Fitness improved for individuals post-stroke after virtual reality augmented cycling training

J E Deutsch[1,3], MJ Myslinski[1], R Ranky[2], M Sivak[2], C Mavroidis[2], J A Lewis[3]

[1]Rivers Lab, Department of Rehabilitation and Movement Sciences:
University of Medicine and Dentistry of New Jersey, 65 Bergen Street Newark NJ, USA,

[2]Megatronics Lab: Northeastern University, Boston, MA, USA

[3]VRehab LLC, USA

deutsch@umdnj.edu

http://shrp.umdnj.edu/dept/PT/rivers/

ABSTRACT

A virtual reality (VR) augmented cycling system was developed to address motor control and fitness deficits. In this paper we report on the use of the system to train fitness for individuals (N=4) in the chronic phase post-stroke who were limited community ambulators. Fitness was evaluated using a sub-maximal bicycle ergometer test before and after training. There was a statistically significant 13% (p = .035) improvement in VO_2 (with a range of 6-24.5 %). For these individuals, VR augmented cycling, using their heartrate to set the avatar's speed, fostered training of sufficient duration and intensity to promote fitness.

Full papers will be published in the Conference Proceeding s and will be available to delegates at the conference on Sept. 10.

Full papers will be released on-line in the ICDVRAT archive on March 15.