

Virtual reality: Just a game or useful for rehabilitation?

Lewis GN

Health and Rehabilitation Research Institute, AUT University, Auckland

Email: gwyn.lewis@aut.ac.nz

Use of and access to virtual reality (VR) technology has blossomed over the last 10 years. While the gaming industry is by far the largest market, the use of VR for more serious applications, including rehabilitation, has also increased. VR affords a medium to create safe, controllable environments that can be used to augment traditional therapeutic practices. Importantly, VR can increase motivation and engagement in rehabilitation across a range of populations, and is widely accepted even in older individuals with little technology experience. This talk will first outline the basics of VR, including user interfaces and display systems, and then present three applications of VR in current and future research projects. The first of these is a study using a custom-designed series of games to improve arm movement control following stroke. Results from the initial participants will be reported and will include assessments of the intervention itself as well as changes in movement ability. The second study involves a commercial VR rehabilitation system for children with cerebral palsy. The system has been applied in a novel school-based setting to evaluate its potential use with children in rural New Zealand areas who do not have access to regular physiotherapy. The final study will describe the possible use of VR to study gait disorders in Parkinson's disease. The talk will be concluded with a few future ideas for maximising the benefits of VR to facilitate the rehabilitation of movement disorders.