



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Paul K. Mithun	Project Number 22002
Project Title The Effectiveness of Different Concentrations of Protective Gel to Prevent Head Trauma	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective was to find if highly concentrated gelatin wrapped around an object inside a solid container would prevent damage during an impact.</p> <p>Methods/Materials Six concentrations of gelatin were formulated at 15, 30, 45, 60 and 90 grams/liter. The control was at 0 g/l. Twenty milliliters of each batch were poured into 30 identical Dixie cups (5 cups per level) and were placed together to consolidate. An egg was placed rightsideup in every cup, was stabilized with cardboard and was dropped at exactly meter. I then recorded the damage done to the egg.</p> <p>Results I recorded a few different measurements. I found that as the the concentrations became higher, there were a fewer total number of cracks on the egg. Also, as the concentrations increased the depression left in the gel was lesser. Overall, the qualitative status of the eggs were that the lower concentrated eggs suffered much more damage than the higher concentrated ones.</p> <p>Conclusions/Discussion From my results, it seems that a highly concentrated gelatin layer would be beneficial and would ameliorate the protective qualities of helmets. This could be applied to modern sports and bicylce helmets and could help save lives.</p>	
Summary Statement My project is focusing on a way to make sports helmets safer and more protective	
Help Received I accomplished this project independent from outside help	