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a parallel RCT study

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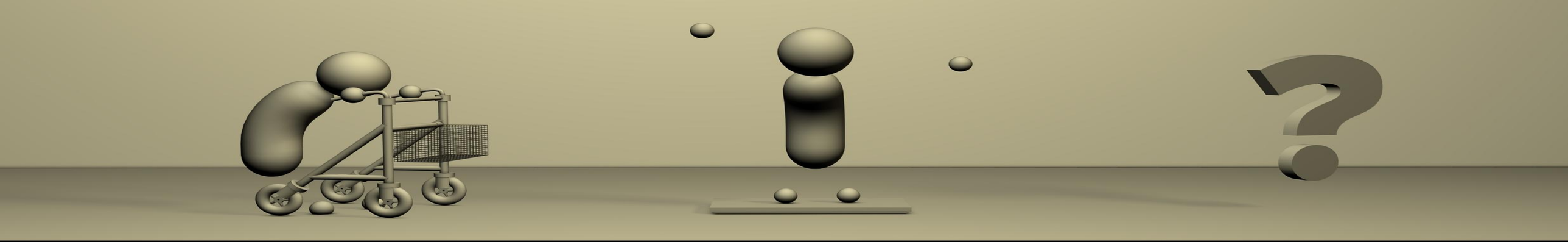

BALANCE TRAINING WITH NINTENDO WII FIT – A PARALLEL RCT-STUDY

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INTRODUCTION

The incidence of falls amongst elderly community dwellers aged 65 year and older is 30% each year (1). Fall is a frequent reason to reduced level of function, and causes both the individual and the public society large expenses (1,2). One of the largest risk factors in relation to fall is balance deficits (3). Balance training is an important part of a multifactorial intervention to prevent falls (3). Nintendo Wii Fit (NWF) could be a new device for balance training.
The purpose of this study was to measure the outcome effect of NWF as a balance training device for elderly community dwellers.

MATERIALS AND METHODS

20 subjects (aged 71-89) were included (11 men). The subjects were block randomized into 2 groups by gender (exercise group=EG, control group=CG), n=10 (EG=6 men, CG=5 men). There were 4 drop-outs during the study period (EG=3, CG=1).
The EG participated in training sessions with NWF 20 min. 2 times/week for a 4 week period, while the CG sustained their normal activity level.
The subjects were tested at baseline and after 4 weeks. The outcome measurements were Metitur force platform dynamic measurements (score, time and distance) and Timed Up and Go (TUG).
The data were not normally distributed. Wilcoxon signed-rank test were used to evaluate the changes from baseline to the 4 week measurement while Mann-Whitney U test were used to compare the changes in the two groups in the same period.

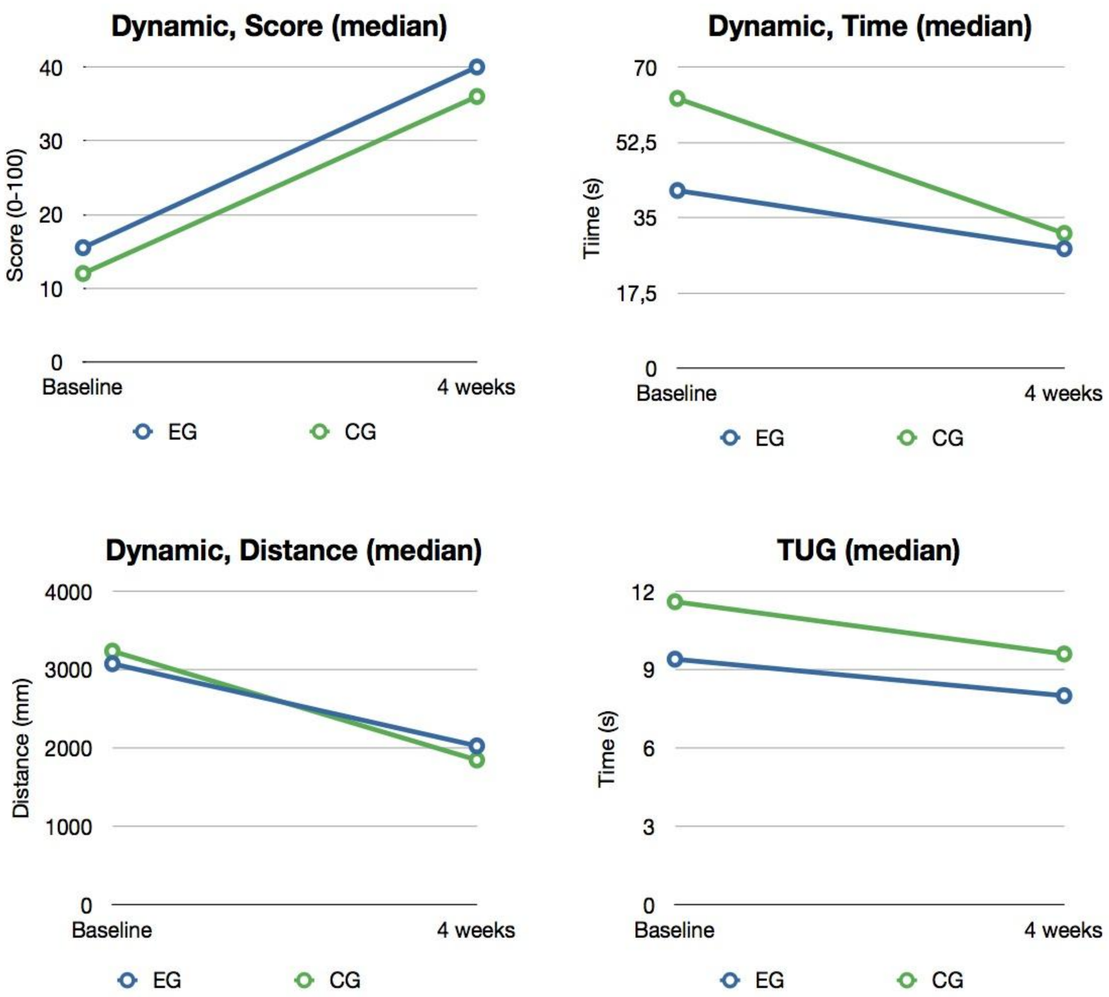

Figure 1: The median at baseline and after 4-weeks in EG and CG.

RESULTS

The median improved from baseline to the 4 week measurement in all parameters in both EG and CG (figure 1).
The EG had a score (median (range)) of 15,5 (0-70) at baseline and 40 (15-69) after 4 weeks, while the CG had a score of 12 (0-68) at baseline and 36 (0-54) after 4 weeks.
The EG had a time of 41,29s (17,93-99,20) at baseline and 27,76s (13,58-40,64) after 4 weeks, while the CG had a time of 62,69s (12,48-163,40) at baseline and 31,32 (15,80-95,87) after 4 weeks.
The EG had a distance of 3075mm (764-8050) at baseline and 2027mm (1064-3331) after 4 weeks, while the CG had a distance of 3236mm (1249-16404) at baseline and 1846mm (1298-5233) after 4 weeks.
The EG had a TUG time of 9,4s (4,9-19,4) at baseline and 8,0s (4,5-17,0) after 4 weeks, while the CG had a score of 11,6s (5,7-22,1) at baseline and 9,6s (5,4-20,8) after 4 weeks.

The EG showed statistically significant improvement in time in Metitur dynamic measurement ($p = 0,043$). Neither when comparing changes from baseline to the 4 week measurement nor when comparing EG and CG other statistically significant differences were found.

DISCUSSION

Previous studies have shown that visual based feedback training improves balance (4,5). Sihvonen et al. found significant improvements in time and distance after 4-weeks of visual feedback training (5). The present study found significant improvements in time in elderly community dwellers after 4-weeks of training on NWF. This could indicate that the subjects developed a more confident postural control moving near the limits of stability (5). An improved sensory integration could be one of the main reasons to this change.
Neither the clinical test (TUG) nor the rest of the dynamic measurements (score and distance) showed any significant changes after the 4-weeks training, and there were no significant differences between EG and CG in any of the parameters. This do not support the previous study indicating improvements in distance and clinical test after 4-weeks of visual feedback training (5).

CONCLUSION

Based on the results of this study it is not possible to determine whether Nintendo Wii Fit as a balance training device improves the balance in elderly community dwellers.
Further research is required to establish evidence of Nintendo Wii Fit as a device for balance training in elderly community dwellers.

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