

Therapy device is step in the right direction for Wilmington man

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Staff photo | Mike Spencer

John Schoen walks with the help of a The NESS L300, a neuro-rehabilitation system, at First Step Therapy Inc. in Wilmington.

John Schoen's shoes last longer these days.

Schoen used to wear down the toes of his right shoes, where the leather would drag heavy across the ground every time he took a step.

When the 36-year-old Wilmington resident was 19, he slid through a puddle about 5 inches deep while playing with friends. Schoen landed wrong, hyperflexed his neck and broke two vertebrae.

Rehabilitation from the incomplete spinal cord injury took years, but he got to the point where he was walking with the assistance of a cane. But the walking was slow, and his right foot, which had difficulty lifting up and down at the ankle, often tripped up his left foot and only moved forward a few inches at a time.

In November, things improved when Schoen tried out a therapy tool that uses electrical pulses to contract his muscles. Now, he wears the neuroprosthesis system on his leg every day to make the small but complex motion of stepping over and over.

The device, called the NESS L300 Foot Drop System, from California-based Bioness Inc., relies on small electrical currents. It was designed to activate paralyzed muscles and restore partial movement, according to a company statement in 2006 after the device received FDA approval.

“It’s basically a tingling vibration on the side of my leg,” Schoen said this week at First Step Therapy Inc. on Oleander Drive.

Schoen went last year to Wilmington Orthotics & Prosthetics, which has the same owner as First Step, to get a traditional brace. The business had just become a vendor for the NESS foot system – the next closest location is in Clayton – and let Schoen try it.

“I get much longer strides,” Schoen said. “I’m getting faster. My balance is slowly improving.”

A sensor sits in his shoe to tell when Schoen is shifting his weight and preparing to take a step. A signal is then sent to electrodes inside a cuff that wraps around Schoen’s leg, just under his right knee.

One electrode is in contact with his muscle and another with his peroneal nerve. That’s the nerve that when damaged can lead to foot drop, a condition in which the front of the foot has difficulty lifting.

The electrodes send a slight, quick electrical stimulation to Schoen’s nerve and muscle, jolting his foot into pulling up.

Timothy Marahrens, a physical therapist at First Step who has been working with Schoen, compared the pulse to a less irritating version of the pins-and-needles feeling someone gets after their limb falls asleep.

“You set it for enough stimulation to lift the foot,” said Marahrens, who programmed Schoen’s device to customized level of electrical stimulation.

Marahrens said the Wilmington company has tried the device on a dozen people, from stroke patients to those with multiple sclerosis, since it began selling the device late last year.

It made a difference for more than half of them, he said. A couple more only saw minor changes in their walking, and the rest did not experience a noticeable difference.

First Step will hold a free screening day March 11 for people to see if the device is helpful in their situations and decide whether to pursue a prescription from their doctor.

The device is not widely covered yet by insurance.

Schoen got his insurer to pay some of the rental costs – not all patients buy the device outright – but will have to pay much of the \$6,200 price tag himself.

Marahrens said patients whose walk have responded to the device have said they have an easier time with everyday tasks around the house or at work.

“When people can say things are easier or more efficient for them, that’s what you want,” he said.

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