Title: UW Adapted Fitness: Grip strength improvement mechanism

Date: 10/30/2025

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 have created a PLA ring we are confident about but with our first TPU prints of the rings, we ran into a support printing error since TPU does not support supports when printing, our second try with TPU used the rings without any supports and a closed ring that would be slipped on instead of trying to clip them on. We also cut out a gardening glove and sewed on a pocket for the backing plate to go for the prototype.


Major team goals for the next week

1. Finalize 3D rings print and material
2. Configure a working prototype and begin testing
3. Document and note steps that will be taken for fabrication of the final design

Next week's individual goals

- Sydney Smith: Continue to test and fabricate our device
- David Diancin: Look into availability for a force gauge for testing applicable force.
- Lucy McArdle: Continue fabrication of our prototype and test with team members and client
- Lauren Hain: Continue to fabricate our glove design and begin testing our design
- Gabe Klenner: Try to find a locker to keep materials and prototype, continue to update prototype.

Previous week's individual goals and accomplishments

- Sydney Smith: Communicate with client and continue to research about the mechanics of the hand/previous designs
    - Completed elevator pitch and helped test different materials for 3D printing the rings
- David Diancin: Continue to research other designs for substitute materials
    - Found that other 3D filaments are unsuitable, and made small changes to ring design on onshape.
- Lucy McArdle: Create the elevator pitch for "Show and Tell", assign parts, and rehearse pitch
    - Created the elevator pitch, assigned parts, and rehearsed with team

- Lauren Hain: Continue to work on fabricating our design and start preparing for our prototype presentation.
    - Fabricated the design and testing some of our prototype on our client
- Gabe Klenner: Continue to update OnShape models and assemble the first prototype.
    - Reprinted backing and rehearsed elevator pitch

Timeline

Task	Sep				Oct					Nov				Dec	
	5	12	19	26	3	10	17	24	31	7	14	21	28	5	12
Project R&D															
Empathize	x	x													
Background…	x	x	x	x											
Prototyping						x	x	x	x						
Testings								x							
Deliverables															
Progress Reports	x	x	x	x	x	x	x	x	x						
Prelim presentation				x	x										
Final Poster															
Meetings															
Client			x			x		x							
Advisor				x	x										
Website															
Update	x	x	x	x	x	x	x	x	x						

Filled boxes = projected timeline
X = task was worked on or completed