



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Alexander I. Ivany	Project Number J1417
Project Title Dangerously Enhanced: The Effects of Various Sports Supplements on the Heart Rate of Daphnia magna	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to find out if sports supplements affect heart rate of athletes. I measured the heart rate of small invertebrates called Daphnia Magna after I had given them a diluted solution of 5 different sports supplements. . Daphnia magna are clear, therefore allowing me to see their heart beating underneath a microscope.</p> <p>Methods/Materials Materials: Thirty Daphnia Magna; 50 milliliters of distilled water mixed with ten drops of Craetine; 50 milliliters of distilled water mixed with ten drops of Thermo Burst; 50 milliliters of distilled water mixed with ten drops of Tribulus; 50 milliliters of distilled water mixed with ten drops of Nitric Oxide; 50 milliliters of distilled water mixed with ten drops of Green Tea Extract; A microscope; Six fifty milliliter test tubes; Observation Gel to keep Daphnia Magna in place; Timer.</p> <p>Methods: 1. Grind with a mortar and pestle, one tablet of each of the five sports supplements; 2. Mix each one into water; 3. Once the supplements are completely disolved add 10 drops of each one into a 50 milliliters of distilled water. Do not add to control jar; 4. With a pipet add a group of about five Daphnia Magna to each jar; 5. Shape the observation gel so that there is a small shelter for the Daphnia Magna to sit; 6. Using the pipet place the Daphnia inside the shelter; 7. Place a lens over the shelter and put it under a microscope; 8. Count how many heartbeats the Daphnia have in ten seconds and then record it; 9. Repeat for a total of 3 times per supplement.</p> <p>Results In conclusion, I found that the sports supplements did affect the Daphnia Magna's heart rate, and the Creatine increased the Daphnia's heart rate the most. The regular heart rate of a Daphnia Magna is 54.33 beats per 10 seconds. Each of the sports supplements were more than this control. The Creatine averaged 71.33 heart beats per 10 seconds, nine more heart beats per ten seconds than the Tribulus as well as the Thermo Burst, which both averaged 62.33. The Daphnia Magna in the Nitric Oxide had an average heart rate of 59.33 beats per second. In the Green Tea Extract, the average heart rate of the Daphnia was 57 beats per 10 seconds.</p> <p>Conclusions/Discussion I think that this information is relevant to modern day athletes.</p>	
Summary Statement After testing 5 sports supplements, I found that sports supplements do affect the heart rate in various amounts.	
Help Received Ms. Whitfield and Ms. Moore, my school's science teachers, helped me with the microscope.	