

The effects of Nintendo RingFit-based exercise training to improve balance and muscle strength of community-dwelling older adults with an increased risk of falls – a randomized controlled feasibility trial

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Introduction: Exergaming has been recently developed as a strategy to improve physical function and reduce fall risk in older adults. However, the feasibility and effects of using the Nintendo RingFit to facilitate exercise training that aims to improve physical function and reduce fall risk in older adults remain unclear.

Objectives: This study aims to examine the feasibility of a Nintendo RingFit-augmented exercise program to improve balance and muscle strength in community-dwelling older adults with an increased risk of falls.

Methods: Participants were randomly assigned to the Nintendo RingFit-based exercise (NRE) group or control (CON) group. The NRE group received an 8-week balance and resistance training using the Nintendo RingFit, while the CON group received usual care. The physical, cognitive and psychological function of the participants in the two groups were evaluated and compared at 8 weeks.

Results: The attendance rate of the NRE group was 86.4% and 78.6% of participants in the NRE group completed the post-assessment. The NRE group showed significantly better Timed-up-and-go score (NRE = 10.11 seconds; CON = 11.81 seconds; $p = .04$) and Mini-BESTtest total score (NRE = 24.45; CON = 22.17; $p = .03$) at 8 weeks compared to the CON group.

Conclusion: The Nintendo RingFit-based exercise training was feasible and was potentially effective to improve balance and mobility of community-dwelling older adults with an increased risk of falls. This training should be tested using a larger sample to further investigate its effects in reducing fall risk.

Keywords: Falls; Exergaming; Gerontechnology; Rehabilitation