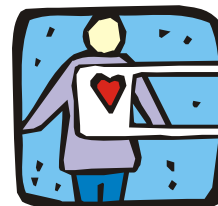


## Medical Benefits of the ERGYS and REGYS FES\* Leg-Cycle Ergometers: A Survey of Published Clinical Studies

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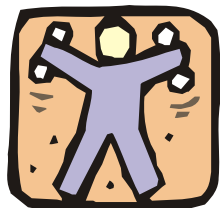
Mohr T., Andersen J., Biering-Sorensen F., Henrik G., Bangsbo J., Wagner A., Kjaer M.: Long term adaptation to electrically induced cycle training in severe spinal cord injured individuals. *Spinal Cord*: Vol. 35: 1-16, 1997.



**Conclusion:** One year of electrically induced cycle training can reverse several of the inactivity associated changes seen after SCI. Among the changes noted were a 12% growth in the stimulated muscle and a six-fold work performance increase accompanied by a 23% increase in maximal oxygen uptake. [REGYS]

Nash M. S., Montalvo B. M., Applegate B.: Lower extremity blood flow and responses to occlusion ischemia differ in exercise-trained and sedentary tetraplegic persons. *Archives of Physical Medicine and Rehabilitation*: Vol. 77: 1260-1265, 1996.

**Conclusion:** Tetraplegic persons conditioned by electrically stimulated cycling have greater lower extremity blood flow and hyperemic responses to occlusion than do their sedentary counterparts. [ERGYS]



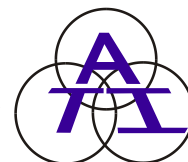
Hooker S. P., Scremin E., Mutton D. L., Kunkel C. F., Cagle G: Peak and submaximal physiologic responses following electrical stimulation leg cycle ergometer training. *Journal of Rehabilitation Research and Development*: Vol. 32, No. 4: 361-366, 1995.

**Conclusion:** Two-time per week NMES leg cycle training program will also result in significant increases in exercise tolerance and cardiorespiratory capacity in persons with SCI (compared with three times per week). [REGYS]

Twist, D. J., Culpepper-Morgan J. A., Ragnarsson K. T., Petrillo C. R., Kreck M. J. Neuroendocrine changes during functional electrical stimulation. *American Journal of Physical Medicine and Rehabilitation*: 71: 156-163, 1992.

**Conclusion:** 30 weeks of FNS exercise training led to significant increases in beta endorphin-like immunoreactivity, improved regulation of cortisol, and improved scores on a depression index. [REGYS, ERGYS]

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Nash M. S., Bilsker S., Marcillo A. E., Isaac B. S., Botelho L. A., Klose K. J., Green B. A., Rountree M. T., Shea J. D. Reversal of left ventricular atrophy following electrically-stimulated exercise training in human tetraplegics. *Paraplegia* 29: 590-599, 1991.

**Conclusion:** Six months of exercise led to significant increases in left ventricular internal dimension and intraventricular septal and posterior wall thicknesses in quadriplegics. [ERGYS]

Kristjan T. Ragnarsson, Susan Pollack Feldman, Donna Twist. Lower limb endurance exercise after spinal cord injury: implications for health and functional ambulation. *J Neuro Rehab* 1991;5:37-48.

**Conclusion:** When the lower motor neuron system is intact, paraplegics and quadriplegics can perform substantial exercise through the use of computerized functional electrical stimulation. Many of the effects of physical inactivity experienced after SCI may be reversed by FES intervention. [REGYS, ERGYS]

Steven P. Hooker, Stephen F. Figoni, Roger M. Glaser, Mary M. Rodgers, Bertram N. Ezenwa, Pournan D. Faghri. Physiologic responses to prolonged electrically stimulated leg-cycle exercise in the spinal cord injured. *Archives of Physical Medicine and Rehabilitation*: Vol. 71: 863-869, 1990.

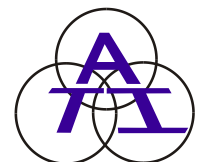
**Conclusion:** Despite the existence of sympathetic impairment, 30 minutes of FES leg-cycle exercise in a controlled environment does not result in inappropriate physiologic responses in SCI individuals. [ERGYS]

Sipski M. L., Delisa J. A., Schweer S. Functional electrical stimulation bicycle ergometry: patient perceptions. *American Journal of Physical Medicine and Rehabilitation*: 68: 147-149, 1989.

**Conclusion:** A majority of SCI subjects indicated improved self-image and perceived their appearance to be better following training. [ERGYS]



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