

# 'It's like a miracle'

New high-tech device gives patients back the full use of their legs

**With almost Biblical authority, the technician made a final adjustment to the leg band, then leaned back and commanded his client to get up and walk.**

**And Vicki Dutton did. Tentatively at first, she took a step. Then she strode out of the room, down the hall and onto the sidewalk -- pain- and cane-free, her first unsupported steps in years.**

**Her eyes teared up and a grin radiated across her face. "It's like a miracle," she exclaimed.**

**Dutton had just been fitted with a WalkAide, a new device to assist people with foot drop, an affliction which can result from stroke, multiple sclerosis, cerebral palsy or spinal-cord injuries.**

**"I'm so excited. It's the first thing in eight years that has given me something back, instead of taking something away.**

**"I want to go dancing."**

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Designed by University of Alberta physiologist Richard Stein, the invention includes a band that wraps around the calf just below the knee and is attached to a small electronic device. Once programmed by a computer, the WalkAide sends an electric current to the peroneal nerve which relays a signal to the leg muscles to lift the foot.

Just as a doctor's hammer hitting the knee makes a leg twitch, this computerized band makes the foot flex whenever the calf is bent back. It costs about \$4,500 (not covered by extended health benefits), and only works in about two-thirds of cases, but for people like Dutton the difference is immediate -- and emotional.

"You could add up every Christmas and birthday and it wouldn't even come close. I've got my leg back."

Nine years ago Dutton took her dog for a walk in the morning and a bizarre thing happened: Suddenly both legs started tingling. Shortly afterwards she was diagnosed with multiple sclerosis. Since then she has had to use a cane or lean heavily on the arm of husband Ian.

"I'm telling anybody and everybody about this," said Dutton, who was in Victoria for fittings at Island Orthotics with orthotist Matt McLean.

The Pender Island resident heard about the device while on holiday in the United States. Her husband was wearing an MS T-shirt and a woman approached him, bursting with news about the breakthrough. Dutton feels the same evangelical fervour now.

Before putting the cuff on, her right leg felt heavy and unresponsive -- "Like I was dragging an anchor" -- but after, the difference was incredible. "Although I can't decide if I feel like the Bionic Woman or the Energizer Bunny."

The device runs on two AA batteries and is not recommended for those with pacemakers.

The first fitting took 2 1/2 hours.

"It takes some time to find the exact spot on the leg," explained McLean, as he added a little water to Dutton's skin to aid conductivity. But the second fitting was only 35 minutes, and now she can position the device herself.

Until now, people with advanced foot-drop either dragged their foot or placed it in a rigid right-angle brace. This can lead to atrophy, whereas the WalkAide keeps nerves and muscles functioning.

One reason for the high cost of the device is the time spent getting it to work properly, said McLean, who first analyzes a patient's gait, then feeds that information into a computer. Once a patient is mobile again, the data has to be recalculated. Clinic time is typically 16 to 32 hours.

He recommends patients wear the device just a few hours a day at first, so muscles can recondition, but Dutton couldn't bear to take it off.

"It's flat-out wonderful, and has taken a huge weight off Ian. I can go all day although I am trying not to go at it like a mad thing. Yesterday morning I cleaned out a cabin, worked in a store for three hours, went to my book club, then band practice. Three weeks ago I could not possibly have done that."

Dutton was able to purchase the device but worries about accessibility. "I realize government can't cover everything, and I don't know how long this will work, but it's life-altering. Why don't more people know about it?"

She is particularly struck by a residual effect that surprised the inventor too.

"I hoped the WalkAide would allow people to walk with less energy, not having to hike up the hip, but as a scientist, what's most interesting is we find the repetitive use seems to strengthen residual connections with the spinal cord," said Dr. Stein in an interview from Alberta. "Some people build up enough strength they just use it part-time."

He added the device not only makes walking easier, but improves posture, reduces pain, stimulates muscle connections and boosts confidence. Several thousand have been sold, mostly in the States. He started working on the system in 1993 and it was about 10 years in development.

"We first tried to produce it in Canada but weren't able to, so it's now made in the States and is sold all over North America, Europe and Latin America. We still have the patents and we license it."

He is now working on small devices for spinal cord injuries.

Judith Barbs, diagnosed with MS in 1986, didn't expect the energy boost the aide gave her, "but I guess it's logical if you're not working so hard hitching your hip. This technology is not a panacea, but the difference is so profound I'm willing to take that huge economic risk." She wishes the warranty were longer than one year.

Dr. James Filbey, a Victoria specialist who works at the MS Clinic, raves about the device when prescribed for the right person. Filbey carefully screens patients for current functioning level, mobility, range of motion, muscle tone and balance before recommending it.

"It can have a huge impact on improved independent quality of life, endurance, decreased muscular fatigue."

Cost is a barrier and patients with severe sensory loss may turn the electrical charge too high and burn their skin.

"But when it works it's massive -- probably one of the greatest breakthroughs in the functional rehabilitation of people with MS."

The Victoria MS Clinic has 1,300 clients and about a dozen now use the device.