

Effects of a Group Exercise Class on Perceptions of Balance and Quality of Life in Older Adults with Balance Deficits Receiving Physical Therapy: A Pilot Study

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Background

Older adults with balance deficits are more likely to experience falls which leads to an increased mortality rate and lower quality of life (QoL). Group exercise has been shown to improve QoL, balance, social activity, and exercise adherence in older adults; however, there is limited research of the effect of exercise classes when considering patients' perceptions of balance and quality of life for patients with balance deficits.

Purpose and Hypothesis

To determine the effects of group exercise classes on patients' perceptions of balance and quality of life when added to ongoing individual physical therapy in patients with balance deficits.

First hypothesis: Patients' perception of balance will increase after the five-week exercise class and remain the same five weeks after cessation of the group exercise class.

Second hypothesis: Patients' perception of quality of life will improve after the five-week exercise class and will decrease five weeks after cessation of the group exercise class.

Methods

Design

- Quasi-experimental
 - Self-selected control and intervention groups
- All participants were recruited via flyer at the same OP PT clinic
- Three data collection periods: 0 weeks (baseline/pre-intervention), 5 weeks (post-intervention), 10 weeks (5-weeks post-cessation)

Demographics (N=8)

- 5 intervention/ 3 control
- 6 male, 2 female
- Mean age 64.25 yrs old
- All Caucasian
- All participants had self-reported balance deficit

Intervention:

- Participated in regular physical therapy 1-2x/week and 5-week group exercise class 1x/week (see Table 1)
- Exercise Class Format:
 - 10-minute warm-up
 - 40-minute resistance training, boxing, balance, cardio
 - 10-minute cool-down

Control:

- Participated in regular physical therapy 1-2x/week

Outcome Measures:

- QoL: SF-12
- Balance Confidence: ABC Scale
- Balance: Multidirectional Reach Test (MDRT)



Results

Figure 1a:

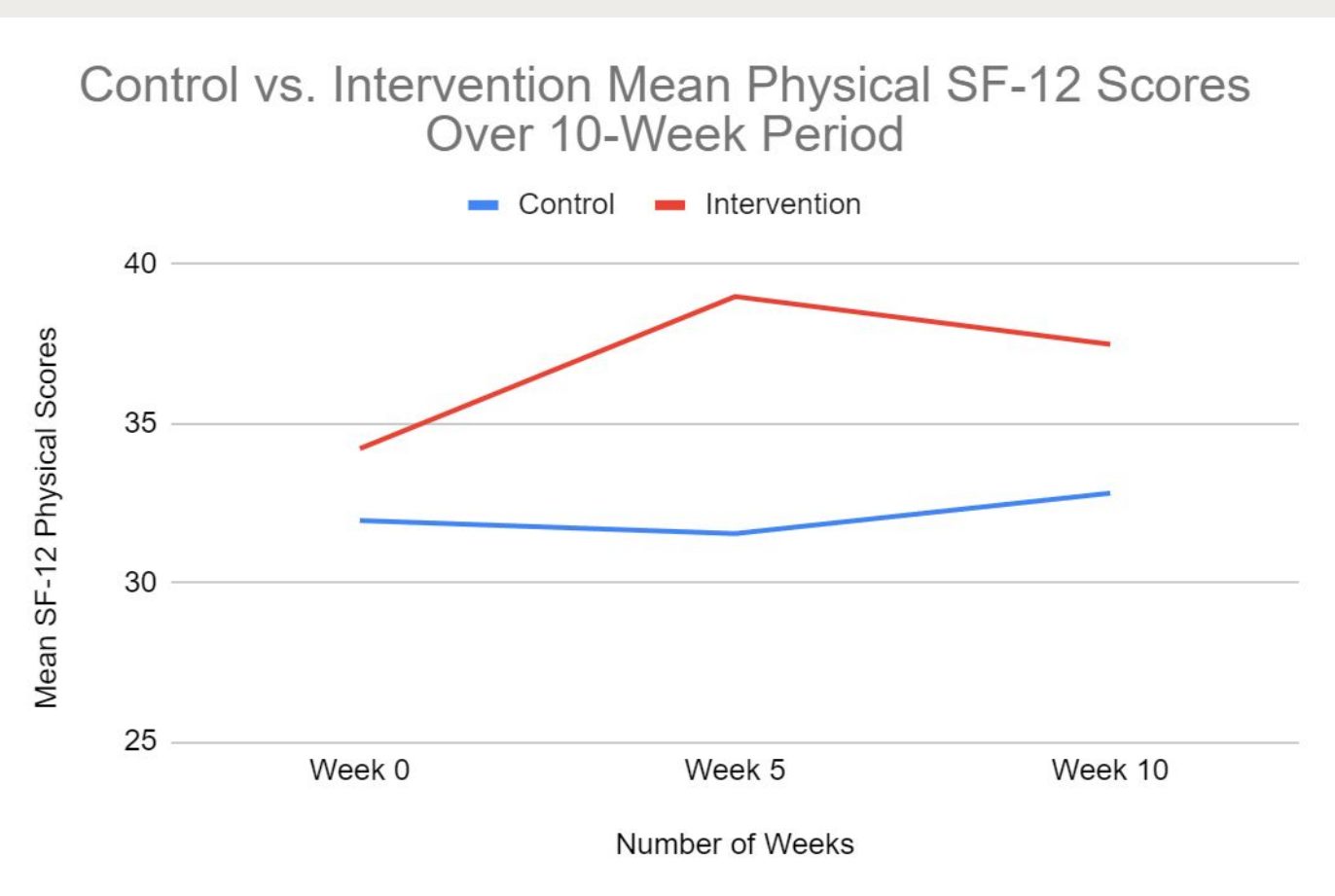


Figure 1a: Mean difference between Physical SF-12 scores between weeks 0, 5, and 10 for the intervention and control groups

Figure 1b:

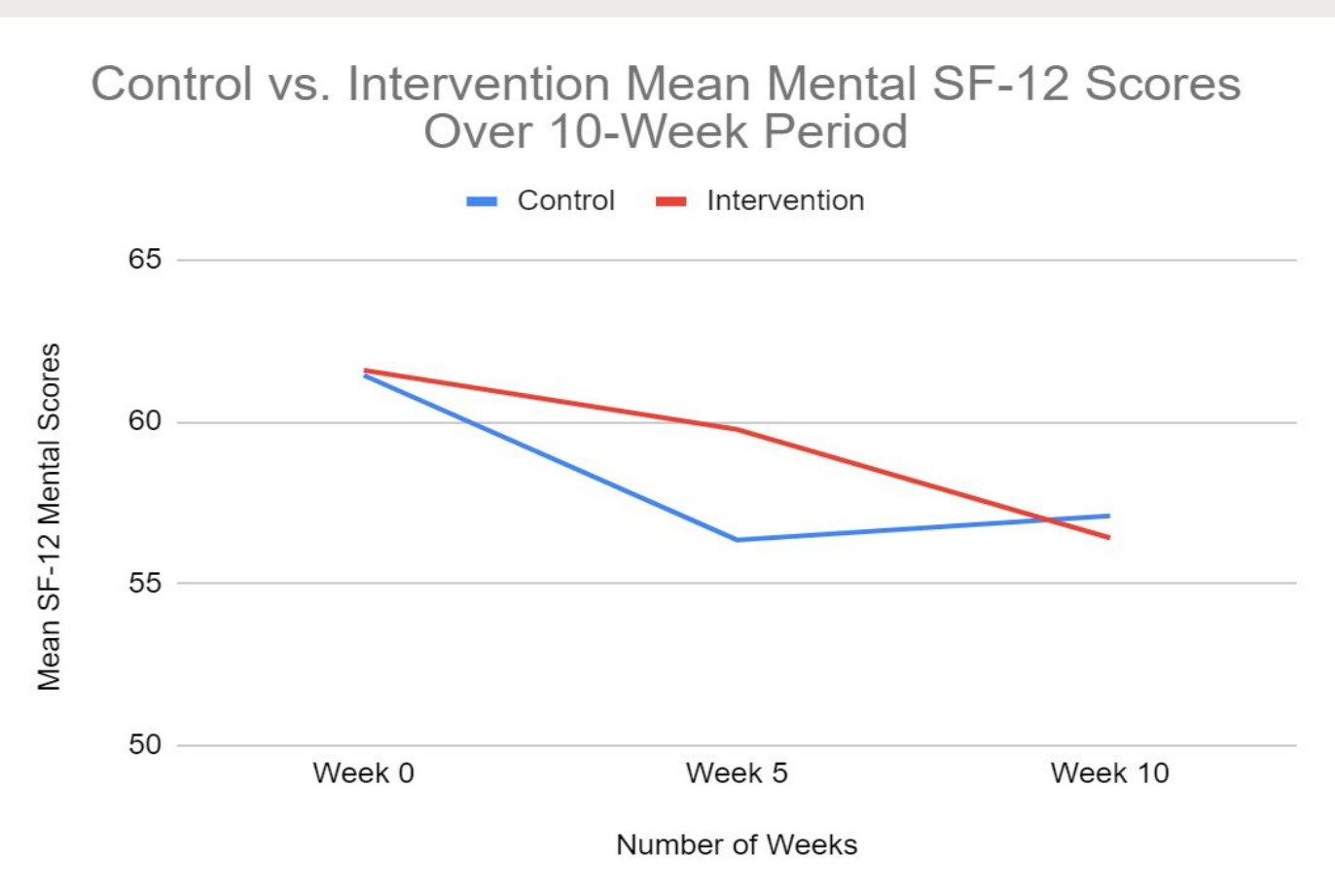


Figure 1b: Mean difference between Mental SF-12 scores between weeks 0, 5, and 10 for the intervention and control groups

Figure 2a:

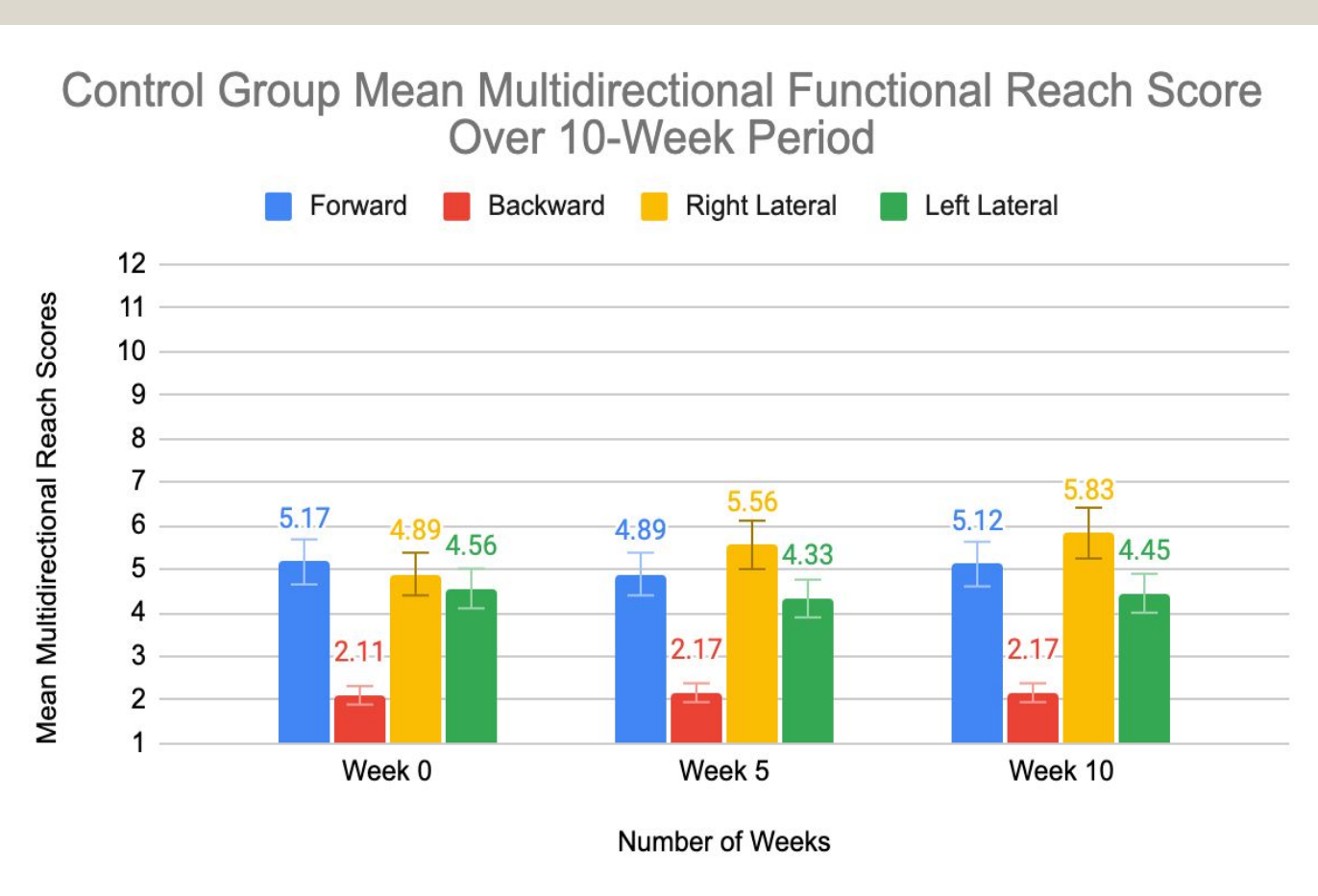


Figure 2a: Mean differences between Multidirectional Functional Reach scores between weeks 0, 5, and 10 for the control group

Figure 2b:

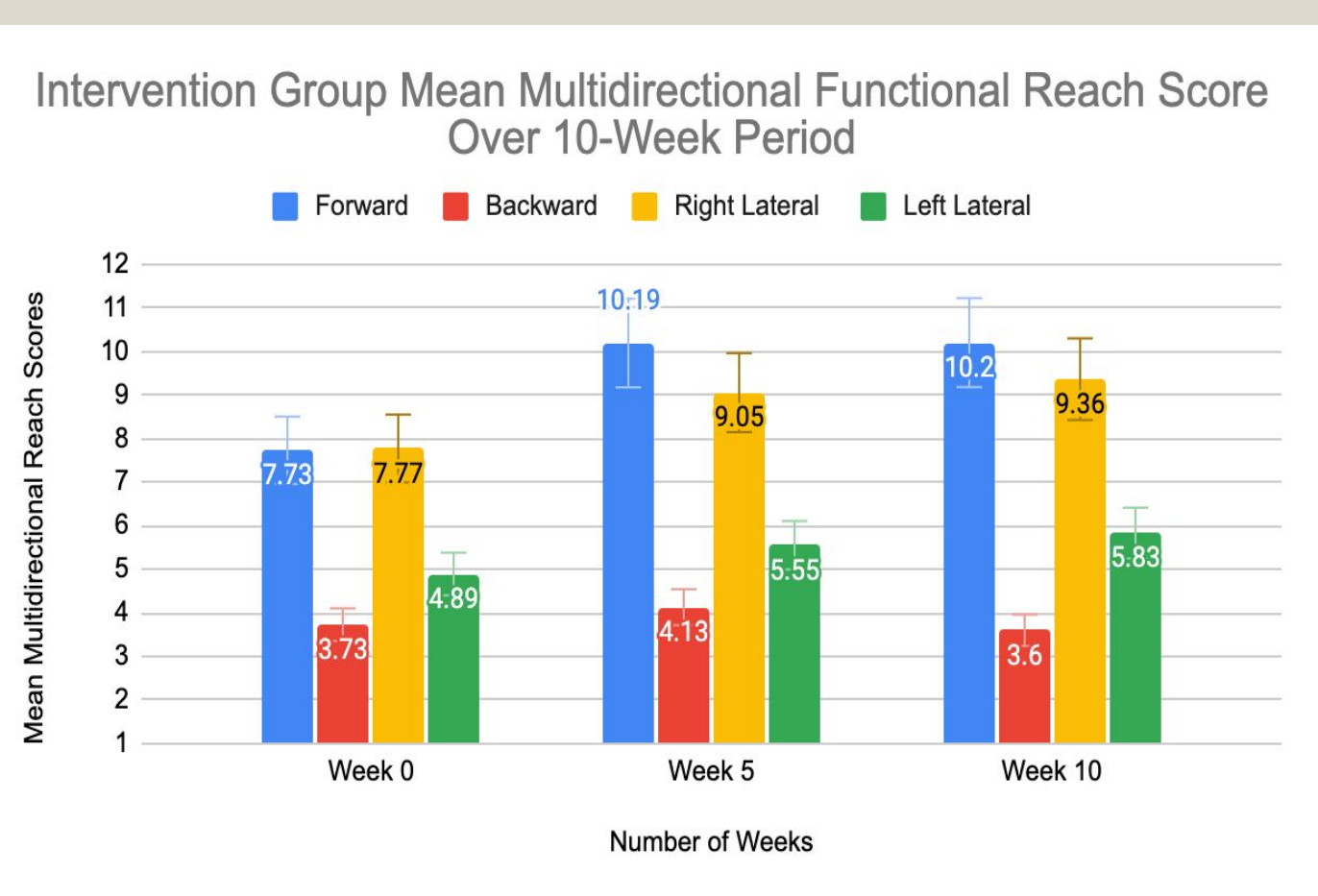


Figure 2b: Mean differences between Multidirectional Functional Reach scores between weeks 0, 5, and 10 for the intervention group

Figure 3:

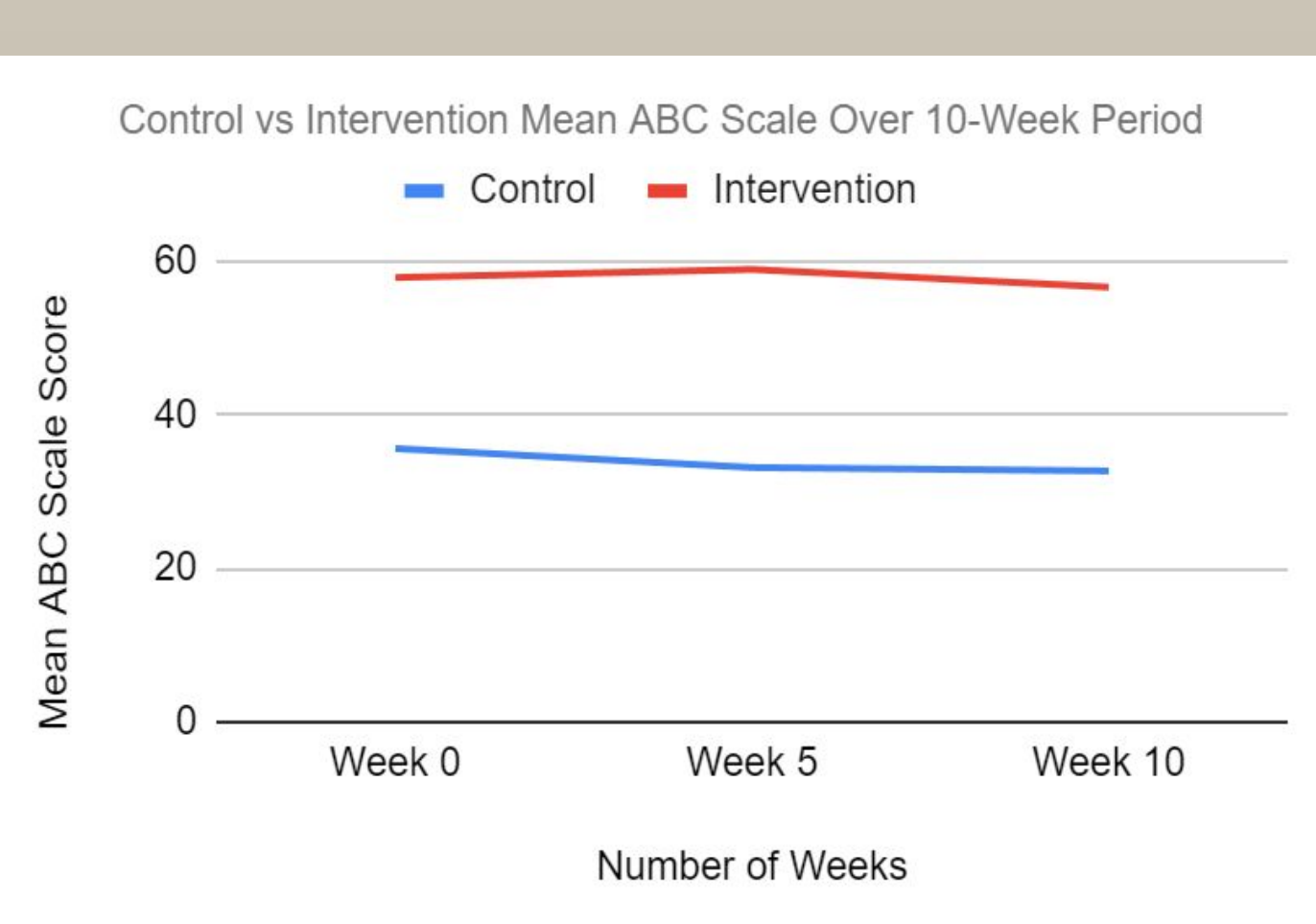


Figure 3: Mean differences between ABC Scale scores between weeks 0, 5, and 10 for the intervention and control groups



Table 1a:

Effect Size Week 0-5	Control	Intervention
ABC Scale	1.32	0.73
SF-12 Mental	2.19	1.45
SF-12 Physical	1.32	0.2
MDRT Fwd	1.47	0.08
MDRT Backward	1.09	0.49
MDRT R Lateral	0.67	-0.55
MDRT L Lateral	1.46	0.67

Table 1a: Effect Sizes Week 0-5

Table 1b:

Effect Size Week 5-10	Control	Intervention
ABC Scale	1.22	1.35
SF-12 Mental	1.07	1.66
SF-12 Control	0.88	1.17
MDRT Fwd	0.99	0.87
MDRT Backward	0.617	1.61
MDRT R Lateral	1.01	0.69
MDRT L Lateral	0.98	1.01

Table 1b: Effect sizes Week 5-10

Clinical Relevance

- Group exercise classes may be beneficial in addition to regular physical therapy
 - May improve patients' balance and quality of life in older adults with balance deficits
- Mental SF-12 scores in the intervention group decreased across all time periods
 - Patients may have an increased awareness of their deficits during and after exercise class
 - Significance cannot be reported due to small sample size

Suggestions for Future Research:

- Explore patients' perceptions of their mental quality of life during and after group exercise classes in addition to regular physical therapy
- Explore safety and feasibility of hosting larger group exercise classes at physical therapy clinics
- Utilizing larger sample sizes to determine significance

Conclusion

- First hypothesis was partially supported** by an observed trend
 - Perception of balance increased after the five-week exercise class, but decreased after the five-week cessation period.
- Second hypothesis was supported** by an observed trend
 - Perception of quality of life increased during the five week exercise period and decreased after the five week cessation period.
- Group exercise classes may be beneficial** in addition to regular physical therapy to improve patients' balance and quality of life who are older adults with balance deficits.
- Results cannot be generalized** due to a small sample size
 - Further research is needed.

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