

PRESENTING AUTHOR'S NAME & RESEARCH TITLE

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Maximizing mobility in Parkinson's Disease: Effects of an individualized training program on fall risk

PURPOSE/BACKGROUND

Thirty-eight to 87% of persons with Parkinson's disease (PD) fall each year, and two-thirds of these persons fall recurrently. The direct medical costs of PD fallers is estimated to double the costs of nonfallers. Improvements in gait and balance are associated with lower fall risks in persons with PD. Community boxing as an intervention has shown preliminary positive results regarding improvement of functional mobility in those with mild to moderate PD, but no specific balance training component has been included in such interventions. The purpose of this investigation was to determine if a community-based boxing training program coupled with individualized balance training could improve functional mobility and reduce falls in persons with mild-to-moderate PD.

MATERIALS & METHODS

Twelve participants diagnosed with idiopathic PD were enrolled in a 12-week community-based non-contact boxing program in Caldwell, ID and provided individualized balance training tailored to their domain of balance dysfunction. Mobility outcome measures were recorded at baseline and 12 weeks, and included the Berg Balance Scale, Timed Up & Go (TUG), Functional Reach Test, and Five Times Sit-to-Stand test (5-STs). The Activities-specific Balance Confidence Scale (ABC) was also administered to assess subjective confidence in balance during activities of daily living. A three month history of falls were recorded at baseline as well as after the exercise intervention. A paired t-test was used to evaluate the before-and-after effects of the intervention, with Bonferroni corrections applied for multiple comparisons ($=0.01$). Cohen's d was used to determine effect sizes.

RESULTS

After 12 weeks of training, participants had significantly faster TUG times ($d=1.17$, $p=0.002$). Additionally, there was a trend toward increased confidence in the ABC Scale with a large effect size ($d=0.741$) and an improved 5-STs score ($d=2.255$). All participants that experienced one or more falls at baseline reported a decreased number of falls at the three-month follow-up after the intervention.

DISCUSSION/CONCLUSION

Preliminary data suggest that participation in a community-based non-contact boxing program may decrease the risk of falling for participants with idiopathic PD. When coupled with balance training tailored to individual deficits, participants can move with greater power and fluidity, which may decrease their overall fall risk. Large effect sizes for mobility outcomes also demonstrate a clinically meaningful impact.