



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Jason R. Castillo	Project Number S1003
Project Title Blood Pressure: What Impact Does the Common Method of Measuring Blood Pressure Have on the Accuracy of B.P. Readings?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my Science Fair project is to determine the accuracy of the common method (community standard) of taking blood pressure readings when compared to the ideal method. I also want this experiment to be informative as patients need to realize that they are also responsible for their part in allowing the blood pressure test to be performed to the highest degree possible. It is also my intent to bring more attention to the importance as it can lead to stroke, kidney failure, and early death.</p> <p>Methods/Materials The materials for my science fair project included a mercury based Sphygmomanometer, a stethoscope, camera, computer, calculator, test subjects, gum, timer, permission forms for signatures, and use of a medical office. The survey required 200 envelopes, stamps, and surveys. The method of my experiment began by my speaking to a few medical professionals to determine a few factors that occur during the taking of blood pressure readings to assist in preparing the survey. I then used the completed surveys to create the experiment to test the common method (community standard) of having the blood pressure taken while the test subject was chewing gum, crossing their legs, tensing their testing arm, sitting on the exam table, and talking as well as taking their blood pressure under the ideal method.</p> <p>Results All common methods caused an increase in blood pressure over ideal conditions. The blood pressure while the test subjects sat on the exam table was lowest with an average increase of 2.38mm Hg systolic and 1.95mmHg diastolic. Tensing the testing arm caused an increase of 3.9mm Hg systolic and 3.71mm Hg diastolic while crossing the legs caused an increase of 4.71mm Hg systolic and 3.38mm Hg diastolic. Chewing gum caused an increase of 5.95 systolic and 3.95 diastolic. The highest increase occurred when the test subject was talking. The mean showed an increase of 5.62 mm Hg systolic and 5.0mm Hg diastolic.</p> <p>Conclusions/Discussion Overall my survey and test subject data showed that there are external events that are occurring during the testing of blood pressure and that these events do have an effect on the blood pressure measurement. This does have an impact as an incorrect value could misdiagnose or improperly treat a possible blood pressure condition. The best option is to take blood pressures in the ideal method and for patients to be educated and prepared to do their part.</p>	
Summary Statement My project is to determine if the common method (community standard) for taking blood pressure measurements is accurate when compared to the readings taken using the ideal method for taking blood pressure measurements.	
Help Received	