



CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

Name(s) Caelin E.M. Batstone	Project Number 31363
Project Title Swish: Does Crossed Eye-Hand Dominance Make a Better Free Throw Shooter?	
Objectives/Goals I have been playing and watching basketball my whole life. In the 6th grade I entered a free throw competition, and as I looked around at other competitors, I thought to myself, "What makes someone good at free throws?" Is it practice or could it be some special trait they possess? I thought it would be interesting to devise a test to determine the eye-hand dominance of basketball players and then see if those who tested as crossed eye-hand dominance were better at free throw shooting than those who are not. Abstract I have been playing and watching basketball my whole life. In the 6th grade I entered a free throw competition, and as I looked around at other competitors, I thought to myself, "What makes someone good at free throws?" Is it practice or could it be some special trait they possess? I thought it would be interesting to devise a test to determine the eye-hand dominance of basketball players and then see if those who tested as crossed eye-hand dominance were better at free throw shooting than those who are not. Methods/Materials 1) I selected 36 volunteers from my current middle school's basketball teams who have roughly the same amount of basketball experience. 2) I determined dominance by asking the subjects to take a paper tube in both hands and look through it to see an object in the near distance. 3) I noted if subjects have crossed eye-hand dominance naturally. 4) The subjects shot 10 free throws using their dominant hand from the free throw line at the school gymnasium and I recorded the the number made and calculated the percentage of shots made. 5) I had the subjects repeat the previous procedure, but this time covering their dominant eye with an eye patch, then a third trial covering their non-dominant eye with an eye patch. Results When I compared the average scores between crossed eye-hand dominant and uncrossed eye-hand dominant subjects, crossed eye-hand dominant subjects scored significantly higher on two of the three trials. However, uncrossed eye-hand dominant subjects scored higher when their non-dominant eye was covered. The average scores for this latter trial were even higher - 50% to 43% - than when they were wearing no eye patch at all. Conclusions/Discussion Subjects who were identified in being crossed eye-hand dominant scored higher on average than those who had uncrossed eye-hand dominance. When I used the eye patch to force subjects to shoot with their non-dominant eye only, the crossed dominant subjects still performed better. I was hoping that the uncrossed dominant subjects would have performed better when I forced them to use their non-dominant eye to shoot. In fact, they performed best of all when I made them use only their dominant eye to shoot, which is interesting and a possible further research topic! In conclusion, crossed eye-hand dominance may make you a better free throw shooter but if you're not crossed eye-hand dominant DON'T TRY TO BE!	
Summary Statement How crossed eye-hand dominance affects free throw shooting ability	
Help Received My science teacher made research suggestions and my interviewees, Dr. Jonathan Freeston and Wendy Brown, OTR, made suggestions in regard to my procedures. My mom helped me collect materials, drove me to my experiment site, and assisted in my board design.	