



RAUL VASQUEZ/News-Democrat

Patrick Rhein, right, who was in a car accident in 2001 that left him a quadriplegic, takes the wheel during a session on a driving simulator at the Rehabilitation Institute of St. Louis. Rhein meets once a week with Jayme Eggum, left, a graduate student in occupational therapy with Washington University School of Medicine.

Driven to succeed

Partially paralyzed in car crash, man learns to drive all over again

By TERI MADDOX
News-Democrat

Patrick Rhein is a quadriplegic because of a car accident, yet his dream is to drive again.

The 25-year-old Waterloo man hates to depend on other people to take him everywhere.

"It'd be nice to have a little more freedom," he said last week.

Rhein has no use of his legs and only limited use of his arms. His mother, Linda, has to help him get dressed and

perform other daily tasks.

But Rhein's dream of driving is not as impossible as it seems.

For the past year, he's been building upper-body strength and learning to operate hand controls on a vehicle simulator as part of an experimental therapy program at the Rehabilitation Institute of St. Louis.

"His strength has improved, like, 900 percent," said Jayme Eggum, 24, a graduate student in occupational therapy at Washington University School of Medicine who helped develop the program.

On Aug. 25, Rhein obtained his Illinois driver's license. He took his road test in a specially adapted van with hand controls.

Rhein also has improved overall

use of his neck, arms, shoulders and upper back. If he gets tired and leans forward, he has enough strength to pull himself back up to a sitting position.

"(Before the therapy) I think he thought of himself as a person in a wheelchair who couldn't do very much," his mother said. "But his confidence level has really shot up. Now he's going to school, and he has all these goals. He wants to be a guidance counselor."

Rhein is taking classes at Southwestern Illinois College in Belleville. The only thing keeping him from driving is he doesn't have a specially adapted van of his own. The estimated cost is \$60,000.

The Patrick Rhein Benefit Account

has been set up at Regions Bank in Smithton to help make his dream a reality.

Rhein's father died in a car accident nine years ago. His mother had to quit her job at the Illinois Center for Autism in Fairview Heights to care for her son.

"Patrick has always had the best attitude," she said. "He never felt sorry for himself."

Tragic crash

Rhein is a New Athens High School graduate who attended Southern Illinois University Carbondale and Edwardsville. His accident occurred March 10, 2001, on Illinois 4 between

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Marissa and St. Libory.

Rhein was passing another car about midnight when he lost control of his vehicle and crashed along the highway.

Rhein's neck was broken at the fourth vertebrae. He was flown to St. Louis University Hospital.

"There were four other people in the car, and they walked away fine," Rhein said, noting the friends were going from one house to another. "One girl had a bruise on her hip. That was it."

For the first 24 hours, doctors didn't know if Rhein would live or die. They removed some of his hip bone and used it to fuse his spinal column back together.

The good news that Rhein would pull through was followed by horribly bad news.

"We were told immediately that he was paralyzed for life," said his mother, who also has an older son and daughter. "They said he would never walk again and that we needed to prepare ourselves."

Rhein spent more than three months at St. Louis University and St. Mary's Hospital in St. Louis before his release June 26. Three weeks later, he traveled to the Sheppard Center in Atlanta, Ga., for more hip surgery and rehabilitation.

By October of 2001, Rhein had regained limited movement in his arms. He underwent therapy at the Rehabilitation Center of St. Louis until his insurance ran out.

Rhein eventually got a part-time job at Environmental Restoration in Fenton, Mo., where he still tracks equipment by entering data into a computer.

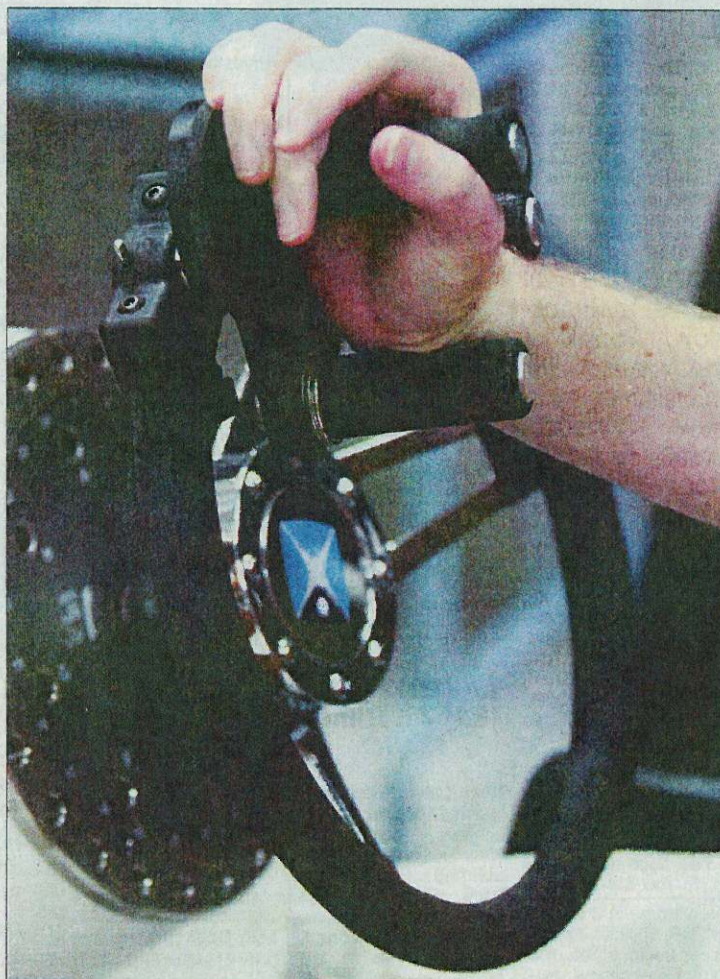
In August of last year, Rhein asked his doctor the big question: Could he drive again?

"I knew there were other quads out there driving," Rhein said. "But I didn't know what I needed to do or at what level I could drive."

Experimental journey

Dr. Cristina Sadowsky at the Rehabilitation Institute recommended Rhein for an experimental program led by Dr. Leonard Matheson of Washington University School of Medicine.

Two of Matheson's graduate students, Eggum and Mark Showers, designed the program to help quadriplegics build upper-body



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Rhein uses this practice wheel to condition his hand grip and arm movement during his weekly rehab sessions.

strength specifically for driving.

"By increasing their physical fitness, we can lower the cost of a van (because it needs less adaptive equipment)," Eggum said.

Key to the therapy is a piece of equipment called PrimusRS. It functions as a vehicle simulator with hand controls for accelerating, braking, turning and signaling.

The equipment also has a computer that stores patient input and output during exercises and uses the information to chart progress.

The PrimusRS is on loan from BTE Technologies, a company based in Denver and Baltimore that manufactures rehabilitation equipment.

"We like to get it in the hands of bright, young, motivated people for research and development programs like this," said Tim Seals, director of functional testing and evaluation products for BTE.

Rhein started therapy in September of 2004. His neck, shoulder,

arm and upper-back strength steadily increased for 10 months before he reached a plateau.

Rhein's case has helped Matheson and his students contribute to the theory that quadriplegics can benefit from rehabilitation.

"It shows that 4½ years after an accident, you can still improve," Eggum said. "You're not stuck where you are forever."

Until Rhein can afford a van, his mother will continue to drive him to the Rehabilitation Center for therapy. He's also accompanied by his support dog, Gardner, a golden retriever.

The well-behaved dog has become a celebrity among staff members. He lies on the floor by the PrimusRS while Rhein does his exercises.

"I mainly use him for picking up stuff that I drop," Rhein said. "When I got him (two years ago), he knew 88 different commands. He can turn on a light switch. He can jump up and get my keys off the counter. He'll do anything for a treat."