



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Georgina E. Hartzell	Project Number S1006
Project Title What Is the Effect of Diet Type on the Amount Blood Pressure Can Be Lowered?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To find out if non-vegetarians have their blood pressure lowered more easily than vegetarians. Both groups underwent the same methods for lowering their blood pressure, however the groups started out with different means for their blood pressure (vegetarians had lower blood pressure than non-vegetarians). However even vegetarians may need to lower their blood pressure to prevent risk of heart disease, and I speculated that methods of changing diet would be less effective on the vegetarians.</p> <p>Methods/Materials In this experiment, I conducted a laboratory study with high school students as subjects. The goal was to find out if the non-vegetarian subjects were able to lower their blood pressure more than the vegetarians. The method of lowering blood pressure was to consume two oranges a day. One group of six vegetarians and one group of six non-vegetarians ate two oranges each day for six weeks. The other groups of six vegetarians and six non-vegetarians did not change their diet over the course of six weeks; they were the control. To take the initial blood pressure of my four groups (before the six-week period), I used the physiology lab in my school. I was supplied with a sphygmomanometer and a stethoscope, and I measured all 24 subjects' blood pressure myself. I checked with my subjects during the course of the six weeks to assure that they were correctly following the procedure. At the end of six weeks I took everyone's blood pressure again.</p> <p>Results The amount of change in blood pressure was most significant for the non-vegetarians who ate oranges. With a t-test (a measure of variance) this group ranked in the "very significant" category. The vegetarians who ate oranges had a "somewhat significant" amount of change. The two control groups saw no significant change in their blood pressure. All subjects who ate oranges said that they enjoyed it and would prefer eating oranges to changing other parts of their diet or increasing exercise to lower blood pressure.</p> <p>Conclusions/Discussion I found that my hypothesis was right. The vegetarians started with lower blood pressure, but their's did not have as much change over the course of six weeks. However, the effectiveness of oranges for lowering blood pressure was demonstrated by the lack of any change in the control group. I would recommend oranges for anyone with high blood pressure.</p>	
Summary Statement A study of oranges as a method for lowering blood pressure in vegetarians vs. non-vegetarians.	
Help Received Science teacher, Ms.Hackworth, helped me find subjects.	