



What is Dragon Boat Racing?

- Dragon Boat is a team sport with 20 paddlers and 1 drummer
- Races are typically 200 m or 400 m

Motivation

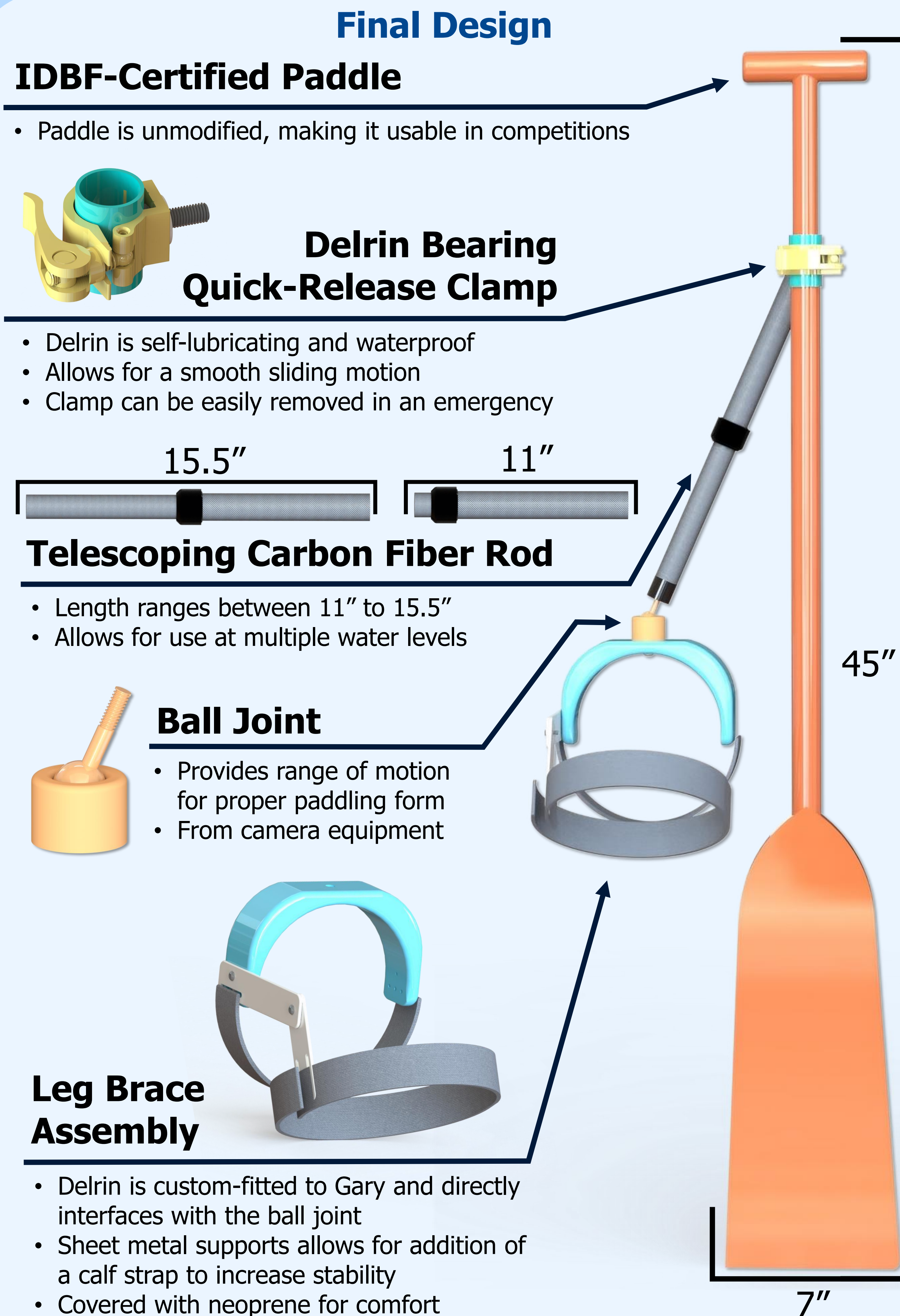
- QL+ paired us with local US Marine Veteran, Gary Verrazono. Gary lost his right arm and leg but still loves staying active, especially through dragon boat racing
- Gary's current paddle has two primary problems:
 - Painful to use
 - Inhibits paddling form
- To improve Gary's dragon boat experience, our team was tasked to create an improved paddle for Gary



Requirements

- ✓ **Safe** → Removable in under 15 seconds
- ✓ **Comfortable** → More comfortable than Gary's old paddle when ranked on a scale of 1-10
- ✓ **Durable** → Withstands water and UV exposure
- ✓ **Portable** → Fits within 45"x10"x4" envelope
- ✓ **Lightweight** → Weighs less than 3 lbs
- ✓ **Easy to Use** → Easily operatable with one hand
- ✓ **IDBF Standards** → Does not provide additional energy and follows modification limitations

*IDBF – International Dragon Boat Federation

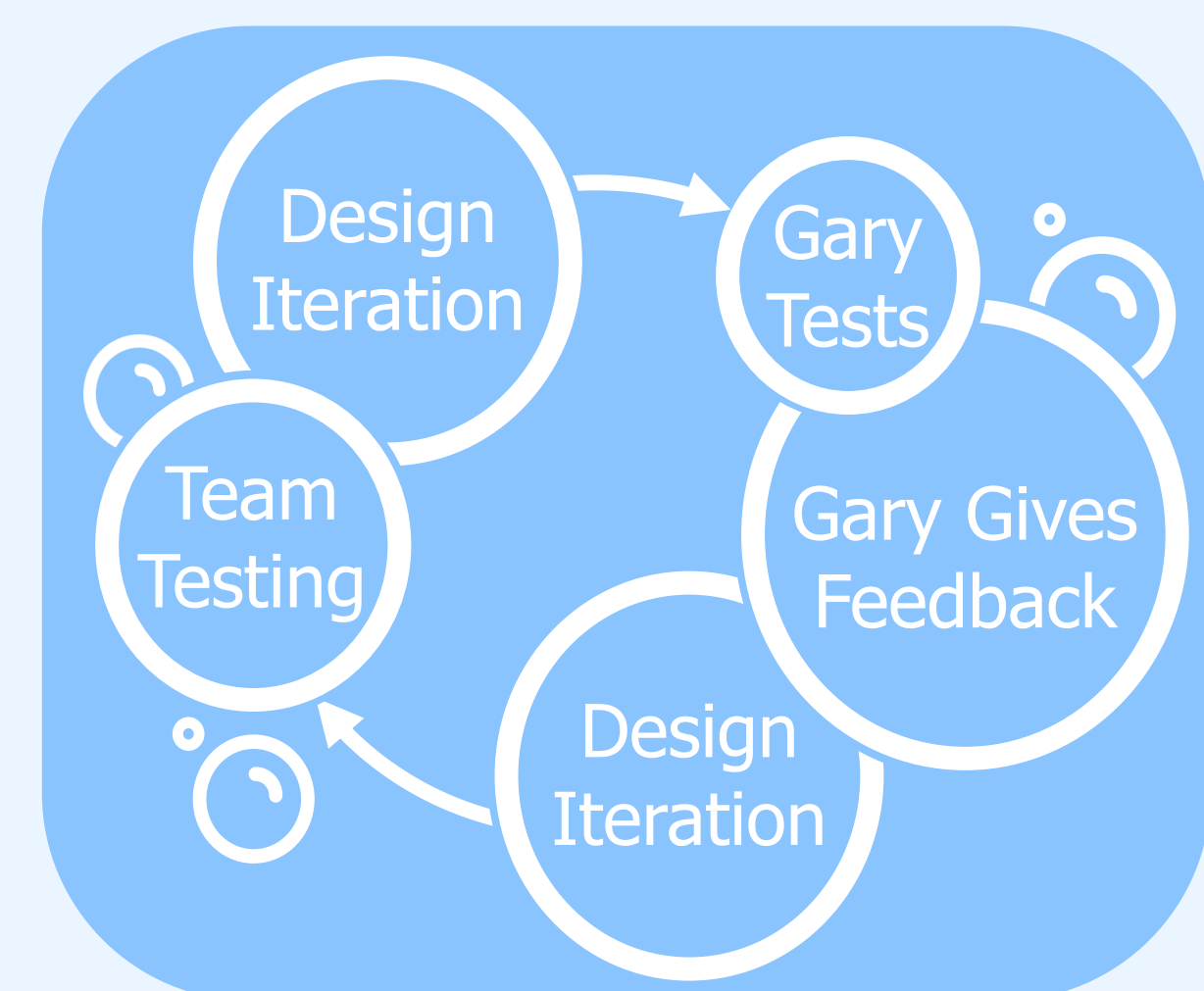


Challenges

- Benchmarking** → Lack of similar products to inform our design
- Form** → Needed to mimic 2-armed paddling form
- Sizing** → Limited time with Gary to check sizing required approximations from team members
- Power** → Lacked ability to transmit enough power
- Effective Feedback** → Figuring out how designs felt required prototypes and specific questions to discover issues and receive feedback

User-Testing

- Used a seat to replicate paddling motion in air
- At CU Rec Center, practiced paddling in the water sitting at the edge of the pool



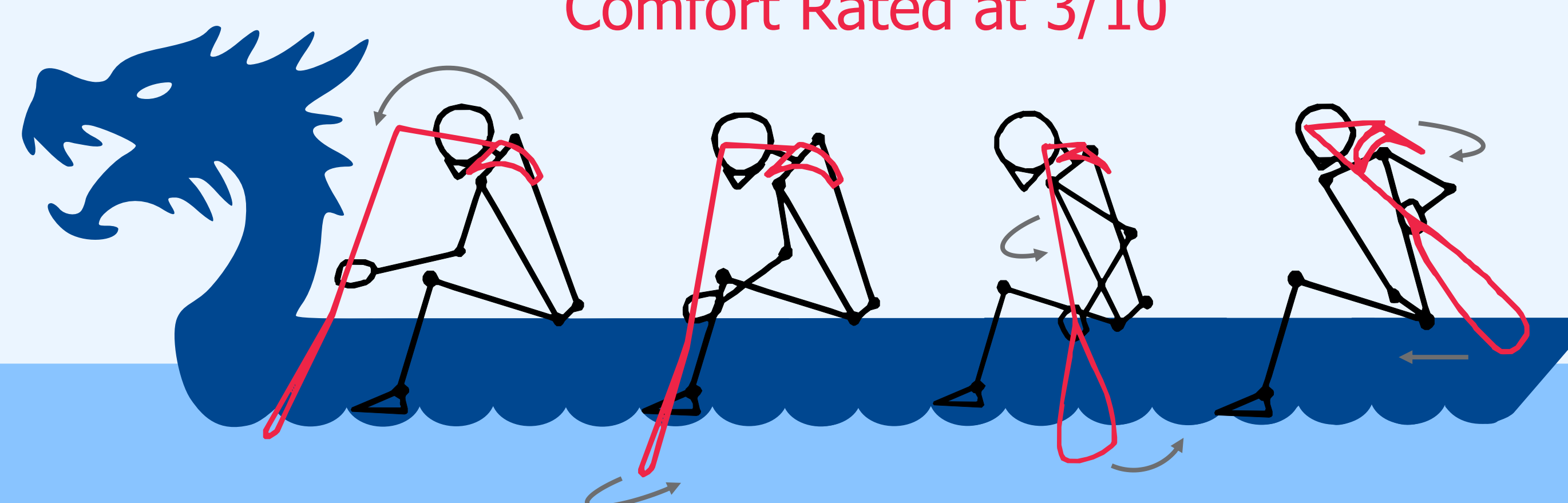
Ideal Paddling Form

Based off Competitive Racer



Gary's Old Paddling Form

Comfort Rated at 3/10



"It feels great man." – Gary Verrazono

Gary's New Paddling Form

Comfort Rated at 10/10



"One of the coolest things with this paddle is it allows [Gary] to use a standard dragon boat paddle rather than modifying the equipment." – Calli Roers