

# Restorative Therapy Raised Motor, Sensory Scores

BY BETSY BATES

Los Angeles Bureau

SAN DIEGO — Patients with chronic spinal cord injury regained physical integrity and demonstrated advances in neurologic functioning with intensive restorative therapy, John W. McDonald, M.D., Ph.D., reported during a poster presentation at the annual meeting of the American Neurological Association.

Dr. McDonald and his associates at Washington University in St. Louis and the Kennedy Krieger Institute in Baltimore studied 57 adults whose injuries occurred at least 1 year prior to enrollment. Complete data were available for a total of 48 patients who participated in therapy for at least 6 months.

Patients who received traditional therapy for 6 months or longer (n = 22) were compared with those who spent a similar length of time undergoing activity-based

restorative therapy that included at least 3 hours a week of functional electrical stimulation cycle ergometry (n = 26).

Patients who participated in restorative therapy increased the muscle mass of their quadriceps an average of 30%, while muscle fat decreased by 44%. Stimulated muscle strength increased by 78%, and relative spasticity was reduced by 47%. These measurements were obtained using a Biodex machine to generate free movement and velocity-dependent resistance

while measuring response. No differences were seen in nonstimulated muscles, Dr. McDonald reported.

One-third of patients undergoing traditional rehabilitation lost 10 or more points on the combined motor and sensory score (CMSS) of an impairment scale established by the American Spinal Injury Association. Just one patient receiving restorative therapy lost at least 10 CMSS points.

The 69% of patients who responded to restorative therapy (18 of 26) gained an av-

erage of 38 CMSS points over the course of the study. Eleven of the 26 patients undergoing restorative therapy also decreased their dose of the antispasticity agent baclofen or discontinued it altogether. The same was true for just 3 of 22 patients receiving traditional therapy.

The positive results of this pilot study point to the need for the larger, randomized trial, which is scheduled to get underway in 2006 and will enroll 400 patients, Dr. McDonald said. ■

Continued from previous page

system, said Donald W. Marion, M.D., a fellow at the Brain Trauma Foundation in New York City. It's important to remember that Dr. Teasdale devised the Glasgow score for nurse use, Dr. Marion said. "They were concerned that nurses be able to accurately report to the next shift and to physicians the status of the patient. It's important that we don't forget this."

Reliability among less highly trained personnel is a key indicator of a tool's simplicity and ease of use, Dr. Marion pointed out. "If no one other than a specialist can use it, that's a problem."

Dr. Teasdale, professor emeritus of neurosurgery at the University of Glasgow, Scotland, agrees. "The study uses too restricted a range of staff—all were in a specialized tertiary critical care unit," he said. "What about the 'average' emergency room or hospital?"

The FOUR scale gets around the issue of intubation, which negates the verbal assessment—a full one-third of the GCS categories. But FOUR probably won't be any more useful than GCS for traumatic brain injury patients, many of whom are sedated or pharmaceutically paralyzed by the time they are assessed at a trauma center, Dr. Marion said.

Nevertheless, "there are some real pluses with it—most importantly, looking for pupil changes and corneal responses. That's a real important improvement over the Glasgow score."

The system deserves further study, Dr. Marion said. "We should consider this a first step and maybe over time we will find it needs to be modified. I'd like to see it tested in a pure group [in which all patients have coma from the same etiology], to see if they can arrive at results this good or even better."

That kind of additional study is already in the works, Dr. Wijdicks said. "We are doing an additional nursing training study and we're in the planning stages for a study among emergency room physicians. We're going to test it in pediatric patients as well." ■

## LAUNCHING NOVEMBER 2005

nature  
CLINICAL  
PRACTICE **NEUROLOGY**

Editor-in-Chief: John W. Griffin, MD



A new journal from the publishers of *Nature*, **Nature Clinical Practice Neurology** delivers timely, authoritative interpretations of key research developments, translating the latest findings into clinical practice.

Articles include editorials and opinion pieces from leading authorities, highlights from the current literature, expert commentaries on the application of recent research findings to practical patient care, comprehensive reviews, and in-depth case studies.

Our Editor-in-Chief, John W. Griffin, MD, and an international Advisory Board ensure broad coverage across the specialty of current developments throughout the year, reflecting the highest standards of editorial quality and integrity that are hallmarks of Nature Publishing Group.

Only \$96 per year (12 issues) for a personal subscription in print and online.

Visit us online at: [www.nature.com/clinicalpractice](http://www.nature.com/clinicalpractice) for more information and to subscribe at a special 25% discount.

To receive your 25% discount when subscribing online please do the following:

- 1 Go to [www.nature.com/clinicalpractice](http://www.nature.com/clinicalpractice).
- 2 Click "SUBSCRIBE" at the upper right.
- 3 Click the journal title.
- 4 Enter the special offer code 5B1105DNG in the space provided.
- 5 Click "Update Price".
- 6 Click "Continue to Payment" and enter your payment details as indicated.

[www.nature.com/clinicalpractice](http://www.nature.com/clinicalpractice)

nature publishing group 