CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)
Anna R. White

Project Number
J1321

Project Title
Stiches that Bind: An Analysis of Seam Strength

Abstract

Objectives/Goals
The objective of this study is to determine whether specialty stiches are necessary for certain fabrics when sewing.

Methods/Materials
Sewing machine, 50 weight thread, 3 fabric types: muslin, jersey knit, and rayon were used to create various seam samples. A purchased hanging scale and home made clamps with grip strips were used to hold fabric in place while testing seam strength.

Results
To begin the analysis, the torn fabric samples were laid out for observation to search for patterns. Two types of failure were noted: fabric and stitch. A fabric failure is when the fabric rips before the stitch breaks, and a stitch failure is when the actual stitching pulls out or breaks. The main observation made during the experiment was that every jersey stitch, regardless of fabric, never had a stich failure.

Conclusions/Discussion
The jersey stitch consistently complimented the jersey knit fabric, proving that is it worth it to use the specialty stiches with certain fabrics. This project is useful for anyone who likes to create their own sewing patterns and can provide guidance to others when thinking about fabric and stitch selections. Further research can be done to account for different variables: thread weight, needle size, additional fabric samples with a similar weave.

Summary Statement
This project will determine whether specialty stiches are necessary for certain fabrics when sewing.

Help Received
I performed this experiment independently. I received support from my teacher, who encouraged me when I shared my idea, my sewing teacher, whom I discussed the different variables with, and my dad, who helped me to build what I had envisioned using to test the seam strength, the clamps.