

Bionic legs could be a miracle for paraplegics: New robotic device, ReWalk, lets patients walk again

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Thursday, February 4th 2010, 1:47 PM

The impossible dream of being able to walk is coming true for some wheelchair-bound paraplegics who thought they would never again take another step.

ReWalk, a cutting-edge robotic device that lets a partially paralyzed person stand, walk and even climb stairs is being tested at a [Philadelphia](#) rehab hospital.

It consists of a backpack, an upper body harness and leg supports that are fitted with motorized knees and hips.

The wearer, who must have the use of his upper body, controls the movement of the leg supports with crutches, while motion sensors that are connected to a backpack computer let the device know when a step

should be taken.

At MossRehab in Elkins Park, Pa., the upright device, the first of its kind, will be tested on 14 people who are enrolled in a clinical trial.

ReWalk was designed by [Argo Medical Technologies](#) in [Haifa, Israel](#). Though it's not yet known how much ReWalk will cost if approved, researchers are hopeful that it will be available by the end of this year. It can help those with spinal cord injury-related conditions that result in severe impairments.

Dr. Alberto Esquenazi, chair of MossRehab's [Department of Physical Medicine and Rehabilitation](#), who was instrumental in ReWalk's development, said he's hopeful that the device will soon be widely sold.

"ReWalk should become available in the near future and will be able to be applied widely to people with spinal cord injuries that have preserved the use of the arms," he says.

"You need to have your arms, both for balance control and sensory feedback. The tip of the crutches provides sensory feedback about where your body is in

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space.”

ReWalk has what Esquenazi calls “smart software” in that it “understands what the patient is intending to do, and translates that into taking a step or climbing a stair,” he says.

So far, six people have been enrolled in the trial, and they range from 22 to 64, Esquenazi says.

“So far we have had no problems,” he says. “The system has worked appropriately and patients have been thrilled at being able to use the device. Many years after the injury, they had forgotten how to stand and take steps.”

The device is easy to get into, says Esquenazi, and is worn over clothing. The battery lasts for three hours and the backup lasts for another 20 minutes. “The system alerts you that the battery is running low,” Esquenazi says. “It tells you that you either need to get to a chair or to a plug.”

Alysse Einbender, now 50, suffered a spinal stroke in 2004. She’s now enrolled in the trial, and she received about 24 hours of training in the suit.

Einbender told “[Good Morning America](#)” that being able to take steps again has changed her life.

“Looking into somebody’s eyes for the first time at that height was ... really incredible,” she said.

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