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A step forward

Therapeutic suit aids Horseheads woman.

By Kathleen Costello
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What do cosmonauts, National Public Radio and elastic tubes have in common?

They are three pieces of an intricate puzzle that has finally fit together to provide the most effective therapy yet for Kate Leipold.

Leipold, 23, of Horseheads, has been receiving numerous types of therapy for 10 years. She woke up with a headache one morning in October 1996; by that night, she was lying in an ambulance, on her way to Strong Memorial Hospital in Rochester. Leipold had a brain tumor, compounded by an anoxic brain injury, which rendered her with visual and speech impairments, a weakened left side of her body and unable to walk on her own.

Kate is the oldest of three children of Kerry and Maribeth Leipold.

"Kate has tried so many things -- a variety of physical therapy approaches," says Maribeth Leipold. "She even tried Botox on the left side to relax those muscles. And she has made improvements. She first came home from the hospital in a wheelchair (and has been walking with a cane for years), but she hasn't walked independently since the injury."

That is, until she tried the TheraSuit.

The TheraSuit consists of a cap, vest, shorts, knee pads and shoe attachments, all connected through an elaborate system of elastic bands. When fitted to each individual's particular body, it helps to align the body correctly, to restore the body's proper patterns of movement.

[enlarge photo](#) ⊕



Jennifer Kinglsey/Star-Gazette

Kate Leipold, 23, of Horseheads, walks toward her physical therapist, Michael Niedzielski, while wearing a TheraSuit. A month ago, Leipold could not walk

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without a cane.

"By delivering the proper resistance to the entire body, I'm able to treat Kate as a whole. We're not just treating one extremity at a time," says Michael Niedzielski, Leipold's physical therapist at Physical Therapy Center of Horseheads.

Niedzielski started working with Leipold about two-and-a-half years ago. He recently began working with her again.

Leipold has had occupational therapy, vision therapy, strength training, therapies that specifically targeted her balance, posture and gait. She's even tried medications to try to control her muscle tone. But the TheraSuit may be the missing therapeutic link. Already, Leipold has been walking independently in therapy with the suit and with supervision.

Leipold used the TheraSuit for the month of August, three times a week, for two-hour sessions at the center. Combined with time spent wearing the suit at home, along with an extensive exercise program, dramatic differences already have occurred.

"I'm so excited that it's working so well," says Kate Leipold. "I don't like relying on other people for walking, but you do what you have to do. ... The suit has really helped my balance. I can walk much farther now. It gives me more strength, and I'm more stable. It even makes my speech a little clearer," she says.

Her mother agrees. She says that with Kate's weakened left side, some muscles are actually too strong and overwork, which doesn't allow other muscles to work. The suit allows Kate to shift properly. Before using the suit, she had a side-to-side gait; now she can put one leg in front of the other. And there have been added benefits.

"Kate's not nearly as tired now, so she can walk much farther. She can reach farther, bend easier. ... Her voice tone is better now, because the TheraSuit released her diaphragm a bit. And the ability to use the vision she has is improving," Maribeth Leipold says.

Cosmic origins

The design for the suit was originally developed in Russia in the 1970s as part of the Russian space program to help reduce the effects of zero gravity on neuromuscular systems. In the 1990s, Russian scientists adapted the design as part of the treatment therapy for cerebral palsy patients.

Years later, the first commercial clinic using this therapy opened in Poland.

"It was a couple of years ago, when I was driving and I heard on NPR that this clinic was using this 'space suit' therapy. I had been looking for something to help Kate and some people I'd been working with at the UCP house, and I went online and researched the TheraSuit," Niedzielski says.

The TheraSuit is FDA- approved and is used in about 50 clinics for children in the United States -- mostly treating patients with cerebral palsy, he says. But Niedzielski is aware of only one other center for adults in the country that is using the TheraSuit.

The suit is used to help patients diagnosed with a variety of ailments, including stroke, traumatic brain injuries and developmental delays. The cost can range from \$2,400 to \$3,600, depending on where you buy it.

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Not all insurance companies cover the suit, or all the hours of its corresponding therapy. The Leipolds paid \$2,400 for the suit and purchased it themselves.

Looking ahead

Maribeth Leipold can hardly contain her excitement about the hope that the TheraSuit provides for her daughter.

"This may be the instrument that allows her to be more independent," she says.

Kate Leipold is feeling different these days, too. A 2000 graduate of Horseheads High School, she is a student at Corning Community College, majoring in humanities. She spends a great deal of time on her studies and a great deal of time staying active through activities she enjoys (volunteering, taking dance and yoga classes, singing in a local choir and socializing with her friends).

However, she spends a wealth of time on her therapy. She has always felt that she would be able to someday walk on her own, but wasn't sure how to get to that point. Now, she says, she finally sees an end, an eventual promise of independence:

"I really think I'm grasping the whole picture now. Before, I just wasn't able to."



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