

Media Contact:
Drew Avril
CoActive Public Relations
Ph: 718-871-7117
davril@coactivepr.com



Significant Improvement in Post-Stroke Upper Limb Function Announced at International Neuromodulation Society World Congress

– Nerve Stimulation Results in Recovery of Arm, Hand, and Finger Movement –

ACAPULCO, MEXICO (December 11, 2007) – A study presented during “Functional Electrical Stimulation (FES) Day” at the International Neuromodulation Society’s (INS) eighth world congress demonstrates that electrical stimulation may play a significant role in the recovery of upper limb function in stroke patients. The results were announced by Ross Davis, MD during the year's largest conference on neuromodulation, the alteration (or modulation) of nerve activity by delivering electrical or pharmaceutical agents directly to a target area.

Seven participants (three females and four males) with post-stroke arm weakness and spasticity received radio-frequency microstimulator (RFM) implants (developed and provided by the Alfred Mann Foundation, Valencia, CA) on selected branches of their radial nerve/motor-points. The study was performed at Southampton University, Southampton, UK. The RFM is an implantable device, 2.4 mm in diameter and 16.7 mm long, which applies pulses of current to the nerves or motor points to cause a contraction of skeletal muscles. The participants received a programmed stimulation to help them extend their elbows, wrists and fingers in order to augment functional activities for at least one hour a day, five days a week, for 12 weeks. The patients had a mean age of 45 years (32–67 years) and their strokes occurred an average of 3.9 years (1.1–10.5 years) prior to treatment.

The study demonstrated a mean improvement across all patients in all outcome measures as well as feasibility and safety of using implanted microstimulators in post-stroke rehabilitation. No infections or failed RFMs occurred. The greatest functional improvement was demonstrated in the three participants whose stroke occurred within the past two years, suggesting that earlier intervention may be beneficial to rehabilitation. After 12 weeks of programmed stimulation, four of the seven participants could complete daily tasks without supplemental stimulation.

"While stroke patients face an array of significant obstacles during recovery, more than 80 percent experience difficulties in regaining functional use of their arms, hands and fingers," said Dr. Davis, consultant neurosurgeon for the Alfred Mann Foundation, INS Director-at-Large and representative for the International Functional Electrical Stimulation Society (IFESS). "This study shows that electrical stimulation applied directly to the nerves allows more precise movements such as extending the arm and providing the ability to open the hand for grasping."

Although strokes occur in the brain, they can affect the entire body. Strokes are caused by either the sudden interruption of the blood supply to part of the brain or by a burst blood vessel that spills blood into the spaces surrounding brain cells. Brain cells die when they no longer receive oxygen and nutrients from the blood. The annual incidence of stroke in the U.S. is approximately 700,000 people with 160,000 people dying annually. According to the American Heart Association, the annual financial impact on the U.S. economy is almost \$57 billion in both direct and indirect costs.

- more -

Recurrent stroke is common; one out of every seven people who recover from their first stroke will have another stroke within five years. Nearly one-quarter of all strokes occur in people under the age of 65, and comprise of the leading cause of serious long-term disability.¹ While 85 percent of stroke survivors regain the ability to walk, more than 80 percent of those who have upper limb paresis do not regain useful function.²

About the International Neuromodulation Society

The International Neuromodulation Society (INS) is a non-profit group of clinicians, scientists and engineers dedicated to the scientific development and awareness of neuromodulation – the alteration of nerve activity through the delivery of electrical stimulation or chemical agents to targeted sites of the body. Founded in 1989 and based in San Francisco, CA, the INS educates and promotes the field through meetings, its journal *Neuromodulation: Technology at the Neural Interface* and chapter websites. For more information, please visit www.neuromodulation.com. For conference information, please visit <http://www.neuromodulation.com/2007-ins-nans-neuromodulation-conference-in-acapulco.htm>

###

¹ U.S. Dept. Health & Human Services: Centers for Disease Control & Prevention: Stroke Facts, 2005; www.cdc.gov/stroke/stroke_facts.htm

² Wade DT, Hower RL. "Functional Abilities after Stroke: Measurement, Natural History and Prognosis." *Journal of Neurology, Neurosurgery & Psychiatry.* (1987) 50:177-82