

- **Title:** Preventing Weightlifting Injuries by Barbell Modifications, Weightlifting Injuries, BME301
- **Date:** 1/27/24-2/2/2024

Last Name	First Name	Role	Email
Settell	Megan	Advisor	settell@wisc.edu
Gold	Robert	Client	bob.gld@gmail.com
BlomWillis	Nolan	Leader	blomwillis@wisc.edu
Kafar	Kaden	Communicator	kafar@wisc.edu
Parsons	Jacob	BSAC	jcparsons@wisc.edu
Waldenberger	James	BWIG	jwaldenberge@wisc.edu

- **Problem statement:** Over one million weightlifters each year experience weightlifting injuries that put them in the emergency room. Of these one million, 18-46% are reported to be caused by bench pressing a barbell. Our team's task is to create a pitch-able system that increases safety for lifting, specifically bench pressing.
- **Brief status update:** The past week was spent having our first client meeting and then diving into research regarding weightlifting injuries as well as patents on previous ideas surrounding barbell and weightlifting injury prevention.
- **Difficulties / advice requests:** There was difficulties with understanding what exactly the client was asking for for his innovation that he had in mind. Figuring out what the team wanted to make this project into was important.
- **Current design:** Currently in the Brainstorming stage regarding the design. Below are a few ideas we are looking at.
  - One design would be a radar setup to measure the balance of the bar. This idea would work and complete the ask of lowering injury risk if created, but it does not fix the problem of "pitchability".

- The other design would be a type of body suit that has motion sensors on the wrists to check the displacement of left and right wrists to make sure they are evenly distributed through the lift as well as possibly having emg sensors to track if one pectoral muscle is
- **Materials and expenses:** a concise accounting of the amounts and types of expenses incurred on the project. Use the template provided here:  
<http://bmedesign.engr.wisc.edu/course/resources/#bpag>

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	QTY	Cost Each	Total	Link
<b>Category 1</b>										
									\$0.00	
									\$0.00	
<b>Category 2</b>										
									\$0.00	
									\$0.00	
								<b>TOTAL</b>	<b>\$0.00</b>	

- **Major team goals for the next week:** The two main goals that we will work on are completing the Product Design Specification(PDS) as well as getting a few design ideas down for the design matrix.
- **Next week's individual goals:** a concise statement of intended action to continue progress on the project - be specific, i.e. what will you research.

Kaden: I plan on completing my portion of the PDS and to continue research on the biomechanics of lifting.

Jacob: I plan on assisting in the completion of the product design specifications (PDS) and continue research on existing products on the market.

Nolan: I plan on researching more about wrist motion sensors and patents that may be out there regarding these. I also plan on helping complete the PDS.

James: Complete PDS and start thinking about which design will be best suitable for the project moving forward.

Project Goal	Deadline	Assigned	Progress	Completed
Initial meeting with client	1/31	Team	100%	Y
Gather research/project information	2/2	Team	50%	N
Product Design Specification (PDS)	2/8	Team		
Design Matrix	2/15	Team		
Order/gather necessary materials	2/18	Team		
Preliminary Presentation PDF	2/26	Team		
Preliminary Report	3/1	Team		
Create prototypes	4/22	Team		
Final fabrication	4/22	Team		
Test and finalize final design	4/22	Team		
Poster Presentation PDF	4/22	Team		
Final Report	5/1	Team		
Final Notebook Team	5/1	Team		

- **Previous week's goals and accomplishments:**

Team: As a team we accomplished having our first client meeting with Mr. Gold where we heard ideas about what was wanted.

Kaden: I spent a few hours researching patents and the biomechanics of lifting. I also researched common injury causes of the main lifts performed by a barbell. I then completed my bibliography and went to advisor and team meetings.

Jacob: I have researched information on common weightlifting injuries and injuries specifically related to the barbell bench press and ways of improving form to prevent said injuries.

Nolan: I researched what common weightlifting injuries occur as well as what exercises cause these most often as I wanted to see where most of these injuries were happening so our team's focus is in the right spot.

James: I researched some patents with similar ideas to our client as well as some research done on bench press lifters, and looked at both the results and methods to try and get some ideas of what to do moving forward.

- **Activities:** a concise accounting of time spent working on the project.

	Kaden	Jacob	Nolan	James
Week 1	2.5hrs	2.5hrs	3hrs	2.5hrs