

[Back to regular view](#) • [Print this page](#)

Relearning to walk with help from a robot

(http://www.pioneerlocal.com/evanston/lifestyles/health_family/1250308,on-robot-103008-s1.article)

October 30, 2008

By [JOANNA BRODER](#) jbroder@pioneerlocal.com

After his stroke seventeen months ago, Cal Gord of Roselle was left paralyzed on his right side and unable to speak. He worked for months with physical therapists practicing walking and balance in a traditional clinical setting.

But it may be a robot, designed to assist physical therapists help patients who have had a stroke, that helped him most of all.

Before starting to train with the robot last August, Gord would exercise on his own three times a week by walking one or two blocks, his wife Suzanne said. Today he is up to 1.2 miles every day. And since starting with the robot he feels more confident and motivated to exercise, Suzanne said. He has even secured a personal trainer at his local park district so he can exercise on rainy days.

No more worries

"It's been a joy," Gord said about working with the KineAssist Robot, a new technology which helps people learn to walk again after a stroke or spinal cord injury. "I don't have to worry about falling and stumbling."

The robot -- currently just a prototype and not for commercial sale -- was developed through a partnership of Rehabilitation Institute of Chicago and Kinea Design, a company made up of expert physical therapists and engineers. It is now being piloted at Alexian Brothers Rehabilitation Hospital in Elk Grove Village. There are only four robots currently in the world and all of them are in Chicago.

"This is breakthrough technology," said Dr. Elliott Roth, Chief Academic Officer at Rehabilitation Institute of Chicago.

Roth said that while there are robotic devices designed to assist walking in existence today at rehabilitation facilities, virtually all of them rely on a treadmill "which can be helpful but can also be limiting."

"This is the first overground gait device," Roth said. "It means that this could be applied to any facility, any device, any surface. It could even be used outside."

The KineAssist Walking & Balance Exercise System, helps patients learn to walk forward and backward, climb stairs, step sideways, and regain balance, strength and mobility through robotic technology, according to a written statement issued by Alexian Brothers Hospital Network, Rehabilitation Institute of Chicago, and Kinea Design.

Therapy aid

Patients use the robot with the help of their physical therapist. Dr. David Brown, KineaAssist designer and Kinea Design co-founder, said that the greatest challenge for physical therapists is worrying that if they challenge patients too hard with tough exercises they may drop them.

"That got me and my colleagues at Kinea Design thinking we need to build a device that helps clinicians ... create situations where a loss of balance may actually be a learning experience rather than a traumatic experience," said Brown, himself a physical therapist, during a recent demonstration of the robot held at Alexian Brothers Rehabilitation Hospital.

Having the opportunity to challenge stroke patients relearning how to walk with tough exercises is a good thing, said physical therapist Linda Foster. With traditional physical therapy, therapists can't generally give patients the opportunity to fall because they have to catch them if they do. Thus patients "never learn to regain their balance if they do start to lose it.

"In the KineAssist they may stumble a little," Foster said, "but then they can learn how to regain their balance because they know if they keep stumbling the device will catch them."

Gord -- who has been working with Alexian Brothers to test the device and provide feedback on patient exercises before a formal research study begins later this fall -- was on hand at the demonstration to show the audience how the robot works.

Help on cue

Patients are strapped into KineAssist, and as they move the robot follows them, softly catching them if they fall. The robot was designed to only move when it senses a patient's movement or receives a cue from a therapist. Unless programmed otherwise, it has very little resistance, and the patient barely notices it's presence, Brown said.

KineAssist helps physical therapists challenge patients with exercises they never would have been able to try otherwise, Brown said.

During the demonstration, Gord conquered steps as tall as ten inches, something Foster, his physical therapist, never would have attempted with him before the robot came onto the scene.

"I would just be too fearful that if he did fall there would be no way that I could control him," she said.

At the demonstration, Gord himself got a good laugh when he admitted that he preferred having the robot catch him rather than his petite physical therapist.



© Copyright 2008 Digital Chicago, Inc. | [Terms of Use](#) • [Privacy Policy](#) • [Submission Guidelines](#) • [Advertise With Us](#)