

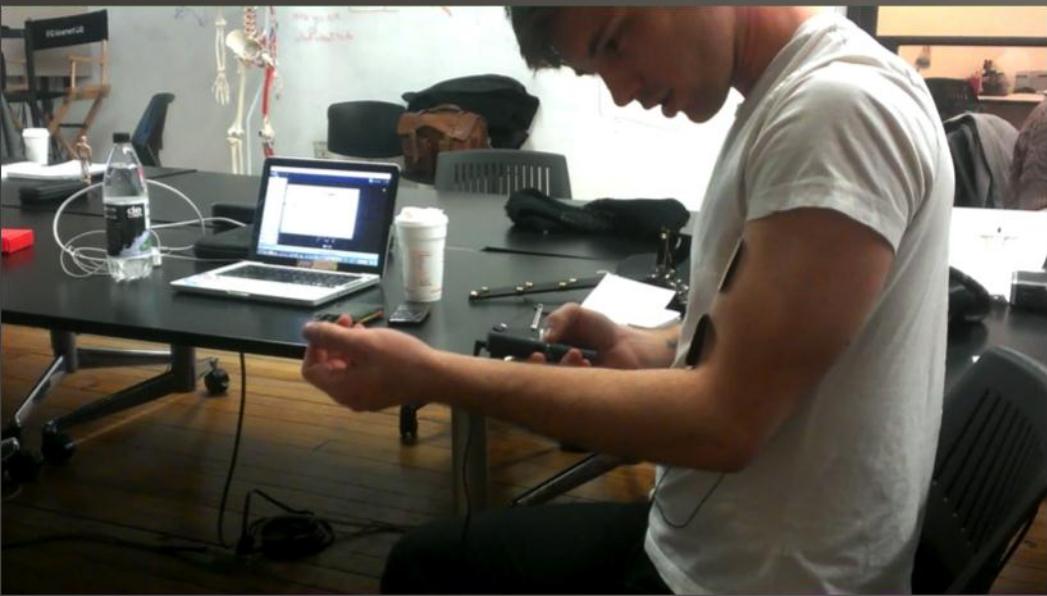


Andy + Carl + Will

# Exploring Arm Control



Inspiration  
Electrical muscle stimulation



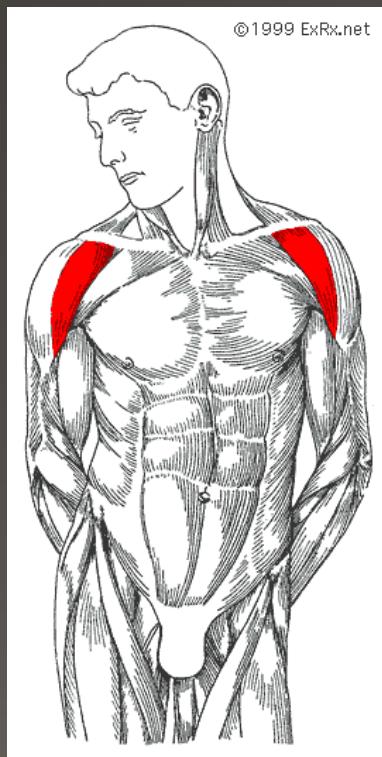
Testing off the shelf stimulator...  
...and dissected to be controlled by Max



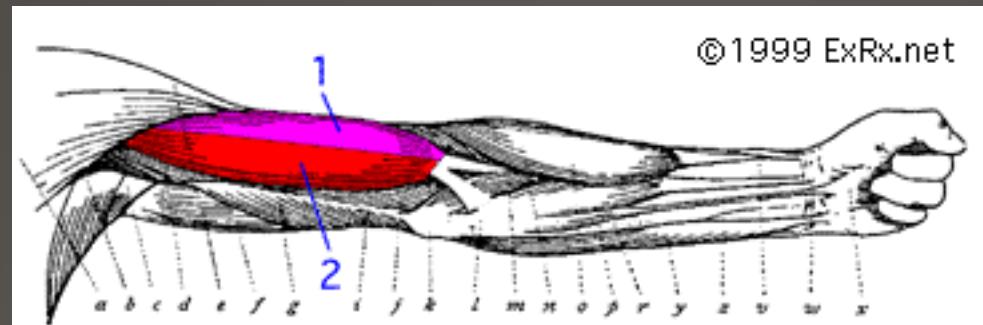
Finally with a flex sensor

# Stimulated Muscles

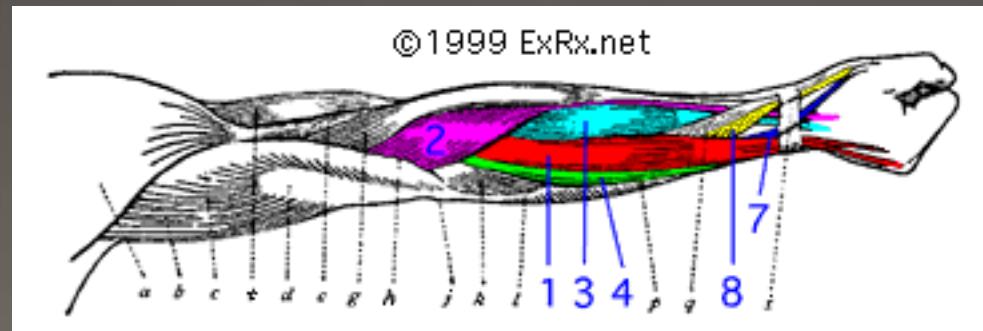
Anterior Deltoid



Biceps



Wrist Extensors

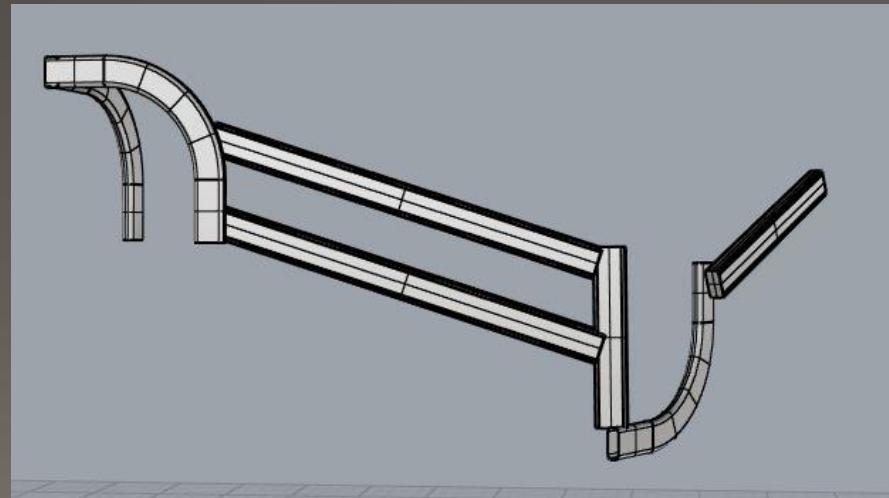
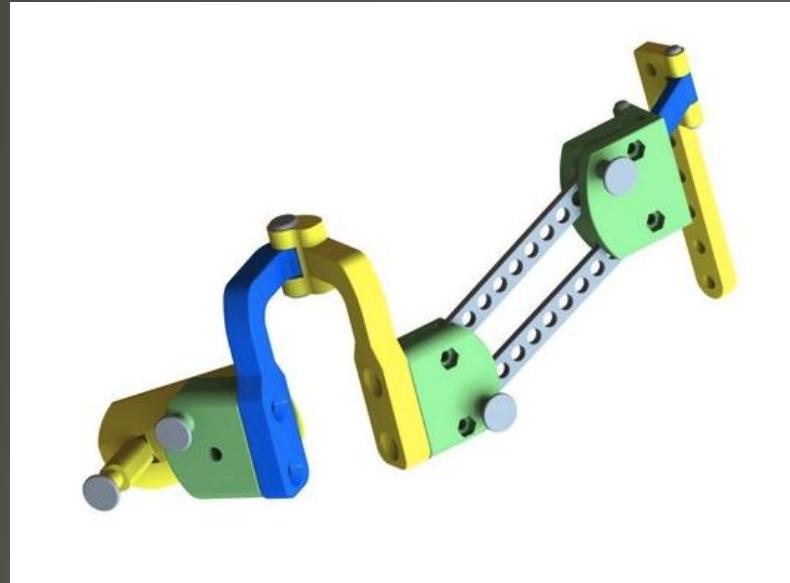




## Inspiration

Wilmington Robotic Exoskeleton (WREX)

# Exoskeleton Design



# Exploration



# Fabrication



# Hypothesis

Limitations of movement for neuromuscular electrical stimulation are similar to those of neuromuscular diseases

Therefore, we can use the same assistive technology to provide more natural movement to NMES

# Conclusion

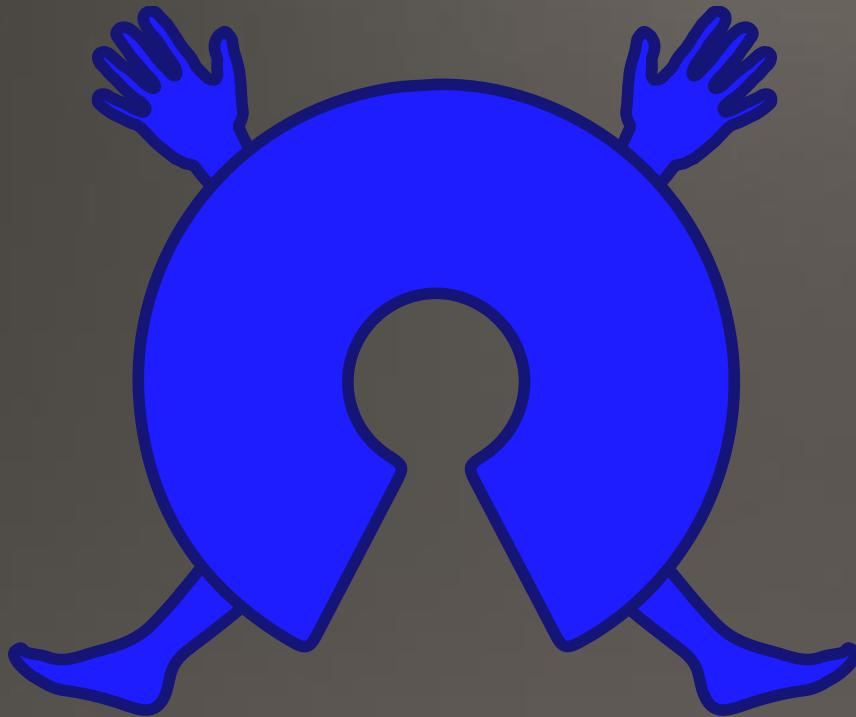
Adding the WREX make NMES movement smoother, more responsive, and more expressive.

The elbow joint works better than the shoulder. And there is room to improve.

Next Steps:

- add bearings and stronger elastic.
- print arm holder.

# Application



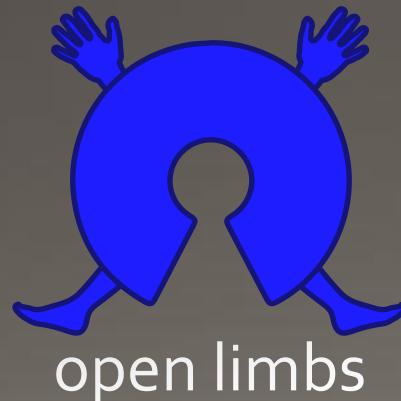
# open limbs

An API for the body

<http://openlimbs.com/>

# Concept: Open Limbs

- An API for the body
- Enable those who can't move their own limbs to move those of other people
- Publish our techniques using open source philosophy, allowing others to



# Demo

- Those with iPhones can go to <http://openlimbs.com/>

