



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Samantha A. Wopat	Project Number J1032
Project Title Can You See in Stereo? Lasik vs. Non-Lasik/Perfect Vision	
Abstract Objectives/Goals The purpose for my project was to find if lasik surgery has an effect on one's ability to see a stereogram. Methods/Materials I collected some stereograms, and then started to test subjects who had lasik surgery and others who have perfect vision (have not had the surgery). After one week, I had tested all twenty of the perfect vision subjects, but was having trouble finding people who have had lasik surgery. After sending out many e-mails and talking to people, I managed to find and test ten lasik subjects. Some other materials I collected were a timer, and a recording chart. Results In my graph, I noticed a pattern of decreasing times to see the stereograms for both groups. There was a steeper learning curve for perfect vision subjects than lasik subjects. The first stereogram took the longest to decipher. After that, perfect vision subjects# times got a lot faster, while lasik subjects# times got quicker at a slower rate. I also noticed a big difference of the median bars on my graph. 80% of the median bars for perfect vision subjects were lower than lasik subjects, which suggests that perfect vision subjects could see in stereo quicker. There was a lot of variation of the median for lasik subjects, while perfect vision subjects# medians consistently declined. Another observation is that 40% of stereograms were not deciphered in the lasik group within the two minute time limit, whereas, 29% of the stereograms were not deciphered in the perfect vision group. Conclusions/Discussion Many subjects had trouble with the first stereogram. This is because they did not yet know how to use stereopsis (using both eyes to fuse an image). The steeper learning curve and my evidence of medians suggests that perfect vision subjects could learn to see stereograms quicker than lasik subjects and had more success overall. This shows that perfect vision subjects improved as I kept testing them, while lasik subjects did not. Only 29% of the stereograms were not deciphered by perfect vision subjects, while 40% of the stereograms were not deciphered by lasik subjects. This also helps provide more evidence to support my hypothesis that lasik subjects would have more difficulty utilizing stereopsis.	
Summary Statement My project is about lasik surgery and how it may effect one's ability to see stereograms.	
Help Received Mentor helped get stereograms and check board, parents helped proofread project	