Researchers at the University of South Florida have invented a very first of its kind, rehabilitation exoskeleton, that promises to restore motion in muscles that require constant movement.

Rehabilitation technologies of the contemporary world, specifically limb prostheses, manifest several different shortcomings. They are either too expensive or too heavy. Most devices today require a table or some other form of ancillary support. Typically the weight of such equipment exceeds 5 lbs. More importantly, they incur heavy costs on part of the manufacturer and thus hinder the prospects of their implementation on a personal level. Moreover, they are also too loud and may pose a threat to the people in the vicinity who are not trained with its use.

Our team of researchers have designed a robotic, resistive, low cost and safe rehabilitation device to assist with triceps extension and positional control. By means of a joystick the patient can control the motion of the arm with incredible accuracy, with the device able to handle resistances up to 14 lbs. Additionally, the device is equipped with a kill switch that prevents hyperextension.

This device has the potential to restore movement in the limbs of individuals with either full or partial impairment. Assisted drive allows for a single muscle to be rehabilitated while preventing atrophy in the others. Direct drive allows the device to remain fully engaged at all times, while Resistive-rehabilitation drive can be applied for strengthening of muscles.

**ADVANTAGES:**
- Injury-specific rehabilitation and motion restoration
- Can be installed in hospitals and clinics
- Full control of muscle through engage and disengage mechanism
- Cheap, safe, light and noise-free

**A Rehabilitation Exoskeleton Geared to Aid Stroke Victims with Muscle Movements**

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