



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Benjamin Desch; Kevin Woolley</b>	<b>Project Number</b> <b>J0207</b>
<b>Project Title</b> <b>Going the Distance: The Effect of Soccer Ball Construction Materials on Performance</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of the project we did was to determine which type of bladder material -- latex or butyl-- used in making soccer balls, would make for the bounciest ball. By bounciest, we mean, the balls that would go farthest when kicked. We think that the balls with the latex bladders will travel farther when kicked than the balls with butyl bladders.</p> <p><b>Methods/Materials</b> A total of 18 balls were used: 9 with latex rubber bladders and 9 with butyl rubber bladders. The balls were labeled LA through LI if they were made with a latex bladder and B1 through B9 if they were made with a butyl bladder. A machine was designed and constructed of 2" by 4" boards, metal rods and wood screws to simulate the kicking of a ball and to keep the strike on the balls consistent. We used an artificial turf playing field at Humboldt State University. The balls were placed one at a time in front of the machine. The distance of each ball was measured by the yard markers on the field. A total of 3 repetitions were made for each ball.</p> <p><b>Results</b> The average of all trials of latex bladders is 33.56 yards. The average of all trials of butyl bladders is 31.09 yards. The latex bladder balls average higher than the butyl bladder balls. The latex balls traveled an average of 2.47 yards farther than the butyl balls. When all 54 kicks are ranked longest to shortest distance traveled, out of the top (longest distance) half, 21 are latex and six are butyl. At the bottom (shortest distance) half, 21 are butyl and six are latex.</p> <p><b>Conclusions/Discussion</b> Looking at the average distance comparison, or a ball by ball comparison, the latex bladder balls travel farther than the butyl bladder balls when kicked by the machine. We think the latex balls would travel farther when kicked by people, just like they did with the kicking machine.</p>	
<b>Summary Statement</b> Our project is about comparing materials (latex and butyl baldders) in soccer balls to see which will provide better bounce.	
<b>Help Received</b> Father helped build the machine and helped wiht the computer graphing. Soccer friends, coaches, and Sunnybrae Middle School helped provide balls. Used Redwood Bowl at Humboldt State University for the testing of the balls.	