



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Bailey M. Gallagher	Project Number 36794
Project Title Effect of Height of a Jump on a Horse's Hip Angle	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my experiment is to observe how the height of a fence affects a horse's hip angle at takeoff, mid-jump, and landing.</p> <p>Methods/Materials Video camera, protractor, jumping standards, 5 horses, 1 rider. Measured three different angles (takeoff, mid-jump, landing) of the horse's hip over five different heights of fences (2#, 2#3#, 2#6#, 2#9#, 3#).</p> <p>Results Several horses were put over the five different height fences two times each and then the angles were measured and recorded. The angle at landing was the largest angle of the three so the horse would be able to clear the jump as the front hooves make contact with the ground. The next largest angle was at takeoff because the horse has to open its hip so it doesn't run through the jump. The smallest angle was at mid-jump because the horse has to be able to clear the fence, so they adduct their rear legs to their midline. I also found out that most of time that the higher the jump was, the more open all the measurements of angles were.</p> <p>Conclusions/Discussion At the lower fences, the angles of the hip were relatively close and in uniform. After 2#6#, however, the angle measurements had more variation and started to scatter.</p>	
Summary Statement I showed that the angle of a horse's hip over a fence is dependent on the height of the fence and its takeoff point, not the height of the horse itself.	
Help Received Jamie Cullers, a professional horse rider, rode the horses in the jump trial. Mary Nicita, a professional horse rider and trainer, helped me assess the horses limitation and create the five heights that all the horses would be jumping in the trials. My biology teacher reviewed the results.	