

HealthSource Saginaw and Bioness, Inc. Partner on Breakthrough Technology

Imagine technology so advanced that it may help children and adults to regain hand control to grasp objects or button their shirt, be able to walk without dragging their foot and help to achieve greater independence than they believed to be possible.

This futuristic technology is now a reality at HealthSource Saginaw's Medical Rehabilitation Center through devices called the NESS H200 and L300. The Center is one of 86 facilities in the country to offer the L300 and one of 209 facilities in the country to offer the H200.

A HELPING HAND

The NESS H200 is a noninvasive stimulation device worn on the forearm and hand that may enable patients to perform everyday activities that were previously impossible. The NESS H200 may help the hand open and close, reduce stiffness, increase range of motion and strength, improve circulation, and assist in regaining awareness of an impaired limb.

The H200 device incorporates a self-adjusting fit to hold the wrist and hand in a functional position. This fit, coupled with the H200 electrode placement, allows patients to remove and replace the device without compromising therapy effectiveness. Also, the patented technology behind the H200 provides seven different stimulation programs which may enable patients to perform a variety of functional tasks as well as therapeutic activities. The system is also versatile enough to be used in various settings, including the clinic and home.



The NESS® H200™ Hand Recovery System, which features a self-adjusting fit and holds the wrist and hand in a functional position.

STEP BY STEP

The NESS L300 Foot Drop System is a wireless FES system designed to help patients with foot drop to clear their toes while walking and may replace the need to wear a rigid ankle foot orthosis (AFO). The NESS L300 is a low-profile device worn on the lower leg and foot that may enable easier, more natural walking and an increase in community participation.^{2,3} The NESS L300 may also facilitate muscle re-education, prevent/retard disuse atrophy, maintain or increase joint range of motion, and increase blood flow.

The NESS L300 uses proprietary technology that may help patients not only walk smoother, but faster as well.² The NESS L300 has a built-in sensor that takes into account the type of surface patients are walking on and adjusts stimulation accordingly. There are no bulky wires to deal with, and the compact design allows patients to wear their normal footwear.



The wireless NESS® L300™ Foot Drop System, which features a built-in sensor.

During the swing phase of walking, the NESS L300 sends low-level stimulation to muscles in the affected leg to provide dorsiflexion of the foot. The system includes a leg cuff with stimulation unit, the patent-pending Intelli-Sense™ Gait Sensor, and a remote control that communicates wirelessly, eliminating cumbersome wires used in traditional FES systems. While the patient walks, the gait sensor detects whether the foot is in the air or on the ground, and wirelessly transmits the information to the stimulation unit so that activation of the foot may be smooth and synchronized.

The NESS H200 and NESS L300 are being used throughout the country with positive results in both inpatient and outpatient rehabilitation settings, as well as in the home. Bioness strives to deliver advanced technologies that help patients and families address the effects of neurological disorders. For more information, visit <http://www.bioness.com/>.

For more information about the H200 program at HealthSource, call Robin at 989-790-7819.

For more information about the L300 program at HealthSource, call Mat at 989-790-7823.

REFERENCES

1. Alon G, Ring H. Gait and hand function enhancement following training with a multi-segment hybrid-orthosis stimulation system in stroke patients. *J Stroke and Cerebrovascular Diseases*. 2003;12:209–216.
2. Hausdorff J, Ring H. The effect of the NESS L³⁰⁰ neuroprosthesis on gait stability and symmetry, (abstract). *J Neurol Phys Ther*. 2006;Dec 30:195–200. (Included in CSM 2007 Platform Presentations).
3. Hausdorff J, Ring H. The effect of a new lower-limb neuroprosthesis on physical and social functioning, (abstract) *J Neurol Phys Ther*. 2006;Dec 30:209–222. (Included in CSM 2007 Platform Presentations).