

Lessons learned towards a best practices model of virtual reality intervention for individuals with intellectual and developmental disability

Shira Yalon-Chamovitz¹, Meir Lotan³, Patrice (L) Tamar Weiss²

¹*Ono Academic College, Kiryat-Ono, Israel*, ²*University of Haifa, Haifa, Israel*, ³*Ariel University Campus, Ariel, Israel*

Individuals with intellectual and developmental disabilities (IDD) are in need of effective physical fitness training programs, leisure time opportunities and strategies to improve their participation. A series of studies was conducted with an overall objective of gathering "lessons learned" towards formulating a best practices model for the application of VR intervention for adults with IDD.

Study 1: 33 participants (mean age = 28.1 ± 5.3 years; moderate IDD) underwent a 12 week program of 2-3 30m sessions per week consisting of game-like exercises provided by GestureTek's IREX VR system operated by an occupational therapist.

Study 2: A research group (N=30; mean age = 52.3 ± 5.8 years; moderate IDD) participated in a 6 week fitness program of three 30m sessions per week consisting of game-like exercises provided by Sony PlayStation II EyeToy VR system. Changes in physical fitness were monitored and results were compared to a control group (N=30, mean age = 54.3 ± 5.4 years).

Study 3: 24 participants with severe levels of IDD (N=30; mean age = 52.3 ± 5.8 years; severe IDD) were matched for age, IDD level and functional abilities with a control group (N=30, mean age = 54.3 ± 5.4 years). The research group participated in an 8 week VR program (3 times per week) using GestureTek's IREX VR system operated by the local caregivers

The VR programs were found to attract full participation by people with moderate levels of IDD yet not fully engaging all individuals at severe levels of IDD. The different commercial VR systems used were found to be usable by professionals, health-profession students and local caregiver staff. Significant ($P < 0.05$) improvements in physical fitness were demonstrated for the research group in comparison to the control group.

VR technology is effective for engaging individuals with IDD in a variety of activities by operators of different educational background and professional levels. VR technology could be successfully operated for adults at mild, moderate and severe levels of IDD and promote significant improvements in the physical fitness levels of the participants. Further research is needed to complete the construction of a "best practice" model.