

# ◆ THE DERBY CITY NSCIA NEWSLETTER ◆

NOVEMBER 2011

*The Derby City Chapter of the National Spinal Cord Injury Association Network- Serving Kentuckiana.*

## Message From the President

*Dear Members & Friends-*

*We will NOT have a meeting in November. Our holiday party will take place the third Monday in December (December 19) at 6:00. If this changes, we will let you know. More details on the holiday party in next month's issue.*

*- David Allgood*

*From BusinessFirst.com*

## **FRAZIER REHAB, U OF L GET \$2.2 M GRANT TO STUDY SPINAL CORD INJURIES**

Frazier Rehab Institute and the University of Louisville have secured a \$2.2 million grant to establish a model system for treatment of spinal cord injuries.

According to a news release, the five-year grant is one of 14 to be awarded across the country.

U of L and Frazier Rehab will operate the Frazier Rehab and Neuroscience Spinal Cord Injury Model System. The system will serve patients in Kentucky, Indiana, Ohio and Tennessee. It will be the center of new research in which findings are quickly translated into clinical practice, the release said.

Officials hope to enroll at least 30 patients per year in a program to help standardize and improve treatments.

“Together, we can make new discoveries and implement those discoveries in our care for

patients,” David Laird, president for Jewish Hospital & St. Mary’s Health Care, Inc., which owns Frazier Rehab, said in a statement. “The benefits of that are invaluable.”

U of L president James Ramsey said the grant continues the school’s collaborative research program.

“Our goal continues to be to provide world-class care for patients with spinal cord injury as we push the boundaries of what is currently known in this field,” Ramsey said in the release.

Daniel E. Graves, an associate professor of physical medicine and rehabilitation will join U of L and Frazier Rehab in December as principle investigator on the grant.

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# **Refrigerator Calendar** **2011**

## **NOVEMBER**

**7th  
Mon**      **Elderly & Disabled Advisory Council Meeting.  
1:00; TARC; 1000 W. Broadway; Board Room.**

**8th**      **Election Day.**

**21st  
Mon**      **Derby City Chapter-National Spinal Cord Injury Association; 6:00 p.m.  
220 Abraham Flexner Way, Louisville, KY 40202; 10th floor dining room  
NO MEETING THIS MONTH.**

**28th  
Mon**      **Metro disAbility Coalition Meeting; 3:15 p.m.  
Spalding University; 845 S. Third Street; Louisville .**

## **DECEMBER**

**5th  
Mon**      **Elderly & Disabled Advisory Council Meeting.  
1:00 p.m.; TARC; 1000 W. Broadway; Board Room.**

**19th  
Mon**      **Derby City Chapter-National Spinal Cord Injury Association Christmas Party.  
6:00 p.m.; Highland Court Apt; 1720 Richmond Dr.; Louisville; Comm. Dining Rm.**

**26th  
Mon**      **Metro disability Coalition Meeting; 3:15 p.m.  
Spalding University; 845 S. Third Street; Louisville.**

**For More Information Call**  
**David Allgood at 502-588-8574**

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**Derby City Area Chapter**  
***of the***  
**National Spinal Cord Injury Association**

**ABOUT THE ORGANIZATION**

The Derby City Area Chapter of the N.S.C.I.A. is a membership organization for individuals with spinal cord injuries, their families, and health professionals. Founded in 1984 as a Charter Member of the N.S.C.I.A., it was incorporated under IRS Section 501 (c) 3 as a not for profit organization. The Board of Directors consists of the Officers, Past President and the Board Members At Large.

\*\*\*

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**Visit Our Website at**  
**[www.DerbyCitySpinalCord.org](http://www.DerbyCitySpinalCord.org)**

**The Derby City Area Chapter Newsletter is brought to  
you through the generous support of Frazier  
Rehab Institute**

*The following articles are from the Internet—editor*  
**SPINAL CORD INJURIES UP HEART  
DISEASE RISK**

Spinal cord injury patients could be at higher risk for heart disease, a new research has suggested.

Damage to the autonomic nervous system is a key predictor of cardiovascular risk said researcher Rianne Ravensbergen.

Heart disease after SCI is the leading cause of morbidity and mortality in this population. It is well known that regular exercise is beneficial for cardiovascular health.

In people with autonomic dysfunction due to SCI, they may remain at high risk for cardiovascular disease, even if they maintain a healthy lifestyle and exercise regularly, according to Ravensbergen.

“In this specific group we should also be looking at whether they have autonomic dysfunction, because this causes a higher risk for heart disease,” she said.

The autonomic nervous system controls functions of the body that are automatic, or involuntary—such as activities of the bladder, bowel, gastrointestinal tract, liver, heart and blood vessels.

After SCI the autonomic nerves in the spinal cord can be damaged, leading to widespread abnormalities in autonomic function, and of particular relevance to Ravensbergen’s work, abnormal control of the heart and blood vessels.

In her study, Ravensbergen assessed 20 people with spinal cord injury and 14 able-bodied controls to determine their risk for cardiovascular disease, including measurements for glucose tolerance, body mass index (BMI), body fat and abdominal fat. Those with SCI had increased glucose tolerance and increased total and abdominal fat.

Ravensbergen then divided the SCI group into two subgroups: people with autonomic dysfunction and those without. While both groups had high cholesterol, she was surprised to find that those with autonomic dysfunction had problems with blood sugar. “These people are in a pre-diabetic state, which elevates their risk for heart disease,” she says. This study indicates that after the recovery period there is value in screening the autonomic system to evaluate the cardiovascular system of spinal cord patients.

The study was presented at the Canadian Cardiovascular Congress 2011.

## NERVE ACTIVATION METHOD COULD HELP PARALYSIS IMPLANT

London—By altering the concentration of ions around nerves, researchers have demonstrated a new super-efficient method to stimulate nerves in frogs, making it easier to block or send signals.

The findings, published last week in the journal *Nature Materials* could one day lead to better implants to help people with paralysis or epilepsy or chronic pain, without some of the unwanted side effects of current implants.

“We were able to modulate the ion concentrations, primarily calcium, to essentially turn-off or help turn-on a nerve in a graded reversible fashion,” said reconstructive surgeon Samuel Lin from Harvard Medical School in the U.S., who co-authored the paper.

“This has wide potential application for helping patients with facial paralysis, spinal cord injuries, chronic pain and in the burgeoning field of neuro-prosthetics,”

Approximately 5.6 million people in the U.S. currently have forms of paralysis or paresis (loss of movement) and approximately 1.3 million are paralyzed due to spinal cord injury.

One way to try to treat these injuries is through Functional Electrical Stimulation (FES), which is used to help paralyzed people regain certain functions such as walking, hand grasping and breathing. It is also used to help people who have suffered a stroke or spinal cord injury to regain bladder control.

FES implants use electrodes to nerves that no longer fire by themselves, in order to mimic their normal function. The problem is that the electrical currents needed for the implants to work often cause side effects, such as pain, or sending unwanted signals into nearby nerves.

Now, Lin and colleagues have found a way to reduce these unwanted side effects. They developed an ion-selective membrane they can use to coat electrodes. Nerve fibers usually fire their signals thanks to the action of ions—or charged particles—flowing into nerve cells. Calcium ions help block these nerve signals. The team’s new membrane absorbs calcium ions, making it easier to send signals down the cell. When they tried it out on a frog nerve fiber, they found they could stimulate a nerve signal using a lower current than in existing implants thanks to reduced quantities of calcium ions around the nerve.

As well as reducing the electrical threshold needed to activate the nerve fiber by 60% compared to traditional FES, the team also found that they could use the device to block signals in nearby nerve fibers.

That means that as well as helping to activate nerves in paralyzed people, it might also be useful in blocking unwanted signals in conditions such as epilepsy. The team also believes that because smaller currents are needed to activate nerve fibers, any implants that use this new membrane would last longer.

“An implant based on this technique draws a smaller current and also uses less power, meaning that batteries will last longer than in a conventional prosthetic device. And as a membrane is just a coating on one of the electrodes, the size of the device remains about the same,” said biomechanical engineer Yong-Ak Song from MIT, who led the team.

Gerald Loeb, who works on electronic methods of restoring motor function, is not convinced. “This is a clever demonstration, but I doubt it can be used practically in prosthetic interfaces,” he commented. The effects are fairly modest even in a situation where there is no perfusion. They should be much smaller with a normal blood supply and at mammalian body temperature.”

To find out for certain, the device will need to be tested in more robust systems—such as whole organisms. The team is now starting to build a miniaturized functional electrical stimulation device they will test out on whole animal models, Song said.



## AT 1 YEAR, UCI STEM CELL TREATMENT SAFE SO FAR

The world's first test on patients of a treatment for spinal cord injury using human embryonic stem cells is so far proving safe, one year after the first of four patients received injections.

The treatment, developed by researchers at UC Irvine, involves injection of neural cells derived from human embryonic stem cells into the site of spinal cord injury within 7-14 days—known as “acute” injuries, as opposed to longer-term injuries known as “chronic.”

None of the patients have experienced adverse reactions from the treatments, according to Geron Corp., which is conducting the trials, although a few “mild” reactions were reported from a drug used to suppress the patients’ immune responses.

“I’m happy that the treatment appears to be safe at this point,” said UCI stem cell researcher Hans Kierstead, who is not involved in the patient trials but developed the treatment with his colleague, Gabriel Nistor.

The treatment has the potential to restore function below the site of a spinal cord injury, perhaps allowing patients with SCI to walk again. It has reversed paralysis in laboratory rats.

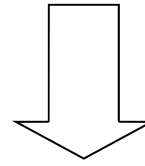
The first person to receive the injections, Timothy Atchison of Alabama, reported feelings in his legs after the treatment. While the identities of the patients involved is kept secret, Atchison came forward to tell his story in the Washington Post.

Kierstead said Atchison’s report was exciting, but anecdotal and not scientifically verified; following typical practice, the first stem cell trial is intended to check the safety of the treatment. A second trial will determine its effectiveness.

The stem cells are derived from embryos otherwise destined to be discarded by fertility clinics, but such treatments still can generate controversy among those who oppose the use of stem cells.

Embryonic stem cells have the potential to become many types of stem cells, raising hopes that Parkinson’s, Alzheimer’s and many other diseases could one day be treated with them. In rats, the cells were shown to form new tissue at the site of the spinal cord injury, in some cases restoring motor function. **(Continued beneath *For Sale*)**

## FOR SALE \*\*\*



**\*1995 Ford E-150 conversion van.** Side wheelchair lift; power adjustable driver transfer seat. Hand controls. Excellent mechanical condition; 63,357 miles. Body & tires in nice condition. \$8500.00; Call Tony at 502-526-6263 or Tom at 502-262-3576.

\*\*\*If assistance is needed to pay for any items **ABOVE** in *For Sale* contact KY Assistive Technology Loan Corporation at 1-800-327-5287 for information on 5% interest loans to qualified individuals.

**\*Cookbooks for Sale:** Recipes compiled by Chapter members; \$10.00. Call David @ 585-8574.

**\*Video tapes for sale.** Various topics related to spinal cord injuries. Call David Allgood at 588-8574.

♦ **SCI -Shirts for sale.** S, M, L, XL. David—588-8574.

***IF YOU HAVE ITEMS FOR SALE,  
PLEASE CONTACT DAVID  
AT 588-8574 OR EMAIL BARB DAVIS  
AT [davis.barbara33@gmail.com](mailto:davis.barbara33@gmail.com)***

### STEM CELL TREATMENT SAFE, CONT'D

A second clinical trial, also involving a stem cell treatment developed at UC Irvine, is underway in Switzerland. In this case, human neural stem cells from aborted fetuses donated by parents are being used to treat “early chronic” spinal cord injuries — those three to twelve months old.

The treatment, developed by the UCI husband-wife research team of Brian Cummings and Aileen Anderson, also has reversed limb paralysis in laboratory rodents.

The Swiss trial is checking both safety and effectiveness. The first patient was injected in September.

*You are cordially invited to join us!*

*The Derby City Chapter of the National Spinal Cord Injury Association consists of people with spinal cord injuries and similar physical conditions, their family members, friends, and professionals or other interested parties.*

*We meet:*

*WHEN- Third Monday of every month from 6:30 to 9:00 PM*

*WHERE- Frazier Rehab Institute, 10th floor Dining Room  
220 Abraham Flexner Way, Louisville, KY 40202*

**If you wish to be a member, donor, and/or be on the mailing list of the Derby City Chapter of the National Spinal Cord Injury Association please complete and mail the following form to the address below**

**National Spinal Cord Injury Association**

**Derby City Chapter**

**Membership & Organization Sponsorship Form**

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\*\*\*\*

Membership is open to all individuals and sponsorship to all organizations interested in spinal cord injury.

Mark Type of TAX DEDUCTIBLE Individual Membership or Organization Donor Category Desired\*\*\*

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