. This means that super-hydrating a baseball does not help a batter hit the ball further. The data does also suggest that dehydrating a baseball has an affect on its exit speed as well. The average exit speed of a Group B baseball dropped to about 22 mph where as the control was about 23 mph.	
<b>Conclusions/Discussion</b> These changes are not statistically significant enough to say that there was change and to say that this myth is confirmed. This myth is plausible because the data suggests that it could happen in reality, but statistically most likely not.	
<b>Summary Statement</b> This experiment will test dehydration and a baseball's performance. The question is: "Does changing the amount of water or humidity of the inner portion of a baseball affect the distance it is hit?"	
<b>Help Received</b> David Smith - my dad for manning the camera and providing additional help Jeff Liebenberg - family friend and field maintenance at Siltanen Park, in Scotts Valley, for letting me use his concrete supply shed to test with	