Lower Extremity Functional Electrical Stimulation Cycling Promotes Physical & Neurological Recovery in Chronic Spinal Cord Injury

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BALTIMORE, March 4, 2013 /PRNewswire/ -- A new study by Kennedy Krieger Institute's [1] International Center for Spinal Cord Injury [2] (Epub ahead of print) finds that long-term lower extremity functional electrical stimulation (FES) cycling, as part of a rehabilitation regimen, is associated with substantial improvements in individuals with chronic spinal cord injury (SCI). Improvements include neurological and functional gains, as well as enhanced physical health demonstrated by decreased fat, increased muscle mass and improved lipid profile. Prior to this study's publication today in the *Journal of Spinal Cord Medicine*, the benefits of activity-based restorative therapy (ABRT) programs, such as FES cycling, were largely anecdotal despite publicity in conjunction with the recovery of actor and activist Christopher Reeve .

In FES, small electrical pulses are applied to paralyzed muscles to stimulate movement. In the case of FES cycling, FES pulses prompt the legs of an individual with SCI to "cycle" on an adapted stationary recumbent bicycle. The repetitive activity offers cardiovascular exercise similar to that which an able-bodied individual achieves through walking, but this new research shows that the results go far beyond basic health benefits.

"Exercise has not been commonly advocated for individuals with paralysis because of the assumption that it is of little benefit and it is challenging to exercise limbs that an individual cannot voluntarily move," said John W. McDonald, M.D., Ph.D. [3], senior study author and director of the International Center for Spinal Cord Injury at the Kennedy Krieger Institute.

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Links:
[1] http://www.kennedykrieger.org/
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