



## Colorado Science and Engineering Fair

## 2025 Individual Project Abstract Form

**Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.**

Title of Project: Tech or Talk?: An Analysis of Training Methods for Muscle Memory.

Finalist's Name: Sydney Curtis

School and City: Sargent Middle School, Monte Vista

Sponsor's Name: Terri Paulson

Category: Behavioral & Social Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

This project examines whether verbal, in person training or video training is more effective in improving form and building muscle memory of exercises. This was tested with 36 participants ages 14-18. This project used two leg exercises, split squat and hip rotations, and tested two methods, verbal in person training and video instruction. Each participant was tested four times and trained according to their assigned groups. Results were calculated using the average improvement of the range of motion of each group from day one to day four, the number of participants whose knee joint range of motion was between 88 and 93 degrees of flexion, and the number of participants who increased their range of motion in each group.

Results of this project indicate the groups with verbal training had the most improvement and had the most participants whose final knee joint range of motion was in the range of 88 to 93 degrees flexion. These results could change if using an online trainer versus a video as was used in this experiment. It was hypothesized that verbal training would be most effective in improving form and building muscle memory and the results of this project support this hypothesis.

The information discovered in this project will benefit individuals who are looking for a better way to train their muscles, recover from injuries, or exercise in general. This information can be useful to professionals in the fields of physical therapy, sports training, coaching, as well as athletes and other exercise enthusiasts.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**