



Virtual reality no better than simple recreational activity in stroke recovery

Non-immersive virtual reality (VR) exercise is no better than simple recreational activities as an add-on to conventional rehabilitation after stroke, according to a recent study. The finding suggests that limited access to VR technology is not a disadvantage, and the use of simple, inexpensive activities should be maximized.

VR — either fully immersive or non-immersive — has been proposed as one approach to aid motor recovery after stroke. The technology is commonly used in clinical practice and is recommended in some guidelines, yet its benefits are unclear owing to limitations of previous studies.

Gustavo Saposnik and co-workers aimed to provide clearer evidence with a multicentre, single-blind, parallel-group, randomized trial of VR therapy with the Nintendo® Wii® gaming system. “Advantages of this system over other platforms are a 3D accelerometer that responds to changes in direction, speed and acceleration, in addition to simple graphics and control of parameters that allowed patients with cognitive

impairment to participate,” explains Saposnik.

Saposnik and colleagues enrolled 141 patients with ischaemic stroke and an upper limb motor deficit score of three or more on the Chedoke–McMaster scale. Over 2 weeks, all patients received conventional rehabilitation therapy along with add-on therapy of either recreational activity, such as matching coloured cards or playing dominos, or non-immersive VR therapy.

All patients received the same amount of time of their therapy, and at the end of the 2-week period, their motor function was assessed with an abbreviated version of the Wolf Motor Function Test. Assessors were blinded to the rehabilitation that each patient had received.

Across all patients, the test scores revealed 30% improvements in motor function at the end of the 2 weeks, and 40% improvements after a further 4 weeks. However, no significant difference was found between the effects of VR and recreational therapy on motor recovery, grip strength, activities of daily living or quality of life after stroke.

“Our study shows that non-immersive VR is not more effective than simple recreational activities,” explains Saposnik. “Considering the easy access and implementation of the recreational activities we tested, these findings provide hope to patients without access to VR technologies.”

Saposnik also says that the apparent value of simple recreational activities should encourage care providers and patients to consider how simple activities in addition to specialist rehabilitation can be used to improve recovery. However, he also acknowledges that VR cannot necessarily be entirely discounted. “The next steps would include answering the question of whether fully immersive VR systems are more likely to enhance brain plasticity, increase motivation or activate the mirror neuron system to facilitate recovery after stroke,” he concludes.

Ian Fyfe



non-immersive VR is not more effective than simple recreational activities



ORIGINAL ARTICLE Saposnik, G. *et al.* Efficacy and safety of non-immersive virtual reality exercising in stroke rehabilitation (EVREST): a randomised, multicentre, single-blind, controlled trial. *Lancet Neurol.* [http://dx.doi.org/10.1016/S1474-4422\(16\)30121-1](http://dx.doi.org/10.1016/S1474-4422(16)30121-1) (2016)