
ACG 2026
OCTOBER 9-14, 2026 | NASHVILLE, TN
CALL FOR Abstracts
SUBMISSION SITE OPENS MARCH 2, 2026
SUBMISSION DATES:
MARCH 2 - JUNE 1, 2026
The American College of Gastroenterology invites you to submit abstracts for presentation at the 2026 Annual Scientific Meeting and Postgraduate Course. Abstracts must be clinical or research-oriented, with a focus on gastroenterology or hepatology.
IMPORTANT DATES
MARCH 2
Submission Site OPENS
JUNE 1 | 11:59 PM ET
Submission Site CLOSES (No Exceptions!)
BY JULY 17
Notification of abstract ACCEPTANCE
SEPTEMBER 16
Presenting Authors MUST REGISTER as an attendee
ABSTRACT CATEGORIES
Biliary/Pancreas
Colon
Colorectal Cancer Prevention
Diet, Nutrition, and Obesity
Endoscopy Video
Esophagus
Functional Bowel Disease
General Endoscopy
GI Bleeding
IBD
Infections and Microbiome
Interventional Endoscopy
Liver
Pediatrics
Practice Management
Small Intestine
Stomach and Spleen
Clinical Vignettes/Case Reports
SCAN FOR THE SUBMISSION SITE
bit.ly/ACG2026_Abstracts

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2026
ACG SUMMER SCHOOL SERIES:
WOMEN'S LEADERSHIP COURSE, IBD SCHOOL AND ESOPHAGUS SCHOOL
JUNE 5-7, 2026 | WASHINGTON MARRIOTT AT METRO CENTER WASHINGTON, DC
Register online: meetings.gi.org

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2026
ACG FUNCTIONAL GI & MOTILITY DISORDERS SCHOOL & MIDWEST
REGIONAL POSTGRADUATE COURSE
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2026
ACG'S OBESITY AND METABOLIC DISORDERS SCHOOL &
ACG/VGS/MASGNA REGIONAL POSTGRADUATE COURSE
AUGUST 28-30, 2026 | WILLIAMSBURG LODGE, WILLIAMSBURG, VA
Register online: meetings.gi.org

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# Participating in the Webinar

All attendees will be muted and will remain in "Listen Only Mode"

Type your questions here so that the moderator can see them.
Not all questions will be answered but we will get to as many as possible.

A handout with the slides and room to take notes can be downloaded from your control panel.

Moderator:
Ali Keshavarzian, MD, MACG

Exit

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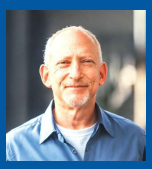
# ACG Virtual Grand Rounds

## Join us for upcoming Virtual Grand Rounds!

**Week 16 – Thursday, April 16, 2026**
Beyond PPIs: Optimizing GERD Therapy
Faculty: Anh D. Nguyen, MD
Moderator: Kerry B. Dunbar, MD, PhD
At Noon and 8pm Eastern


**Week 17 – Special Edition VGR – Wednesday, April 22, 2026**
Gastroenterology & Hepatology Fellowship Match Application – Tips & Tricks For Prospective Fellowship
Faculty: Kathryn Byrne, MD, Ian Grimes, MD, Tinsay Woreta, MD, MPH, and Pegah Hosseini-Carroll, MD, FACG. Panelist: Sarah Talamantes, MD, Anna Archbold, MD, Rahul Karna, MD, and Clive Miranda, DO, MSc
Moderator: Mohammad Bilal, MD, FACG
8pm Eastern



**Week 17 – Thursday, April 23, 2026**
The Microbiome in Functional Bowel Disease: How to Answer Patients' Questions About SIBO and Leaky Gut
Faculty: Eamonn M. M. Quigley, MD, MACG
Moderator: Neil H. Stollman, MD, FACG
At Noon and 8pm Eastern

Visit **gi.org/ACGVGR** to Register

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# Disclosures

Amol Sharma, MD, MS, FACG:
Atmo Biosciences: Consultant

Ali Keshavarzian, MD, MACG:
16s Health: Co-owner; Rite Carbs LLC: Founder and Co-owner.

**All of the relevant financial relationships listed for these individuals have been mitigated*

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# Parkinson's Disease and the Gut: A Primer for Gastroenterologists

**Amol Sharma, MD, MS, FACG**
**Donald O Castell Endowed Professor of Medicine**
**Medical University of South Carolina (MUSC)**

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REVIEW ARTICLE

## Parkinson Disease and the Gut: A Primer for Gastroenterologists

Amol Sharma, MD, MS, FACG[1], Robin M. Voigt, PhD[2,3,4], Christopher G. Goetz, MD[5] and Ali Keshavarzian, MD, MACG[2,3,4,6]

**Parkinson disease (PD) is a chronic, progressive movement disorder and the fastest growing neurological condition worldwide, affecting over 6 million individuals. In 2017, the economic burden of PD in the United States alone reached $52 billion. Gastrointestinal symptoms and dysfunction such as constipation, gastroparesis, and dysphagia are common in PD, are difficult to manage, and negatively affect quality of life. In addition, constipation often precedes motor symptoms by decades, perhaps suggesting that a disrupted bidirectional microbiota-gut-brain axis is present early in PD. Data from mechanistic studies in rodent models and observational human studies demonstrate that gut-microbiota dysbiosis, intestinal hyperpermeability, and gut inflammation may promote neuroinflammation and α-synuclein aggregation, inciting loss of dopaminergic neurons. Studies also indicate that the intestinal milieu may influence symptom severity and response to PD treatments. These findings underscore the potential role of the gut as (i) a site of early diagnosis and risk stratification for populations at high risk of PD and (ii) a potentially disease-modifying treatment approach. This review summarizes the current knowledge on the role of the gut-brain axis in PD pathogenesis, clinical disease course, prodromal gastrointestinal symptoms, and their underlying mechanisms and stresses current knowledge gaps and future directions.**

**KEYWORDS:** Parkinson disease; microbiota; gut-brain axis; gastroparesis; constipation; inflammatory bowel disease

*Am J Gastroenterol 2025;120:2510–2519. https://doi.org/10.14309/ajg.0000000000003508*

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# Objectives

APPRECIATE THE IMPORTANCE OF GI SYMPTOMS, CONDITIONS, AND DYSMOTILITY IN PARKINSON'S DISEASE (PD).

REVIEW RECENT EVIDENCE FOR AND AGAINST PATHOPHYSIOLOGICAL MODELS OF GUT-BRAIN SIGNALING IN PD.

DESCRIBE FUTURE DIRECTIONS OF RESEARCH AND CLINICAL MANAGEMENT OF COMMON PRESENTATIONS.

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# Parkinson's disease

1 million people in United States

6 million people worldwide; will double by 2050

Prevalence increasing even when adjusted for age

1.4 times more frequent in men

4 cardinal symptoms:
- Pill-rolling resting tremor
- Bradykinesia
- Limb rigidity
- Gait/balance problems

Le mulation of α- neurons

Pa lies in su

Onse
associa
nigrostri
neurons

James et al. *Lancet* 2018.
Bach et al *Movement Dis* 2011

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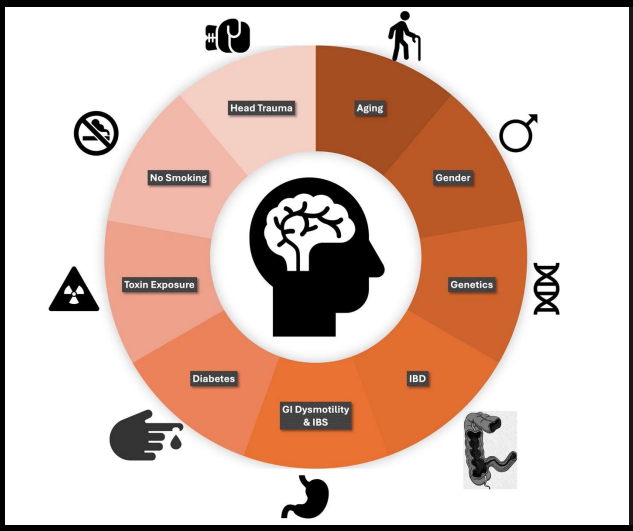
# Risk factors for Developing Parkinson's disease (PD)




**PD incidence increases with age with a dramatic rise after 65.**

**Disease-relevant genetic variants (*GBA1, LRRK2*) are found in 13.4% of patients in North America.**

**IBD, dysphagia, gastroparesis, constipation, IBS without diarrhea increase the risk for PD.**

**Toxicants also increase the risk for PD:**
- **pesticides (paraquat and rotenone)**
- **industrial solvents (trichloroethylene and percholoroethylene)**
- **manganese in air pollution**

Sharma, Keshavarzian et al. *AJG 2025*

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# Parkinson Disease (PD) & IBD

- **Inflammatory bowel disease (IBD) patients have a 20-90% higher relative risk of PD.**
- **Absolute risk derived from meta-analysis of 350K+ IBD patients, found low absolute risk of PD (0.26%).**
- **PD patients have 15% lower risk of developing IBD than general population.**

- **5-aminosalicylic acid PD have a 25% lower risk**
- **Azathioprine and corticosteroid use also reduces the risk**
- **Anti-tumor necrosis factor (TNF) agents confer a 78% risk reduction**
- **Smoking has a dose-dependent decrease in risk of PD with greatest protection with history >30 pack-years**

Sharma, Keshavarzian et al. *AJG 2025*

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# DGBI & Motility Disorders & PD

- Irritable bowel syndrome (IBS) without diarrhea 45-50% increased risk of PD in patients above age 65
- Dysphagia, Gastroparesis, IBS, and Constipation all increased risk of developing PD over subsequent 5 years when compared to Alzheimer disease and CVA.

Konings et al. *Gut* 2023.

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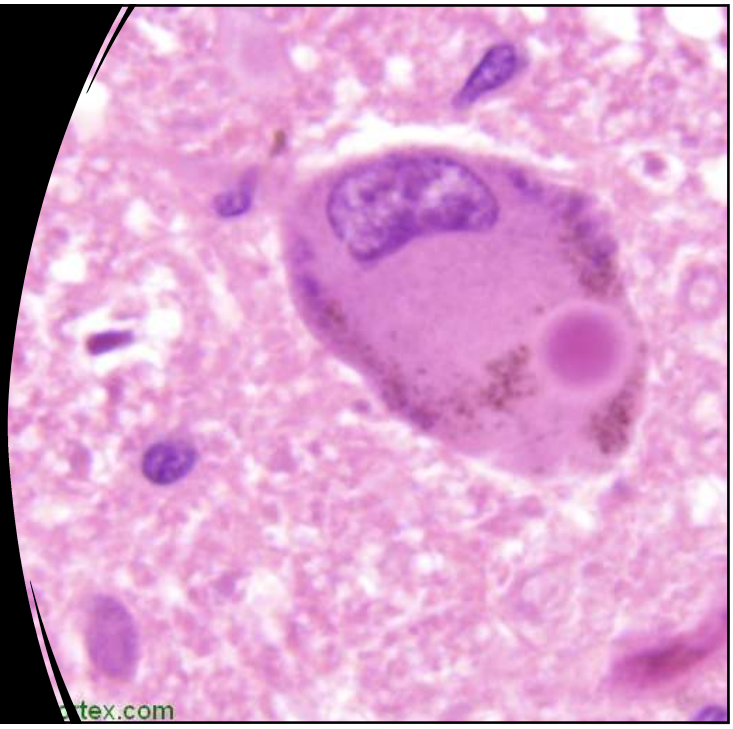
# PD is a clinical diagnosis

## Are we getting close to a diagnostic test?

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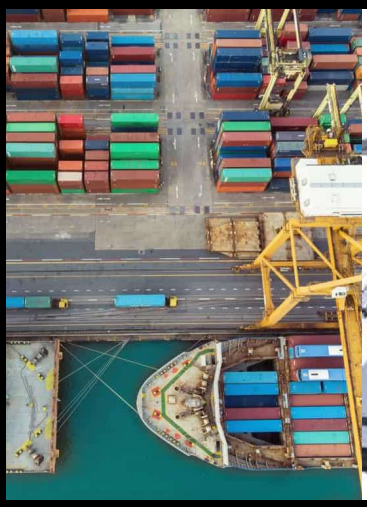
# α-synuclein: Physiologic Role

- Intracellular vesicular transport
- SNARE-complex assembly
- Permits neurotransmitter release in presynaptic terminals



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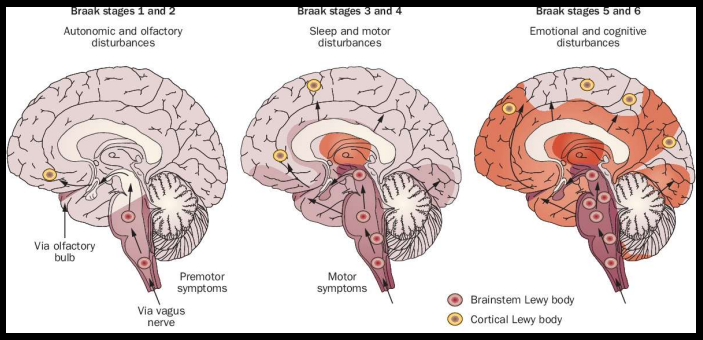
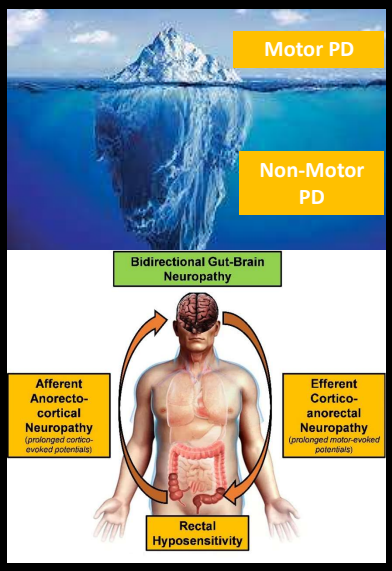
# Motor & Non-Motor PD




GI symptoms

GI symptoms

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## Enteric α-synucleiopathy in PD?

- α-synuclein detected on colonic biopsies 8 years prior to development of PD
- …but not routinely
- Found in non-neuronal tissues with GI tract (hematopoetic, neuroendocrine, muscle)
- Endoscopic mucosal biopsies do not routinely sample enteric nerves


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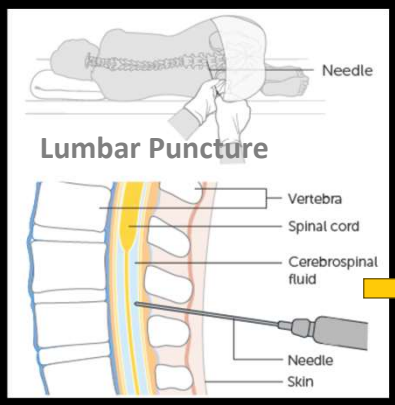
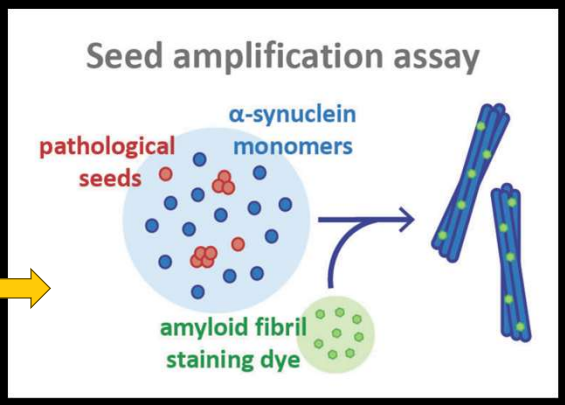
## Biomarker: Seeding Amplification Assay (SAA) or RT-QuIC




Claudio Soto

- Originally for Creutzfeldt-Jakob disease (prion)
- MJFF: Parkinson's Progression Marker Initiative

Siderowf et al. *Lancet Neurol* 2023.

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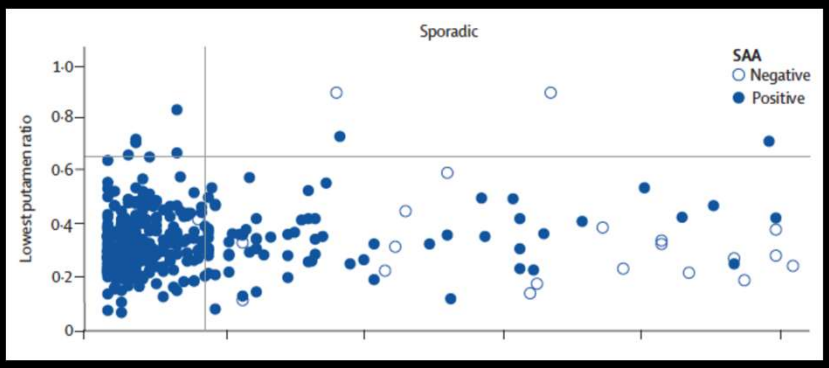
# Seeding Amplication Assay (SAA) or RT-QuIC




- Sensitivity 87.7%
- Specificity 96.3%
- Sensitivity 98.6% with anosomia
- Sensitivity 67.5% with LRRK2 PD - IBD
- Sensitivity 78.3% without anosomia
- Gender difference

Siderowf et al. *Lancet Neurol* 2023.

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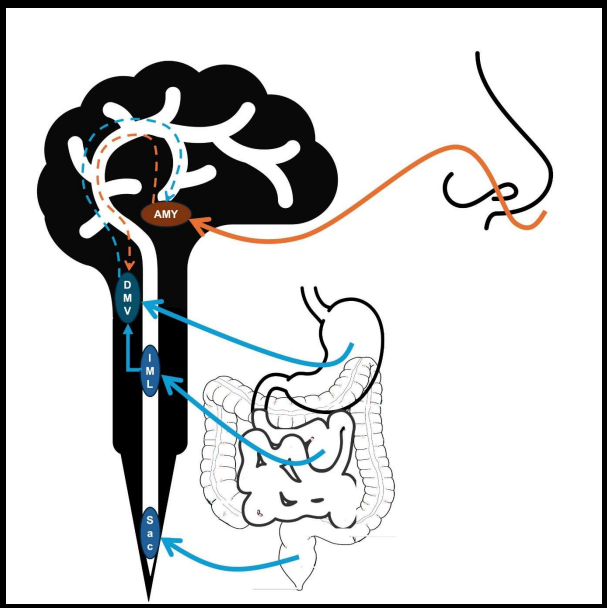
# PD Site of Origin:

-Nose (Brain-First) ~30%
-GI tract (Gut-first) ~70%




Sharma A, Keshavarzian A. *AJG* 2025.

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# Vagotomy not protective against PD

- Danish cohort 1977-1995: 15% risk reduction for development of PD – did not differentiate between truncal and selective vagotomy
- Danish cohort 1977-2011: no change in PD incidence
- Swedish registry 1970-2010 (~9.5K vagotomized, 375K age/sex-matched controls):
  - No change in PD incidence with vagotomy overall
  - Truncal vagotomy trended toward decreased PD incidence

Svensson E et al. Ann Neurol 2015.
Tysnes OB et al. Ann Neurol 2015.
Liu B et al. Neurology 2017.

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# Colonoscopy & Endoscopy to Screen for Prodromal or Early PD

- Inability of mucosal biopsies to sample enteric neurons, ganglia or supporting cellular structures
- Challenges distinguishing physiologic vs pathological α-synuclein

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# PD & Microbiome: Body + Brain First

**Multiple Studies**

**Dysbiosis and associated leaky gut described in PD more than a decade ago**

**Limitations:**

- **Sampling methodologies**
- **Big data statistical analysis**

- **Systemic meta-analysis with standardized methodology**
  - **Reduced levels of butyrate-producing bacterial taxa**
  - **Degradation of gut mucus layer**

Kleine BS et al. *Eur J Neurol* 2023.

Nishiwaki H et al. *Mov Dis* 2020.

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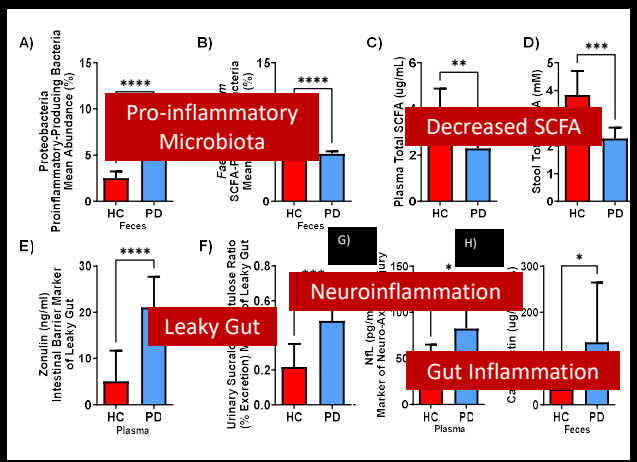
# Parkinson's disease: Microbiota-Gut-Brain Axis (MGBA)




Keshavarzian et al. *Nature Comm* 2023

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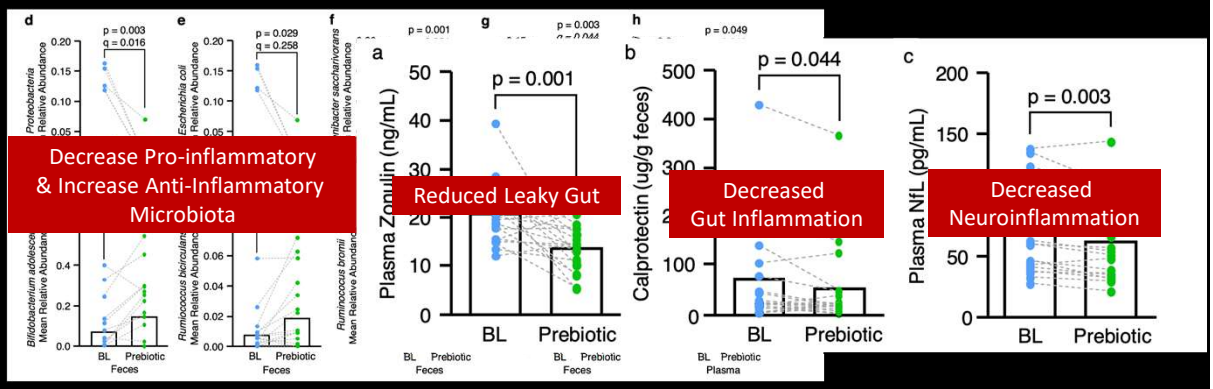
# Effects on MGBA by Engineered Prebiotic




Keshavarzian et al. *Nature Comm* 2023

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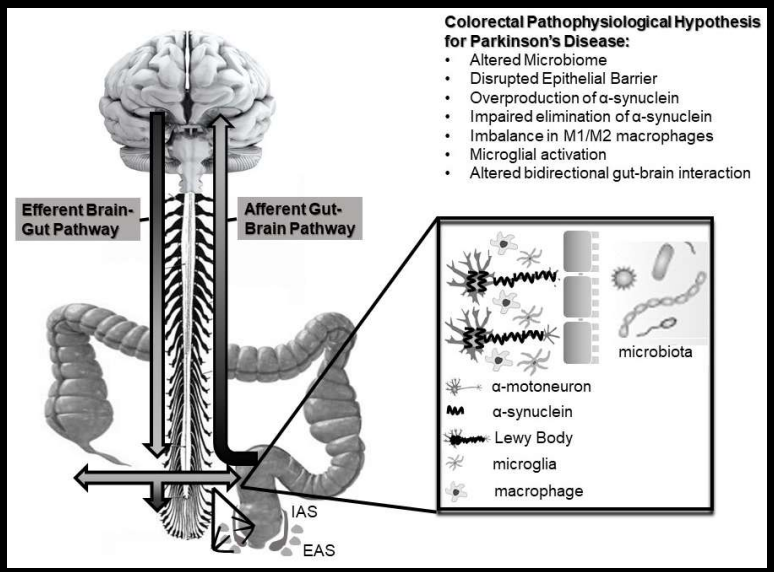
# Proposed Pathophys Model




Sharma et al. *Curr Gastro Rep* 2018.

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# GI Curbside Consult

75-year-old male with Parkinson's disease with motor symptom control on levodopa-carbidopa referred to GI with laxative-refractory constipation.

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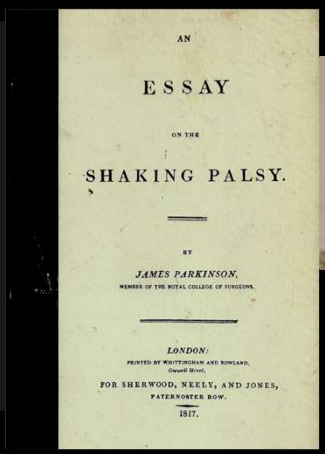
## Constipation: An Essay on Shaking Palsy

**Constipation that 'demands stimulating medicines of very considerable power; expulsion of feces from rectum sometimes requiring mechanical aid'**


AN
ESSAY
ON THE
SHAKING PALSY.
BY
JAMES PARKINSON,
MEMBER OF THE ROYAL COLLEGE OF SURGEONS.
LONDON:
PRINTED BY WHITTINGHAM AND ROWLAND,
Cannon Street,
FOR SHERWOOD, NEELY, AND JONES,
PATERNOSTER ROW.
1817.

James Parkinson, MD

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# Constipation in PD by the Numbers

Affects up to **70%** PD patients

Precedes classic motor disturbances by **more than 15 years**

Increasing severity of constipation associated with **3.3-4.2 hazards ratio** of developing PD

Most significant symptom in 18 months of follow up

Sharma et al. *Curr Gastro Rep* 2018.

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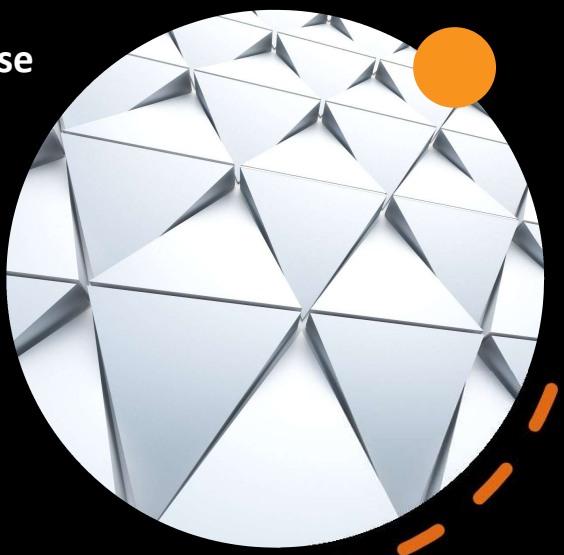
# Evidence-Based? Treatment for Constipation in Parkinson's disease

- PEG3350
- Lubiprostone
- ENT-01 (squalamine phosphate)
- Relamorelin
- Elobixibat



*25% PD patients have Fecal Incontinence.

The Parkinson Study Group. Park Rel Dis 2017

Camilleri et al. Ann Int Med 2022

Hatano et al. *Mov Dis Clin Pract* 2024.

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# Probiotic RCTs for constipation in PD

**Table 1. Summary of Randomized Controlled Trials evaluating interventions for constipation in Parkinson disease**

| Citation | Intervention | Constipation inclusion criteria | Sample size | Outcome measures | Results | Lead-in period | Study duration | Adverse effects |
|---|---|---|---|---|---|---|---|---|
| Ibrahim et al 2020 (137) | Multistrain probiotic (Hexbio) | Rome III criteria | Probiotic group n = 22 Placebo group n = 26 | Garrigues questionnaire | Met 1° end point Mean weekly bowel opening frequency Probiotic: +2.11 Placebo: +0.85 | 2 wk | 8 wk | Bloating, dizziness (14.8%) |
| Tan et al 2021 (138) | Multistrain probiotic | Rome IV criteria AND < 3 CSBMs/wk | Probiotic group n = 34 Placebo group n = 38 | # SBMs/wk on stool diary | Met 1° end point ΔSBMs/wk during last 2 wk Probiotic: +1.0 Placebo: 0.3 | 2 wk | 4 wk | Lethargy (2.9%) |
| Du et al 2022 (139) | Multistrain probiotic | Rome III criteria | Probiotic group n = 34 Placebo group n = 38 | # CSBMs/wk based on patient recall during clinical evaluation | Met 1° end point ΔSBMs/wk during last 2 wk Probiotic: +1.09 Placebo: +0.04 | 2 wk | 12 wk | Lethargy (2.9%) |

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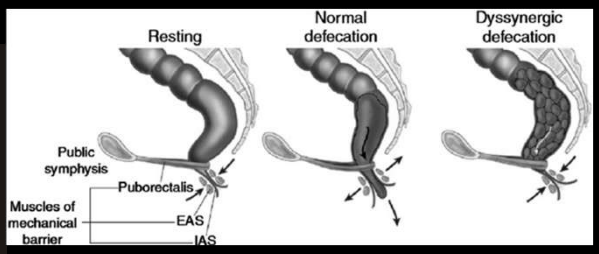
# Dyssynergic Defecation

**Paradoxical anal sphincter contraction or impaired relaxation seen on defecography, EMG, and anorectal manometry.**

**Neurogenic degeneration associated with rectal hyposensitivity.**

**Delayed colonic transit.**

Sharma et al. *Gastro Clin N Am* 2022.

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# Dyssynergic Defecation

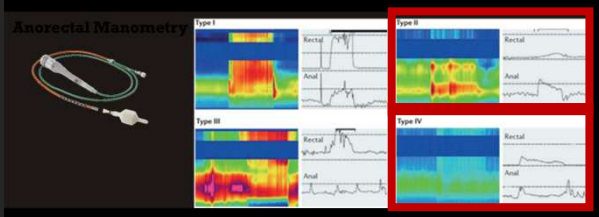
**90% Constipated PD: dyssynergic defecation**

**Subtypes II, IV (poor rectal push)**

**Rectal hyposensitivity**

**Approximately 60% with delayed colonic transit**

Su et al. *BMJ Open Gastro* 2016.

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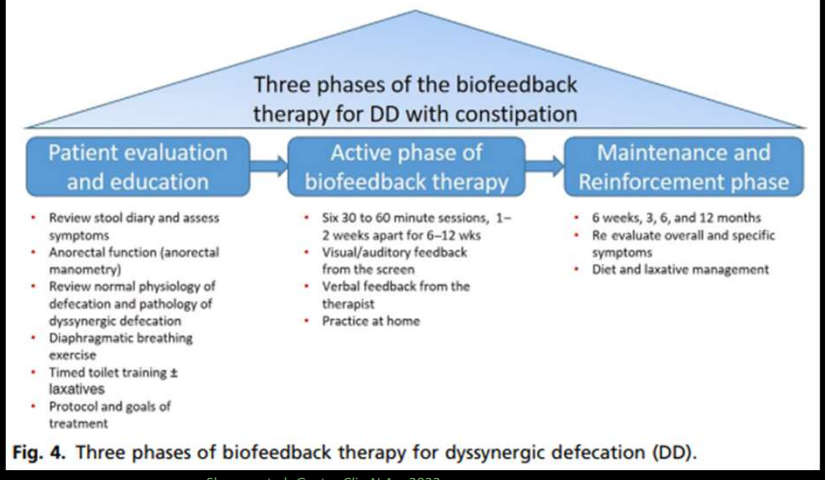


**Fig. 4.** Three phases of biofeedback therapy for dyssynergic defecation (DD).

Sharma et al. *Gastro Clin N Am* 2022.

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# SIBO

High prevalence on hydrogen breath testing.

Lack of studies defining prevalence using gold standard of small bowel aspirates.

May mirror dysbiosis in PD with abundance of *Lactobacillus and Enterococcus fecalis*.

- contain enzyme, tyrosine decarboxylase inhibitors
- affect dopaminergic medication absorption.

Use lactobacillus-containing probiotics in PD with caution

Sharma, Keshavarzian et al. *AJG 2025*

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# Delayed Gastric Emptying

PD

Up to 70% of subjects have delayed gastri

Asymptomatic

**Delays dopaminergic med absorption**

Sharma et al. *Curr Gastro Rep* 2023.

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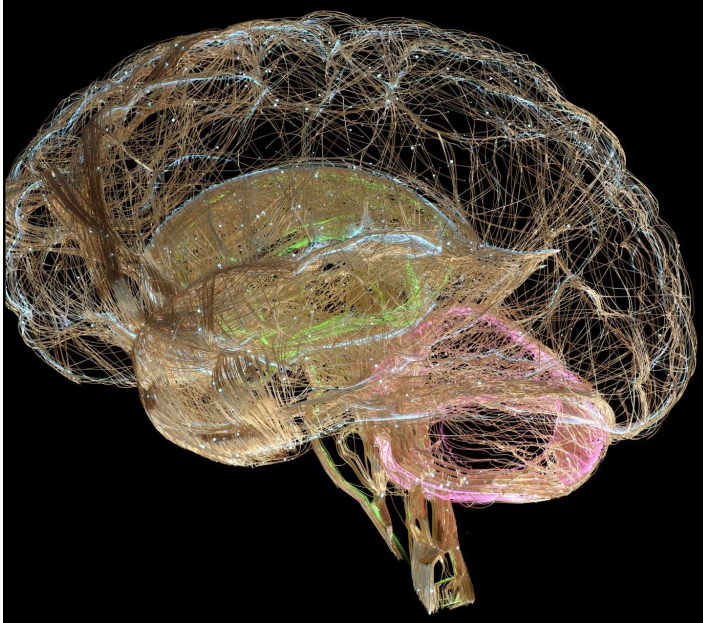

## Future directions

- Examine multimodal model to reflect multiple disruptions in the microbiota-gut-brain axis to:
  - Predict PD disease severity
  - Predict PD disease progression
  - Predict PD development from prodromal PD

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## Take Home Points

**Parkinson's disease is a bidirectional disorder of MGBA.**

**GI conditions are prevalent and prodromal in PD.**

**Multimodal MGBA Model may serve as biomarker and predictor for PD.**

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## Acknowledgements

- Yun Yan, PhD
- Robin M. Voigt, PhD
- Satish Rao, MD, PhD
- Ali Keshavarzian, MD, PhD

SALUD!

*Financial support for our work provided by the Parkinson's Foundation Translational Research Grant (PF-TRG-1730) and NIDDK UO1-DK140923.

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## Thank you

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# Questions

Amol Sharma, MD, MS, FACG

Ali Keshavarzian, MD, MACG

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