

Title: UW Adapted Fitness: Grip strength improvement mechanism

Date: 10/23/2025

Client: Dr. Kecia Doyle

Advisor: Dr. Randy Bartels

Team: Cookie Monsters

David Diancin - Team Leader

Sydney Smith - Communicator

Gabriel Klenner - BSAC

Lucy Mcardle - BWIG

Lauren Hain - BPAG

Problem statement

Individuals in the UW Adapted Fitness program may face challenges with grip strength that limit their ability to perform daily tasks and participate in exercise. A longtime client with reduced grip strength in one hand has worked consistently to improve function but still struggles with both everyday items and workout equipment. Current tools in the Conway Adapted Fitness space are not tailored to his needs, creating a gap in training effectiveness. This project aims to design a safe, affordable, and user-friendly mechanism to support targeted grip training, improve independence, and enhance the client's overall fitness experience.

Brief status update

This week, we printed our first 3D PLA ring, but encountered a sizing error. We then reprinted the resized ring with the new backing plate and backing connector, all of which were made from PLA.

Major team goals for the next week

1. Continue to 3D print rings (resize) and backing
2. Figure out the fabrication to attach the plastic backing to the glove
3. Test the strength of rubber bands, rings, and backing
4. Have a prototype by next friday

Next week's individual goals

- Sydney Smith: Communicate with client and continue to research about the mechanics of the hand/previous designs
- David Diancin: Continue to research other designs for substitute materials
- Lucy McArdle: Create the elevator pitch for “Show and Tell”, assign parts, and rehearse pitch
- Lauren Hain: Continue to work on fabricating our design and start preparing for our prototype presentation.
- Gabe Klenner: Continue to update OnShape models and assemble the first prototype.

Previous week's individual goals and accomplishments

- Sydney Smith: Begin 3D printing parts of the prototype
 - Started to 3D print
- David Diancin: Redesign main connecter in onshape
 - Remade the backing connector to implement the best connection with the hook for the rubber bands
- Lucy McArdle: Learn basics of onshape for 3D printing of prototype, begin fabrication of prototype
 - Began the fabrication of the prototype, editing measurements along the way
- Lauren Hain: Work on completing our funding request for the BME department and finalizing all of the materials we would like to purchase.
 - Got all materials approved and ordered through the BME department.
- Gabe Klenner: Design a plastic plate with hooks to put over the hand. This plate should be able to hold the rubber bands and fit underneath the top fabric of the glove if possible.
 -

Timeline

[illegible]

Background...	x	x	x	x												
Prototyping																
Testings																
Deliverables																
Progress Reports	x	x	x	x	x	x	x	x								
Prelim presentation				x	x											
Final Poster																
Meetings																
Client			x													
Advisor				x	x											
Website																
Update	x	x	x	x	x	x										

Filled boxes = projected timeline

X = task was worked on or completed