

MossRehab Makes Strides with Robotic Walking Devices

Date: Friday, August 19, 2011, 6:00am EDT

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ELKINS PARK — Two years after being selected as the exclusive U.S. test site for the ReWalk device, MossRehab is about to become the first hospital in the country to offer paralysis patients an institutional version of the technology for therapeutic use.

The motorized exoskeleton — approved by the Food and Drug Administration for use in a rehabilitation setting under the supervision of health-care professionals — can be used by paralysis patients in therapy to stand, sit, walk, and in some cases climb and descend stairs.

Last week the 196-bed rehabilitation and acute-care hospital, part of the [Albert Einstein Healthcare Network](#), received its first ReWalk therapy patient referral after having tested the device on 16 others.

“This is an actual patient who came to us with a prescription,” said Dr. **Alberto Esquenazi**, MossRehab’s chief medical officer. “It was pretty exciting.”

Esquenazi said the actual therapy on the patient will begin in a week or two. The hospital could not disclose details about the patient because he has not yet started therapy.

The availability of the ReWalk is just one way MossRehab is raising its national and international profile in the rehabilitative-care arena.

The medical center also uses other robotic devices for patient care, operates a growing research institute that has attracted \$5 million in federal grants and just launched the MossRehab Concussion Center, which is specializing in the assessment, diagnosis and treatment of brain injuries.

The hospital placed ninth in the country, and first in the region, for rehab care in the latest U.S. News and World Report ranking of medical centers.

ReWalk was developed by Argo Medical Technologies Ltd. of Israel. **Amit Goffer**, an engineer who founded Argo, invented the device under the most difficult of circumstances.

Goffer, who also developed the first MRI that could provide real-time images in an operating room, became a quadriplegic after an automobile accident. He set out to develop a system that would offer paralysis patients a chance to stand, walk and look at people eye-to-eye.

MossRehab got involved in the project when Goffer met Esquenazi, who speaks on rehabilitative medicine at conferences around the world, in Israel and asked for the doctor’s help in developing the technology.

Esquenazi and MossRehab staff suggested some modifications to the device, described as a “motorized, quasi-robotic, lightweight, wearable brace support suit with powered joints, rechargeable batteries, an array of sensors and a computer-based patient control system.”



Back on her feet

Dr. Alberto Esquenazi walks with Agnes Fejerdy, a paraplegic who is able to walk thanks to ReWalk.

The device is worn around the legs and back and fits closely to the body on top of everyday clothes. Crutches are used to stabilize the upright patient, who initiates and controls movements “through simple body language” to control the legs, according to the hospital.

“For more than 2,000 years, the wheelchair has been the only mobility solution offered to patients with paralysis below the waist,” Goffer said, “and now at MossRehab, the dream of walking again is becoming a reality for them.”

Goffer’s long-term goal is to eventually make ReWalk available for commercial purchase, which MossRehab sees as a great business opportunity for the Elkins Park hospital because their staff is best equipped to train patients on how to use it.

Alysse Einbender, a Glenside woman who lost the use of her legs after contracting a rare spinal condition (spinal arteriovenous malformation) in 2004, was the first person to test the ReWalk device at MossRehab.

“It was a thrill to be the first,” Einbender said. “It was not easy. It was a lot of work, but I had not been able to find an exercise that felt good for me. Everything was all for my arms and I got tired. [The ReWalk] really helped straighten out and strengthen the bones and muscles my legs.”

Einbender said she also benefitted psychologically from being able to set a goal, such as walking for six minutes using ReWalk, and achieving that goal.

“The prospect that it could be sold for individual use is exciting,” said Einbender. “I think the likelihood of that happening any time soon is a long shot.”

Esquenazi said the hospital has already been contacted by patients in Brazil and Guatemala who want to use ReWalk for therapy.

About 20 percent of MossRehab’s patients currently come from outside the Philadelphia region.

MossRehab’s robotic technology is not limited to ReWalk.

Last month, the medical center became the first facility in the United States to deploy another technology to aid rehab patients with neurological and orthopedic problems.

The G-eo Systems Evolution, developed by Reha Technology in Italy and Austria, is a robotic device that looks like a combination stair-stepper and elliptical machine. It uses sensors and computer controls, which provide a varying level of assistance based on the needs of the patient, to mimic the motion of step climbing and descending.

“Patients who have difficulty with stair climbing or walking can be trained on the G-eo system prior to real world training,” said Esquenazi, who also serves as director of the hospital’s gait and motion analysis laboratory.

Tom Kopak, 47, a Hatboro man who suffered a stroke in 2007, was one of the first MossRehab patients to use the G-eo.

He started therapy at MossRehab in January following surgery on his right leg to correct complications from spasticity, a common post-stroke problem.

The G-eo has helped Kopak undo damage to his body caused by the compensating posture he adopted to help him walk after the stroke. The device has also helped with balance issues, particularly when descending steps Kopak said it felt as if he could fall forward.

“In four sessions, I’ve gotten benefits from it,” Kopak said. “I’m making progress every time I’m evaluated.”

There are 4 G-eo Systems Evolution devices in use in Italy and two elsewhere in Europe. It was installed at MossRehab in early July and was used by a patient the following day.

MossRehab is also the only hospital to have both the G-eo and the Lokomat. With the Lokomat a patient is suspended in a harness over a treadmill and strapped to robotic legs that move the patient in a natural walking pattern.

Esquenazi said MossRehab has seven robotic devices in clinical use.