

Kessler Foundation's First Six Participants Walk with Robotics

[Kessler began its weeklong investigational trials of Ekso on October 17th](#). Made by Ekso Bionics, Ekso is a wearable, robotic, battery-powered exoskeleton. [Gail Forrest, PhD](#), Interim Director of Human Performance and Movement Analysis Research at Kessler Foundation, and Steven Kirshblum, MD, Medical Director and Director of Spinal Cord Injury Rehabilitation at Kessler Institute for Rehabilitation, led the collaborative team to develop protocols and analyze how Ekso may improve the mobility and health of individuals with paralysis.



[Kessler Foundation is one of only ten research centers](#) in the nation to partner with Ekso Bionics to study the exoskeleton in people with spinal cord injury. Kessler will acquire its own Ekso for research and clinical use in January 2012.

[Six participants](#) were chosen to participate in the trials. New Jersey's Alex Tripack, 27, was a bartender and freelance music writer when he was paralyzed in a fall two years ago. While he knows there are others who haven't taken steps in decades, he was anxious to get moving. "The actual bending of the knee and taking my first steps will hit me pretty hard, in a good way," he said.

While Alex and three other individuals had had one long session each to test the functionality of the device and how quickly they were able to walk with Ekso, two others tested the device for the entire week to monitor how their bodies respond to their increased mobility.

First, their legs, trunk, and arms were measured to make Ekso the perfect fit. Next, they slid onto a seat with Ekso in a sitting position. Therapists strapped on Ekso. Then, it was time to stand. As the individual leaned forward, a therapist pushed a button. In a wheelchair just a few minutes ago, some towered over the scientists and therapists who were studying their movement.



To get accustomed to walking, they started with a walker to support their upper bodies but then advanced to bilateral canes. As a rehabilitation model, Ekso was in “safety mode”—meaning that the therapists or Ekso representative pushed a button to trigger each step. While the participants concentrated heavily as they walked, they couldn’t help but look up and smile when they saw their loved ones who were there supporting them. Family members watched in amazement. Cameras and video cameras captured the precious time of the people they care the most for walk toward them.



Laurie Kammer, 27, was paralyzed just four months ago when she was climbing into a tree house. Having rained the night before, one of the boards collapsed under her and she fell backwards about 15 feet. Less than four weeks as an outpatient at Kessler Institute for Rehabilitation, Laurie was back on her feet with Ekso. She dripped with sweat as she had to work to hold her upper body up, but she was a fast learner. As a weeklong participant, she quickly advanced from using a walker to using the canes, then to bigger steps, and then to a faster speed. Walking circles around the gym as [Kessler Foundation researchers](#) tracked each step, Laurie continued to say, “I’ll do even better next time around.”



Her father, Bob, watched every step. His face seemed to glow. “This is her destiny,” he declared. “She’s meant to be here at this moment.”

Michael Loura, 42, from CT, who had one session with Ekso, saw it as a glimmer of hope for the future. Three years ago, Michael was training for a triathlon when a car hit him. Since that time, his daughters have asked how they will have father-daughter dances at their weddings. “We’ll figure it out,” was his standard reply. Now, seeing the promise of robotic technology, he is realizing that the dance may be possible. “Small steps first,” he joked. “But they’re still young. I’m hoping that they’ll get married in the next two years or so and then we can have that father-daughter dance that we always wanted.” As he waits for that day, Michael will be competing in the New York City Marathon as a wheelchair athlete.



Ekso is currently used solely in rehabilitation settings but is targeted for release for home and community use in 2013.

Listen to interviews of the participants by visiting [Kessler Foundation on Facebook](#).

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