



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Thomas O. Yaeger, Jr.	Project Number J0516
Project Title Electrolyte Madness	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Does naturally occurring orange juice have more electrolytes than Vitamin Water or Gatorade? My hypothesis is that naturally occurring orange juice will have more electrolytes than commercial sports drinks. An electrolyte is a particle that splits into either a negative or a positively charged ion. Electrolytes perform several important functions in your body. They are also used in all batteries.</p> <p>Methods/Materials I built an electrolyte battery using galvanized screws and carbon rods as electrodes. I wired these to form a circuit and positioned them over a plastic ice tray containing my electrolyte test solutions. I tested two different commercial sports drinks and orange juice to determine which produces the most electricity. I used distilled water and salt water as my controls. I measured my results in volts with a voltmeter and a homemade ammeter. I performed three controlled tests on each solution.</p> <p>Results On average salt water produced 0.48 volts, orange juice produced 0.43 volts, Gatorade 2 produced 0.33 volts, and Vitamin Water Charge produced 0.26 volts and distilled water produced 0.00 volts.</p> <p>Conclusions/Discussion My hypothesis was correct, orange juice registered the most electrolytes using voltage as the measure; however, it may not be a great sports drink and it does not taste as good as my other selections. I recommend adding water and a pinch of salt to orange juice to make the ultimate sports drink.</p>	
Summary Statement I compared which electrolyte solution produces the most voltage, Orange Juice or sports drinks and the price per serving.	
Help Received Dad helped saw my base. Mom helped obtain the materials and equipment.	