Sam Schmidt Paralysis Foundation

E-NEWSLETTER

February News

Gettin' It Done:

"DON'T BUY ANY GREEN BANANAS."

Doctors said Pat Rummerfield wouldn't walk again. That he also wouldn't run, ski, swim, bike or race cars was supposed to be understood.

Pat Rummerfield (Photo by Matt Marcinkowski)

Born in California, Pat Rummerfield spent several tough years in an orphanage there before being rescued by his great-uncle, Tom Rummerfield, and moved to a small town in Idaho. As a scrappy teenager Pat played varsity basketball in high

Supporting Research

SSPF Grant for Study of Interneurons Necessary for Walking Movements

The Sam Schmidt Paralysis Foundation recently provided a grant to Martyn Goulding, Ph.D. of the Salk Institute for Biological Studies in La Jolla, CA. Dr. Goulding's research project, titled "Axon Guidance, Synapse Formation and Neurotransmission", focuses on modulation and activation of excitatory spinal **interneurons** that are necessary for walking movements.

Interneurons in the spinal cord play a key role in generating the complex patterns of muscle activity that enable us to walk. These interneurons, together with motor neurons, form a neural network known as the **central pattern generator** (GPG). The CPG is able to function independently of the brain to generate the coordinated and rhythmic firing of motor neurons needed for walking.

Goulding's lab has studied the function of many of the cell types in the CPG, including a class of excitatory neurons that connect with motor neurons. These cells,

school, worked on his '63 Corvette every weekend and tried to stay out of trouble. He dreamed of becoming a racecar driver until a high speed crash destroyed the Corvette and left him quadriplegic, paralyzed from the neck down.

That was in 1974. Doctors initially gave Pat 72 hours to live and, when he didn't die, suggested a nursing home placement. He'd lost 85 percent of the connections across his spinal cord. In those days, quadriplegics had a life expectancy of 3 to 5 years. *"I guess I better not buy any green bananas"* became one of Pat and Tom Rummerfield's favorite expressions.

Then a nurse told Pat about a program in San Diego that trained people to operate an electric wheelchair by mouth. The sip-and-puff method was new and crude, and the wheelchair weighed 900 pounds, but Pat couldn't think of anything better to do for the next three to five years.

A few months later, Pat was breathing hard after a long session of quad-chair training. Two nurses settled him back into his bed, drawing up the sheets. He closed his eyes, and his breathing slowed. He saw himself behind the wheel of a Corvette, racing a road course. Then the picture changed: He was leaping

the V3 interneurons, are important for maintaining the overall excitability of the locomotor network.

Goulding found that removing V3 cells from motor circuits in the spinal cord causes a loss of organized "walking" activity. This has led to the working hypothesis that enhanced V3 neuronal activity is important to maintain ambulation.

Goulding, therefore, proposes to see whether certain drugs known to modify locomotor activity in the spinal cord can directly activate V3 cells. He further plans to test whether V3 interneurons are direct targets of descending pathways that are already known to activate the CPG.

Said Goulding, "These studies will help us devise new therapies and approaches that are aimed at activating V3 interneurons and the locomotor network in the injured spinal cord," and therefore improved walking ability.

Sam's Cool Ride - Update

It's been several months since we looked at Sam Schmidt's accessible Ford panel truck rebuild. A lot has happened in the meantime!

For the past few years, during the very short off-season from his annual racing schedule, Sam Schmidt has been working on a project to rebuild a cool classic Ford panel truck to suit his needs as a person in a wheelchair.

To view photos of the finished vehicle, click **here**.

Sam says, "We had an incredible

up, slamming a basketball through the hoop…

His eyes flew open in panic: He was falling out of bed! No, no, he wasn't. It was his left big toe. It had moved. He stared down, willing it to happen again. Instead, he felt excruciating pain. He screamed. His body started jerking violently, legs jumping and abs contracting. This was the spasticity they'd warned him about, accompanied by a searing neuropathic pain that felt like being burned alive.

The nurses rushed in and sedated him. When he woke, he could still—maybe "move" was too strong of a word—flicker that big toe. He informed his doctors that by the end of the week, he'd be walking. "We don't think you're going to get any more than what you have right now," one of the doctors said gently. "I'm pretty sure I'm going to be walking by the end of the week," Pat repeated.

Pat spent the next month moving that left toe back and forth. Then he called his doctors in: "Look at this! Grab onto my toe and ask me to move it!" They smiled politely. How much could he do with a left toe? But other toes followed, and then his right foot. Myelin was recoating his damaged nerves. They were carrying his brain's insistent messages all the way to his

debut in the HRIA (Hot Rod Industry Alliance) booth at the SEMA (Specialty Equipment Marketing Association) show in Las Vegas last November. I have applied for the "THERAPY" vanity plate and we will start using it in the spring for car shows."

This year, look for a photo layout of the accessible Ford truck in Hot Rod magazine.

When asked why he had embarked on such a daunting project, Sam replied, "After being 'confined' to a boring conversion van for several years, I decided to design something more in line with my taste. Being 58 inches tall in my chair, the options were limited. I looked at everything from old Suburbans to milk trucks to school buses and finally decided on the 1954 Ford F100 Panel truck because of its cool style and high roof.

"The drama was still being able to get inside as the stock height is only 45 inches. To solve the problem, the only option was to convert a 50 year old vehicle into a front wheel drive platform." The project involved merging a Cadillac chassis with a Ford body, then adding modern options like air conditioning and accessibility requirements like a ramp with controls.

To read a previous article, click **here**. To view the "before" photos, click **here**.

A New Sponsor

The Sam Schmidt Paralysis Foundation is proud to welcome a new sponsor on board, "500 Legends". Check out their impressive inventory of racing memorabilia at **http://500legends.com**.

muscles.

After nine months of rehab, Pat went home. At a garage sale, a friend bought him an electric stationary bike - the kind that pedaled automatically. They pushed Pat up behind a stationary bike seat, shoved a pillow between his legs, and tied them into place with elastic cord. Then they duct-taped Pat's feet to the pedals. Instant range-of-motion therapy.

Pat "pedaled" for hours every day, in part because people would forget he was stuck there on the bike. They didn't have a remote, so he wound up watching whatever came on TV and got hooked on Guiding Light and All My Children.

Pat and Tom Rummerfield experimented and kept track of the results in a notebook. Their main project was combating urinary-tract infections, a constant danger for catheter users and one of the main causes of death for quads. They learned that cranberries and chokecherries helped prevent these infections.

Pat put everything he had into rehab. Miraculously, his bones fused, and in the right alignment. Paradoxically, having a brain injury as well as a spinal cord injury actually helped Pat's brain adapt, loosening caution

2011 Schedule of Events

The Sam Schmidt Paralysis Foundation will have a very busy schedule in 2011, including several Day at the Races quality of life events, Run, Walk 'N Wheelathon fundraisers, local fundraisers, the annual May Gala and the annual Racing to Recovery Golf Tournament.

To view the entire schedule as of today, click **here**. The schedule will be updated as further information becomes available.

and revving his nervous system's ability to heal. In 1978, three and a half years after the accident, he started walking again. He had to concentrate hard and one side of his body dragged, but he was upright.

For the next four years, he worked on strengthening his legs. And in the many years since, Pat has learned to ski, run, swim and bicycle, breaking one record after another as "the world's first quadriplegic to…". To the best of his doctors' knowledge, he had become the world's first fully functional quadriplegic - still missing 85 percent of the connections across his spinal cord, yet able to run, bike, and swim.

After completing his first Ironman Triathlon in 1992, Pat started getting national speaking gigs. A physician from Washington University heard him lecture and offered him a job doing marketing and patient-liaison work. He soon began working with Dr. John McDonald, the neurologist who helped quadriplegic actor Christopher Reeve regain muscle mass. At the time, Dr. McDonald was refining what's called activity-based restorative therapy. Repetitive motion, for hours on end, could reawaken damaged nerve endings.

Pat Rummerfield's life spelled instant hope for anyone with a spinal-cord injury. "False hope," some of

McDonald's colleagues called it - Pat's example would only set people up for disappointment if their own recovery didn't proceed so miraculously. But McDonald had never seen that problem materialize. What bothered him was the neurosurgeons who said flatly, "You have had a severe spinal-cord injury, and there is no hope for recovery." They were, in his opinion, lying to half of their patients. The only false thing, in his mind, was "false removal of hope."

Still, McDonald is the first to admit that Pat was extraordinary, especially given the primitive state of spinal-cord treatment in 1974. If his injury were to occur today, he'd have surgery early, to decompress the spinal cord. Steroids would reduce the swelling. His surgeon would expose the bone around the spine and screw fixation hardware into several vertebrae, stabilizing his broken spinal column so he could get up and start exercising immediately. In 1974, there was no surgery, no fixation. Pat just got duct-taped to a bike.

In 1993, a once-in-a-lifetime opportunity arrived thanks to two close friends - driver/owner Sam Schmidt, himself a quadriplegic the result of an Indycar crash, and Craig Andres. They made it possible for Pat to test in one of Sam Schmidt Motorsports' IndyLights formula race

cars at the Las Vegas Motor Speedway.

In 1999, Pat resurrected his first dream by putting on a helmet and strapping himself into a race car. He set the world land-speed record for electric vehicles at 245.5 mph, a record that held for 11 years. Pat also drove a Camaro in a Nascar race at Irwindale Speedway to support spinal cord injury research. Over the years he's run in several marathons and triathlons around the world. He now works for Dr. McDonald at Baltimore's Kennedy Krieger Institute, spending hours doing outreach and talking to patients.

With no feeling below his knees, Pat needs to watch every step he takes. If he doesn't watch where his feet land, he'll trip. "I fall down a lot," he says cheerfully. "There's an art to it. You want to land on your strong side and curl up, kind of in a ball."

His hands and feet both lack fine motor coordination, yet he's learned to play the bass guitar and driven as a pro in the 2009 American Drag Racing League World Finals.

Dr. McDonald keeps a close eye on him these days, reminding him that most physicians wouldn't let him try some of these record-breakers. On the other hand, McDonald says, Pat's reaction speed is faster than that of

most men his age. Unfortunately, his age is increasing faster, too. Because Pat's nervous system has been damaged, his body will likely age about 20 years earlier. At any point, he could suddenly lose the use of his legs again. If that happens, he says, he'll become the fastest wheelchair driver around.

Pat Rummerfield has written a memoir, Green Bananas. He also cofounded the Prosperia Wellness Research Institute of St. Louis, which promotes a natural aronia berry remedy for urinary infections.
Pat's frustration with medical bureaucracy and costs is evident. In 1974 "I was guaranteed 24 months of inpatient rehab", he says. "With today's insurance, you'd be lucky to get 60 or 90 days."

He also gets tired of all of the assumptions - "that quads can't think," for example. "That if you're using a wheelchair, you're hard of hearing." He jokes away awkwardness, figuring it's up to him to relax well-meaning strangers.

But what he can't joke away is the assumption that someone who's paralyzed from the neck down would rather be dead. "Hey, I've lived in diapers," Pat says easily. "Believe me, there are a lot worse things... I always want to live."

"I've always thought, 'If life was going to end tomorrow, what would I want to do today?'"

The complete version of this abridged article appears in the January, 2011 issue of St. Louis Magazine: ***http://www.stlmag.com/St-Louis-Magazine/January-2011/Heart-Like-a-Wheel/***

Two Young Racers Find a Way to Help the Foundation

Josh DeLosier, Jason Reichert & Michael West with Sam Schmidt

Teens Jason Reichert and Josh DeLosier race go-carts for in different divisions of the Las Vegas Kart Club Series at Las Vegas Motor Speedway and in National events. Proven winners, the boys wanted to find a way to use their competitive spirit to raise funds for the Sam Schmidt Paralysis Foundation.

Their concept, “Drive for the Cure” came from attending Sam's house the night before the Annual Racing to Recovery Golf Tournament.

At the party Jason, Josh and Jason's cousin Michael West had the opportunity to say hi to Sam and get a photo with him. But the real impact came when they had the chance to hear Sam speak later that night. Josh and Jason connected with Sam, not only because they are aspiring race car drivers, but because Jason's uncle is also a quadriplegic. They have both seen the challenges that Uncle Jerry faces every day. Meeting Sam moved Jason to donating the birthday money he had received that day to the Sam Schmidt Paralysis Foundation, but their interest in Sam and the Foundation didn't end there.

The two have been brainstorming other ways they can contribute to the Founation financially and through awareness. They expanded their "Drive for the Cure" concept by convincing race sponsors to pledge a certain dollar amount for every lap they led at the first race of the season. They also got a bonus amount if they won the pole position. Good news! In their separate divisions, they both captured the pole and led every lap of the race.

Once they saw how involved Sam is with his race team, Jason and Josh

also convinced Uncle Jerry to get involved in their team, DLR Racing. Said Tim Reichert, Jason's dad, "While we realize that this is a small financial donation, we are all very proud of their efforts in coming up with 'Drive for the Cure'. They were determined to win the pole and lead every lap! They pulled the weekend off for a great cause, and for that, we are proud of them."

Jason and Josh have aspirations of someday racing professionally in either IndyCar or Formula 1. Their love is for open wheel racing, and these young race fans already have their tickets for the 2011 Indianapolis 500.

DLR Racing's primary sponsor is Hooters Restaurants. Both Josh and Jason won their divisions in 2010, and after the first race of the 2011 season both are leading in points. To view Josh DeLosier and Jason Reichert's 2010 Championship Season video on You Tube, click **here**.

We wish to thank Jason Reichert and Josh DeLosier of DLR Racing for their commitment to the Sam Schmidt

Paralysis Foundation, and hope their efforts prove an inspiration for other young people to become involved in a cause they believe in.

It's never too early to encourage the spirit of philanthropy in any young person. A habit of helping others leads to greater self-esteem as well as a sense of connection to society.

If you and your family would like more information on how to join the Sam Schmidt Paralysis Foundation's "Heroes for Hope", click **here**.

Our mailing address is:
PO Box 3661, Princeton, NJ 08543-3661

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