

EXERCISERX PARKINSON

What is the
best exercise
to improve

**daily
mobility**

in Parkinson's?



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1. **Slowness of movement** (bradykinesia) is the core symptom of PD that most explains difficulties in everyday mobility.
2. But it is more than just slow movement. It has three key features that should be included in exercise routines: **amplitude + speed + rhythm**.
3. Any exercise that mimics “the” activity you aim to improve will likely be the best “exercise”. (exercising real-life movement patterns).

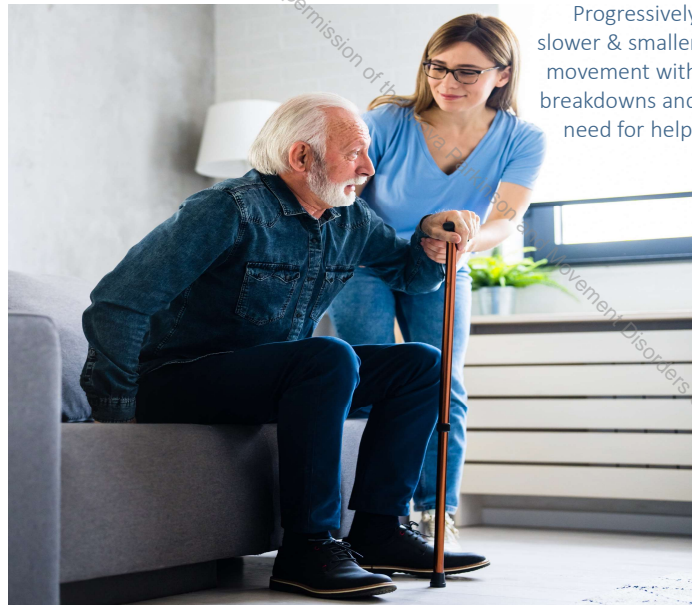
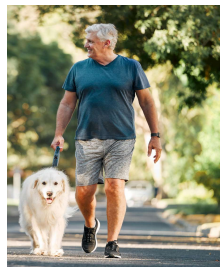


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Today's program



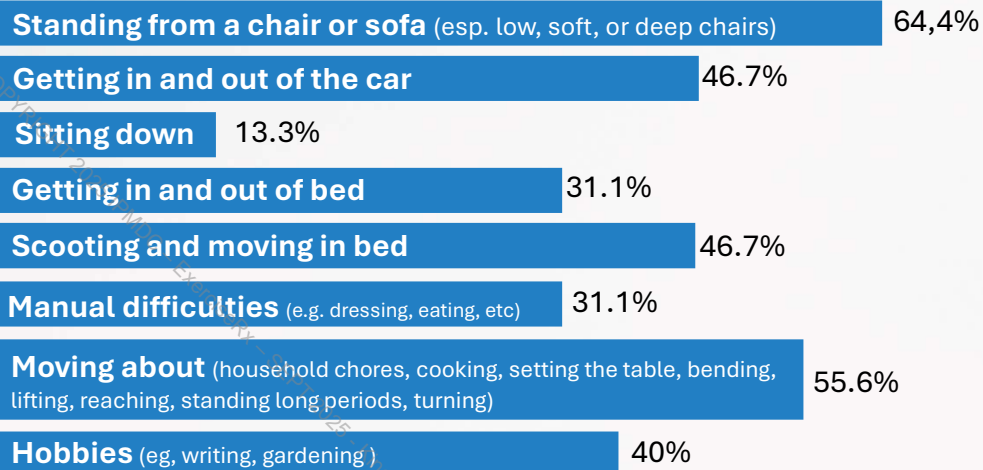
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Progressively slower & smaller movement with breakdowns and need for help.

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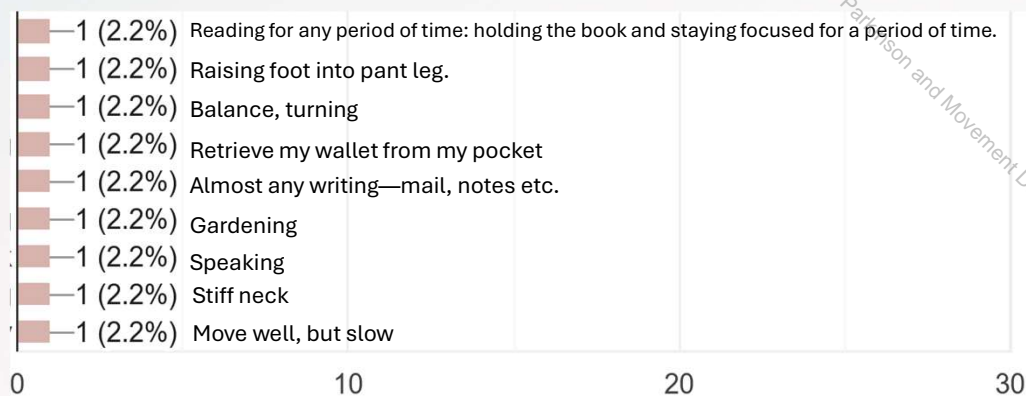
Which of these movement or mobility problems do you experience?



From the participant survey- 45 responses

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Which of these movement or mobility problems do you experience?



From the participant survey- 45 responses

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Capturing Mobility

Patient's Perception

"How much difficulty do you have getting out of bed, getting out of a car seat, or standing up from a deep chair?"

Normal: Not at all (no problems).

Slight: I am **slow or awkward**, but I usually can do it on my first try.

Mild: I need **more than one** try to get up or need occasional help.

Moderate: I sometimes **need help** to get up, but most times I can still do it on my own.

Severe: I need help most or all of the time.

Clinician's Observation

Arising from chair

Normal: No problems. Able to arise quickly without hesitation.

Slight: Arising is **slower than normal**; or may need more than one attempt; or may need to move forward in the chair to arise. No need to use the arms of the chair.

Mild: Pushes self up from arms of chair without difficulty.

Moderate: Needs to push off, but tends to fall back; or may have to **try more than one time** using arms of chair, but can get up without help.

Severe: Unable to arise without **help**.

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Modified Bradykinesia Rating Scale (MBRS)



Modified Bradykinesia Rating Scale (MBRS)

Score	Speed	Amplitude	Rhythm
0	Normal	Normal	Regular, no arrests or pauses in ongoing movement
1	Mild slowing	Mild reduction in amplitude in later performance, most movements close to normal	Mild impairment, up to two brief arrests in the 10 seconds, none lasting > 1 second
2	Moderate slowing	Moderate, reduction in amplitude visible early in performance but continues to maintain 50% amplitude through most of the tasks	Moderate, 3 to 4 arrests in 10 seconds; OR 1 or 2 lasting > 1second
3	Severe slowing	Severe, less than 50% amplitude through most of the task	Severe, 5 or more arrests/10 seconds; OR more than 2 lasting > 1 second
4	Can barely perform the task	Can barely perform the task	Can barely perform

Speed ■ Amplitude ■ Rhythm

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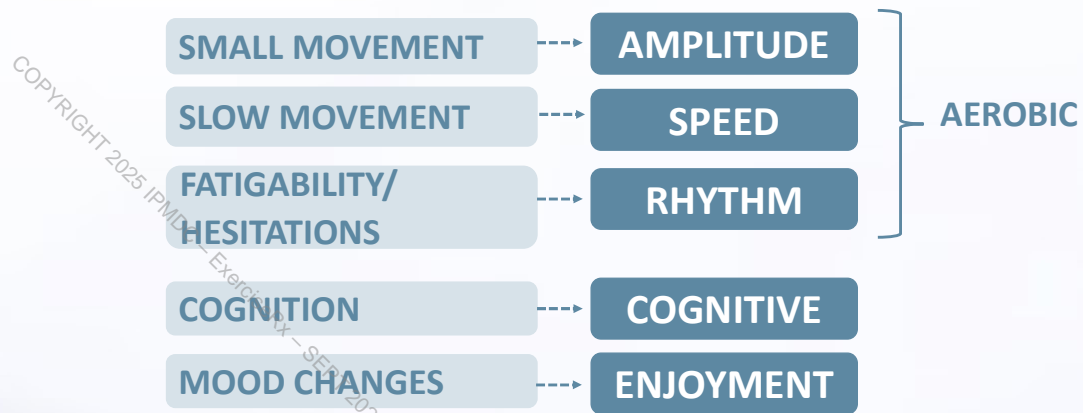
Changes in movement



Amplitude ■ Speed ■ Rhythm ■ Cognition

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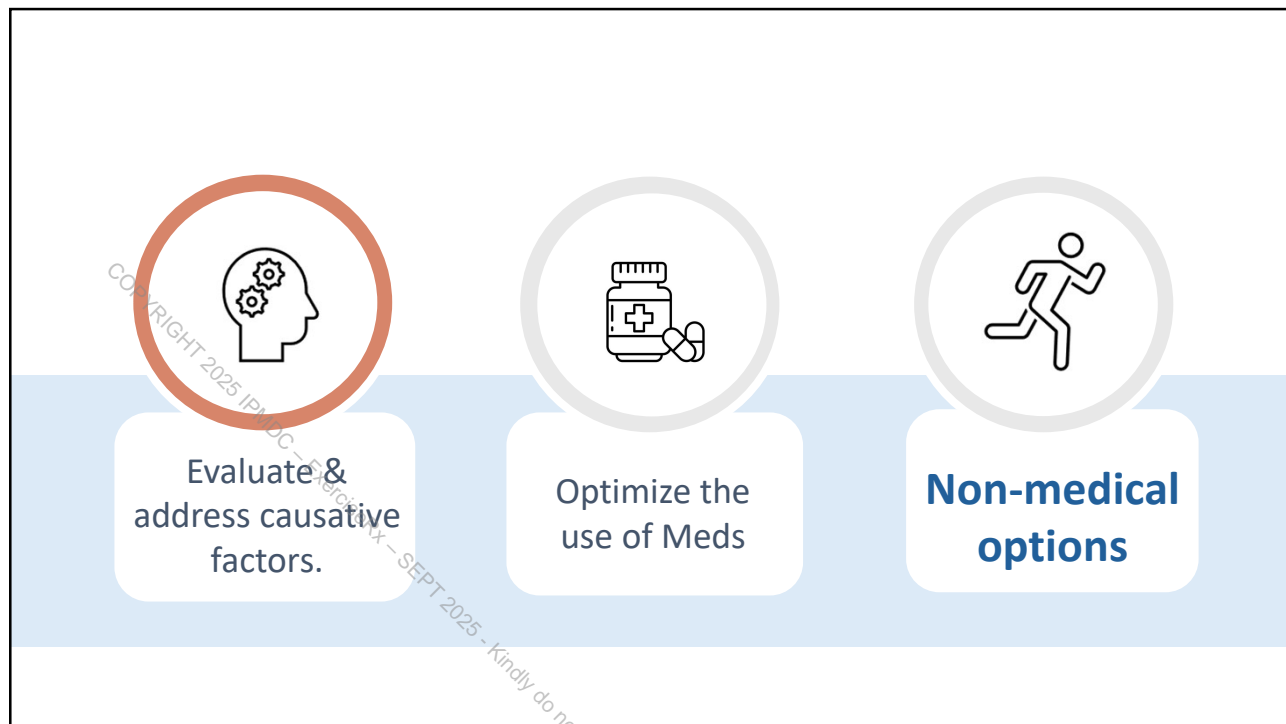
Essential Exercise Ingredients



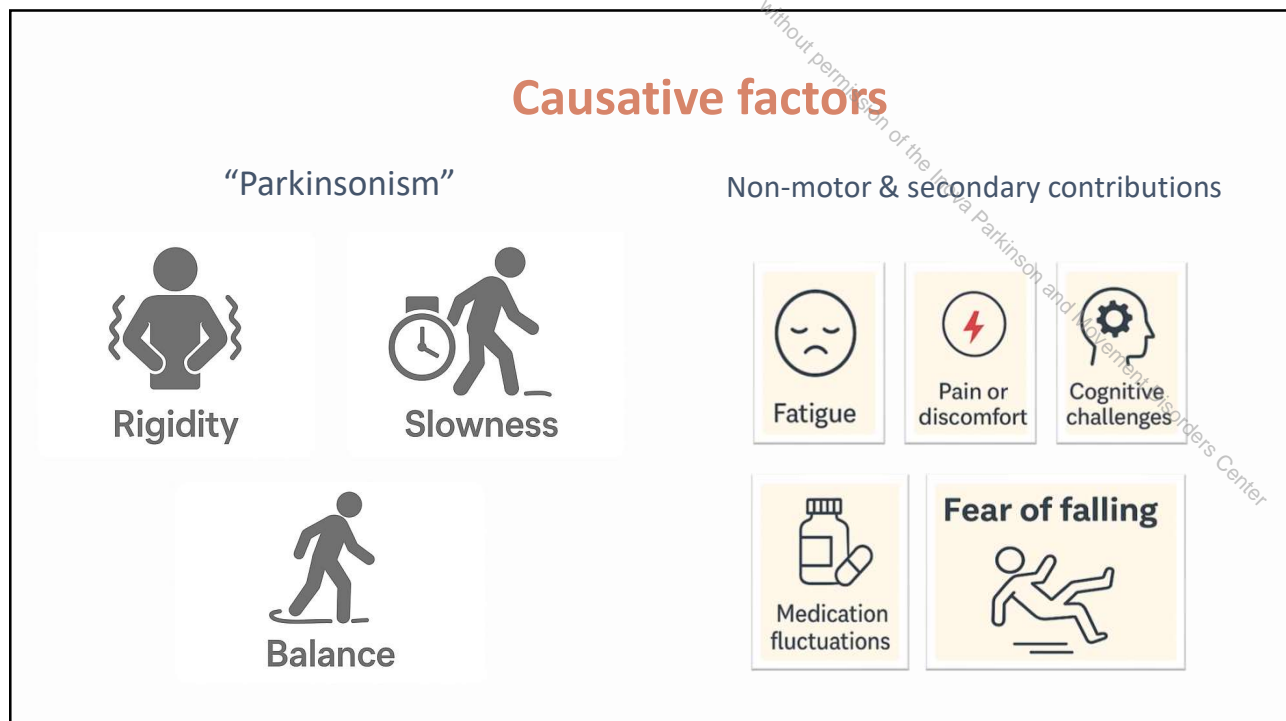
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Common management

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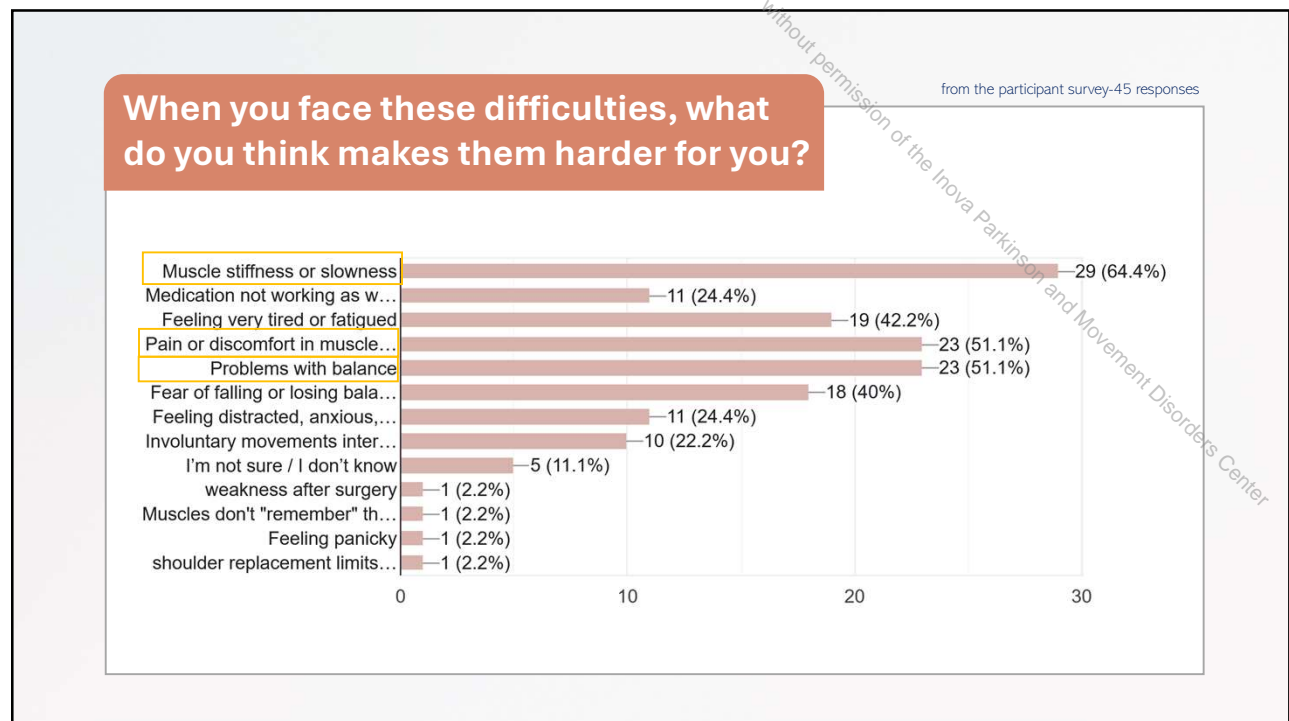
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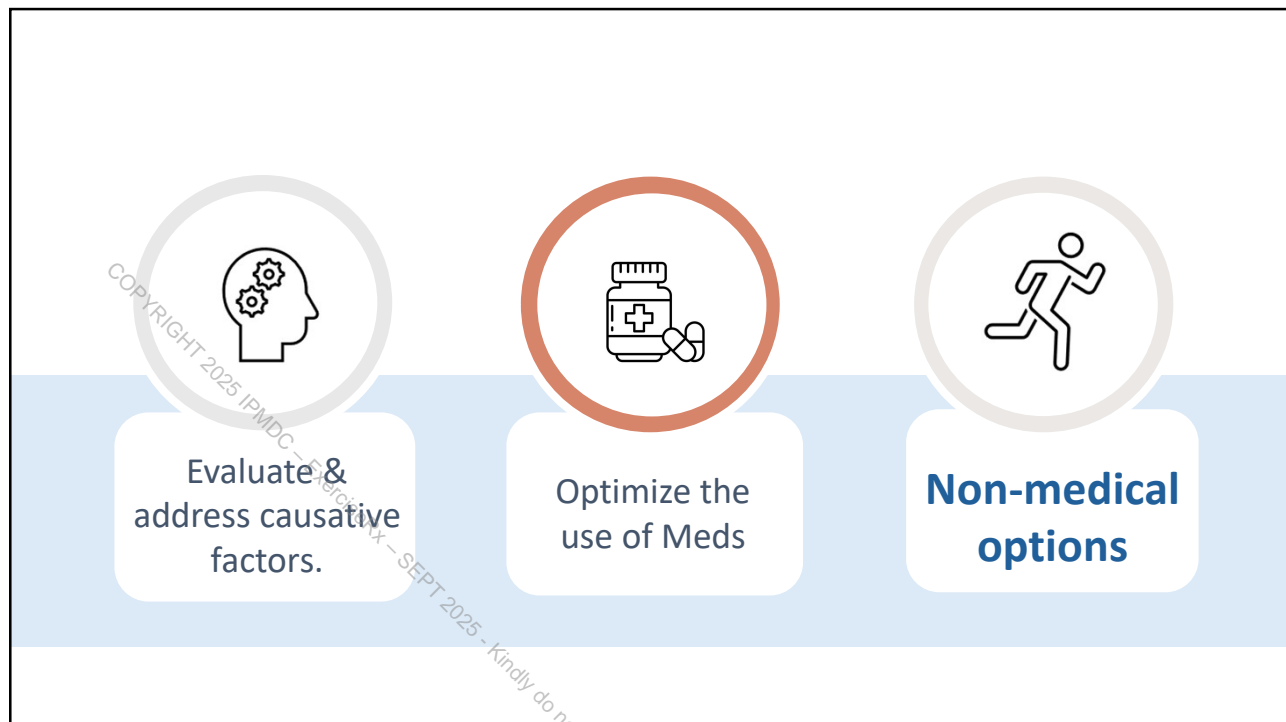
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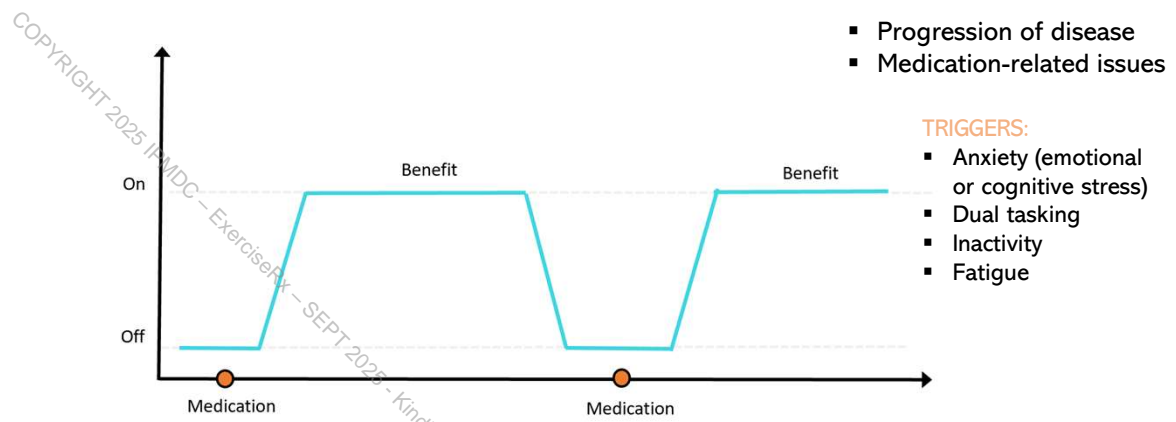


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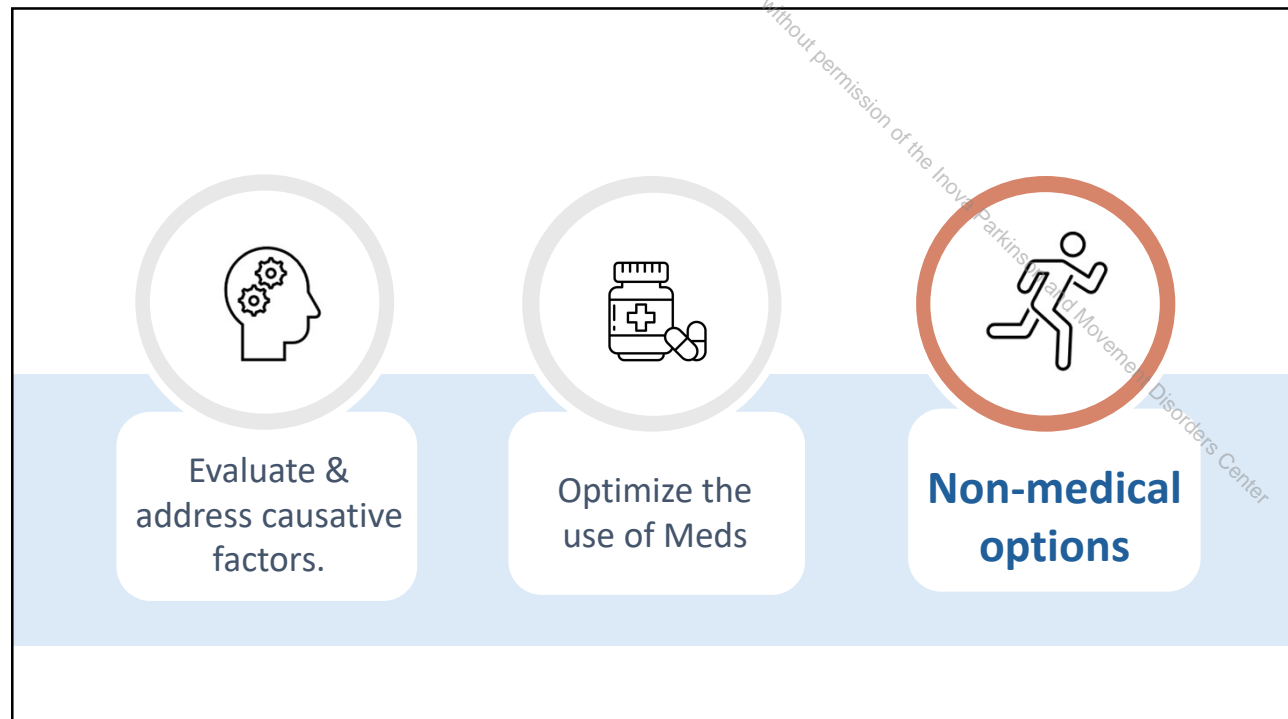


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Achieving adequate symptom control depends
on a **stable and consistent drug regime.**



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Non-medical options



Teaching strategies

E.g., Dif. getting wallet from pocket.

"I find alternatives, for e.g. I now pay by using my phone instead of physical credit cards so that I don't have to retrieve my wallet from my pockets."

Exercise-based interventions:

- PD Task-specific exercises
- PD-specific exercises
- General exercise

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What have you done (or currently do) to address your mobility issues?

from the participant survey

General Exercise

Exercise
exercise 4 hours per week
exercise
Exercise, PT
PT, exercise
PT, Zoom exercise classes
Regular exercise, PT, stretching, rest
exercise, though nothing has helped
keeping active, exercise
light exercise
I exercise relatively vigorously 4–5 times a week
nothing

Physical Therapy

Physical therapy
Doing physical therapy – LSVT
Physical therapy and metronome walking
Physical therapy class
PT for balance & core strength, light exercise
Physical therapy, Springfield College Mobility clinic
Called provider to restart PT

Daily Life Adaptations

Find alternatives, for example I now pay by using my phone instead of physical credit cards so that I don't have to retrieve my wallet from my pockets.

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What have you done (or currently do) to address your mobility issues?

from the participant survey

Walking / Mobility

Exercise, walking
Physical therapy, water aerobics and walking
Walk every day, 1.5 km or as far as possible and long enough to get my heart rate up walking
Substantial walking, golf (especially putting)
walking, dancing, boxing, strength training, Tai Chi, and rock climbing
Use my walker
Use a walker

Specific Programs / Activities

pedaling stationary bike and tai chi warm up exercises
Dance for PD, yoga, physical therapy, walking, Big exercises
BIG, line dance, leg strengthening
Stretching, walking, aerobics, dance workouts
Attend a YMCA total fitness program 3 times a week
Elliptical machine, yoga, walking, rock climbing
Climbing, boxing
a few seated exercises
Focusing on turning
Keep moving

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Which of your activities/exercises do you feel has helped you most in improving mobility?

from the participant survey

Walking (6x)
Walking up hill fast as possible to get heart rate up by 80%
Treadmill
Daily walks emphasizing cross-lateral coordinative movement of left arm - right leg, alternating with right arm - left leg .

Big Movements (from PT) but now it hurts to do them unless I radically modify them which feels pointless practically.

Biking and strengthening of legs

Pedaling

Stretching

The total fitness program. It covers strength, stretching, balance, aerobic ex and interacting with others.

Work with personal trainer.

Difficult to make a correlation.

None.

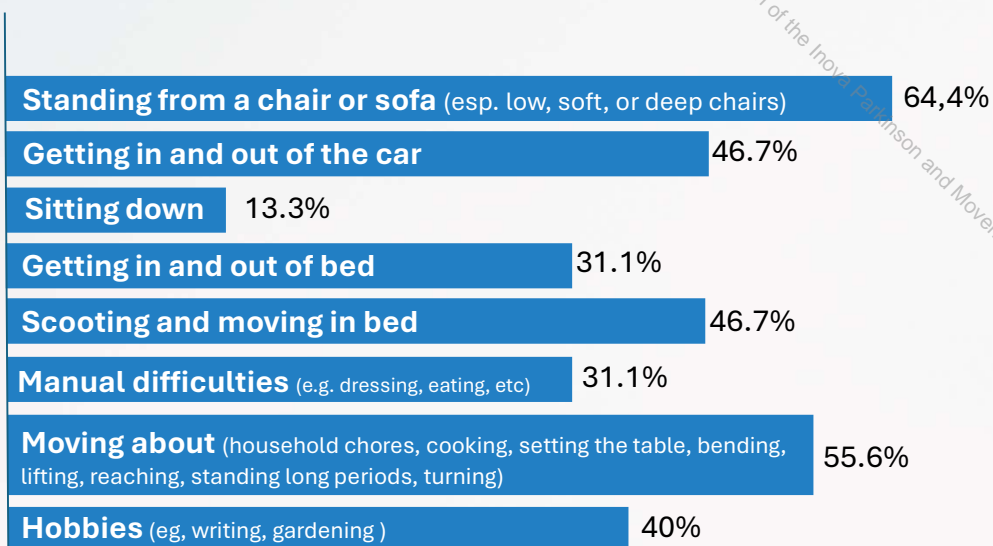
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Whatever you do – check for:

- ☒ efficacy
☒ safety
- ☒ Amplitude
☒ Speed
☒ Rhythm
- ☒ Cognition
☒ Enjoyment
- ☒ Strength
☒ Balance/ agility/ dual task
☒ Flexibility
- aerobic

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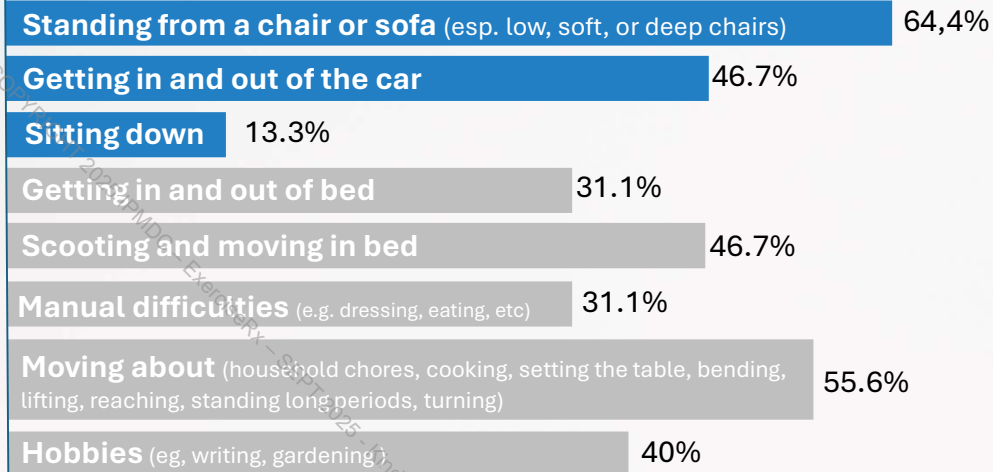
Exercises for the mobility problems you experience



From the participant survey- 45 responses

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Exercises for the mobility problems you experience



From the participant survey- 45 responses

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General Community Exercise



Hydrogymnastics



(Adapted) Chair Volleyball



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PD-specific exercise groups



Amplitude

Speed



Rhythm

Cognition



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PD Task-Specific Exercise



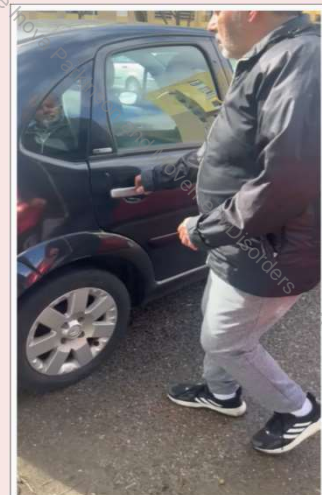
Teaching and training strategies

Back with your feet
Hands on the seat
Push forward and up



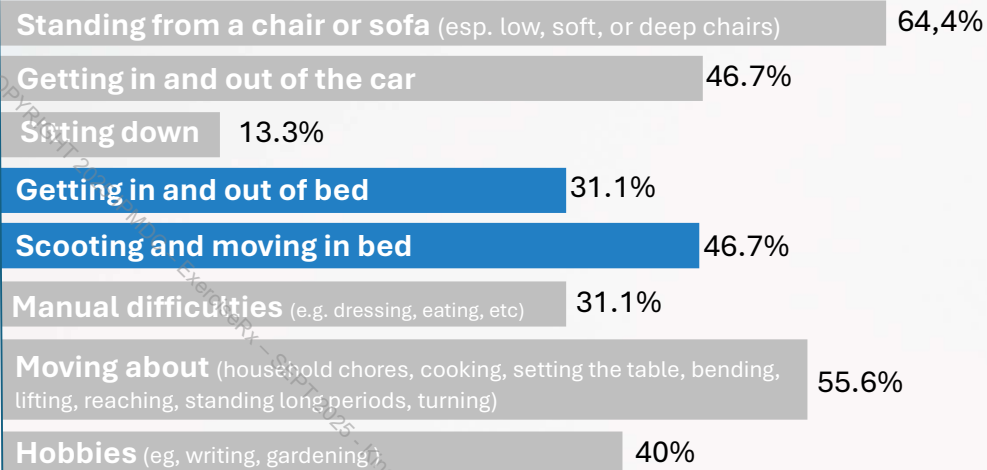
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PD Task-Specific Exercise



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Exercises for the mobility problems you experience



From the participant survey- 45 responses

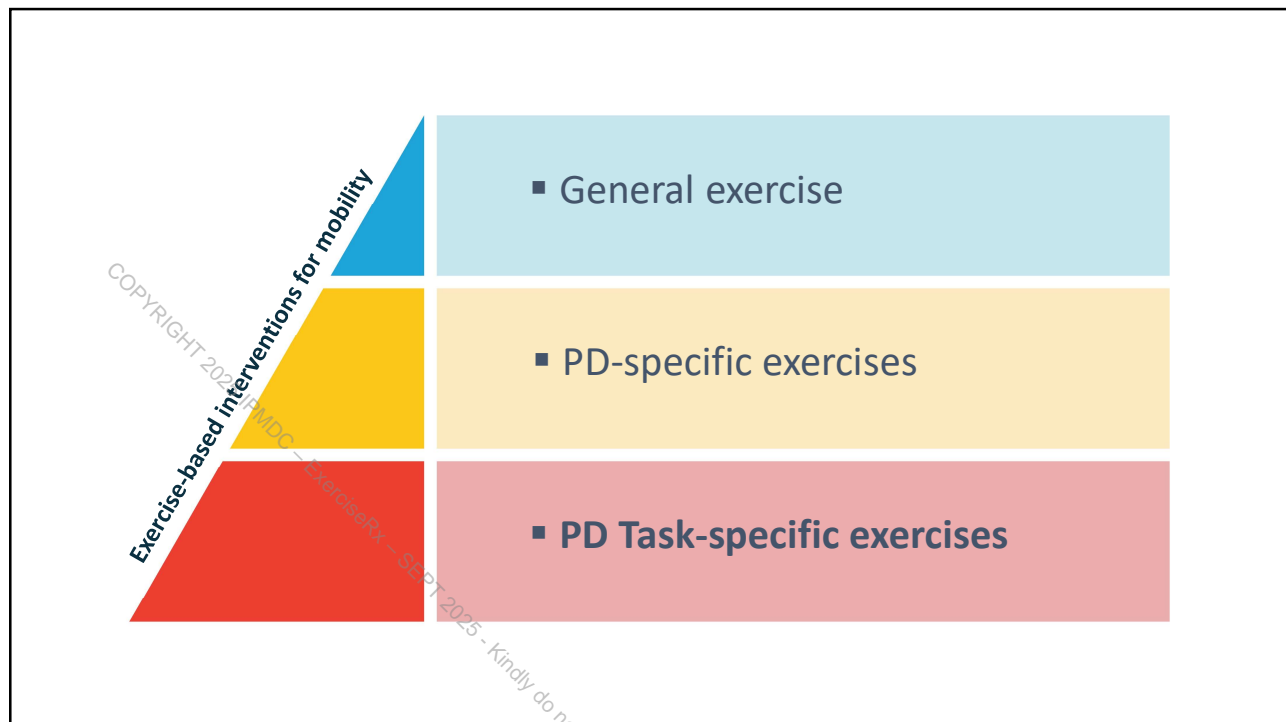
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Mobility related to the bed.

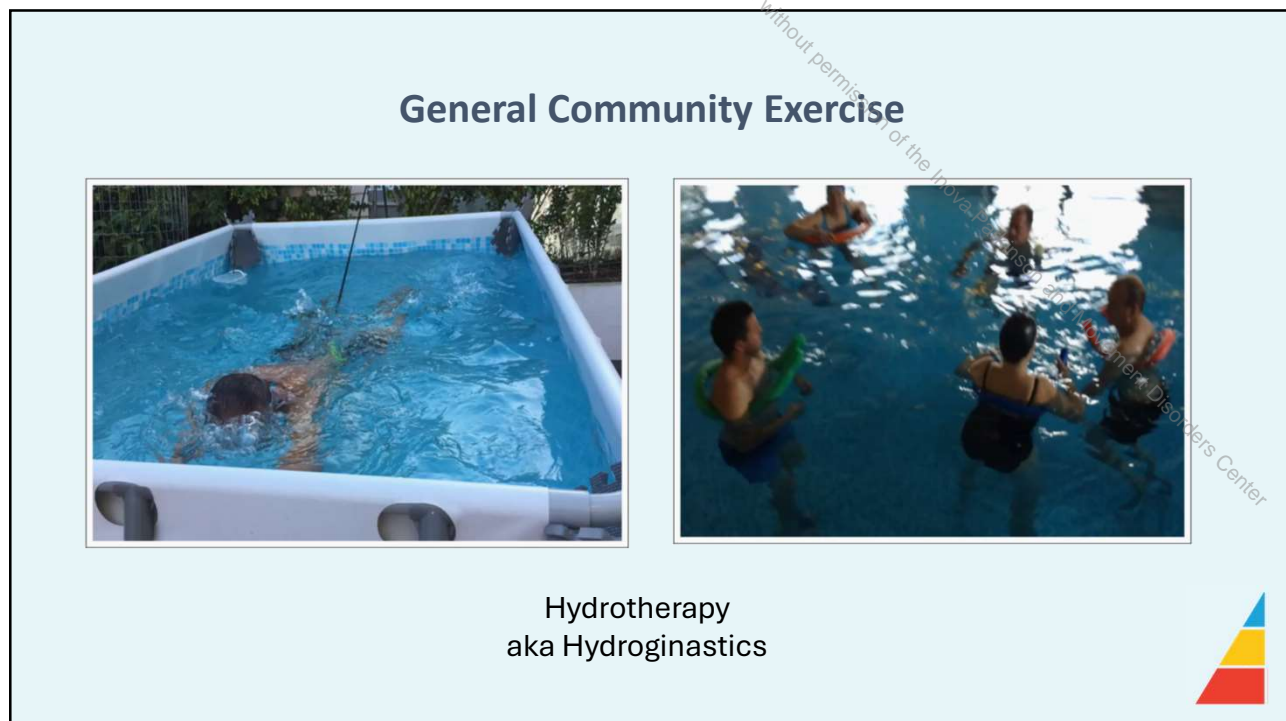
- Getting into the bed
- Getting out of bed
- Scooting in Bed
- Rolling Side to Side



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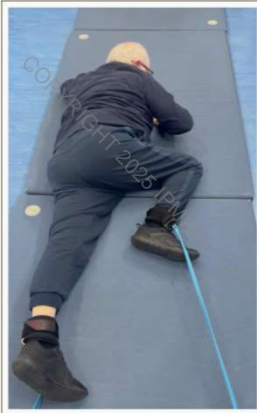


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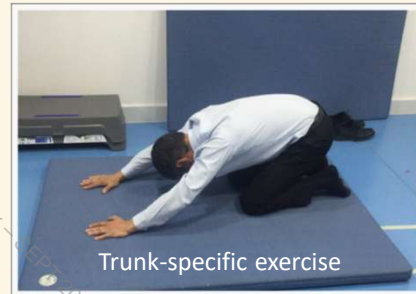
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PD-specific exercise



Amplitude-focused movements (e.g., LSVT BIG-style)

Targets slowness and stiffness through large, exaggerated movements



Trunk-specific exercise



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PD Task-Specific Exercise



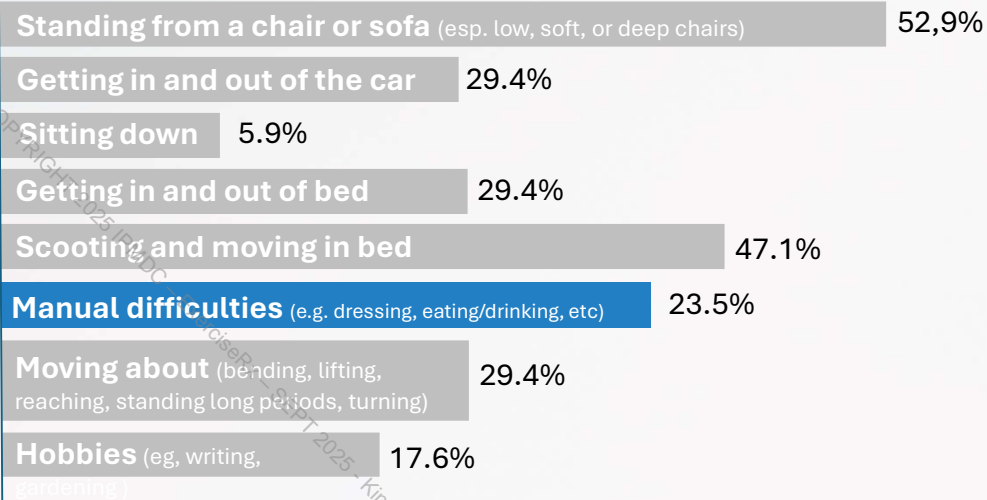
Teaching and training strategies



Exercises that reinforce the strategies

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Exercises for the mobility problems you experience



from the participant survey

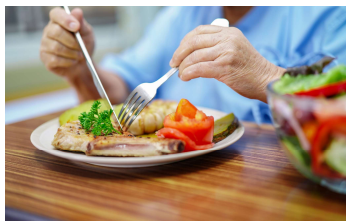
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Mobility related to manual tasks.

Reaching and grasping (in sitting and standing)

Bilateral coordination (e.g., tying shoelaces, folding towels, cutting food, dressing, others)

Moving objects.



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General Community Exercise applied to PD



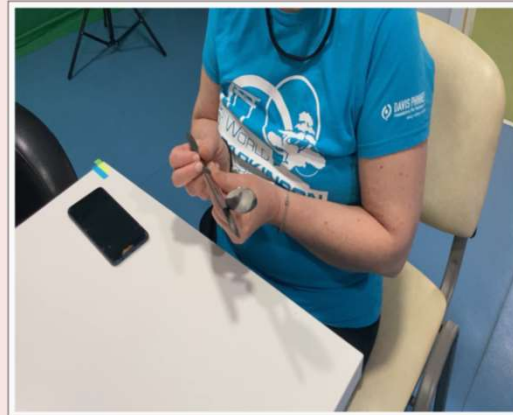
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PD-specific exercise



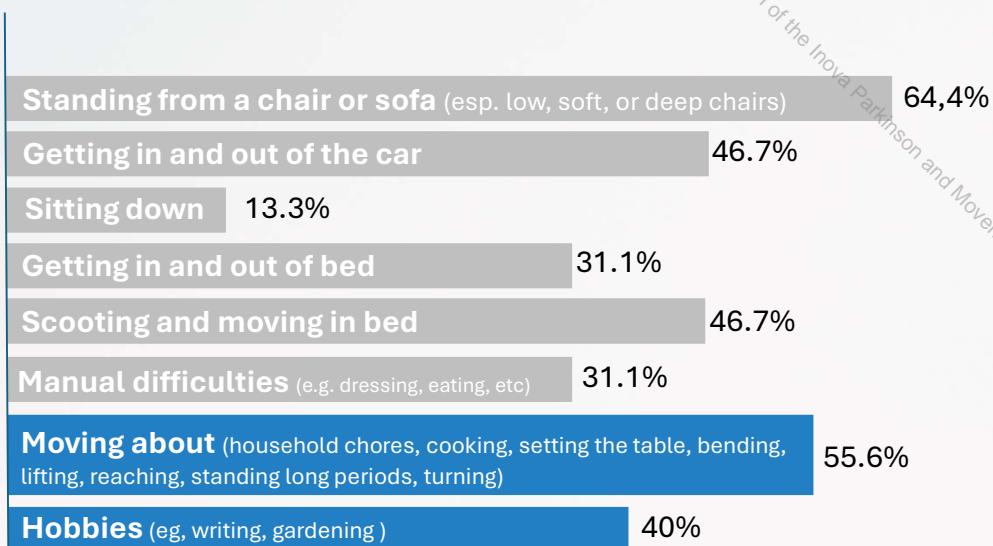
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PD Task-Specific Exercise



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Exercises for the mobility problems you experience

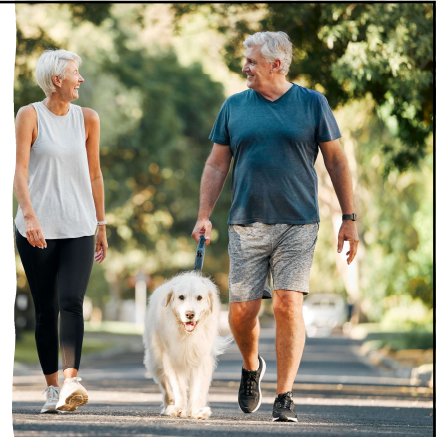


From the participant survey- 45 responses

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Mobility related to walking/moving about

Walking, turning, reaching, climbing, handling



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General Community Exercise + PD Specific

- Dance (tango, waltz, line/folk)
- Non-contact boxing
- Walking / Nordic walking
- Tai Chi / Qigong
- Treadmill walking (flat or incline)
- Stationary or recumbent cycling
- Aquatic exercise / Water walking / Ai Chi
- Strength / resistance training (bands, weights)
- Balance & agility drills (clock stepping, cone weaves)
- Exergaming / VR / music-based stepping
- Pickleball
- Yoga / Chair yoga
- Pilates / core stability

Mobility improves after high intensity aerobic exercise in individuals with Parkinson's disease

Mandy Miller Koop¹, Anson B. Rosenfeld², Jay L. Alberts^{3,4,5,6}

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Randomized Controlled Trial > Complement Ther Med. 2019 Feb;42:119-124.
doi: 10.1016/j.ctim.2018.10.023. Epub 2018 Nov 3.

Effects of dual-task aquatic exercises on functional mobility, balance and gait of individuals with Parkinson's disease: A randomized clinical trial with a 3-month follow-up

Adriano Zanardi da Silva¹, Vera Lúcia Israel²

REVIEW

Effects of Exercise on Mobility in People With Parkinson's Disease

Nicolen M. van der Kolk, MD¹ and Laurie A. King, PhD, PT²

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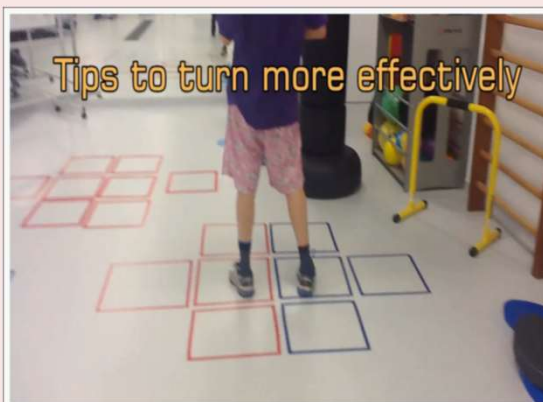
PD-specific exercise



www.dualtaskforparkinsons.com

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PD Task-Specific Exercise



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Take-home messages



Exercise is essential for managing mobility in PD, but should include training key features: amplitude, speed, rhythm & cognition.



Any exercise that mimics “the” activity you aim to improve will likely be the best “exercise”.



Ensuring your PD meds are stable and adjusted, working as effectively as possible, is key to everyday mobility.

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Thank you!

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