



# OUR PHILOSOPHY

“We believe that the patient is the sun (not the doctor) and that interdisciplinary health care teams should orbit around the patient (not the doctor).”



[OUR MISSION](#)

[CHAIR'S MESSAGE](#)

[OUR HISTORY](#)







# Advancements in Management of Parkinson disease

What we know now and is available today

Bhavana Patel, DO

Assistant Professor, Department of Neurology

University of Florida

April 18, 2023

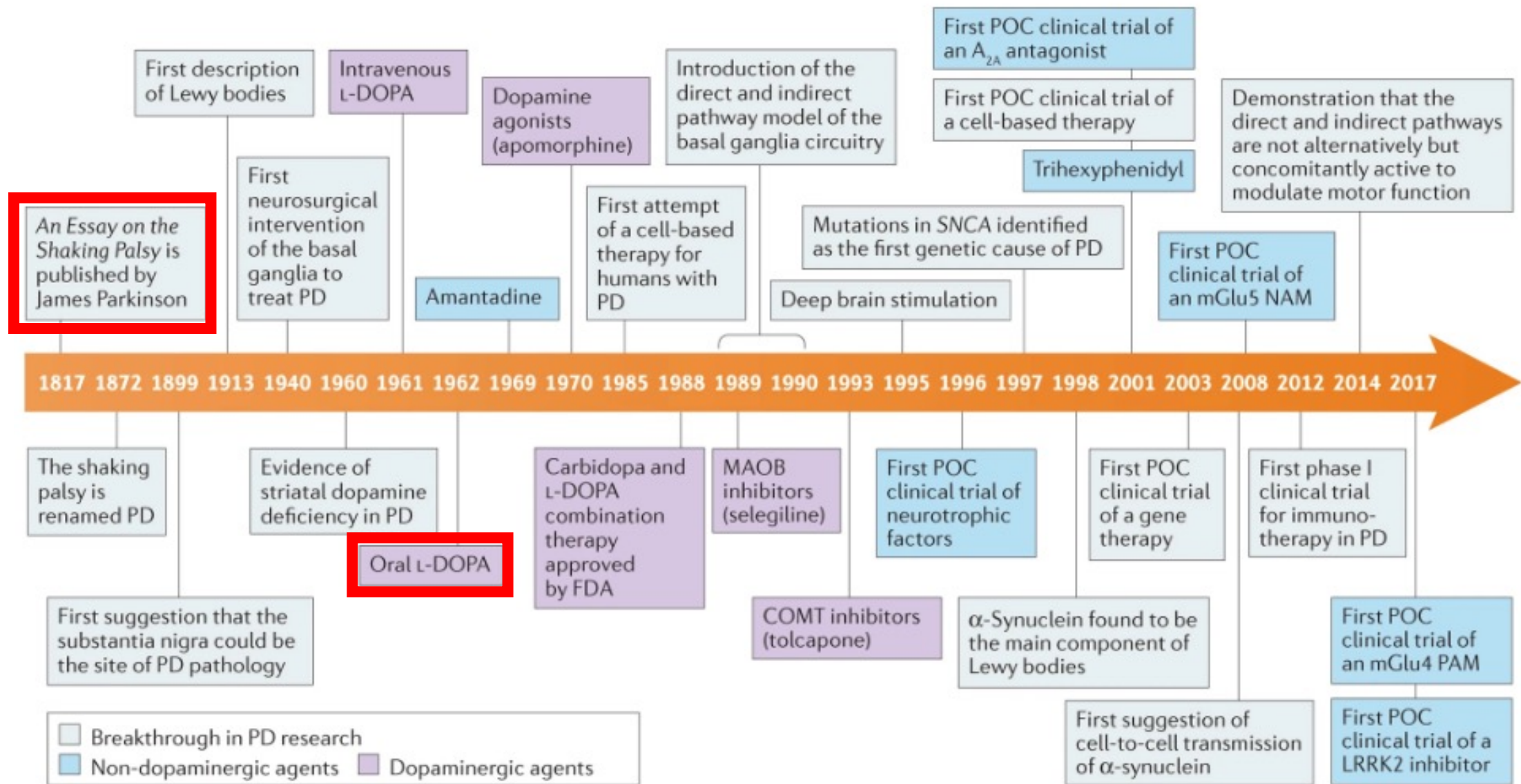
# Disclosures

- I have received research and/or salary support from American Academy of Neurology and NIA.



# Objectives

To review updates in management of PD by non-pharmacological strategies, medications and procedures.





Non-pharmacologic  
therapies



Pharmacologic  
therapies



Procedures



# Non-pharmacologic management of PD

# Non-pharmacologic management of PD



# Nutrition

## **Disclaimer:**

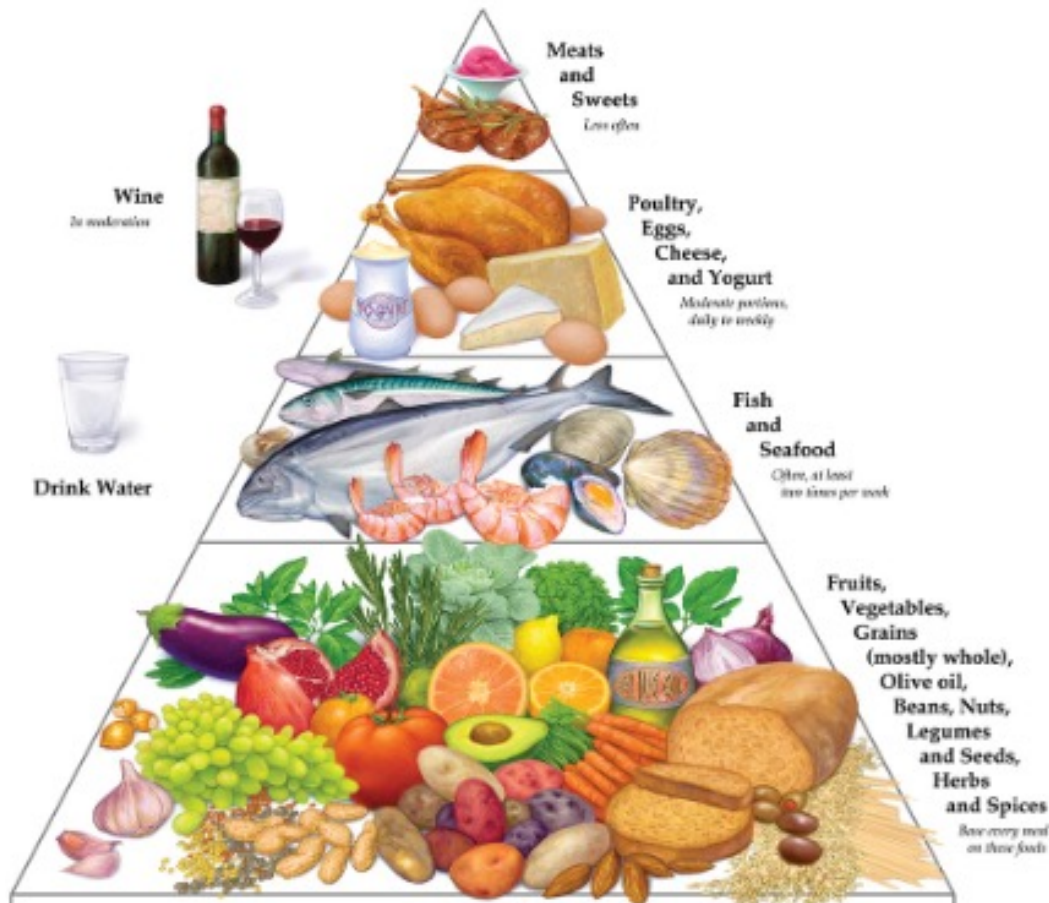
There is no single diet for PD, and diets should be personalized to the person with PD



# Non-pharmacologic management of PD

# Nutrition

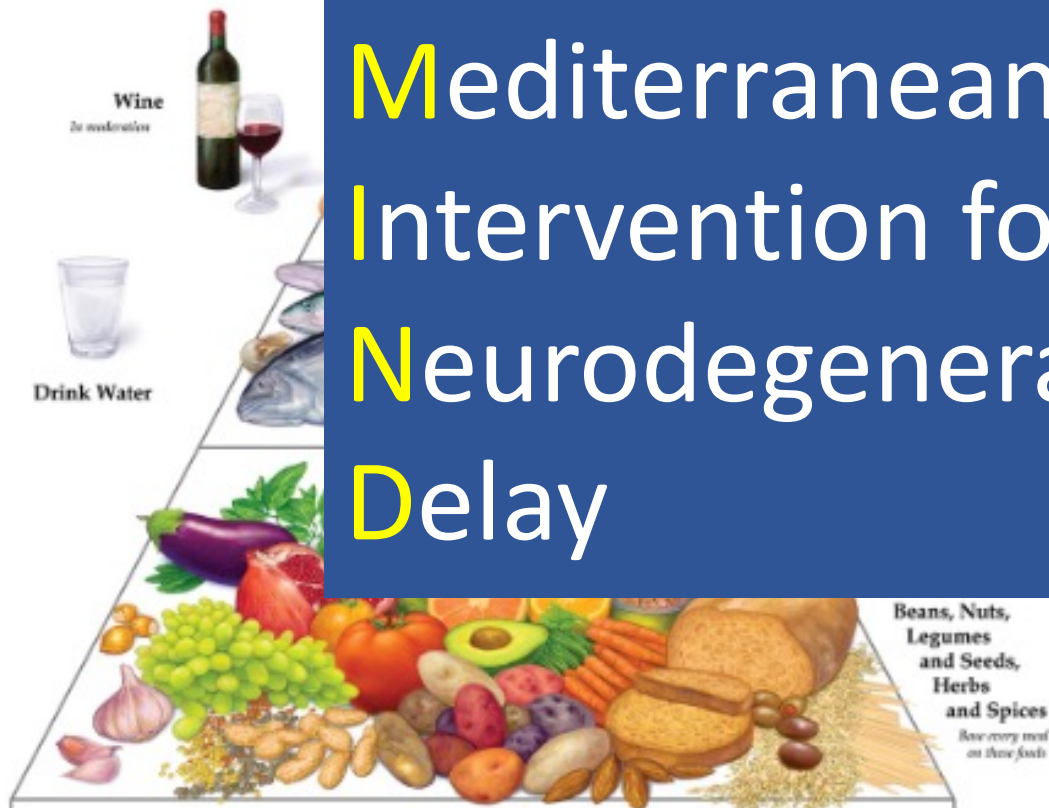
**Mediterranean Diet Pyramid**



Fruits and vegetables  
Whole grains and legumes  
Healthy fats like nuts and olive oil

# Nutrition

Mediterranean Diet Pyramid



The DASH Food Pyramid



## MIND diet Mediterranean-DASH Diet Intervention for Neurodegenerative Delay

# Nutrition



## Mediterranean Diet Adherence in People With Parkinson's Disease Reduces Constipation Symptoms and Changes Fecal Microbiota After a 5-Week Single-Arm Pilot Study

Carley Rusch<sup>1,2\*</sup>, Matthew Beke<sup>1,2</sup>, Lily Tucciarone<sup>1</sup>, Carmelo Nieves Jr.<sup>1</sup>, Maria Ukhanova<sup>3</sup>, Massimiliano S. Tagliamonte<sup>4</sup>, Volker Mai<sup>3</sup>, Joon Hyuk Suh<sup>5</sup>, Yu Wang<sup>5</sup>, Shannon Chiu<sup>2</sup>, Bhavana Patel<sup>2</sup>, Adolfo Ramirez-Zamora<sup>2</sup> and Bobbi Langkamp-Henken<sup>1</sup>

- Constipation and indigestion improved



*Bilophila at baseline in individuals with PD.  
(this has been correlated with constipation symptoms in PD)*



*Roseburia after the MED diet.  
(increased in PD + inflammatory bowel disease, it is thought to be involved in immune system regulation and degraders of a specific polysaccharide found in nuts, legumes, and tomatoes.)*





## Q: What supplements should I take?

To date studies of various supplements have not demonstrated a meaningful impact on disease progression.

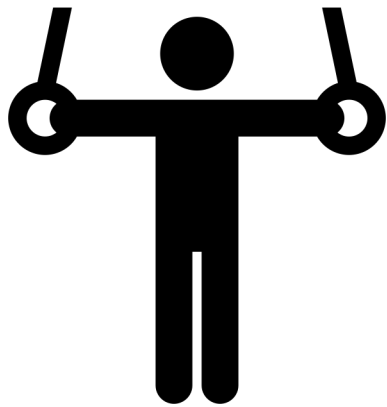
Your doctor may recommend Calcium and Vit D for bone health.

Talk to your doctor before starting any supplements.

# Non-pharmacologic management of PD



## Exercise



Exercise can improve...

- Stiffness/slowness
- Mobility
- Quality of life
- Cognition
- Mood
- Sleep
- And.... *Possibly* slow rate of disease progression (more research is needed)



# Non-pharmacologic management of PD

## Exercise

**Park in Shape Trial** Single-center, double-blind randomized controlled trial in PD patients who were randomly assigned to aerobic exercise (stationary home trainer 50-80% HR ) or stretching (active control) interventions

Duration = 6 months, 3x a week 30-45 min sessions  
Aerobic exercise, n = 25; stretching, n = 31

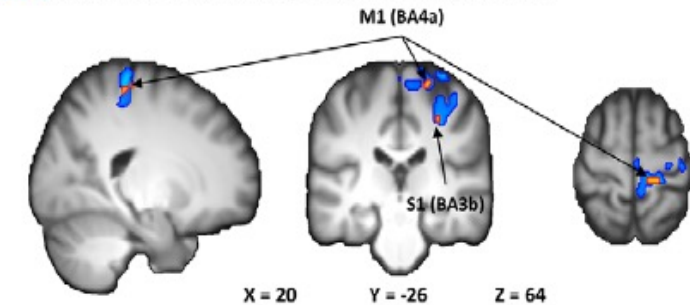
**Functional connectivity changes  
in the brain in those in the  
aerobic exercise group**

## Aerobic Exercise Alters Brain Function and Structure in Parkinson's Disease: A Randomized Controlled Trial

Martin E. Johansson, MSc<sup>1,2†</sup> Ian G. M. Cameron, PhD<sup>3,4,5†</sup>  
Nicolien M. Van der Kolk, MD, PhD<sup>1,2</sup> Nienke M. de Vries, PhD<sup>1,2</sup> Eva Klimars, MSc<sup>1,2</sup>  
Ivan Toni, PhD<sup>1</sup> Bastiaan R. Bloem, MD, PhD<sup>2</sup> and Rick C. Helmich, MD, PhD<sup>1,2</sup>

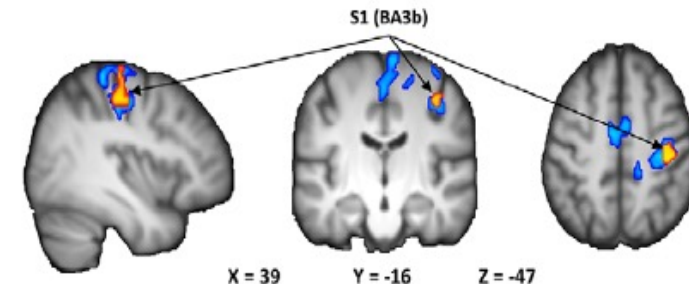
### A Effect of aerobic exercise on the balance of cortico-striatal sensorimotor connectivity

- AP>PP: Exercise>Stretching, T2>T1 ( $p<.05$ , fwe-corrected)
- AP>PP: Exercise>Stretching, T2 ( $p<.05$ , fwe-corrected)



### B Effect of aerobic exercise on connectivity between posterior putamen and sensorimotor cortex

- PP: Stretching>Exercise, T2>T1 ( $p<.05$ , fwe-corrected)
- PP: Stretching>Exercise, T2 ( $p<.05$ , fwe-corrected)



Non-pharmacologic management of PD

# Study in Parkinson Disease of Exercise SPARX3

Multi-center study sponsored by NIH, Northwestern and PSG to test efficacy of high intensity (80-85% HRmax) vs moderate intensity (60-65% HRmax) treadmill exercise, 4x a week for 12 months



Currently recruiting at UF

# Physical Therapy

## Parkinson's Exercise Recommendations

Parkinson's is a progressive disease of the nervous system marked by tremor, stiffness, slow movement and balance problems.

Exercise and physical activity can improve many motor and non-motor Parkinson's symptoms:



### Aerobic Activity

3 days/week for at least 30 mins per session of continuous or intermittent at moderate to vigorous intensity

**TYPE:** Continuous, rhythmic activities such as brisk walking, running, cycling, swimming, aerobics class

**CONSIDERATIONS:** Safety concerns due to risks of freezing of gait, low blood pressure, blunted heart rate response. Supervision may be required.

### Strength Training

2-3 non-consecutive days/week for at least 30 mins per session of 10-15 reps for major muscle groups; resistance, speed or power focus

**TYPE:** Major muscle groups of upper/lower extremities such as using weight machines, resistance bands, light/moderate handheld weights or body weight

**CONSIDERATIONS:** Muscle stiffness or postural instability may hinder full range of motion.

### Balance, Agility & Multitasking

2-3 days/week with daily integration if possible

**TYPE:** Multi-directional stepping, weight shifting, dynamic balance activities, large movements, multitasking such as yoga, tai chi, dance, boxing

**CONSIDERATIONS:** Safety concerns with cognitive and balance problems. Hold on to something stable as needed. Supervision may be required.

### Stretching

>2-3 days/week with daily being most effective

**TYPE:** Sustained stretching with deep breathing or dynamic stretching before exercise

**CONSIDERATIONS:** May require adaptations for flexed posture, osteoporosis and pain.

Gait

Balance

Flexibility/Range of Motion

Posture

Strength



See a physical therapist specializing in Parkinson's for full functional evaluation and recommendations.



**Safety first:** Exercise during on periods, when taking medication. If not safe to exercise on your own, have someone with you.



It's important to **modify and progress** your exercise routine over time.



Participate in **150 minutes** of moderate-to-vigorous exercise per week.



Helpline: 800.473.4636/Parkinson.org

# Are we doing PT wrong?

## A randomized clinical trial of burst vs. spaced physical therapy for Parkinsons disease

Ka Loong Kelvin Au <sup>1</sup>, Janine Lemos Melo Lobo Jofili Lopes <sup>2</sup>, Alison Kraus <sup>3</sup>, Kimberly Patton <sup>3</sup>,  
Lisa Warren <sup>3</sup>, Hanzhi Gao <sup>4</sup>, Joshua K Wong <sup>2</sup>, Kathryn Moore <sup>2</sup>, Jon B Toledo <sup>2</sup>,  
Tamara Stiep <sup>2</sup>, Jessica Frey <sup>2</sup>, Tracy Tholanikunnel <sup>2</sup>, Christopher Hess <sup>2</sup>, Leonardo Almeida <sup>2</sup>,  
Adolfo Ramirez-Zamora <sup>2</sup>, Michael S Okun <sup>2</sup>

Single center, randomized controlled trial of PD participants.

Burst (two PT sessions weekly for 6 weeks) = 11

Spaced (one PT session every 2 weeks for 6 months) = 11

Results: Spaced PT group had stability on TUG mobility measure at 6 months + burst group had a significant worsening once PT was discontinued after 6 weeks.



# Q: How much exercise should I do?

Regular Exercise, Quality of Life, and Mobility in Parkinson's Disease:  
A Longitudinal Analysis of National Parkinson Foundation Quality  
Improvement Initiative Data

Cite

**Article type:** Research Article

**Authors:** Rafferty, Miriam R.<sup>a,\*</sup> | Schmidt, Peter N.<sup>b</sup> | Luo, Sheng T.<sup>c</sup> | Li, Kan<sup>d</sup> | Marras, Connie<sup>e</sup> | Davis, Thomas L.<sup>f</sup> | Guttman, Mark<sup>g</sup> | Cubillos, Fernando<sup>b</sup> | Simuni, Tanya<sup>h</sup> | on behalf of all NPF-QII Investigators<sup>i</sup>

Individuals with PD who exercise at least **2.5 hours a week**  
had better quality of life + mobility



# Exercise Resources



Talk to your doctor and physical therapist to help develop a personalized exercise plan.

# Exercise Resources



Try a smartwatch or pedometer

# Non-pharmacologic management of PD

# Exercise Resources



Gentle Movement on Zoom

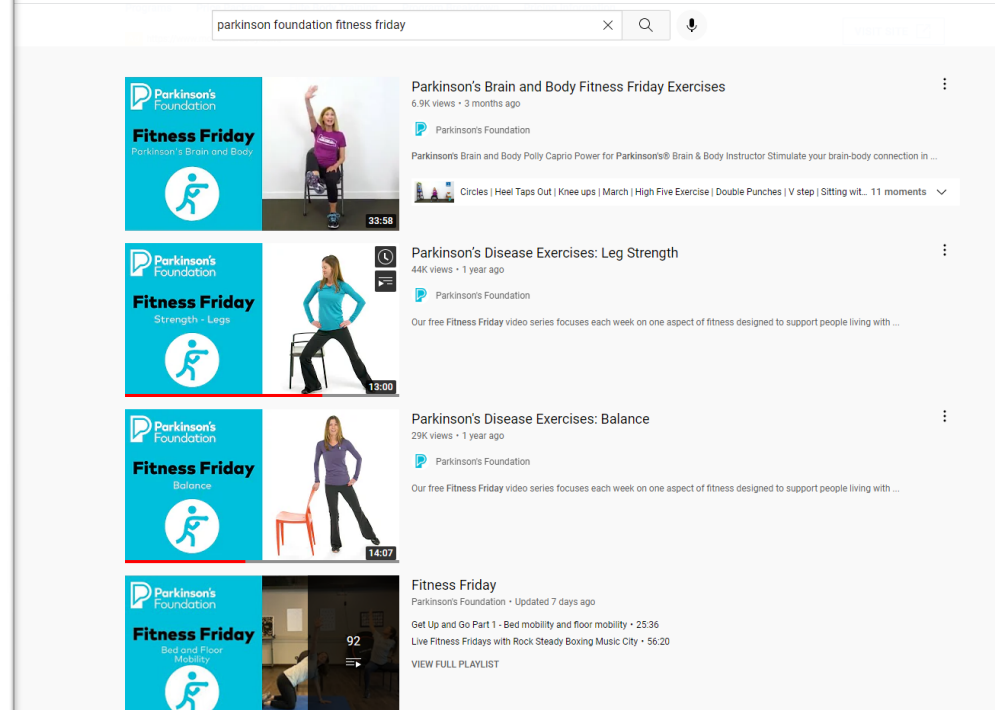
Mon.-Fri. 1:00 - 1:45 pm

, this class is a seated exercise program with an emphasis on stretching, building  
'hile accommodating limitations because of pain or low endurance, this class will  
activity level with the expectation of feeling and functioning better.



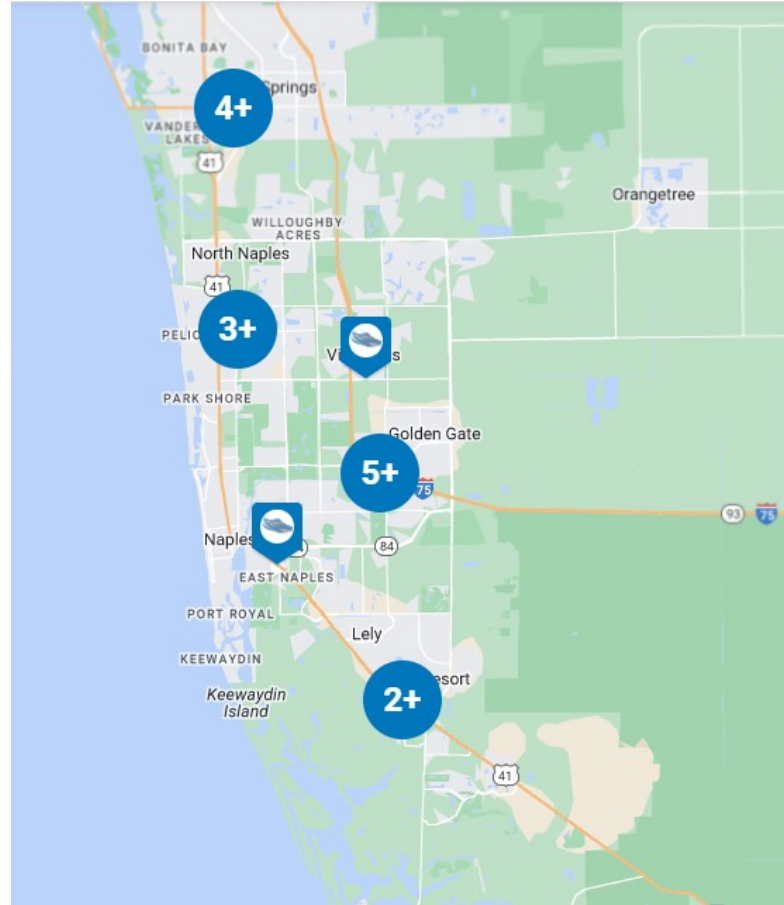
Advanced Movement on Zoom

Mon.-Fri. 2:00 - 2:45 pm



## Exercise at home or try online classes

## Exercise Resources



Join a gym or exercise class

# Non-pharmacologic management of PD



# Speech Therapy

- **Subtle communication problems can start early in the disease course**
  - Softer voice
  - Reduced clarity
  - Monotone
  - Stuttering
  - Periods of fast speech
- **Swallowing changes impact upto 80% of individuals during their disease course**
  - Discoordination of swallowing
  - Slower to swallow
  - Drooling/dry mouth
  - Weak –absent cough
  - Esophageal dysmotility



# Speech Therapy

Changes in vocal loudness following intensive voice treatment (LSVT) in individuals with Parkinson's disease: a comparison with normal age-matched controls

RESEARCH ARTICLE

L O Ramig<sup>1</sup>, S Sapir, C Fox, S Col

## Speech Treatment in Parkinson's Disease: Randomized Controlled Trial (RCT)

Lorraine Ramig, PhD, CCC-SLP,<sup>1,2,3,4\*</sup> Angela Halpern, MS, CCC-SLP,<sup>1,2,4</sup> Jennifer Spielman, MA, CCC-SLP,<sup>1,2</sup> Cynthia Fox, PhD, CCC-SLP<sup>2,4</sup> and Katherine Freeman, DrPH<sup>5</sup>

## Rehabilitating Cough Dysfunction in Parkinson's Disease: A Randomized Controlled Trial

Michelle S. Troche PhD, CCC-SLP✉, James A. Curtis PhD, CCC-SLP, Jordanna S. Sevitz MS, CCC-SLP, Avery E. Dakin MS, CCC-SLP, Sarah E. Perry PhD, CCC-SLP ... See all authors ✓

First published: 07 November 2022 | <https://doi.org/10.1002/mds.29268> | Citations: 1

# Non-pharmacologic management of PD





**Why do I need to see  
occupational therapy?**

# Occupational Therapy

Goal: Help perform everyday activities safely and if possible independently

Self-care (bathing, dressing, etc)

Work related tasks

Typing

Writing

Eating

LSVT Big

Impact of vision changes on ADLS

- driving/parking difficulties (visuospatial)

- reading difficulties (hypometria) during scanning tasks

- Convergence insufficiency

Driving rehabilitation

Home safety assessments

Sleep hygiene

# Non-pharmacologic management of PD



# Meditation/Mindfulness

Advocat et al. *BMC Neurology* (2016) 16:166  
DOI 10.1186/s12883-016-0685-1

BMC Neurology

RESEARCH ARTICLE

Open Access

The effects of a mindfulness-based lifestyle program for a mixed method randomised controlled trial



Jenny Advocat<sup>1\*</sup>, Joanne Enticott

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

Jojo Y. Y. Kwok, PhD, MPH, BN, RN<sup>1</sup>; Jackie C. Y. Kwan, MSocSc, PDMH, BSW

npj | parkinson's disease

[www.nature.com/npjparkd](http://www.nature.com/npjparkd)

» Author Affiliations | Article Information

*JAMA Neurol.* 2019;76(7):755-763. doi:10.1001/jamaneurol.2019.0534

ARTICLE OPEN



A randomized clinical trial of mindfulness meditation versus exercise in Parkinson's disease during social unrest

Jojo Yan Yan Kwok<sup>1</sup> , Edmond Pui Hang Choi<sup>1</sup>, Janet Yuen Ha Wong<sup>2</sup>, Kris Yuet Wan Lok<sup>1</sup>, Mu-Hsing Ho<sup>1</sup>, Daniel Yee Tak Fong<sup>1</sup>, Jackie Cheuk Yin Kwan<sup>3</sup>, Shirley Yin Yu Pang<sup>4</sup> and Man Auyeung<sup>5</sup>



# Non-pharmacologic management of PD



# Cognitive Exercises

Neurology®



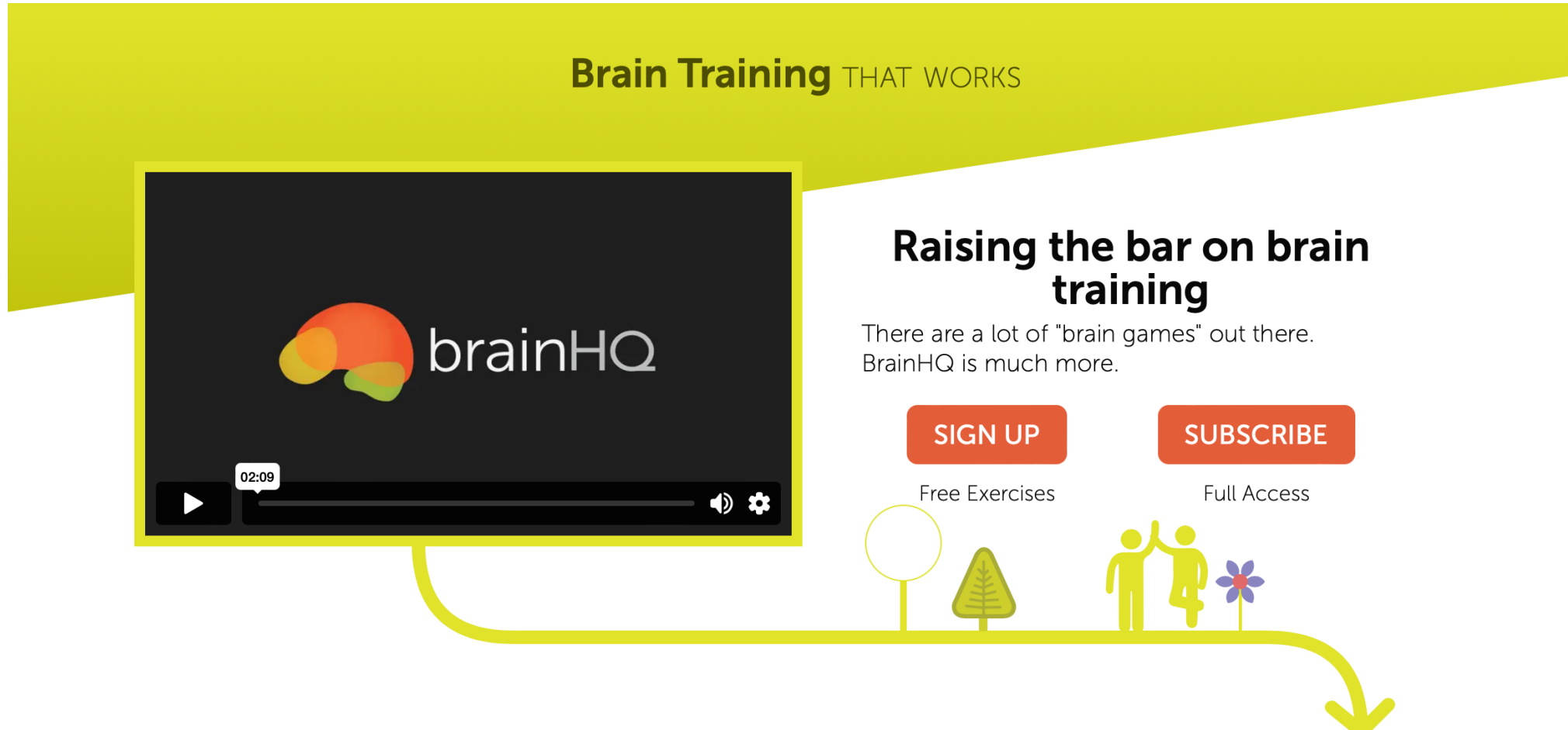
## Cognitive training in Parkinson disease

A systematic review and meta-analysis

[Isabella H.K. Leung](#), MBMSc,\* [Courtney C. Walton](#), BSc (Hons),\* [Harry Hallock](#), MBMSc, [Simon J.G. Lewis](#), MD,  
[Michael Valenzuela](#), MD, PhD, and [Amit Lampit](#), PhD<sup>✉</sup>

***“CT leads to measurable improvements in cognitive performance in individuals with PD, particularly in working memory, executive functioning, and processing speed.”***

# Cognitive Exercises



The graphic features a yellow banner at the top with the text "Brain Training THAT WORKS". Below this is a video player showing the BrainHQ logo and a play button. To the right of the video player, the text "Raising the bar on brain training" is displayed, followed by a paragraph: "There are a lot of 'brain games' out there. BrainHQ is much more." Below this text are two red buttons: "SIGN UP" and "SUBSCRIBE". Under the "SIGN UP" button is the text "Free Exercises", and under the "SUBSCRIBE" button is the text "Full Access". At the bottom of the graphic, there are icons of a tree, a person, and a flower, with a yellow arrow pointing downwards from the video player area.

**Brain Training** THAT WORKS

**Raising the bar on brain training**

There are a lot of "brain games" out there. BrainHQ is much more.

**SIGN UP** **SUBSCRIBE**

Free Exercises Full Access

# Non-pharmacologic management of PD



## Social support

### Impact of Isolation During the COVID-19 Pandemic on the Patient Burden of Parkinson's Disease: A PMD Alliance Survey

Neal Hermanowicz<sup>1</sup>, Maria Cristi  
Jason A Rivera<sup>6</sup>, Susan Miller<sup>6</sup>, Sara

<sup>1</sup>Christus-St. Vincent Neurology Specialists, Santa F Hospital, Washington, DC, USA; <sup>4</sup>Scripps Clinic Mor Las Vegas, NV, USA; <sup>6</sup>Parkinson and Movement Dis CA, USA

**This Issue**

Views **13,232** | Citations **2** | Altmetric **65**

**Medical News & Perspectives**

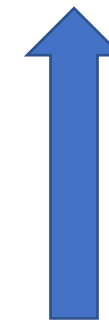
February 9, 2022

### How Prolonged Isolation Affects People With Parkinson

Melissa Suran, P

Article Informat

JAMA. 2022;327



Social  
isolation



Non-motor  
symptoms  
(mood,  
cognition)

**GAPS & CONTROVERSIES**

### Unmet Needs of Women Living with Parkinson's Disease: Gaps and Controversies

Indu Subramanian, MD,<sup>1,2\*</sup> Soania Mathur, MD,<sup>3</sup> Annelien Oosterbaan, MD, PhD,<sup>4</sup> Richelle Flanagan, RD,<sup>5</sup>  
Adrienne M. Keener, MD,<sup>1,2</sup> and Elena Moro, MD, PhD<sup>6</sup>

## Social support

PwP, those who are lonely  
report greater severity of  
symptoms of...

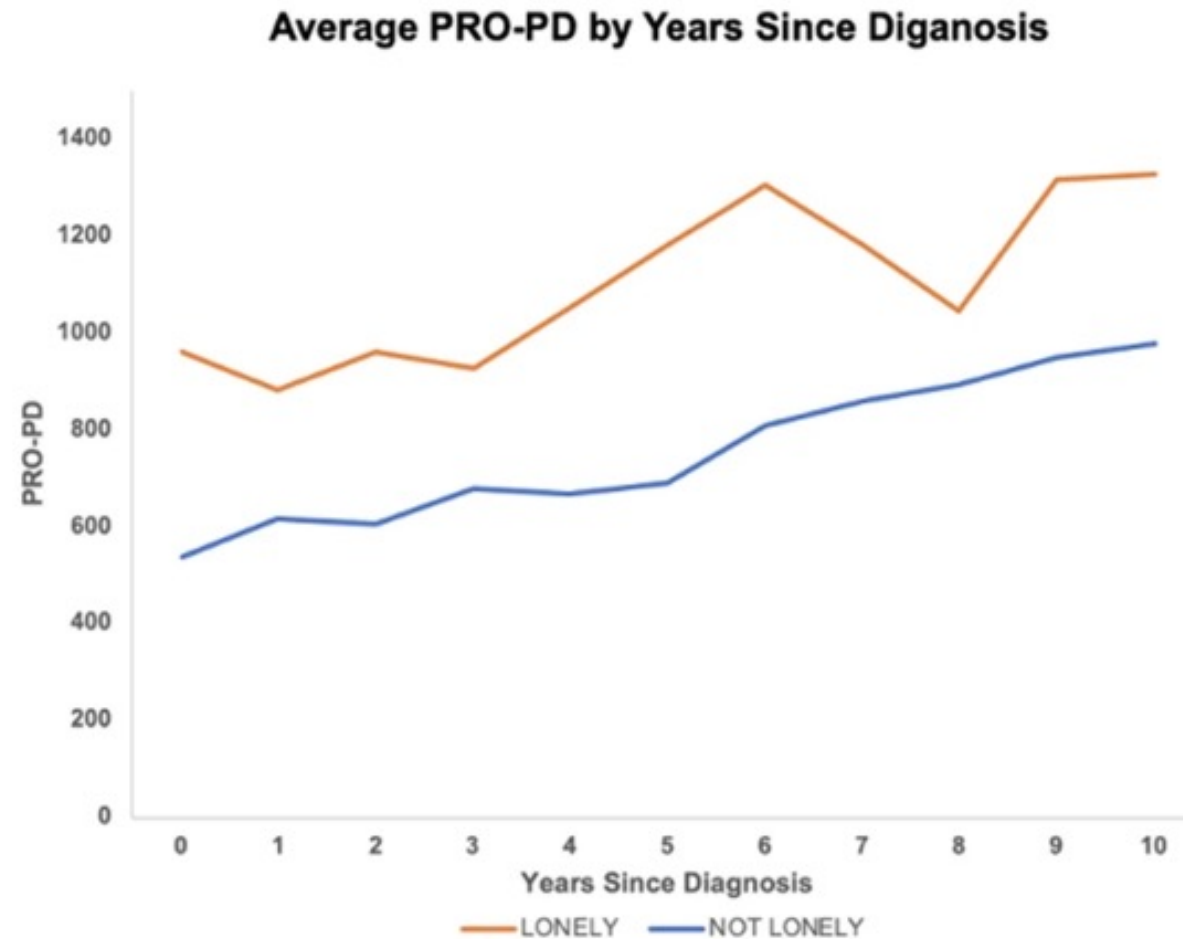
Bradykinesia

Pain

Memory

Depression, anxiety

Fatigue









# Pharmacologic Therapies



# Motor Symptoms

## Dopamine

- Carbidopa/levodopa (Sinemet IR or CR, Parcopa, Rytary)

## COMT inhibitors

- Entacapone (Comtan, Stalevo)

## Dopamine agonists

- Pramipexole (Mirapex)
- Ropinirole (Requip)
- Rotigotine (Neupro Patch)
- Apomorphine

## NMDA/dopamine agonist

- Amantadine
- Amantadine ER (Osmolex, Gocovri)

## MAO-B inhibitors

- Selegiline (Eldepryl)
- Rasagiline (Azilect)

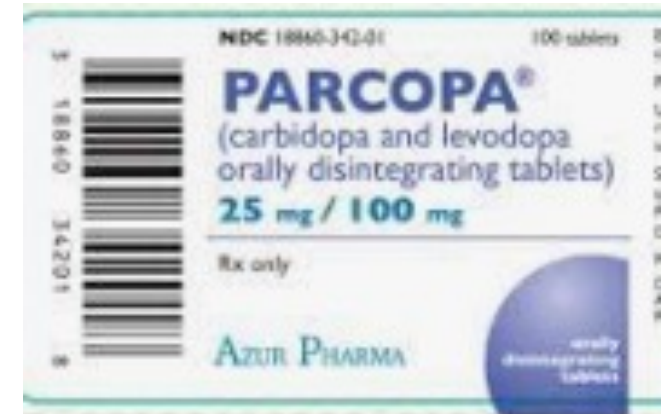
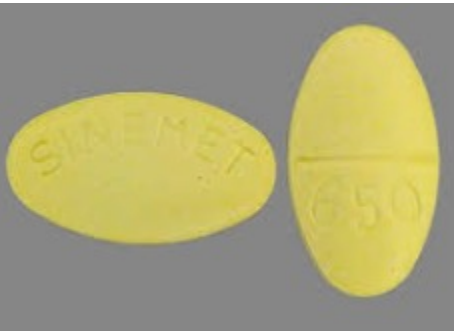
## Anticholinergic

- Trihexyphenidyl (Artane)

# Pharmacologic management of PD

# Motor Symptoms

## Levodopa



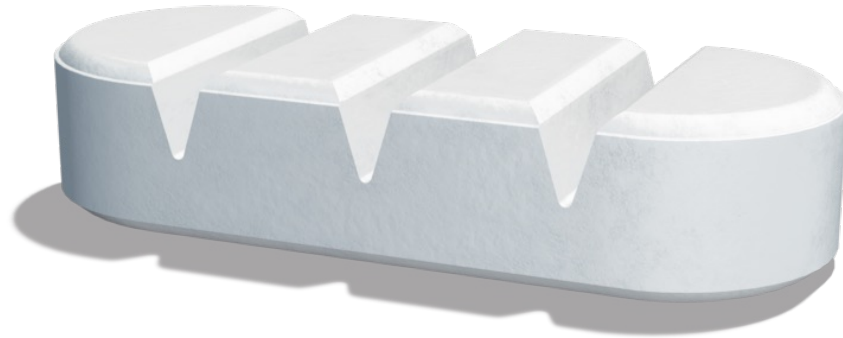
# Levodopa inhalation powder: Inbrija®

- FDA approval: 2018
- Inhaled levodopa
- Each cartridge is levodopa 42mg (2 tabs inhaled upto 5x a day)
- Add-on therapy to carbidopa/ levodopa for OFF symptoms or rescue therapy
- Bypass the gut
- Primary endpoint of improved MDS-UPDRS motor scores at 30 minutes postdose compared with predose



# Scored Levodopa: Dhivy®

- FDA approval: 2021
- Scored levodopa tablets
- Each segment (one-fourth tablet) contains CD/LD 6.25/25 mg



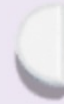
**1 whole tablet**  
(25 mg/100 mg)



**3/4 tablet**  
(18.75 mg/75 mg)



**1/2 tablet**  
(12.5 mg/50 mg)



**1/4 tablet**  
(6.25 mg/25 mg)

*1/4 of DHIVY is the smallest segment  
available within a 25 mg/100 mg  
CD/LD tablet<sup>1,4</sup>*



# Motor Symptoms

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## Anticholinergic

- Trihexyphenidyl (Artane)

# Sublingual apomorphine: Kynmobi<sup>®</sup>

- FDA approval: 2020
- Rescue treatment for OFF episodes
- Sublingual film (available in varying doses 10,15,20,25,30mg)
- Primary endpoint: improvement in MDS-UPDRS scores at 30min (improvements were observed at 15min)
- 10-30mg upto 5x a day + anti-nausea medicine should be started 3 days prior



# Motor Symptoms

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- Rasagiline (Azilect)

## Anticholinergic

- Trihexyphenidyl (Artane)

# Safinamide: **Xadago**®

- FDA approval: 2017
- add-on therapy to levodopa for the treatment of OFF times
- Once a day dosing
- Improvement in ON time without troublesome dyskinesia
  - $1.37 \pm 2.745$  vs  $0.97 \pm 2.375$  hours with placebo
- Reductions in daily OFF time and MDS-UPDRS motor scores
- Of note: This class of drugs can have interactions with other medications ie: anti-depressants, decongestants, pain medications.



# Motor Symptoms

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- Rasagiline (Azilect)

## Anticholinergic

- Trihexyphenidyl (Artane)

# Opicapone: Ongentys®

- FDA approval: 2020
- Once a day dosing
- Add on therapy to levodopa for motor fluctuations
- Extends the duration of action of levodopa by preventing peripheral degradation
- The mean improvement from baseline in absolute OFF time was –60.8 minutes (95% CI: 97.2) with opicapone vs –24.4 minutes with placebo
- Non-inferior to entacapone (dosed multiple times a day)



# Motor Symptoms

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## Anticholinergic

- Trihexyphenidyl (Artane)



# Motor Symptoms

Dopamine

- Carbidopa (Sinemet)  
Parcopa

Dopamine agonists

MAO-B inhibitors

(pryl)  
ect)

Adenosine A2A receptor  
antagonist

- Istradefylline

COMT inhibitors

- Entacapone (Comtan, Stalevo)

Dopamine  
agonist

- Amantadine

Anticholinergic

- Trihexyphenidyl (Artane)

# Istradefyline: Nourianz<sup>®</sup>



- FDA approval: 2019
- Add on therapy to reduce motor fluctuations
- Reduction in OFF time by (shortened by <30 min)
- Improvement in ON time without dyskinesias (upto 25 min)

## Role of Adenosine in PD

### There is more to Parkinson's disease (PD) than just dopamine<sup>1</sup>

Both dopamine and adenosine regulate movement in PD<sup>1</sup>

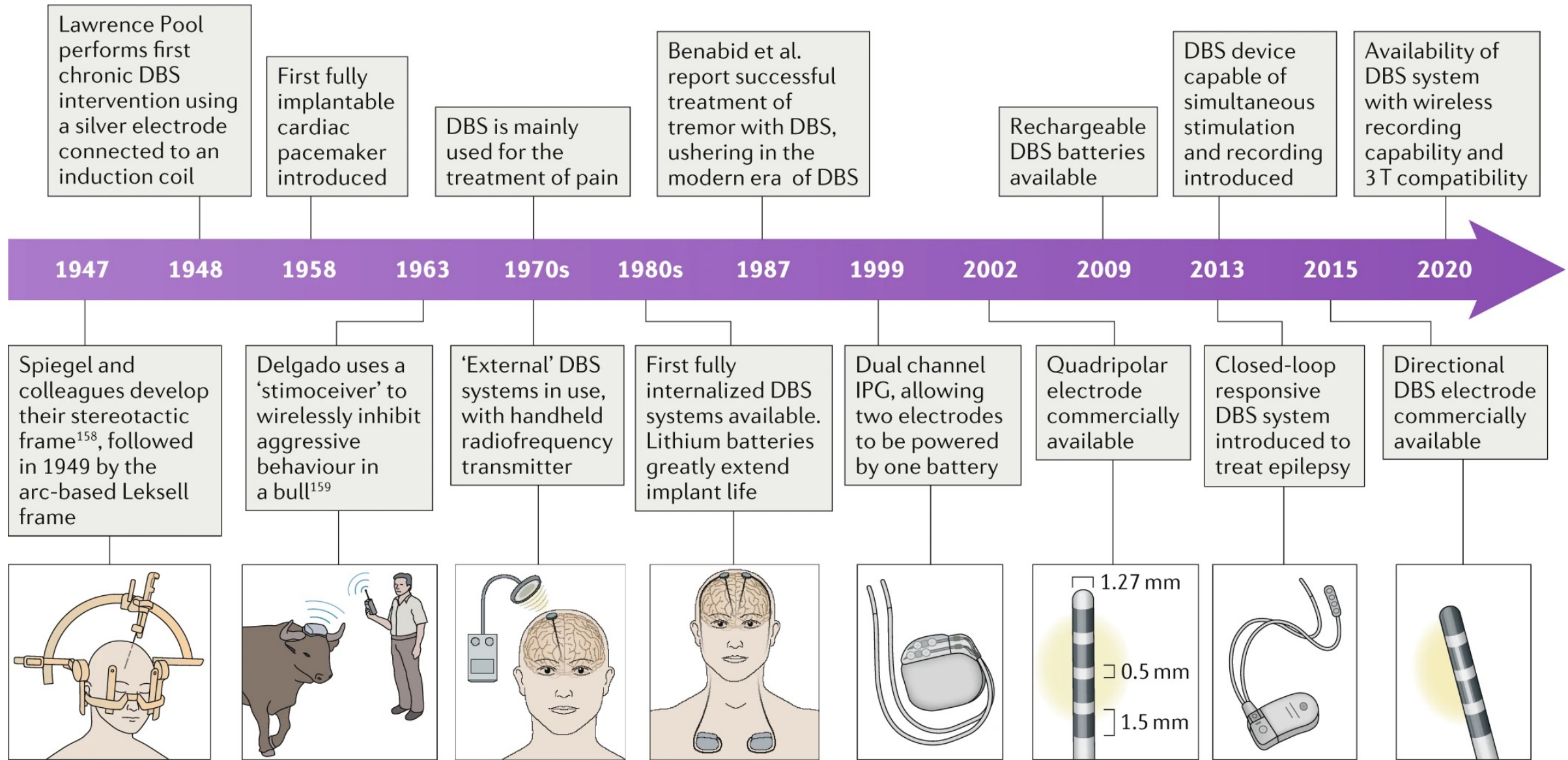
Stimulation of dopamine receptors is like pressing the gas pedal of a car, which initiates movement, while stimulation of adenosine A<sub>2A</sub> receptors is like applying the brake, which suppresses movement.<sup>2-4</sup>

Stimulation of **adenosine** A<sub>2A</sub> receptors is like applying **the brake**, which suppresses movement.<sup>2-4</sup>



In PD, motor dysfunction occurs when there is a deficiency of dopamine and an overactivation of adenosine A<sub>2A</sub> receptors. Levodopa/carbidopa acts on the gas but not the brake.<sup>2-4</sup>

# Procedures



# Current Deep Brain Stimulation

## a Current DBS systems

1

### Electrode

- Single or bilateral electrodes
- Continuous stimulation

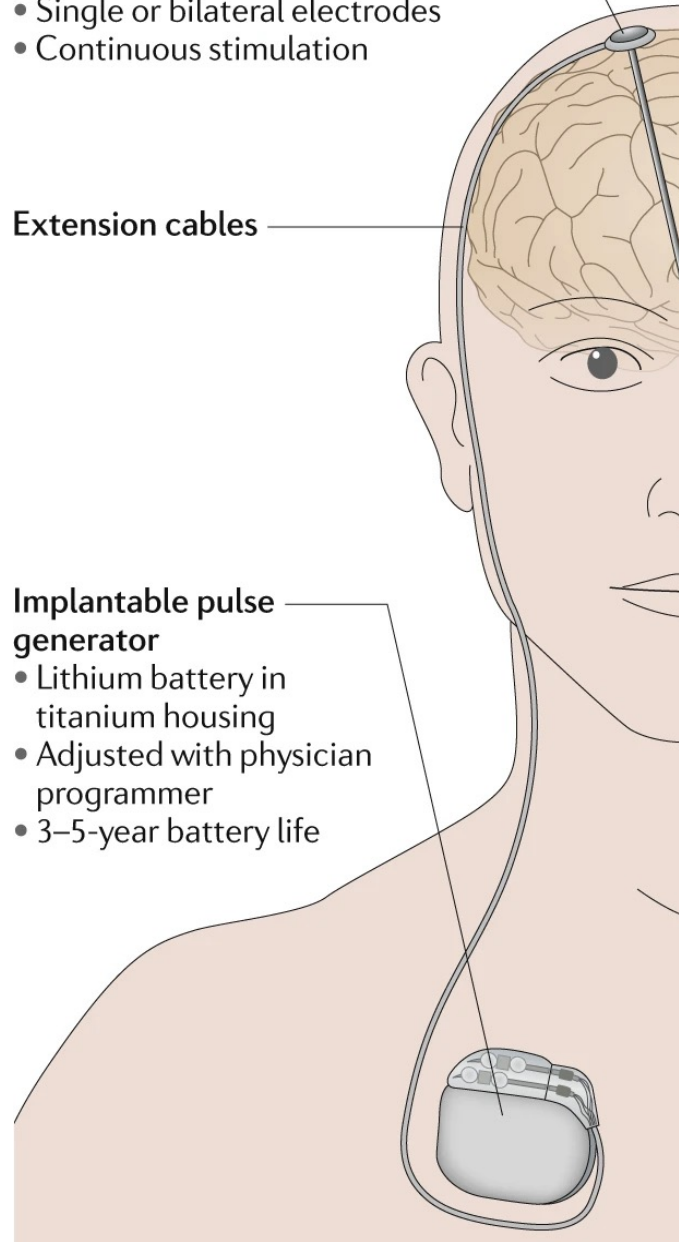
2

### Extension cables

3

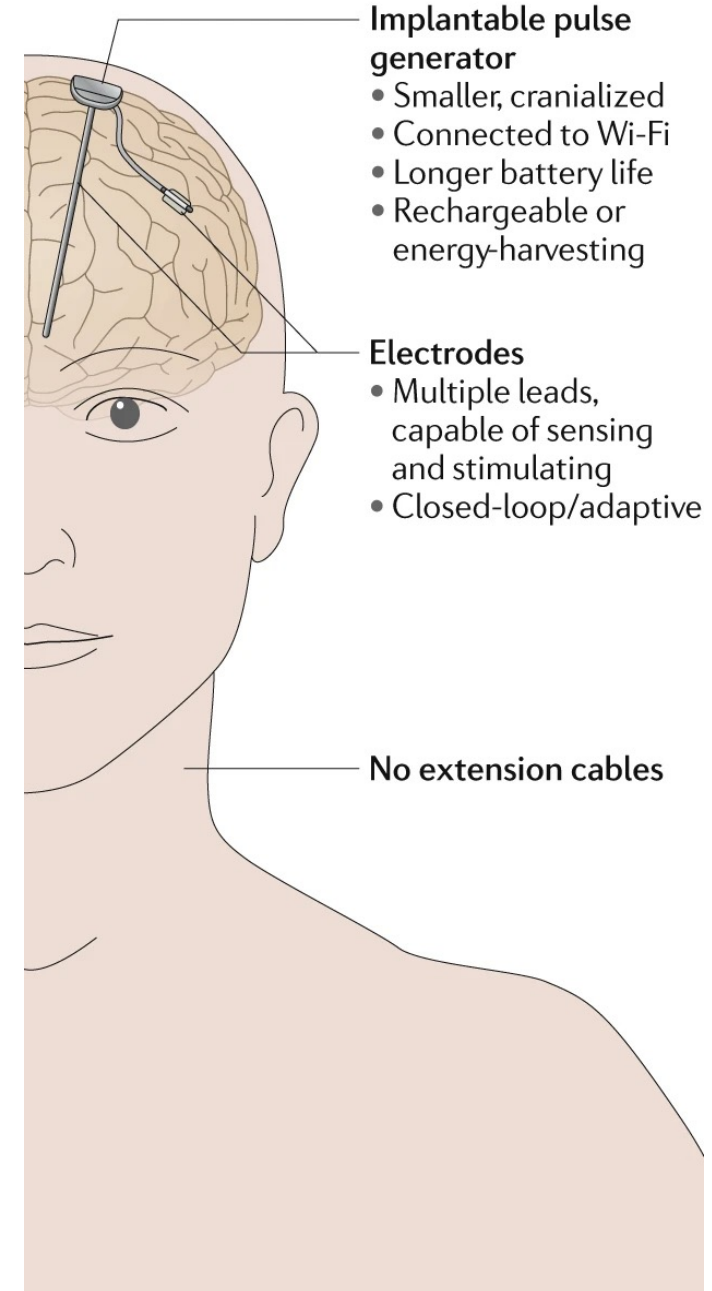
### Implantable pulse generator

- Lithium battery in titanium housing
- Adjusted with physician programmer
- 3–5-year battery life

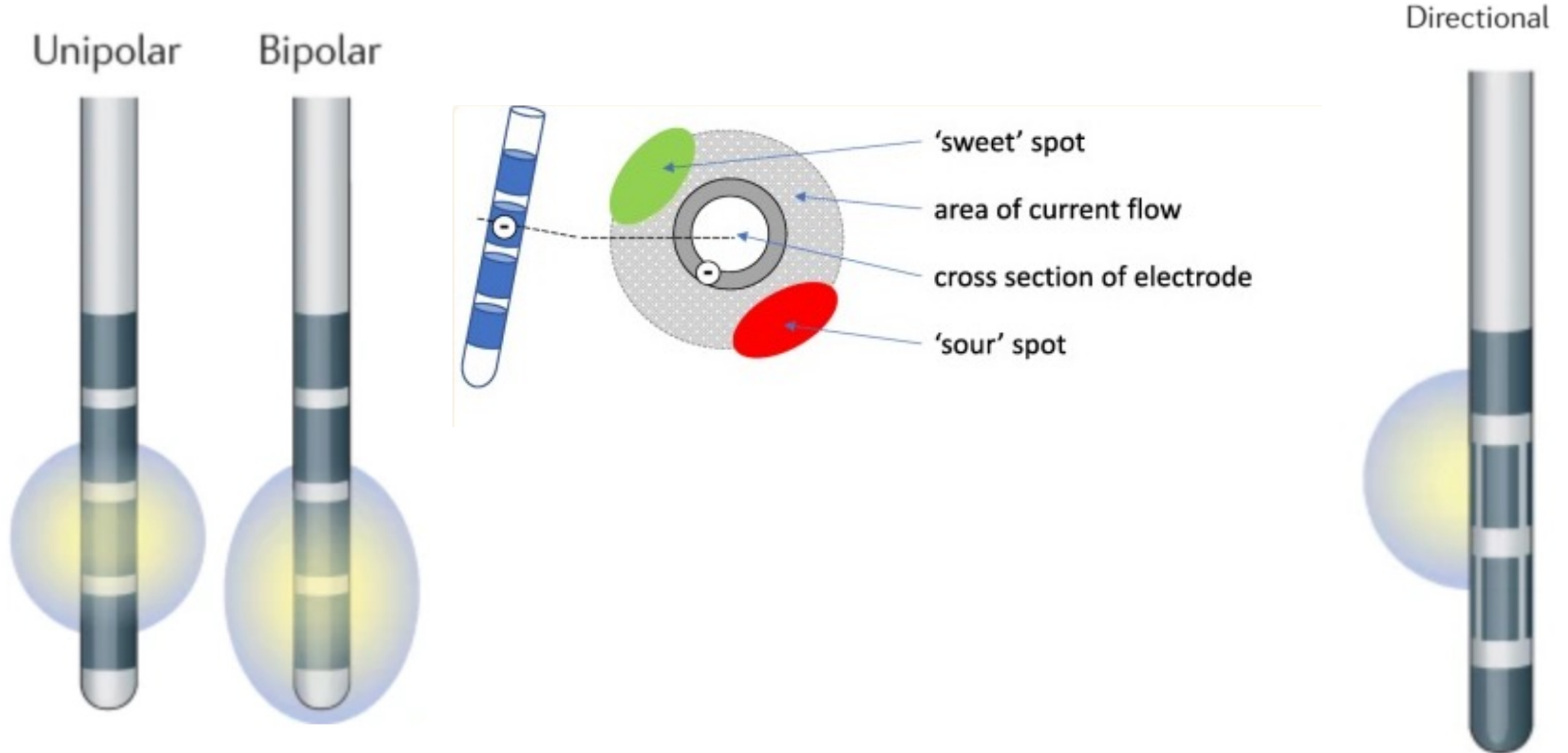


# Future Deep Brain Stimulation

## **b** Future DBS systems



# DBS advancements: Electrode configuration





# DBS advancements: Implantable pulse generator

Smaller/thinner

Longer battery life

Rechargeable options

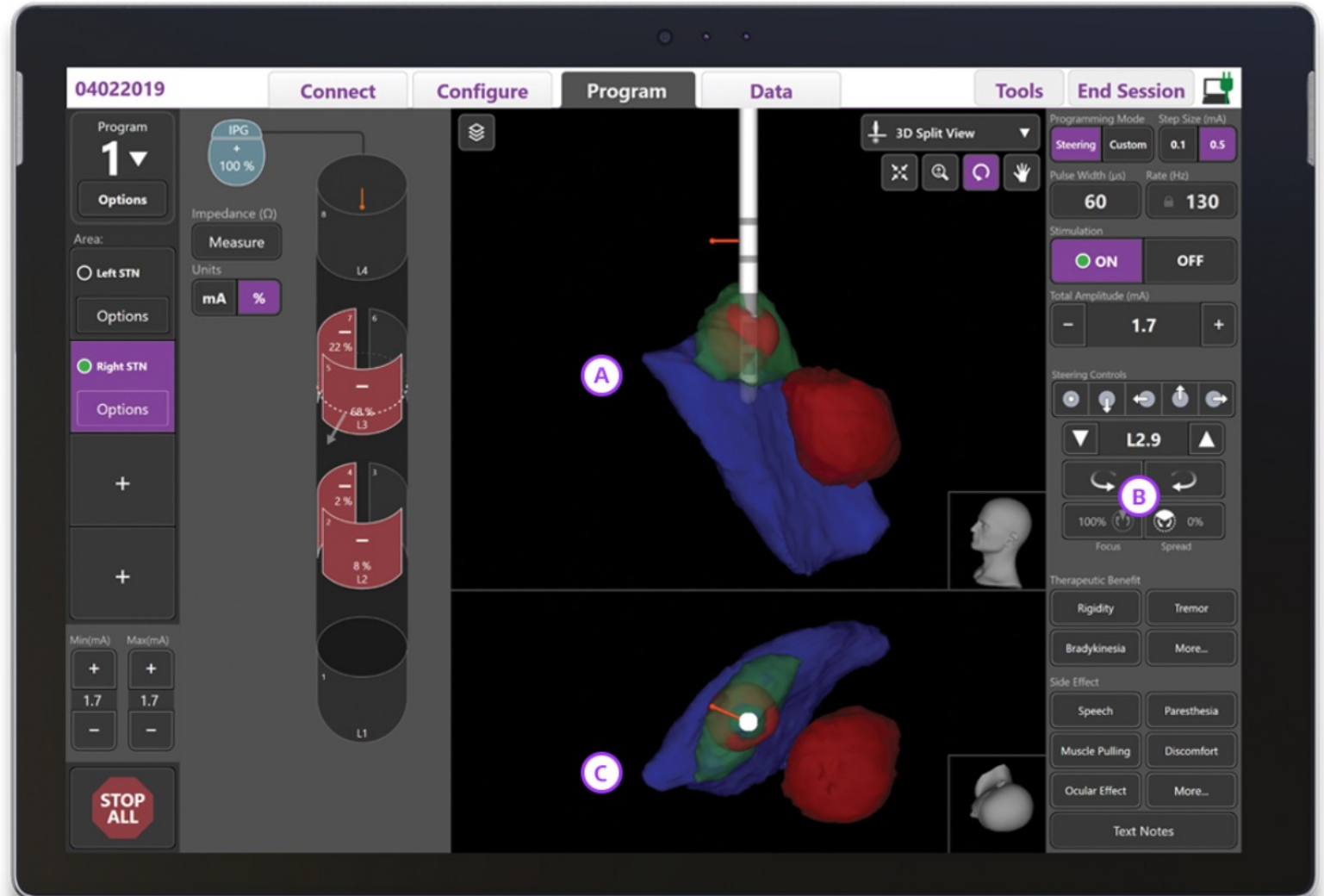
MRI Conditional

Allow for various programming strategies (different ways to deliver the stimulation) that were not previously available

# DBS advancements: Image guided programming

## STIMVIEW XT by Boston Scientific

integrates patient's imaging information + programming information to allow the clinicians to see where they are delivering the stimulation

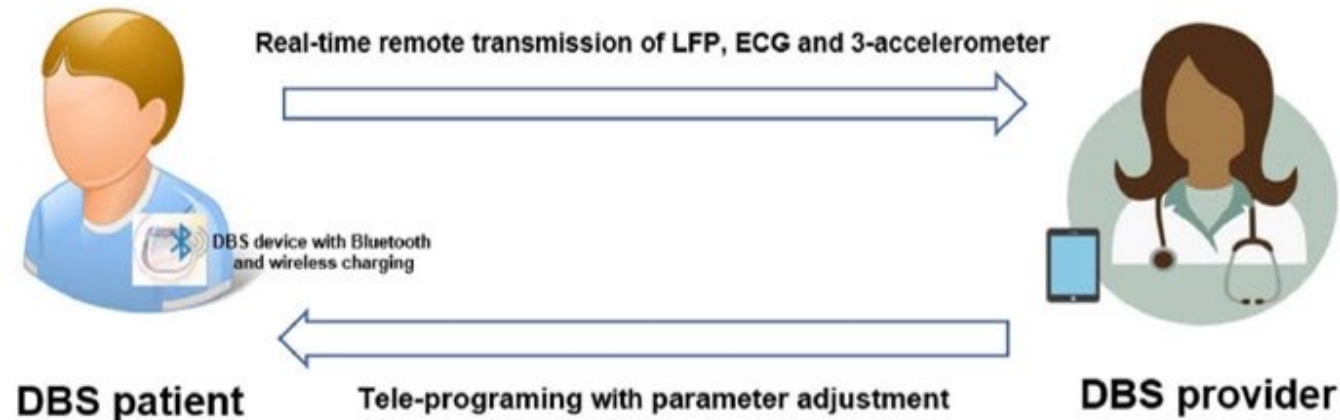


# DBS: Remote Programming

Available in China since 2017

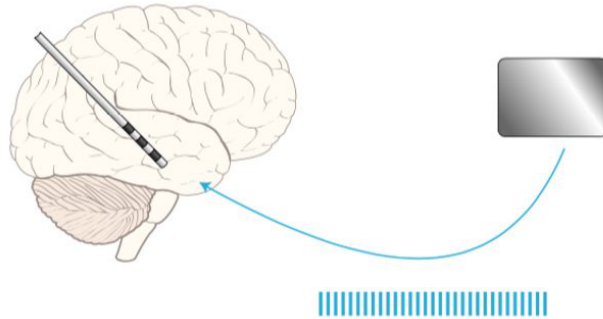
Boston Scientific launched Heart Connect System in 2020  
allows for health care providers to connect remotely with a DBS expert

Abbott launched NeuroSphere Virtual Clinic app in 2021  
allows for patients and physicians to connect and make remote programming changes

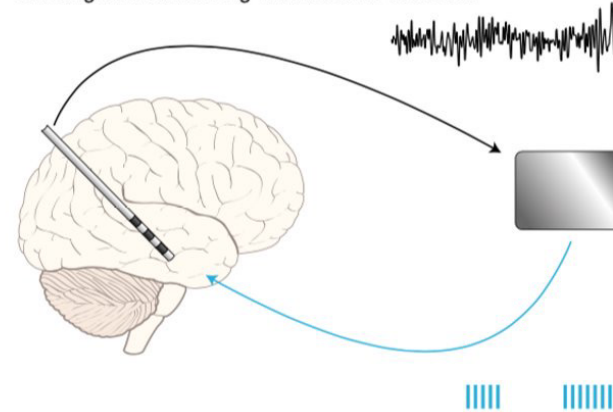


# DBS: Future directions: Adaptive DBS

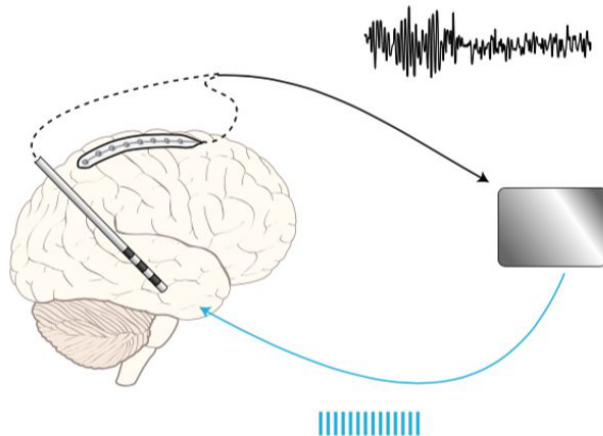
**a** Open-loop stimulation



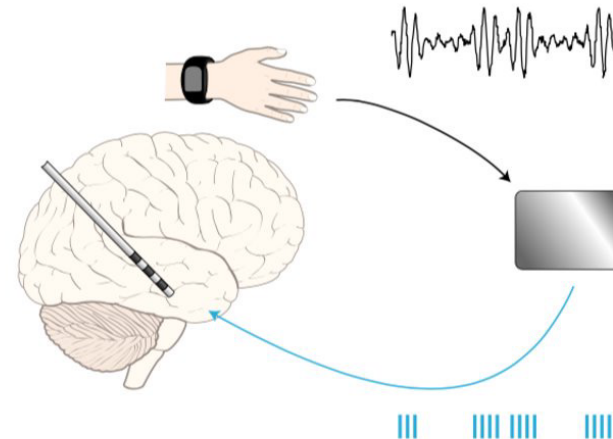
**b** Closed-loop stimulation  
Sensing and stimulating via the same electrode



**c** Closed-loop stimulation  
Sensing using cortical electrodes and stimulating via the depth electrodes



**d** Closed-loop stimulation  
Sensing using peripheral sensors and stimulating via the depth electrodes

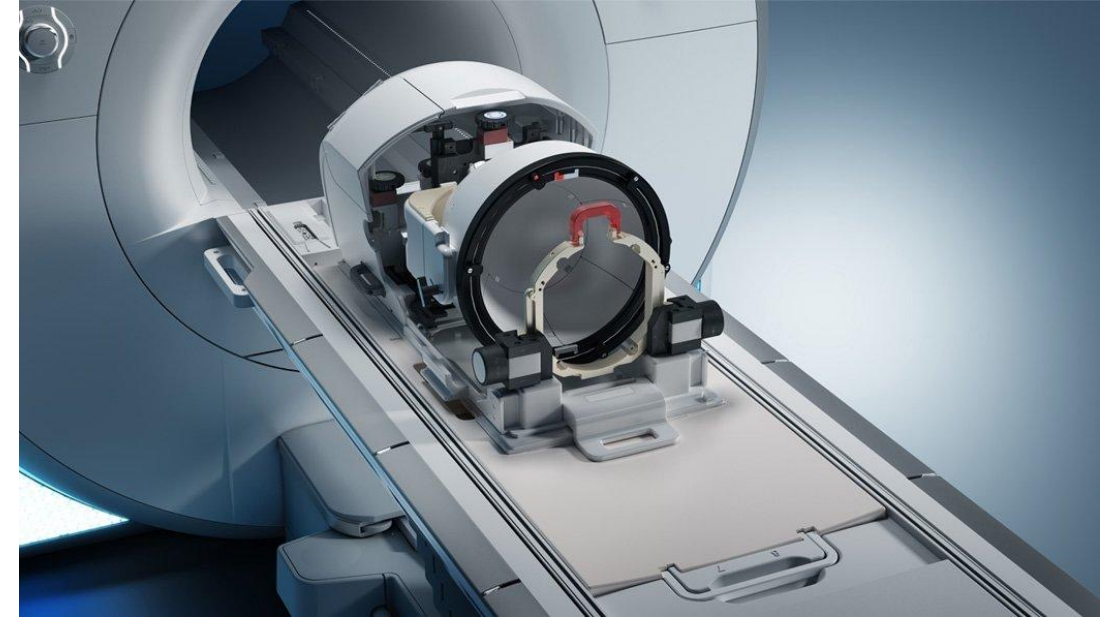


# Focused Ultrasound

## FDA approval

- 2018 to target the thalamus for Tremor dominant PD
- 2021 to target Gpi for bradykinesia, rigidity, and dyskinesia
- **Unilateral** targeting approved only due to safety concerns (speech changes, falls)

Single session + high-intensity ultrasound waves are used to create a thermal lesion in the target



## MR-guided focused ultrasound pallidotomy for Parkinson's disease: safety and feasibility

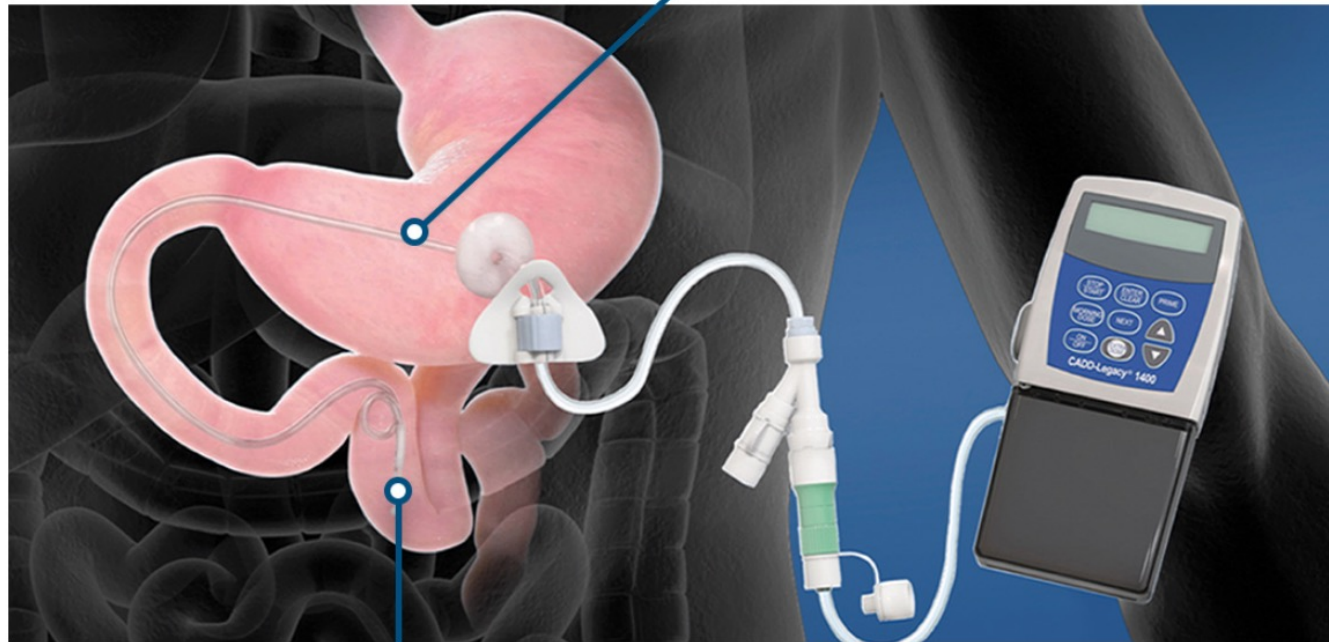
Howard M. Eisenberg, MD,<sup>1</sup> Vibhor Krishna, MD, SM,<sup>2</sup> W. Jeffrey Elias, MD,<sup>3</sup>  
G. Rees Cosgrove, MD,<sup>4</sup> Dheeraj Gandhi, MD,<sup>5</sup> Charlene E. Aldrich, RN, MSN,<sup>1</sup> and  
Paul S. Fishman, MD, PhD<sup>6</sup>



# Levodopa intestinal gel pump

Duopa is delivered right into the **intestine**, so your levodopa can be absorbed quickly.

Bypasses the stomach



Delivered in the intestine, where  
levodopa is mostly absorbed

# What to avoid?

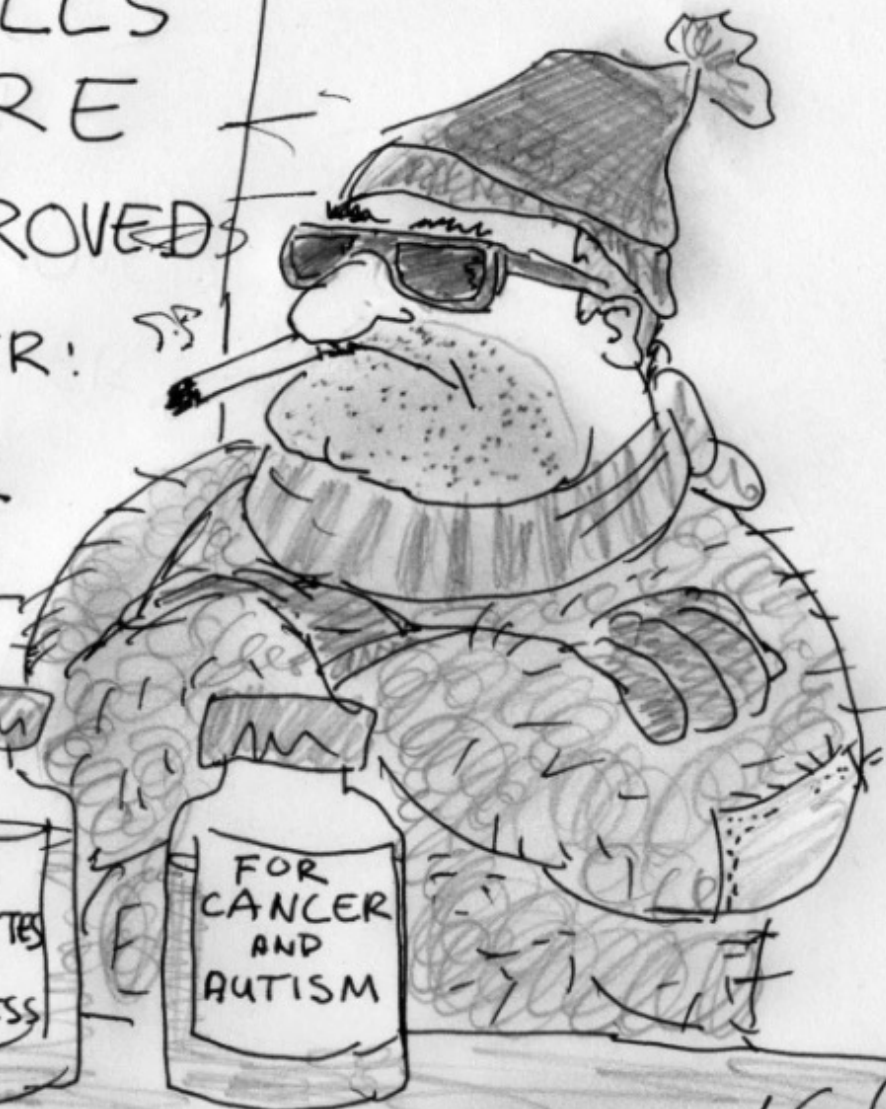


# Medications to avoid or used with caution in PD

**Medications to be avoided or used with caution in all patients with Parkinson's disease**

Medication Type	Medication Name	Brand Name	Mechanism of Action
Typical Antipsychotics	Chlorpromazine	Thorazine®	Block D2 (dopamine) receptors in the brain, which can worsen Parkinson's symptoms
	Fluphenazine	Prolixin®	
	Haloperidol	Haldol®	
	Loxapine	Loxitane®	
	Thioridazine	Mellaril®	
	Thiothixene	Navane®	
	Trifluoperazine	Stelazine®	
	Pimozide	Orap®	
	Perphenazine	Trilafon®	
Atypical Antipsychotics	Risperidone	Risperdal®	Block dopamine receptors, but dissociate from the receptor more quickly than typical antipsychotics. They also tend to block serotonin receptors in addition to dopamine receptors. The result is less parkinsonism than that caused by the typical antipsychotics.
	Olanzapine	Zyprexa®	
	Ziprasidone	Geodon®	
	Aripiprazole	Abilify®	
	Lurasidone	Latuda®	
	Paliperidone	Invega®	
	Iloperidone	Fanapt®	
	Brexpiprazole	Rexulti®	
	Cariprazine	Vraylar®	
	Asenapine	Saphris®	
Antiemetics (used to treat nausea or vomiting)	Chlorpromazine	Thorazine®	Block D2 (dopamine) receptors in the brain, which can worsen Parkinson's symptoms
	Droperidol	Inapsine®	
	Metoclopramide	Reglan®	
	Prochlorperazine	Compazine®	
	Promethazine	Phenergan®	
Drugs to treat hyperkinetic movements such as chorea and tardive dyskinesia	Tetrabenazine	Xenazine®	Decrease dopamine stores
	Deutetrabenazine	Austedo®	
Antihypertensives	Valbenazine	Ingrezza®	
	Reserpine	Serpalan	Decreases dopamine stores
	Methyldopa	Aldomet®	
Antidepressants	Phenelzine	Nardil®	Block monoamine oxidase non-selectively. If taken in combination with certain classes of PD meds, these medications could result in dangerous increases in blood pressure and agitation
	Tranylcypromine	Parnate®	
	Isocarboxazid	Marplan®	
	Amoxapine	Asendin®	Although classified as a tricyclic anti-depressant, it can also block dopamine receptors

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FOR CURE  
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# Get your information from the right source



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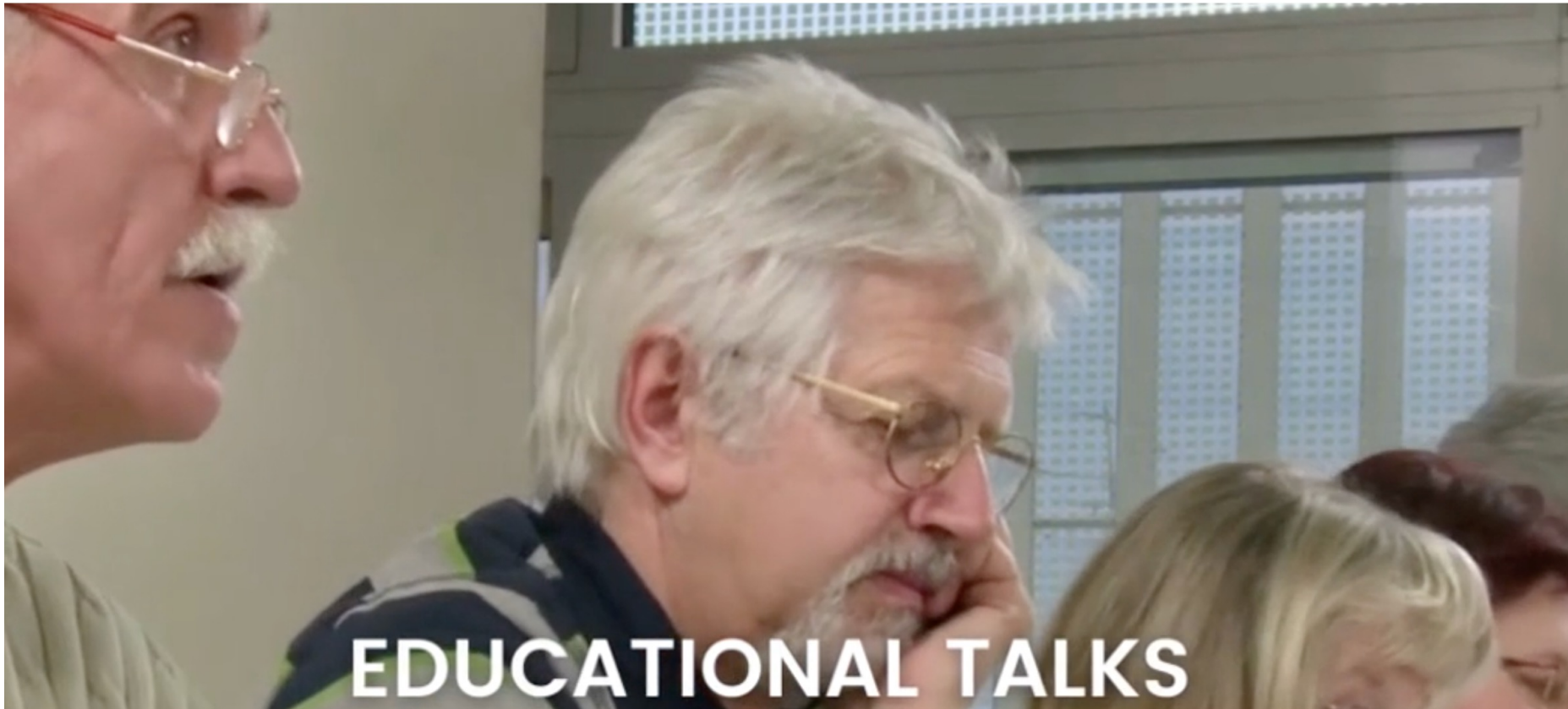
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# Hospital Safety Kits

**Advocate for your best care with the Aware in  
Care hospital safety kit.**

# Who is on your team?



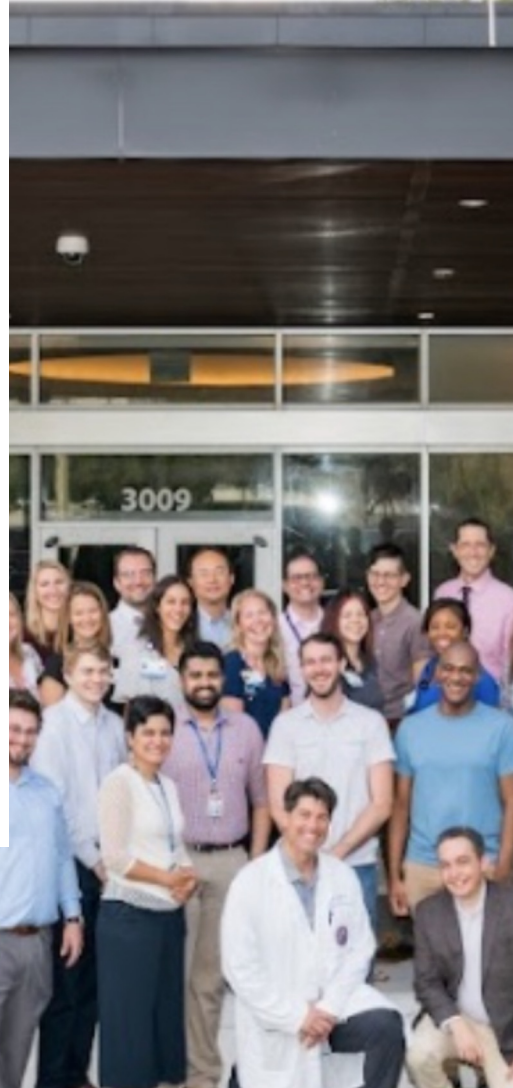


General Neurologist  
Movement disorders physician  
Neurosurgeon

Psychiatrist  
Gastroenterologist  
Urologist/Urogynecologist  
Neuro-Ophthalmologist  
Sleep Medicine specialist

Primary care doctor/Geriatrician

Physical therapy  
Occupational therapy  
Speech therapy  
Dietician  
Neuropsychology  
Social worker  
Pharmacist  
Counselor/Therapists  
Trainer



Support group





# Thank you!

