ExerciseRx Parkinson

What is the best exercise to improve BREATHING & respiratory strength?



Copyright 2026 IPMC - Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

1

1. Breathing becomes **weaker in PD**, affecting physical capacity and increasing the risk of swallowing problems.
2. **Aerobic exercise** is probably the best whole-system respiratory activity.
3. **Targeted respiratory muscle strength training** + **thoracic mobility** are also at the center of improvement.



2

TODAY

1. Impact of respiratory problems in PD
2. Best ways to exercise the respiratory system

Copyright 2026 IPMDC. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

3

TODAY

1. **Impact of respiratory problems in PD**
2. Best ways to exercise the respiratory system

4

Respiratory dysfunction in Parkinson's

More than

4 in 10

People with Parkinson's report at least one respiratory symptom





Reporting breathing issues



Cough or throat-clearing difficulties

van de Wetering-van Dongen et al., 2025

Respiratory dysfunction can be difficult to define.

Copyright 2026 IPMDC Exercise Prescription September 2026 Kindly do not alter, copy, or disseminate without permission of the Innova Parkinson's and Movement Disorders Center.

5

Journal of Parkinson's Disease 6 (2016) 463–471
DOI 10.3233/JPD-160804
IOS Press

Review

Ventilatory Dysfunction in Parkinson's Disease

Guillaume Baille[a], Anna Maria De Jesus[b], Thierry Perez[b], David Devos[c], Kathy Dujardin[a], Christelle Monaca Charley[d], Luc Defebvre[a] and Caroline Moreau[a,*]

"Ventilatory dysfunction in PD is poorly studied & little is known about its frequency (and clinical relevance)"

6

People may notice

- Softer voice
- Running out of air mid-sentence
- Chest tightness
- Breathlessness/ Breathing difficulty
- Feeling breathless on mild effort
- Frequent throat clearing/cough
- Weak cough or difficulty coughing
- Throat-clearing at meals/drink
- "Wet" speech after drinking often reported by family





Copyright 2026 IPMDC Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Innova P... n's and Movement Disorders Center.

7

A detailed assessment might "unmask"…

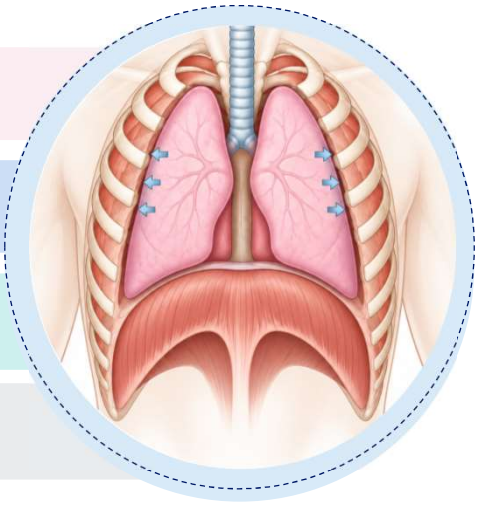
- Reduced vital capacity
- Reduced chest-wall volume
- Inspiratory muscle weakness
- Reduced expiratory strength and peak cough flow



8

PD affects breathing in different ways:

Weaker breathing muscles

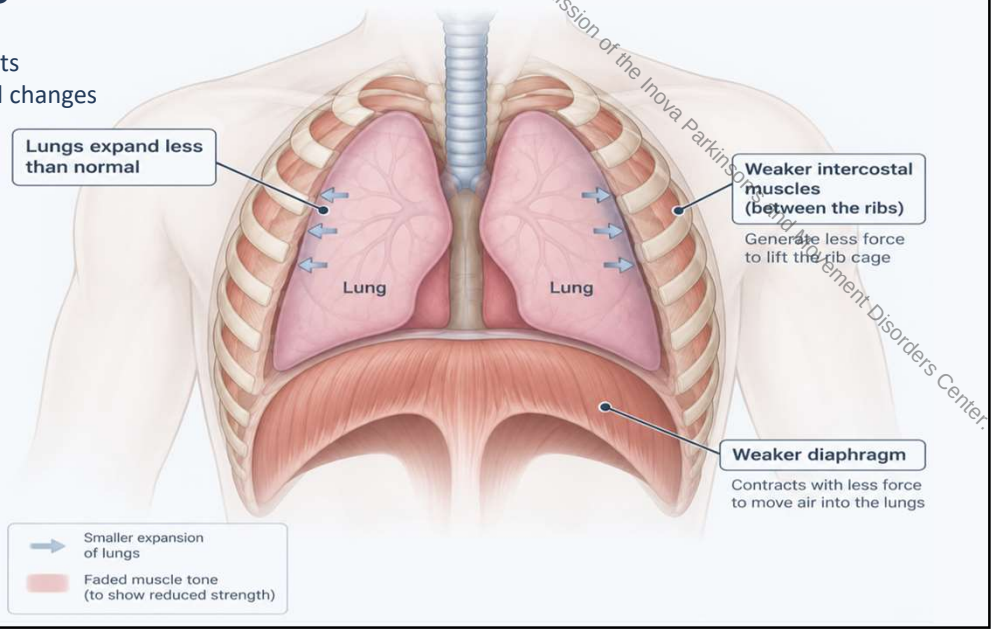


Copyright 2026 IPMDC. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

9

PARKINSON'S

- Muscle rigidity
- Smaller movements
- Impact of postural changes



10

PD affects breathing in different ways:

- Weaker breathing muscles
- Quieter voice
- Weaker cough



Copyright 2026 NPDC. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's Movement Disorders Center.

11

PD affects breathing in different ways:

- Weaker breathing muscles
- Quieter voice
- Weaker cough
- Increased “chest infection” risk



12

Practical impacts of those difficulties

- Increased effort needed for common daily activities
- Implications of reduced cough reflex (secretion management, airway protection)
- Perceptual and cognitive-related difficulties.



Copyright 2026 IPMDA Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

13

Changes over the course of the disease

1 — Early Parkinson's
- Few reported problems
- Changes already measurable with instruments

2 — Mid-stage
- Breathlessness with exertion
- Noticeable inspiratory & expiratory weakness

3 — Later stages
- Multiple simultaneous issues
- Reduced cough strength

Breathing can be trained at every stage.
The earlier you start, the more fully and for longer you protect yourself.

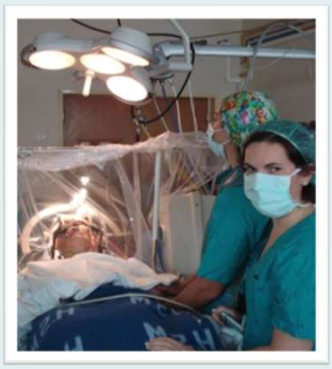
14

Impact of traditional treatments

MEDICATIONS



DEEP BRAIN STIMULATION



It's not always rigidity

Copyright 2026 IPMDC. ember 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

15

TODAY

1 Impact of respiratory problems in PD

2 Best ways to exercise the respiratory system

16

3 Different ways

Specific strengthening and conditioning

Functional Practice

Maintaining & extending gains







Copyright 2026 IPMDC, Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Korea Parkinson's and Movement Disorders Center.

17

Specific breath training with devices

EMST 150

Threshold trainer



Much stronger research support!

The Breather

Resistance trainer



THE BREATHER

18

EMST now has dozens of peer-reviewed articles



2006
Silverman et al.
Pilot Study
↑ swallow function
Inconclusive for speech/voice

2009
Pitts et al.
First significant trial
↑ cough effectiveness
↓ penetration–aspiration

2010
Troche et al.
Landmark sham-controlled RCT
Improved swallow

2014
Troche et al.
Detraining results
Improvements remained at 3 months

2021
Claus et al.
Replication study: double-blind RCT
Improved swallow
Remained at 3 months

2023–26
Reviews + newer trials
Refinement & implementation

Strong evidence for ↑ expiratory strength + airway-protection; drooling, voice/QoL effects remain less certain.

Copyright 2026 IPMDC. Exercise Prescription September 2026. Kelly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

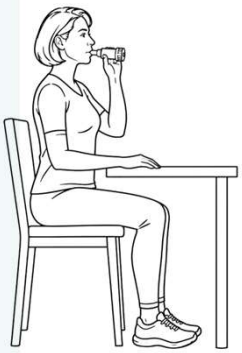
19

EMST 150 Strength training program

A SESSION

- Sit upright, deep breath in
- Seal lips tightly around the mouthpiece
- Blast air out hard enough to pop the valve open
- Inhale and exhale (without device)
- That's one repetition, do four more to complete the set
  - 5 breaths × 5 sets = one session

* Make a strong, fast blast. no puffed cheeks, no lip leaks. Use the included nose clip (at first).



PLAN

- Set the starting resistance at about 75% of your maximum
- When all 25 reps feel easy, the dial goes up a notch
- After initial training, keep gains with ~3 days per week and/or consider adding in the "inspiratory adapter"

4

20

INSPIRATORY TRAINING?

Inspiratory deficits may benefit from “cross training”



Copyright 2026 IPM... Home Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Innovative Parkinson's and Movement Disorders Center.

21

What about The Breather



- **Resistive trainer**: the actual load varies with how fast the person breathes
- Slowing the flow lowers the resistance and reduces the stimulus
- Can be mitigated with (optional) manometer

22

Training to cough effectively

A strong cough protects your lungs. It can be trained.

Breathing trainer (EMST) for strength



Cough practice with a peak flow meter, for learning skill and feedback (spirometer peak flow meter)



Everyday cough practice without equipment

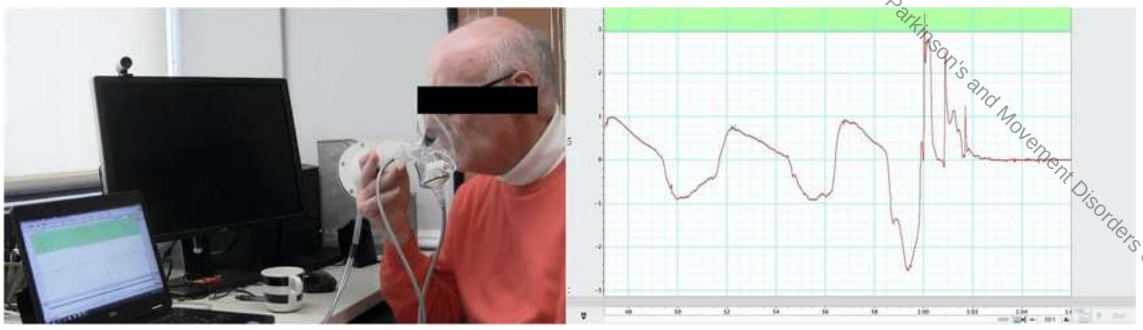
- Practice 2–3 strong voluntary coughs daily
- Deep breath in → brief hold → explode out

Safety: practice seated, rest between sets, stop if dizzy. Check with your physio or speech therapist before starting a device program.

Copyright 2026 Exercise Prescription September 2026. Kurtis. Do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

23

Sensorimotor training in airway protection - smTAP



smTAP experimental setup. Example of the experimental setup (left) with a facemask coupled to a pneumotachograph with a side port and inspiratory valve connected to a nebulizer for subthreshold capsaicin administration and real-time visual biofeedback of the spirometry waveform (right) with target line

Movement Disorders, 38(2), 201–211; Dysphagia, 37(1), 74–83; American Journal of Speech-Language Pathology, 32(6), 2718–2733.

24

3 Different ways

Specific strengthening and conditioning

Functional Practice

Maintaining & extending gains



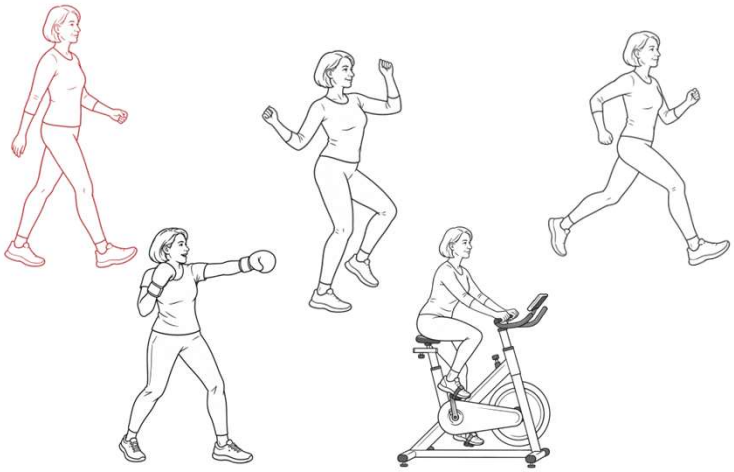




Copyright 2026 IPMDC. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the ... rkinson's and Movement Disorders Center.

25

Aerobic exercise is probably the best whole-system respiratory stimulus.



RPE Scale (Rate of Perceived Exertion)	
1	**Very light activity** It doesn't even feel like you're exercising.
2-3	**Light activity** You could keep going for hours! It's easy to breathe and have a conversation.
4-6	**Moderate activity** You're breathing heavily, but you can have a conversation.
7-8	**Somewhat difficult activity** You're short of breath. You can speak, but only about one sentence at a time.
9	**Very difficult activity** You can barely breathe, and can only say a few words at a time.
10	**Maximum effort activity** You're completely out of breath, and can't talk.

Modified BORG Scale for Rating Perceived Dyspnea (RPD)

26

Chest and trunk mobility exercises

- Thoracic extension, rotation, side-flexion, shoulder opening and posture work.
- A more flexible thoracic cage makes it easier to generate larger respiratory excursions.



Aerobic exercise + **posture and trunk mobility** =
rib cage flexible and breathing efficient

27

Activities combining breathing with movement

- Breathing warm-ups at the outset
- Incorporating breath as a cue for effort.
- Rhythmic breathing with exercise
- **Integration of voice into exercises**

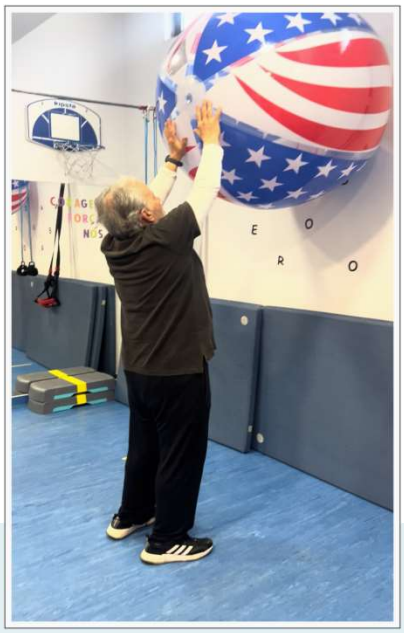


28

Copyright 2020 IPMDC Exercise Prescription September 2020. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

Incorporating into existing exercise routines

- Using breath as a cue for effort.
- Integration of voice into exercises



Copyright 2026 IPMDC. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

29

"Breath and posture breaks"

- Deep-breathing / thoracic expansion exercises
- Clock face activities: open and close
- Seated cat-cow exercises
- Consider adding the back of a chair, the edge of a table, or other support to extend the stretch.



30

3 Different ways

Specific strengthening and conditioning

Functional Practice

Maintaining & extending gains







Copyright 2026 IPMDC, Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

31

Activities combining breathing with voice

Singing, sustained phonation, and harmonica can provide repeated respiratory challenge while also targeting coordination.





32

Local Choir Opportunities

Brain Choir in partnership with A **Place to Be**

(through the Inova Loudoun Hospital Rehab Center)

Wednesdays at 12:00 PM EST
In-person and free
Contact Monika.Stolze@inova.org

Encore Creativity chorales





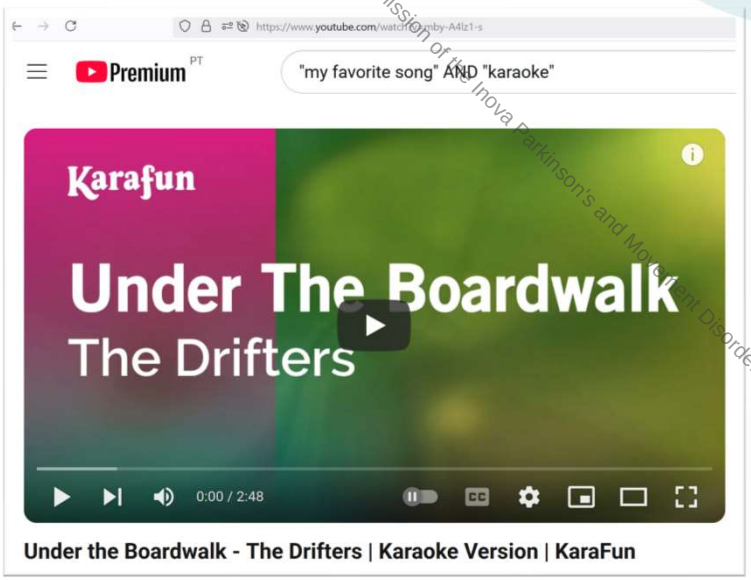
Rehearsals for the Fall Begin: August 18, 2025

https://encorecreativity.org/
https://encorecreativity.org/arts-for-life

Copyright 2026 IPMDA. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.

33

Karaoke with friends or on your own



34

Harmonic Project



Copyright 2026 NPMDC Exercise Presentation by Speer 2026. Kindly do not alter, copy, or disseminate without permission of the Inovement Disorders Center.

35



Harmonicas for Health is proudly brought to you in association with Asthma+Lung UK and Harmonica For Lung Health

ASTHMA+ LUNG UK

HARMONICA FOR LUNG HEALTH

HARPIN' BY THE SEA

36

Take-home messages

Pay attention to signs of respiratory issues, as they can significantly drain your energy.

Incorporate it into your exercise routines when possible.

Some specific exercises and devices can improve breathing capacity and performance.

14

37

Copyright 2026 IPMDC. Exercise Prescription September 2026. Kindly do not alter, copy, or disseminate without permission of the Inova Parkinson's and Movement Disorders Center.



Your Questions

38