

“I Like to Move it Move it!”

Exercise and Parkinson's Disease



PARKINSON FOUNDATION
OF THE NATIONAL CAPITAL AREA



Steven E. Lo, MD

MedStar Georgetown
University Hospital

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Objectives

- Learn about recent research advances on exercise benefits in PD.
- Discuss various recommended exercises to consider.
- Provide training pearls to keep people with PD **motivated and engaged** in their exercise programs.

Disclosures

- I have no financial disclosures.

Definitions

- **Physical activity**: any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level.
- **Exercise**: a subcategory of physical activity aimed to improve or maintain one or more components of physical fitness.
- Categories of Exercise:
 - 1) Aerobic/Endurance
 - 2) Strength/Resistance
 - 3) Flexibility
 - 4) Balance
 - < Agility/Coordination >

Categories of exercises

- **Aerobic** – increases heart rate and breathing, builds endurance
Ex: walking/jogging, hiking, swimming, cycling, tennis
- **Strength** – increases muscular strength
Ex: training with weights, fitness machines, resistance bands
- **Flexibility** – increases range of motion
Ex: stretching, yoga, pilates
- **Balance** – increases steadiness
Ex: training on Bosu balls

Benefits for Parkinson's Disease

Improves Quality of Life

mobility
ADLs
socialization
relationships

Exercise



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graph TD; Exercise((Exercise)) --> QoL[Improves Quality of Life]; Exercise --> NonMotor[Improves Non-Motor Symptoms]; Exercise --> Motor[Improves Motor Symptoms]; Exercise --> Progression[?? Slows Progression of PD??]
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Improves Non-Motor Symptoms

mood
anxiety
cognition
sleep
blood pressure
fatigue

?? Slows Progression of PD??

Improves Motor Symptoms

bradykinesia
gait
balance/postural stability

Exercise helps!

- A systematic review investigated intense exercise therapy:
 - endurance vs resistance vs other modalities
 - 15 RCTs showed improvement in balance, walking quality, UPDRS motor score, QoL -- in ALL modalities
- Another systematic review examined exercise & cognitive fxn (memory, executive fxn, global cognitive fxn)
 - 11 RCTs showed ALL modes of exercise improved cognitive fxn
- Review: 5 reviews + 40 studies showed that rhythmic stimulation and dance provide benefits in motor, cognitive, and QoL.
 - sound stimuli and dance helped gait, cognitive motor control and adjustment, spatial memory.

Evidence for disease modification?

- Parkinsons-model mice – endurance exercise reduced inflammation markers and a-synuclein levels
- Meta-analysis in 2008 showed ~ 20% reduced risk of PD development in individuals who were physically active
- Yoon et al. (Dec 2021) – physically active PD individuals have a significantly lower mortality rate compared to inactive counterparts.
 - greater amount of activity = lower mortality rate
 - maintenance of physical activity over longer intervals contributes significantly to this inverse relationship
 - inactive individuals pre-diagnosis shared dec mortality rate, inactive individuals post-diagnosis did **NOT**.

My unscientific anecdotal experience

- Many of my own patients who have done relatively well, had slower progression or longer duration without disability, are those who have prioritized exercise in their lives.
- Do multiple forms of exercise regularly each week
- “Ms. D” – 67 year old woman, PD since 2008, doing very well.
Does ~ 6-8 hrs of moderate-vigorous exercises per week.
 - two Senior Fit PD online exercise classes
 - personal trainer 2X/week
 - Dance for PD 2X/week
 - Qi-gong and meditation
 - walks outside regularly 3 days/week w/ her husband and friends (2-4 miles/week)

COVID-19: the pandemic's effects on PD exercise

- Elimination of:
 - fitness centers/gyms
 - personal trainers (in person)
 - in person PT
 - PFNCA exercise classes
- Creation of virtual options for the above
- Spur creative thinking
- Increase outdoor activities
- Re-balance work-life priorities
 - elevate good health & well-being to the forefront

Some questions to ask...

- What types of exercises are best?
- How much should I exercise?
- How often should I do it?
- How intense does it have to be?
- Should I exercise alone or with someone?
- How can I keep it going?

How much? How often?

World Health Organization: Recommendations for People living with chronic conditions

1) 150–300 minutes of moderate-intensity aerobic physical activity

OR

75–150 minutes of vigorous-intensity aerobic physical activity

OR

an equivalent combination of moderate- and vigorous-intensity activity throughout the week

2) muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups, 2 or more days a week

3) varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity, 3 or more days a week

4) limit amount of time spent being sedentary

Intensity: high versus moderate?

- Sustained high intensity may be neuroprotective
- Forced exercise: “a mode of aerobic exercise in which exercise rate is augmented mechanically to assist the participant in achieving and maintaining an exercise rate that is greater than their preferred voluntary rate of exercise,”
 - Requires participants to be actively engaged in the exercise
 - Participant’s rate of exercise is augmented mechanically to achieve an ideal exercise rate.
- In my opinion:
 - moderate intensity is more realistic
 - regularity > intensity

But let's get real...

- These are ideal goals, but realistically...
- In my opinion:
 - there are no absolute bests
 - something is better than nothing
 - do not get discouraged or overwhelmed
 - do not give up before you even get started
- Realities:
 - time (work, family, commitments)
 - energy

My general recommendations

- Combination of moderate aerobic and flexibility training exercises
- 3 – 4X per week
- 45 minutes per session
- Do the exercises you enjoy
 - more likely to continue it
- Regularity > Intensity
- Put it on the To-do List

General exercises to consider

- Land-based aerobic/cardio
 - running/jogging, walking, hiking
- Chair-based training
- Cycling/spinning
- Machines: treadmill, elliptical, stair climber
- Water-based aerobic: swimming, aqua aerobics
- Racket sports: tennis, racquet ball, pickle ball
- Dance: ballroom, line
- Martial Arts: boxing, tai-chi, karate
- Rock climbing
- Yoga
- Pilates
- Core strengthening

Branded exercise programs

- CrossFit
- Orange Theory
- Rock Steady Boxing
- Dance for PD
- NIA (Non-Impact Aerobics)
- Upending Parkinsons (Sportrock)
- Peloton
- Theracycle

Techniques and tricks

- Interval Training
 - High Intensity Interval Training (HIIT)
- Cross-training
- Vary the exercises, keep it interesting
- Do short but frequent workouts
- Break up the workout – 20 minutes x 2
- Exercise with a partner
- Use LSVT Big Therapy techniques
- Marching
- Side steps
- Use visual cues
- Use tools – hiking poles

Personal trainers?

Pros	Cons
Expertise	Knowledge of PD?
Motivation	Cost
Time – forces you to commit	Time – coordinating schedules
No short cuts	Personality match?
Camaraderie	

Motivation

- Use music!
- Live partners
- Virtual partners
- Count downs
- Use numbers to set/exceed goals:
 - # of consecutive weeks
 - duration of exercise
- Visual charts/calendars
- Wearable devices
- Apps

Music

- Strong rhythmic beats
- Music that makes you happy
- Music that makes you want to move
- Genres:
 - modern pop
 - hip hop
 - 70s (disco)
 - dance
 - techno
 - 60s Motown
 - rap
 - R&B
- Create and use playlists

Safety & pitfalls to avoid

- Warm up & cool downs:
 - light activity before and after endurance activities
- Listen to your body:
 - do not exercise to the point of dizziness, chest pain/pressure, or shortness of breath
- Stay hydrated
- Be aware of your surroundings (when outside)
- Dress comfortably (clothing & footwear)
- Dress in layers
 - add/remove clothing layers as needed for hot and cold weather
- Be careful & attentive when getting off equipment
- Use safety equipment
 - Ex: helmets when biking

Attire

- Wear comfortable clothing
- Wear comfortable appropriate footwear
- Outdoors – dress in layers
- Sun protection

Some final pearls

- Don't "Go for the Gold" – at least not right away!
- Build up slowly, build up the endurance
- Advance the duration of workouts slowly
- Avoid doing too much – it can lead to injury, set you back
- "It's easier said than done"
 - do your best & put in the effort
- Use tech to make it easier
 - ask for help if not so tech saavy

And finally, a motto to keep in mind...

- “Citius, Altius, Fortius (Latin for "**Faster, Higher, Stronger**")
- original Olympic motto, adopted in 1894
- In July 2021, the IOC changed it to:
“Citius, Altius, Fortius – Communiter”
“**Faster, Higher, Stronger – Together**”

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Thank You!



Maddie says, “Enough talk, let’s go!”