



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Matthew C. Colbert</b>	<b>Project Number</b> <b>J1203</b>
<b>Project Title</b> <b>Right, Left, or "Ampawdextrous"? Brain Laterality in Dogs</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to see if dogs were right handed, left handed, or ambidextrous and expressed handedness at the 90% right handed incidence of humans.</p> <p><b>Methods/Materials</b> 21 dogs with 18 owners were tested with three distinct, unique tests to determine the dogs' handedness. Informed consent was obtained from all owners. 90 data points for each dog were taken in independent recall, paw-shaking, and walking-on-leash tests. Data was taken on each dog's age, weight, and previous obedience training to see if it correlated with handedness.</p> <p><b>Results</b> Results from the three unique tests were analyzed and interpreted and the Pet Dominant Hand (PDH) was determined. 45% of dogs were left handed. 22% of dogs were right handed. 33% of dogs were ambidextrous ("ampawdextrous"). 100% of dogs under the age of two years were left handed. As dogs increased in age, more dogs tested "ampawdextrous". "Side dependence" (a phenomenon where the dog led with the foot closed to the owner while on leash) was shown by dogs with obedience training. Chi square statistics were utilized to analyze results.</p> <p><b>Conclusions/Discussion</b> There is more variability in handedness in dogs than in humans. The majority of dogs were left handed and therefore, right brained. Right brained individuals have strengths in non-verbal communication and face recognition. Young dogs were 100% left handed. Handedness is both genetic and learned. Obedience training influenced handedness through "side dependency". Chi square analysis showed a positive trend for age and no correlation with weight. Knowing your dog's handedness could help trainers of protection dogs, service dogs, and therapy dogs pick individuals who could succeed at their jobs and could just be fun for the average family.</p>	
<b>Summary Statement</b> My project was testing the incidence of handedness in dogs and I picked this project because I am left handed, right brained, and interested in the human-dog relationship and tests that may improve the ease of dog training.	
<b>Help Received</b> My mom and dad helped with Excel graphs and a statistician from my school helped with Chi Square Analysis.	