



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> Seth S. McCormick	<b>Project Number</b> <b>J0325</b>
<b>Project Title</b> <b>Does Practice Make Perfect? The Effect of Athletic Participation on Depth Perception</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine if athletic participation in sports which reward good depth perception improves depth perception.</p> <p><b>Methods/Materials</b> Informed consent was obtained from 41 8th grade girls and boys, ages 13 and 14. A questionnaire on demographic characteristics and athletic history was filled out by all subjects. The distance between each subject's eyes was measured with a clear 6 inch ruler. Subjects were then trained to recognize measures of distance and size by observation of a three foot ruler laid on the ground. The test materials consisted of a 3 inch cube and a 6 inch cube spaced three feet apart at a distance of 12 and 15 feet away from the subjects. Each subject was asked to estimate the distance to the first cube and between the two cubes as well as the sizes of the two cubes. Subjects were then instructed to close their eyes. During this time the position of the two cubes was swapped. Then subjects opened their eyes and repeated the estimation procedure. Half the subjects started with the 3 inch cube closer, and the other half started with the 6 inch cube closer. Data were then analyzed.</p> <p><b>Results</b> First and second trials achieved indistinguishable results, so only first trials were used for data analysis. There were small, statistically insignificant differences between the estimates of distance and size made by boys and girls; boys were more accurate. Female athletes estimated both size and distance better than non-athletes; male athletes guessed only size better than non-athletes. Analysis using both subjects' race and the distance between their eyes produced random results. Most surprisingly, the subjects underestimated the 12 ft. distance in 71 out of 82 trials, and overestimated in only 1.</p> <p><b>Conclusions/Discussion</b> I had three hypotheses: 1. boys would do better than girls 2. subjects who participate in athletics would do better than non-participants 3. subjects with greater distance between their eyes would do better. The first two hypotheses were only weakly supported, while the third was not supported at all. This research indicates that practicing depth perception through sports makes only a minimal improvement in depth perception. The most significant and surprising result was that in 86.6% of the trials, subjects underestimated the distance to the closer cube, and overestimated in only 1.2%. This would be a good topic for subsequent exploration.</p>	
<b>Summary Statement</b> My project demonstrated that depth perception is not improved by participation in sports which allow the participants to practice depth perception.	
<b>Help Received</b> Mother helped edit report. Father glued pages onto display board.	