



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Eunice Padilla</b>	<b>Project Number</b> <b>S2119</b>
<b>Project Title</b> <b>The Effects of Pseudoephedrine on the Cardiovascular System of the California Blackworms</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Popular illegal street drug Crystal Meth, composed mainly of Pseudoephedrine, can cause physical and psychological effects. In addition, this addictive substance can increase the risk of cardiovascular disease. Since, heart disease is currently the leading cause of death according to the Centers of Disease Control and Prevention, 610,000 people die of cardiovascular diseases in the United States. Furthermore, the purpose of this experiment was to determine if exposing the California Blackworm to pseudoephedrine, an over the counter nasal decongestant would have an effect on the worm pulse rate.</p> <p><b>Methods/Materials</b> A total of ten worms were exposed to pseudoephedrine, ten other worms were exposed to an induced cardiovascular injury, and ten other worms were exposed to both pseudoephedrine and induced cardiovascular injury. They were then observed under a microscope for pulse rate and were compared to the control.</p> <p><b>Results</b> As a result the group from test A, which was the control, had an average of 6.8 pulse rates per 30 seconds. In addition, test A had a regular pulse rate and showed normal health behaviors. In test B, the worms were exposed to pseudoephedrine; they had an average 9.4 pulse rate per 30 seconds. However, they were less active then test A. In test C, the worms were induced with an injury in their dorsal blood vessel, and had a mean value of 11.8 pulse rate per 30 seconds; test C had a faster pulse rate then A and B. The worms in test D, exposed to both injury and pseudoephedrine, had an average of 11.8 pulse rate per 30 seconds. Although, test C and D did not have difference in average pulse rates; test D showed irregular pulse rates, several pulse rates were slower an others were faster.</p> <p><b>Conclusions/Discussion</b> My hypothesis was that exposing pseudoephedrine and causing an injury on the main blood vessel (dorsal) of a California Blackworm would increase the pulse rate. As a result the data does support this hypothesis: pseudoephedrine and the injury did increase the heart rate. Therefore, I can concluded that having a cardiovascular injury or even just high blood pressure and taking over-the-counter cold medication that contain pseudoephedrine, can increase your chances of heart disease or arrhythmia</p>	
<b>Summary Statement</b> The purpose of this experiment was to induce the Blackworms environment by exposing Pseudoephedrine in the water and inducing a cardiovascular injury, and observe their pulse rate.	
<b>Help Received</b> Parents helped with display bored; performed project and used lab equipment in Mrs. De La Cruz classroom.	