Active Assist Elbow Orthosis

Title: Active Assist Elbow Orthosis

Invention: The invention is a motor-hinged elbow brace that stabilizes the elbow and aids in exercises that maintain the range of motion of the elbow. The orthotic brace will also assist the patient in moving the arm at a predetermined angle per the doctor’s decision. In addition, the invention includes an iOS application to control exercises and the angle of the elbow brace.

Background: Elbow stiffness after surgery is a common problem caused by the accumulation of fibrous tissue in the joint. The rigid bracing also contributes to the issue and the current solution is to perform range of motion exercises daily without the brace, which can be painful sometimes. There is a need to solve this issue by simultaneously stabilizing the elbow while providing frequent motion.

Applications:
- Physical therapy
- Orthopedic surgery
- Medical centers
- Medical devices

Advantages:
- Customizable as an exercise regimen due to the tracking capability of the iOS application
- Tracks previous exercises and displays a schedule
- Contains 1200mA-hour lithium ion battery
- Locking mechanism prevents the patient from feeling pain and is accessible to the patient to prevent the device from continuing to rotate
- Weighs 10 pounds with added torque to assist the patient in flexing and extending the arm
- Wearable and user controlled, increasing the ease of access

Contact Lisa Lin
Licensing Manager
lisal@tla.arizona.edu
(520) 626-6969

The University of Arizona, Tucson, Arizona
Lisa Lin
LisaL@tla.arizona.edu
(520) 626-6969

Inventors

Timothy Shimon
undergraduate student, Biomedical engineering

Adriana Barreda jr
Undergraduate student

Justin Hsieh
Undergraduate student, Biomedical student

Carissa Grijalva
Undergraduate Student, Biomedical engineering

Blakeley Koziol
Undergraduate student, Biomedical engineering

Michael Sveiven
Undergraduate student, Biomedical Engineering

L. Daniel Latt
Associate Professor, Orthopedic Surgery