


Exercise for Individuals with Parkinson Disease

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Disclosure of Interests

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- UW Graduate School Interdisciplinary Research Competition


I own no stocks or equity in any pharmaceutical company


HOW MANY OF YOU CURRENTLY EXERCISE?




Treating Individuals with PD

- Traditional Treatment Options
 - Pharmacology
 - Deep Brain Stimulation (DBS)
- Therapeutically based interventions
 - OT
 - PT
 - Speech
 - Exercise




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EXERCISE BENEFITS INDIVIDUALS WITH PARKINSON DISEASE



FACT!!!!


- Exercise is not a replacement for medication
- Properly managed medication may greatly effect your ability to exercise and to see benefits from exercise


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Benefits of Exercise


- There is overwhelming evidence that exercise benefits individuals with PD
 - Extended duration of medication dosage
 - Decreased/maintained PD related symptoms
 - Improved balance/gait
 - Decreased falls
 - Improved fitness/strength
 - Improved cognition
 - Decreased depression


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But . . .


- Effects are exercise specific
- Not sustained without exercise

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Exercise Benefits are Specific

- Randomized controlled trial with 3 groups
 - High-intensity treadmill exercise
 - Low-intensity treadmill exercise
 - Stretching and resistance training
- All groups exercised 3 times per week for 3 month


(Shulman et al. 2012)


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Exercise Benefits are Specific

- Results
 - All groups improved walking speed
 - Treadmill groups improved fitness
 - Stretching and resistance training improved strength
- Conclusion
 - Exercise is beneficial but specific
 - Treadmill and resistance exercise may lead to greater benefit
 - Effects not long lasting


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WHAT MOTIVATES YOU TO EXERCISE?




Group and Community Exercise

- Improved balance, gait, and reduced number of falls after 24 weeks - Tai Chi (Li et al. 2012)




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Group and Community Exercise

- Improved balance, gait speed, endurance, quality of life after at least 12 weeks of boxing - Boxing (Combs et al. 2010)




<http://www.chesterlandnews.com/news/seniors-give-parkinsons-the-uppercut/>







Group and Community Exercise

- Improved motor symptom severity, balance, freezing, gait speed, and bradykinesia - Dance (Duncan & Earhart, 2012)




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Comparing Exercise Effects



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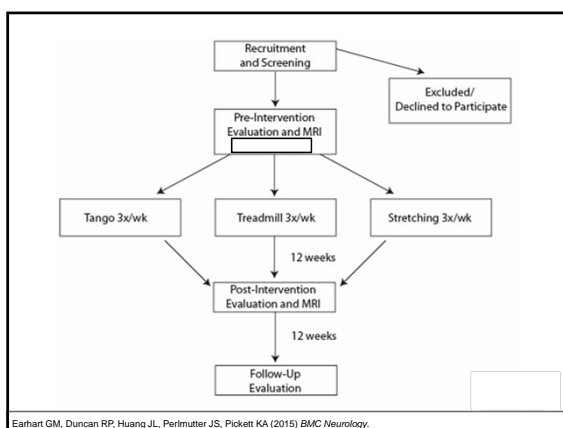


Why Tango?

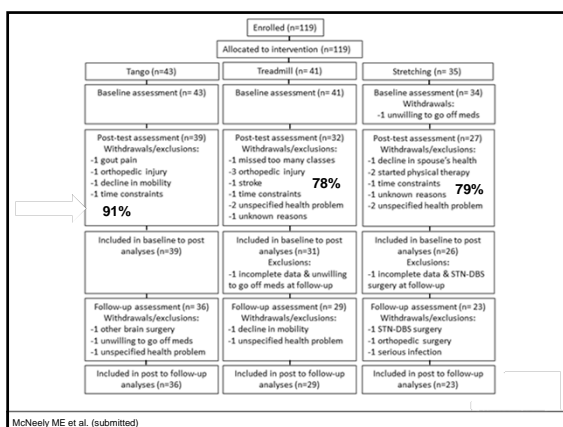
- Evidence (Earhart Lab)
- Set to music – cues
- Long steps
- Turns
- Leader/Follower – Forward/Backward walking
- Improvisational
- Partner (falls)

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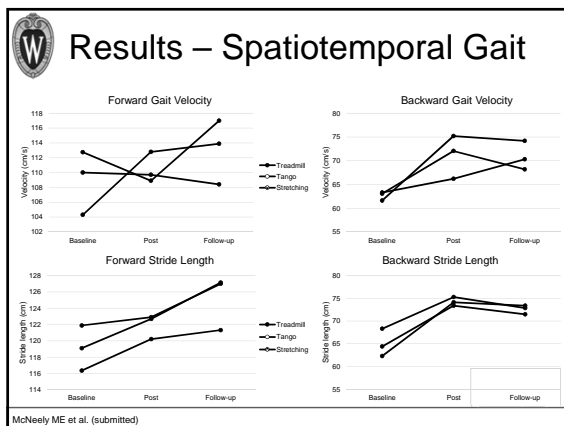
Kinesiology

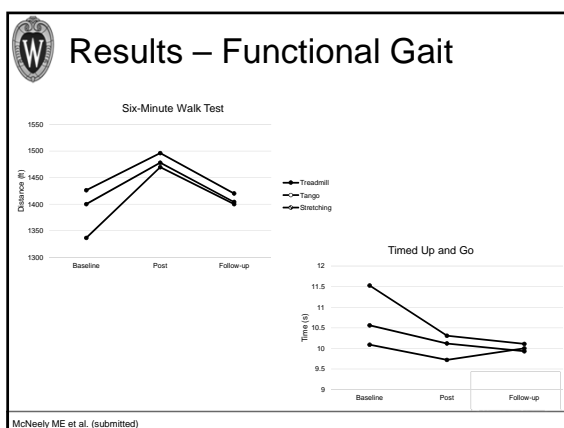


Earhart GM, Duncan RP, Huang JL, Perlmutter JS, Pickett KA (2015) *BMC Neurology*.



McNeely ME et al. (submitted)






Behavioral Results Summary

- Everybody got better at everything.
- FWD stride length, BKD velocity and stride length, Timed-Up-and-Go, Six Minute Walk Test, balance, and motor sign severity improved from baseline to post-test, regardless of exercise group.
- There were trends towards performance declines from post-test to follow-up.


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Kinesiology



Limitations


- Across groups, participants averaged 4 hours of exercise per week prior to enrolling in the study.
- Demographic considerations

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Engagement Matters

- Previous work demonstrates the importance of 1) participation and 2) sustained practice
- Group based (partnered?) exercise programs may improve adherence

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HOW DO WE ENGAGE THOSE WHO ARE NOT ALREADY ENGAGED?

What's next?

Group 1 – ‘Not a fan of Exercise’

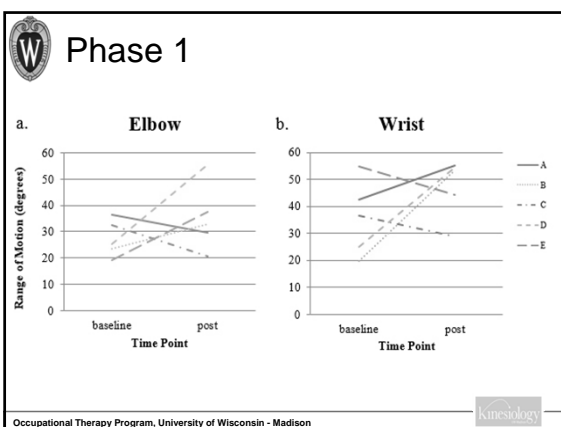
- Those with access and a desire to exercise are utilizing services
- How do we engage individuals not drawn to exercise?

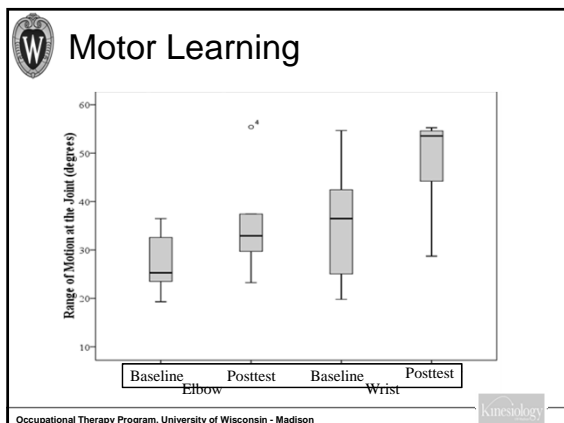
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Glassblowing



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Group 2 – Those Without Access

- Low socioeconomic rural and urban individuals with PD are less likely to engage in research as well as have access to critical medical care.

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We Come to You


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 **Why Cycling?**





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 **Group 3 – Ready To Go!!!!**





- If you live near Madison
 - There is a list with all of the currently available programming for individuals with PD
 - My lab supports a tango dance class for individuals with PD and/or caregivers
 - <http://www.wisconsin-tango.com/>
 - Research options

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 **Resources**


- Local APDA website
- Movement disorders groups
- MDs

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Now What

- Step 1 – Talk to you doctor
- Step 2 – Find something that looks meaningful/appealing to you
- Step 3 – GO!!!! And Don't stop!!!!


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Are We Asking Relevant Questions?



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Conclusions

- Exercise is beneficial to individuals with PD but not universally accessible or appealing
- Group exercise may increase adherence
- Alternative forms of exercise may engage those not interested in “exercise”
- Rural and urban low SES communities need to be better served

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