



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>Sophia Calvillo; Sarah Fong</b>  | <b>Project Number</b><br><b>J0306</b> |
| <b>Project Title</b><br><b>Prosthetic Leg Support for a Disabled Dog</b>  |                                       |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>The objective is to build a prosthetic limb support for a disabled family dog who has only a deformed front leg and two healthy rear legs.</p> <p><b>Methods/Materials</b><br/>Moldable plastic, Velcro, neoprene, hot glue, and rubber shoe soles. Timed dog with and without the prosthetic support in different environmental conditions, multiple times, and in multiple places.</p> <p><b>Results</b><br/>Our dog was tested with no prosthetic support, his old supporting device, and our prosthetic support. Repeated trials were conducted in various locations to measure: time over short distances, endurance, and behavior. Results showed the dog was faster over short distances, had greater endurance, and a reportedly happier demeanor and was more energetic while wearing our prosthetic.</p> <p><b>Conclusions/Discussion</b><br/>Based on the multiple trials and days of use, we found the dog performed better in all measurable categories. We further found that as he became used to wearing our device his owners reported the dog was able to exercise for much longer periods of time and was now able to socialize and play with other dogs which he was not able to do before.</p> |                                       |
| <b>Summary Statement</b><br>We created a prosthetic leg support that greatly improved a disabled dog's ability to run outside, play, and socialize with other dogs.   |                                       |
| <b>Help Received</b><br>My partner and I designed and built the prosthetic leg support by ourselves with input from our science teacher Mrs. Eno of St. Joseph Elementary School and we received feedback from the dog's owners.  |                                       |