



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Mitch L. Karraker</b>	<b>Project Number</b> <b>J1008</b>
<b>Project Title</b> <b>Flow Factor</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The object of my project was to learn whether or not the length and diameter of an artery had an affect on the flow of fluid through it. My goals were to time the flow of different diameters and different lengths to find the resistance of the fluid, to learn more about my topic, and to have fun. <b>Methods/Materials</b> To help me find out if the artery lengths had an affect I used two pig hearts that I got from a butcher shop. With the help of Dr. Gregorgy, I cut out the left descending coronary artery out of both hearts to use in my experiment. I used an IV bag, catheter tubing, and a blunt tip to run the water through. After completeing my experiment I used Poiseuille's Law to find the resistance of the fluid. <b>Results</b> The results of the project proved that my hypothesis was correct. When I ran the fluid through a longer artery the slower the fluid went and when I ran the water through one with a bigger diameter the faster the fluid went. <b>Conclusions/Discussion</b> My conclusion of the project was that my hypothesis was correct. The artery that was longer was slower and the one with the greater diameter went faster. When I found the resistance, using Pouseuille's Law, it also showed that my hypothesis was correct. This project expanded my knowledge of this project a lot. I learned more about the heart and more about how the doctors use information to help them durin the surgery or the data that they use before.	
<b>Summary Statement</b> My project is about how the resistance of arteries affectsa person when they are treated with bypass surgery or other cardiac procedures.	
<b>Help Received</b> Mother helped with the board and some writing, the Meat Market store gave me the pig hearts, and Dr. Richard Gregorgy helped with some materials and the experiment.	