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Effects of virtual reality based balance training on the independence in activities of daily living of geriatric individuals

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Introduction: The world is getting older every day. A lot of establishments including World Health Organization argue it is necessary to implement studies that aim to improve older people's independence in activities of daily living (ADLs).

Objectives: This study aimed to investigate the effects of virtual reality based balance training on the independence in ADLs of geriatrics.

Method: 15 individuals (4 male, 11 female) who are over 65 years old, have fallen at least once in the past year, doesn't have any cognitive problems, have balance problems according to Berg Balance Scale (BBS) were included. Independence in ADLs was measured with the Functional Independence Measure (FIM) before and after the training. Over 4 weeks, participants completed eight 30-min sessions. The sessions were executed using Microsoft XBOX 360 Kinect sensor and games.

Results: According to the inclusion criteria; 15 participants with a mean age of 75,00±7,34 years (minimum: 66 years, maximum: 88 years). There were significant improvements in; BBS Score ($p=0,01$) and Self-Care ($p=0,013$), Transfers ($p=0,01$), Locomotion ($p=0,01$), Social Cognition ($p=0,04$) sub-scores and total score ($p=0,01$) of FIM after the training. There weren't significant improvements in Sphincter Control ($p=0,317$) and Communication ($p=0,083$) sub-scores of FIM.

Conclusion: According to the results, virtual reality based balance training improves independence in ADLs of geriatrics. The fact that this easy-to-use and low-cost method has positive outcomes shows that it can be used in rehabilitation of geriatric patients who have problems in ADLs. Nevertheless, there is a need for controlled studies with bigger sample groups.