



## BUSINESS

# TECHNICAL SUPPORT

## Beverly company's robotic brace aids stroke victims

BY PAUL LEIGHTON  
STAFF WRITER

BEVERLY — Manuel Machado slowly raises his left arm to his chest. He wiggles the fingers of his left hand.

Those simple movements might not seem like much. But to Machado, a 59-year-old former leather worker and an accomplished

musician from Peabody, they represent progress from a stroke that had robbed him of the use of his left arm.

"I hope someday to play the guitar again," he said.

Machado credits his gains to a device called Myomo, a robotic brace designed to assist stroke patients in recovering the use of their partially paralyzed limbs. The brace is now being used by Beverly-based Northeast Senior Health at its rehabilitation centers

in Beverly and Gloucester and for its patients receiving home care.

Myomo is based on technology developed by two MIT graduate students. The brace senses muscle

signals when a patient tries to move his arm, then provides electronic assistance.

Steve Kelly, a Manchester-by-the-Sea resident who is the CEO of Myomo, said conventional

knowledge once held that stroke victims could not regain movement after six months. But advances in imaging technology have shown that a different part of the brain can take over the role once performed by a damaged section, he said.

"The challenge is, how do you teach that?" Kelly said. "It's kind of like wiggling your ears. How would you teach yourself to do that?"

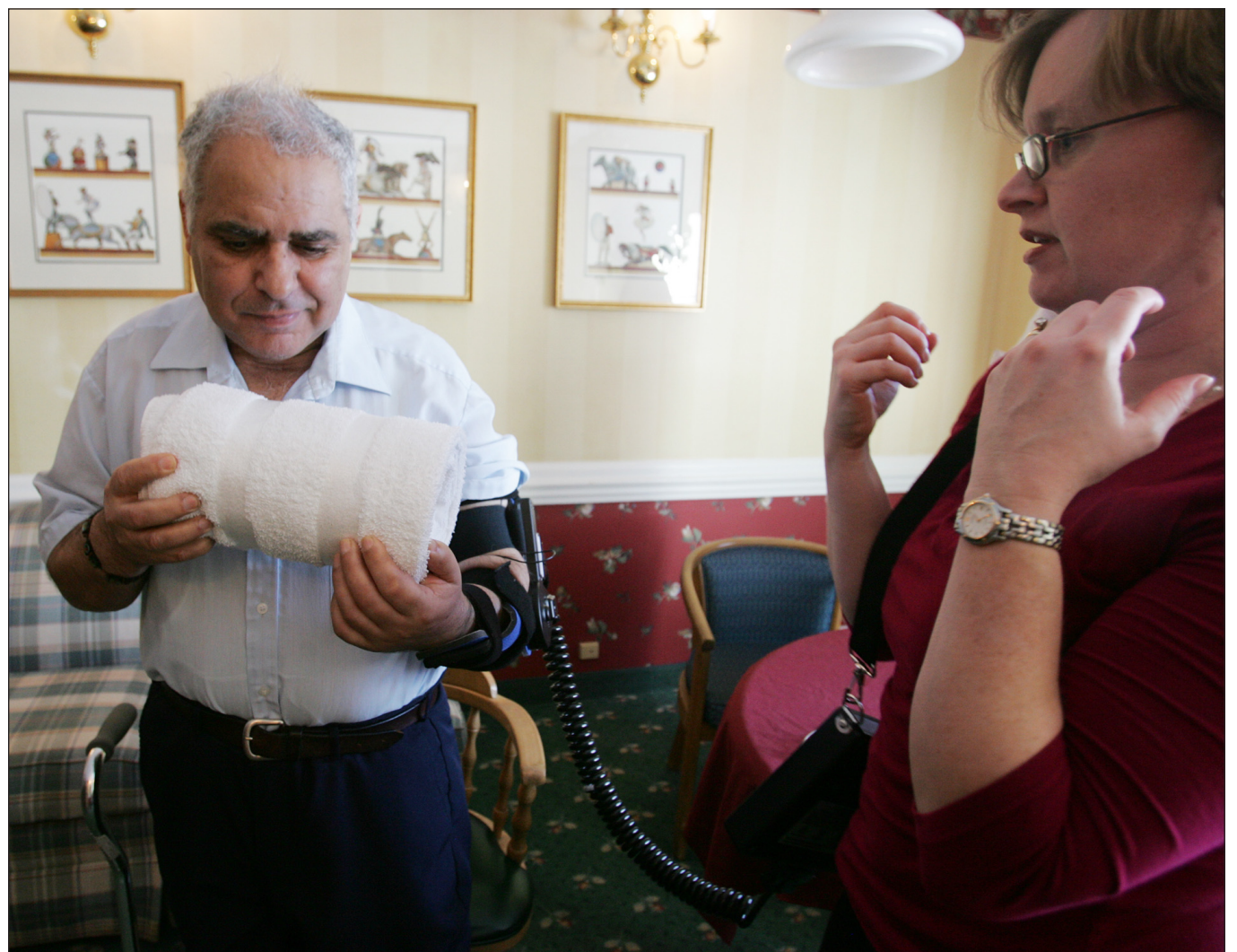
Kelly, who described himself as a high-tech entrepreneur, learned about the technology that led to Myomo when he volunteered to help with research projects at MIT, with an eye toward turning

one of the projects into a company.

The graduate students built a prototype using a windshield wiper motor and tested its effectiveness on patients with spinal cord injuries. The tests showed positive results, and the prototype

won a \$50,000 business plan competition at MIT. Kelly signed on as a board member and formed Myomo Inc. in 2006.

The Myomo brace eventually received FDA approval and has been on the market in hospitals for two years, Kelly said. It's now being used at 10 locations in Massachusetts,



DEBORAH PARKER/Staff photo

Manuel Machado, a stroke victim from Peabody, demonstrates a new robotic brace now available to help stroke victims recover the use of their arms. He is helped by Saron Gonick, rehab manager for Northeast Home Care. Northeast Senior Health, which runs Ledgewood, said they are the first organization in the country to use the MIT-developed technology, called Myomo, which stands for My Own Motion.

*“ This isn't science fiction. You don't put this on and go play basketball. But if you have to do everything one-handed, being able to do some things two-handed again is a pretty good deal. ”*

Steve Kelly, CEO of Myomo

Connecticut, New York and California.

Kelly, who worked at Digital Equipment Corp. in the 1980s, said he sees the same progression in medical devices that he saw in the early days of computers.

"Computers used to be big and expensive, and only a few people could use them at a time," he said. "It's the same movie replay, except it's focused on robotics for rehabilitation. You should be able to do it anywhere, in your own setting." Kelly said there are other such

devices on the market, but they are available only in teaching hospitals.

"At Northeast Senior Health, they're fulfilling our vision for this by deploying it across their entire system," he said. "People get access within a day after a stroke, then when they're discharged to home."

The gains made by patients with Myomo are admittedly modest, Kelly said. But they are also significant.

"This isn't science fiction. You

don't put this on and go play basketball,"

he said. "But if you have to do everything one-handed, being able to do some things two-handed again is a pretty good deal."

Machado began using the Myomo brace during his stay at the Ledgewood Rehabilitation and Skilled Nursing Center in Beverly and continued to receive treatments from a therapist when he returned home. The swelling and pain in his left hand have subsided, and he is learning to hold a guitar again.

Machado's daughter, Maria Munroe, said she has seen a big change in her father's outlook thanks to the progress he's made using Myomo.

"He's hopeful," she said. "That's the most important part."

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Staff writer Paul Leighton can be reached at 978-338-2675 or by e-mail at pleighton@salemnews.