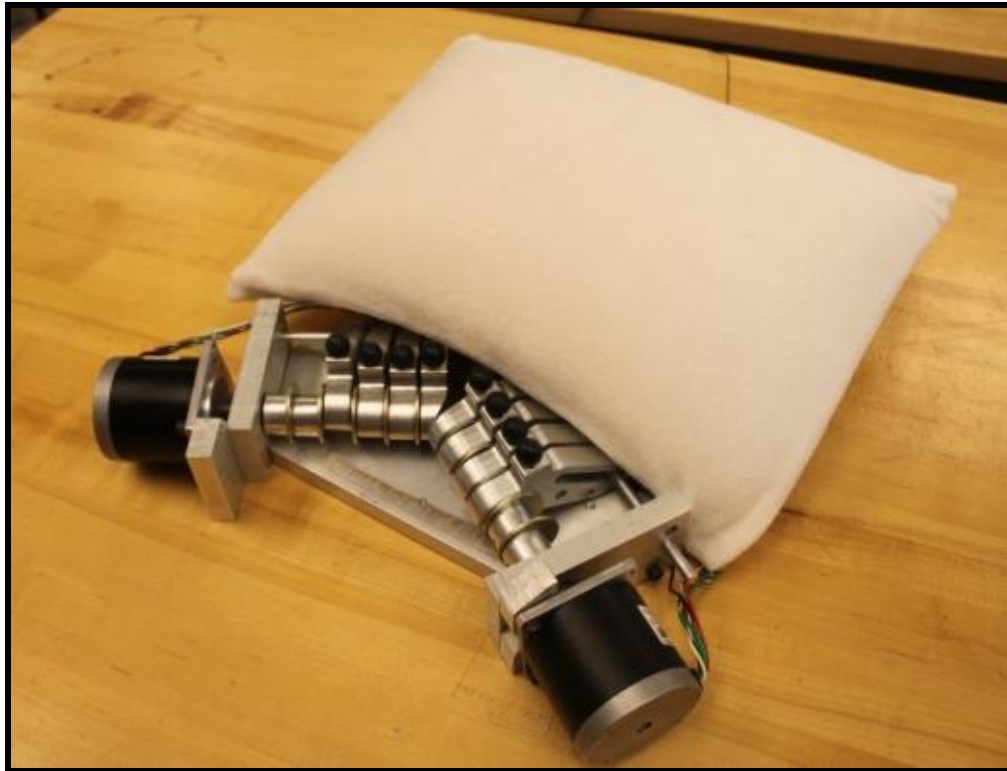


TITLE: Home Cervical Traction Device

GOAL: The goal of this project is to create a device that can successfully deliver the suboccipital release treatment to any individual more effectively than the current devices on the market.



ABSTRACT:

The suboccipital release technique is commonly performed by physical therapists to relieve cervicogenic headaches, neck pain, and range of motion restrictions. Those who chronically suffer from these conditions may benefit from visits to physical therapy clinics in order to receive the suboccipital release treatment. In addition, the suboccipital release treatment requires the sustained use of physical therapists' hands which may lead to hand and finger fatigue and possible injuries from repetitive use. The purpose of this design project is to create a device that can successfully deliver the suboccipital release treatment to any individual more effectively than the current devices on the market. This led us to set certain requirements in order to meet the needs of clients and therapists who will be using our product. These requirements include applying pressure to the entire suboccipital region and providing oscillatory massage as well as being adjustable, portable, affordable, and safe. Through sketching, prototyping, receiving clinician feedback, and using decision matrices, we selected a final design that met our requirements. Our design features include static vertical and horizontal adjustability of the eight pressure applicators that will make contact with the suboccipital region. The design also includes a dynamic, massage-like experience by powering the pressure applicators to move vertically on a rotating camshaft which varies the pressure throughout the treatment. Our device also features a memory foam pillow to support the head and keep it stable. We conclude that the Suboccipital Release Device can apply the appropriate pressure to the suboccipital region of any user. It is also comfortable and can be adjusted to apply various levels of pressure. In addition, the device can continue to improve with more design iterations in the future by enhancing the device's aesthetics and adding more user controls.