

Stanford
HEALTH CARE

Practical Exercise Strategies for Movement Disorders

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Stanford MEDICINE

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Learning Objectives

- ▶ The following will focus on Parkinson Disease (PD)
 - The same principles can be applied to Mild Cognitive Impairment, Lewy-Body Dementia, and Alzheimer’s Disease
- ▶ Participants will:
 - Learn about the evidence to support different forms of exercise for people with PD
 - Learn how to implement aerobic, strength, balance, and flexibility exercise
 - Learn about additional resources available to help you exercise at home

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Aerobic exercise

- ▶ “Regular aerobic-type exercise is the **single strategy** with compelling evidence for **slowing Parkinson disease progression**. All patients with Parkinson disease should be encouraged to engage in regular such exercise”

(Ahlskog, 2018)
- ▶ People with PD spend 75% of all awake time in sedentary behaviors
- ▶ Compared to healthy controls matched for age, PD patients were ~30% less physically active

(Bouca-Machado, 2020)

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Exercise for ALL OF US!

- ▶ Exercise recommendations for adults from the American College of Sports Medicine and the US Department of Health and Human services
 - For older adults: add flexibility and balance training
- ▶ It’s THE SAME for Parkinson’s!

How much activity do I need?

<p>Moderate-intensity aerobic activity Anything that gets your heart beating faster counts.</p> <p style="text-align: center;">at least 150 minutes a week</p>	AND	<p>Muscle-strengthening activity Do activities that make your muscles work harder than usual.</p> <p style="text-align: center;">at least 2 days a week</p>
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Tight on time this week? Start with just 5 minutes. It all adds up!

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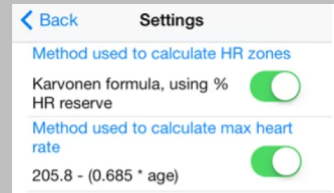
How do I know how hard to go?

- For moderate intensity:
 - 13-15
 - "somewhat hard" to "hard"

Rate of Perceived Exertion Scale	
Perceived Exertion Rating	Description of Exertion
6	No exertion. Sitting & resting
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion

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App in Apple Store: "HR Zones"



Toggle these to green if you know your resting heart rate

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Heart Rate Zones

Age	65
Resting Heart Rate	70
Max HR	161
KARVONEN FORMULA, USING % HR RESERVE	
100% Red Line Zone, VO2 Max	161
90% Experienced athletes should only train in this zone for short periods of time.	152
90% Anaerobic Zone	152
Exercising in this zone burns energy stored in your muscles instead of stored body fat.	143
80% Aerobic Zone	143
Your "target heart rate zone." This is the best zone to develop your cardiovascular system.	134
70% Recovery Zone	134
This zone develops basic endurance and is good for recovery periods.	125
60% Healthy Heart Zone	125
Low impact. Will reduce blood pressure and cholesterol and is ideal for beginners.	116

Beneficial for short intervals →

Progress to here →

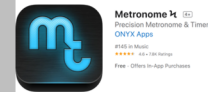
Start here →

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Walking for aerobic exercise

- If you want to get better at walking... **you must walk!**
 - Consult with a physical therapist if you think you need an assistive device
 - Treadmill is good option for mild symptoms
- Listening to a beat can improve walking – typical walking beat is 100-115 steps per minute
 - Metronome app – can "tap" to find your rhythm
 - Find songs at your rhythm
 - Example YouTube search
 - "songs 110 bpm"
 - "110 bpm playlist"
 - Example Spotify search
 - "110 bpm"

Example metronome app: "Metro Timer"



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Limitations to walking?

You've got options!

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What's the Evidence: Strength

- ▶ There are PD related reductions in muscle strength
 - More difficult physical function, less confidence in balance, increased fall risk
- ▶ Strength training significantly **improves muscle strength and performance of mobility** (Cruickshank, 2014)
 - Early to moderate stage disease
- ▶ Important principles
 - Keep progressing!

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Strength train at home!

Easier		Harder
	Sit to stand	
	Hip bridge	

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Strength train at home!

Easier		Harder
	Row	
	Hip abduction (muscle on side of hip/buttock)	

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Strength train at home!

Easier




Heel Raise

Harder




Easier



Push-up

Harder



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What's the evidence? (Mindfulness/ Yoga)

JAMA Neurology | Original Investigation

Effects of Mindfulness Yoga vs Stretching and Resistance Training Exercises on Anxiety and Depression for People With Parkinson Disease: A Randomized Clinical Trial


Joo Y. Y. Kwok, PhD, MPH, BN, RN; Jackie C. Y. Kwam, MScSc, PDMH, BSW, RSW, M. Auyeung, MChB; Vincent C. T. Mok, MD, MBSB; Claire K. Y. Lau, MSc, BN, APN, Y. C. Choi, BSc, PhD; Helen Y. L. Chan, PhD, BN, RN


- ▶ Additional benefits over conventional stretching and strengthening on psychological distress, spiritual well-being, and health-related quality of life
- ▶ Comparable benefits related to motor symptoms and mobility
- ▶ 90 minute session 1x/wk, 20 min session 2x/wk

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Resources for Mindfulness

- ▶ Classes that combine balance, strength, and mindfulness
 - Yoga, Tai Chi, and Qi Gong classes through the **Stanford Neurosciences Supportive Care Program**
 - Tai Chi for Rehabilitation from Stanford Pain Medicine
 - ▶ <https://www.youtube.com/playlist?list=PLsQ1C3NKyvyHRvxKws9z8yMzRJJX9Dz-nd>
- ▶ Apps



- ▶ Online guided meditations from Carolyn McManus, PT
 - <https://carolynmcmanus.com/guided-meditations-free-downloads/>



Carolyn McManus PT, MSPT, MA
A leader in bringing mindfulness into healthcare

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What's the evidence? (Balance)

Multi-dimensional balance training programme improves balance and gait performance in people with Parkinson's disease: A pragmatic randomized controlled trial with 12-month follow-up

Irene S.K. Wong-Yu, Margaret K.Y. Mak*

Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hung Hom, Hong Kong, China

- Improves balance, walking speed, and ability to walk and dual-task (think about something else)
- Improvements lasted 1 year after intensive period of training

Highly Challenging Balance Program Reduces Fall Rate in Parkinson Disease

David Sparrow, DSc^a, Tamara R. DeAngelis, PT, DPT, GCS^b, Kathryn Hendron, PT, DPT, NCS^b, Cathi A. Thomas, RN, MS, CNRN^c, Marie Saint-Hilaire, MD, FRCPC^c, and Terry Ellis, PhD, PT, NCS^b*

- Reduced falls per month by 37%

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Balance training

- ▶ Stanford Neuroscience Supportive Care Program
- ▶ Other online resources for virtual exercises live and pre-recorded
 - <https://www.apdaparkinson.org/free-online-exercise-and-therapy/>
 - <http://med.stanford.edu/parkinsons/living-with-PD/exercise-videos.html>
- ▶ Physical Therapists can design an individualized balance training program for you

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Balance training- how to set up at home

- ▶ Wall behind you, counter or chair next to you
- ▶ No hard/ sharp surfaces nearby

Clock Taps




Single leg balance



Walk looking side to side




Eyes closed in corner




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Flexibility


Trunk twist




Calf stretch (heel down)



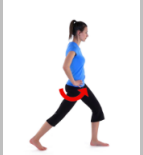
Hamstring stretch



Chest stretch



Hip flexor stretch



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What could a typical week look like?

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Dance or group class online incorporating balance		Aerobic (walk, bike, etc) 30-45 minutes		Aerobic (walk, bike, etc) 30-45 minutes	Aerobic (walk, bike, etc) 30-45 minutes	Aerobic (walk, bike, etc) 20 minutes
	Resistance training		Resistance training			Yoga + Mindfulness
Flexibility	Flexibility	Flexibility	Flexibility	Flexibility	Flexibility	

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Physical Therapy

- ▶ A physical therapist can help you design a long-term home-based exercise program
- ▶ Home based programs were found to be as effective as center-based program (Flynn, 2019)
 - Significantly improved balance and gait speed
 - Trends towards improving quality of life
- ▶ How to find a PT:
 - <https://aplaaaps.apla.org/APTAPTDirectory/FindAPTDirectory.aspx>
 - Type in "find a PT" to google browser- first link is to the American Physical Therapy Association page to search for a PT
 - Select specialist: neurology

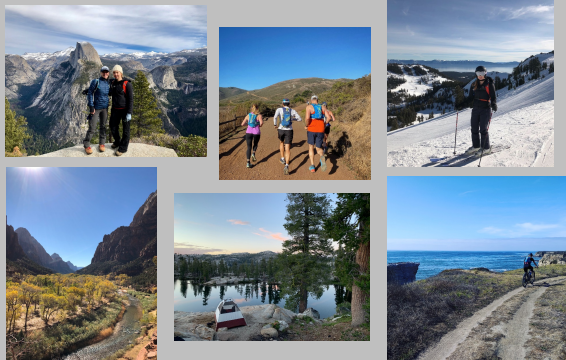
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Questions?



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