

## Efficacy of Wii Fit Plus Strength Training in Older Adults Dwelling in an Assisted Living Facility

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### ABSTRACT

Wii fit plus strength training alone to assess physical fitness in older adults is not evident. The purpose of the study was to assess whether regular strength training utilizing the Wii Fit Plus device improves physical fitness in assisted living facility dwelling older adults compared to a non-exercising control group over a twelve-week period. 17 volunteering older adults (mean  $\pm$  SD age: 79.62 $\pm$ 8.10; BMI: 32.3 $\pm$ 7.65) were recruited from an assisted living facility and randomly assigned to the Wii exercise group (Wii) or the non-exercising control group (Control). Subjects in Wii performed three exercises with three sets of ten repetitions two times per week. Each exercise session was about 30 minutes. Control subjects were asked to continue their normal lifestyle. Pre-, Mid-, and Post-test sessions were conducted to assess potential changes in the subjects' physical fitness. Assessments included dynamic handgrip strength, 30-second chair stand, 30-second arm curl, timed up and go (TUG), and gallon jug transfer tests. Data were analyzed using the general linear mixed model with alpha level set at  $p < 0.05$ . Significant group effect was observed on TUG, 30-second chair stand and 30-second arm curl, where Wii group showed significantly better performance at all time points compared to Control. A significant time effect was observed only for the dynamic handgrip strength test with significant improvement from pre- to post- ( $p = 0.006$ ) and from mid- to post- test ( $p = 0.014$ ) in Wii exercise group. Improvements on all other tests were minimal and non-significant for both groups ( $p > 0.07$ ). For the TUG test a significant group-by-time interaction was observed ( $p = 0.005$ ), as the Wii group showed a significant improvement from pre- to post-test ( $p = 0.01$ ) while the control group did not ( $p = 0.08$ ). Our results indicate that the Wii strength training did not improve physical fitness in older adults when compared to the non-exercising older adults, although fitness improvement trends point in that direction. The utilization of Wii Fit Plus exercises for 30-minutes twice weekly over a 12-week period were inadequate to elicit significant changes in fitness measures. Further research is necessary to evaluate if higher intensity or frequency of Wii exercises may be effective for assisted living facility dwelling older adults.