

Upper Extremity NeuroProsthesis

A muscle stimulation system that addresses joint contractures, shoulder subluxation, muscle atrophy, spasticity, and reduced hand opening

Description of the UE NeuroProsthesis™

The Upper Extremity NeuroProsthesis is a custom fitted, wearable neuromuscular sleeve that stimulates multiple muscle groups for enhanced rehabilitation of patients with central nervous system disorders. Neurological conditions can result in weakness of muscle, diminished ability to function, muscle spasticity, joint stiffness and contracture, and chronic pain. Wearable Therapy Systems enable patients to use NMES (neuromuscular stimulation) and TENS (transcutaneous electrical nerve stimulation) for longer periods of time to maximize the results. The systems are customized in terms of both fit and electrode placement. When donned, electrodes automatically align over muscle groups and stay properly affixed during the day. The Sleeve is made without lead wires so the arm is free to move.

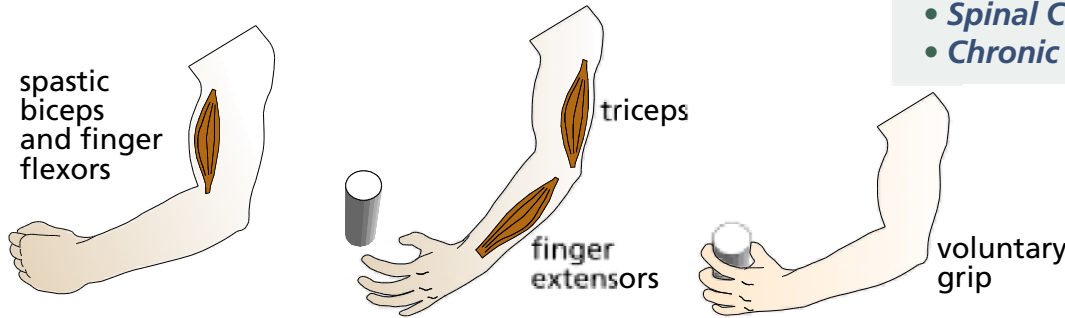
Patients with CNS disorders often develop unwanted, musculoskeletal problems that require intense rehabilitation to overcome or to prevent. In this context, Neuromuscular Stimulation is a well-known modality for treating these problems.

In addition, externally-triggered Neuromuscular Stimulation can restore function by stimulating muscle groups that have no volitional control. In some CVA and SCI patients, the hand retains the ability to grip, but is unable to open or release. The UE NeuroProsthesis is designed to open the hand by stimulating the finger extensor muscles. A switch mounted on the waist activates the opening on command.

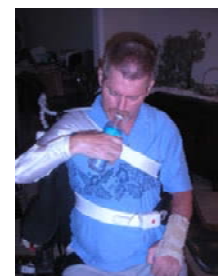


Indicated in Patients with:

- Stroke
- Cerebral Palsy
- Multiple Sclerosis
- Traumatic Brain Injury
- Spinal Cord Injury
- Chronic Pain



Spastic Flexor Muscles	Hand Opening with Stimulation	Object is Held by Volitional Control
<p>CNS disorders commonly result in spasticity of the bicep and finger flexors. The arm will assume a posture of flexion at the elbow, wrist and fingers. If untreated, a contracture of the joints will occur. Lack of volitional opening of the hand prevents use of the hand.</p>	<p>Stimulation of the triceps and finger extensor muscles combats muscle spasticity by inducing stretch and inhibition of spastic muscles through reciprocal inhibition inside the spinal cord.</p> <p>The Bioflex UE Neuro-Prosthetic Sleeve opens the hand artificially in preparation for reaching for objects.</p>	<p>The NeuroProsthesis ceases to stimulate the finger extensors once the object is in the proximity of the hand. The patient will use his own volitional muscle control to hold on to the object.</p> <p>Releasing takes place by stimulating the finger extensors once again.</p>



C5-6 SCI patient utilizing the NeuroProsthesis to regain function of his right arm.

*External Functional Neuromuscular stimulation is an FDA allowed medical device. Sold by or on the order of a physician.