Title: UW Adapted Fitness: Grip strength improvement mechanism

Date: 11/21/2025

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 more 3D rings, fabricated the bungee cords with the S hooks, and slightly redesigned the backing piece. We are now going to be working with the right glove and continue to test bungee cords, rubber bands, and possibly braided fishing line. Friday we will be testing band fit and tension with the bungee cords.

Major team goals for the next week

1. Finalize prototype
2. Continue testing with client
3. Continue fabricate final design pieces
4. Work on final report and poster presentation

Next week's individual goals

- Sydney Smith: Help fabricate last pieces of the final design
- David Diancin: Optimize the backing plate for the final design and research correct formatting for elasticity graphs.
- Lucy McArdle: If fishing line arrives, create secondary band system to go with glove. If not, continue to improve ring connections and test prototype
- Lauren Hain: If fishing line arrives, create secondary band system to go with glove. If not, continue to improve ring connections and test prototype
- Gabe Klenner: Help fabricated ring connections with fishing line, research testing methods for elasticity.

Previous week's individual goals and accomplishments

- Sydney Smith: Continue to fabricate final design and work out any flaws with client
    - Cleaned up 3D rings
- David Diancin: Continue testing tension for each elastic connection option and prepare equations to measure elasticity
    - Reprinted multiple finger rings and poked holes through each to the correct diameter.
- Lucy McArdle: Continue to fabricate using the dremel and wire cutters, and begin testing bungees to see if they are viable
    - Finished bungee cord fabrication, moved on to fabricating the connections between rings
- Lauren Hain: Continue to fabricate with the bungee cords and begin strength testing of the cords on the client.
    - Finished bungee cord fabrication, moved on to fabricating the connections between rings
- Gabe Klenner: Continue testing and create a complete data table for rubber band, bungee cord and braided fishing line strengths.
    - Designed and printed new backplate with 3 hooks, waiting for fishing line to be delivered before beginning testing

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	X					
Testings								x		X		x			
Deliverables															
Progress Reports	x	x	x	x	x	x	x	x	x	X					
Prelim presentation				x	x										
Final Poster															
Meetings															
Client			x			x		x		X		x			
Advisor				x	x							x			
Website															
Update	x	x	x	x	x	x	x	x	x	X	x	x			

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