

# Tai Chi for Parkinson's Disease A Case Study

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## INTRODUCTION

Parkinson's disease (PD) is a neurodegenerative disease that affects dopamine-producing neurons in the substantia nigra.

Some symptoms of PD include tremors, gait and balance deficits, bradykinesia, and limb rigidity.

Treatments for PD include medications, surgical therapy, lifestyle changes, and exercise.

Exercise with PD is a vital component to maintaining balance, mobility and activities of daily living. Exercise can improve many PD symptoms. The Parkinson's Outcomes Project shows that people with PD who start exercising earlier and a minimum of 2.5 hours a week, experience a slowed decline in quality of life compared to those who start later.<sup>1</sup>

Tai Chi is becoming increasingly popular as a treatment for PD. Tai Chi integrates balance, flexibility, neuromuscular coordination, body awareness, multi-tasking, and goal-oriented training that can address a range of motor and non-motor symptoms associated with PD.<sup>2</sup>



## METHODS AND MATERIALS

The Tai Chi for Strength and Balance form is derived from Traditional Sun Style Tai Chi.<sup>3</sup>

The Tai Chi for Strength and Balance form was performed 1 hour a day, 1 day per week for 8 weeks.

Standardized testing performed pre and post 8 week class which assessed balance (Berg Balance test) and gait (TUG and 10 meter-walk test). Other items that were assessed pre and post Tai Chi were activity-specific balance confidence score and falls.

## RESULTS

6 participants participated in the Tai Chi for Strength and Balance class; 2 participants completed both pre and post testing and only 1 of those participants (MR) performed the full frequency of 1 time per week for 8 weeks.

MR demonstrated improved Berg balance score (Chart 1) by 6 points (significant change=4 points in elderly populations).<sup>4</sup>

MR improved gait velocity using both the TUG and 10 meter-walk test (Charts 2-3). TUG time decreased by 4.42 sec (significant change=3.5 sec)<sup>4</sup>, 10 meter self-velocity improved by 0.92 m/s and fast-velocity improved by 1.36 m/s (significant change=0.10 m/s).<sup>4</sup>

MR improved his Activity-specific Balance Confidence score (Chart 4) by 4.06% (significant change=13%).<sup>4</sup>

MR had no reported falls pre and post Tai Chi.

## DISCUSSION

With exercise being a vital component of treatment for PD, it is important to assess the benefits of Tai Chi to treat symptoms associated with PD.

This case study demonstrated possible benefits of Tai Chi being performed to treat PD symptoms. There were significant improvements with balance and gait during an 8 week period in which a subject performed Tai Chi for 1 hour a week. Improvements with falls (no reported falls) and activity confidence are inconclusive due to small sample size and minimal change in ABC score.

The results of this case study are similar to results reported by R. Song et al who conducted a meta-analysis of 21 studies that administered Tai Chi or Qigong. These studies all ranged from 2-6 months of intervention at various frequencies. They noted that Tai Chi or Qigong were associated with improvements with balance, gait, falls, depression, and quality of life.<sup>2</sup>

Limitations to our study include sample size and no control group. The case study participant was also performing Rock Steady Boxing 1 time a week throughout the duration of the Tai Chi class which could have also contributed to improvements with the standardized testing.

## CONCLUSIONS

Current research, including this case study, demonstrate possible benefits of Tai Chi in treating motor symptoms associated with PD. Research demonstrates meaningful changes in motor function including balance and gait from performing Tai Chi.<sup>2</sup>

Limitations to the current research include various types of Tai Chi being performed at varying frequencies and duration.

People with PD should consider various exercise programs that work for them which may include Tai Chi to improve PD symptoms.

## References

1. www.Parkinson.org
2. R. Song et al., The impact of Tai Chi and Qigong mind-body exercises on motor and non-motor function and quality of life in Parkinson's disease: A systematic review and meta-analysis, Parkinsonism and Related Disorders 41 (2017) 3-13
3. www.taichiforhealth.net
4. www.physio-pedia.com

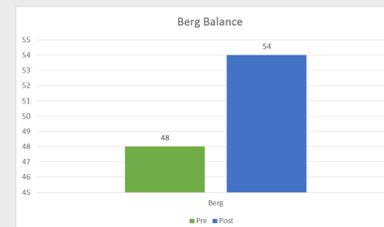


Chart 1

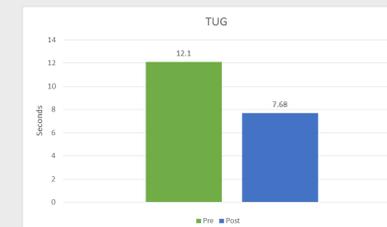


Chart 2

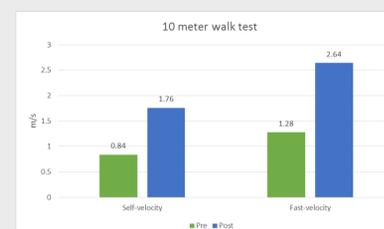


Chart 3

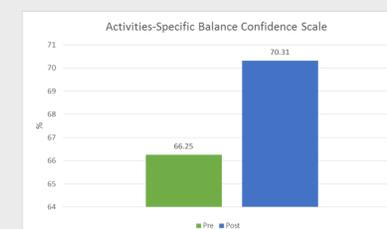


Chart 4