

The Current

*Helping people regain life thru
neurotechnology*



Outreach & Education

We are going over the airways. On March 13, United Spinal Association hosted a webinar conducted by Jen French of Neurotech Network. The session title is *Rehab Solutions: FES Technology and Paralysis*. Since it was archived, you can attend the session at your leisure. [Just click here to find the link to the FREE Webinar and handouts.](#)

Coming up this spring is the [American Spinal Injury Association Annual Meeting](#), at the Colorado Convention Center in Denver, Colorado from April 18-21, 2012. Look for our session in the Rehab Track to be held on Saturday, April 21 from 10am to 1pm.

If you have any suggested events, please let us know at our [Conference Inquiry Page](#) on our website.

Technology for Mobility

Published in the January 2012 issue of *Spinal Cord*, a world-wide team of authors including Executive Director, Jen French, identify technological advances that are likely to have a great impact on the quality of life and participation of individuals with spinal cord injury. The article titled *Technology for Mobility in SCI 10 years From Now* can be found by [clicking here](#).

Novel Neural Rehabilitation Therapy

At the Spinal Cord and Brain Injury Research Center at the University of Kentucky in Lexington, novel neural rehabilitation therapies are currently being investigated. The rehabilitation techniques capitalize on "neuroplasticity," which refers to the brain's ability to reorganize itself by forming new neural connections to compensate for injury and disease.

Dr. Lumy Sawaki, MD, PhD, an Associate Professor in the Department of Physical Medicine and Rehabilitation at the University of Kentucky, is the lead investigator. This new therapy is based on previous work she had done involving CIMT, constraint-induced movement therapy. Dr. Sawaki was the lead author on a CIMT study published last year in the journal *Neurorehabilitation and Neural Repair*. In this study, each of the 30 participants was evaluated using transcranial magnetic stimulation (TMS), a non-invasive method to excite neurons in the primary motor cortex. In the CIMT therapy study, Dr. Sawaki and collaborators used TMS to map the brain area that controls a

particular muscle and compare this map to previous patterns of activity. As the patient's ability to perform a certain movement improves, these brain maps confirm the reorganization of the associated area of the brain. Focusing on hand motor function of sub-acute stroke survivors, they observed changes within the functional activity of the brain for those who used CIMT.

Developing a new neurorehabilitation therapy, Dr. Sawaki is extending what was learned in the CIMT study to further the rehabilitation process for chronic survivors of neurological trauma from stroke, brain and spinal cord injuries. This new therapy involves using transcranial direct current stimulation (tDCS) along with movement therapy. Dr. Sawaki is using tDCS, a painless and non-invasive brain stimulation, to stimulate an area of the brain that controls movement of a targeted muscle. By stimulating multiple brain areas and monitoring muscle response combined with movement therapy, the investigators are trying to determine if this combination may result in the most functional benefit.

To read more about Dr. Lumy Sawaki's research and new neurorehabilitation therapy, [click here to read a full article titled Taking Good Care: Hi-tech approach helps stroke patients regain their lives.](#)

2011 Annual Report

What have we been doing of the past year? The Neurotech Network Annual Report for 2011 is now available on-line. This is our annual compilation of the programs, activities and impact Neurotech Network has made in the past year including the vision for 2012. You may find a copy by [clicking here.](#)

News of Interest

- Brain stimulation devices are a rapidly growing medical device group. Recently, a consumer group, Public Citizen, petitioned the FDA to require all cranial electrotherapy stimulator devices to submit pre-market approval applications, after an agency panel recommends that the devices remain in the highest risk category, Class III, for medical devices. [Read more here.](#)
- Transcranial Magnetic Stimulation for the treatment of severe depression was a topic on the Dr. Oz Show. NeuroStar's TMS Therapy was featured on the show. Missed it? [Click here to view the video.](#)
- Tinnitus, which causes ringing, buzzing, roaring or other noises in the ears, can be a disabling condition. A new treatment called Acoustic Co-ordinated Reset (CR) Neuromodulation is being investigated in the United Kingdom. Read more about this new treatment by [clicking here.](#)
- Epidural Stimulation for the those with spinal cord injuries is being investigated to improve functional recovery. Research information being lead by Dr. Harkema at the University of Louisville can be found by [clicking here.](#)
- A new study by the International Anesthesia Research Society suggests that peripheral nerve stimulation is a valuable option for acute management of severe neuropathic pain in soldiers with combat injuries. To read more, [click here.](#)
- Great Lakes NeuroTechnologies is developing technology to help surgeons and

- neurologists fine-tune deep brain stimulation (DBS) systems after they've been implanted in people with Parkinson's disease. DBS involves implanting electrodes in the brain that deliver electrical stimulation to block abnormal nerve signals causing tremors, slowed movements and stiff joints. [Read the story here.](#)
- Cortical and spinal neuromotor prosthetics: who would be an ideal candidate? is a posting written by Monzurul Alam and provided by NeuroTech Zone blog. Read the full article by [clicking here.](#)
 - Exoskeletons technology is spreading among rehabilitation facilities. Recently, the Kessler Foundation and Shepherd Center have partnered with Ekso Bionics to test this new device in the rehabilitation environment. [To read more, click here.](#)
 - A novel, non-invasive treatment is being investigated to help stroke survivors improve speech, memory and numerical abilities. This new brain stimulation technique is being researched by Dr. Jenny Crinion of the University of College London. [To read more, click here.](#)
 - [EnteroMedic](#) provider of obesity neuromodulation devices, has been notified by the American Medical Association that they have received approval for reimbursement codes for vagal blocking therapy used by EnteroMedic's VBLOC therapy. This neuroblocking therapy treats obesity and certain co-morbid conditions, such as diabetes.
 - Researchers at the Shriners' Hospital for Children are recruiting participants for a study investigating recumbent cycling for adolescents with cerebral palsy. [Click here to learn more details.](#)
 - The Stanford Neural Prosthetics Translational Laboratory (NPTL) has developed a survey to assess the technology needs of people affected by paralysis. If you are a person living with a cervical spinal cord injury and would like to participate in this study, click the following link: https://stanfordmedicine.qualtrics.com/SE/?SID=SV_3qlq5YonA1zSeR6

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