

# Integrative Medicine in Parkinson's Disease (PD)

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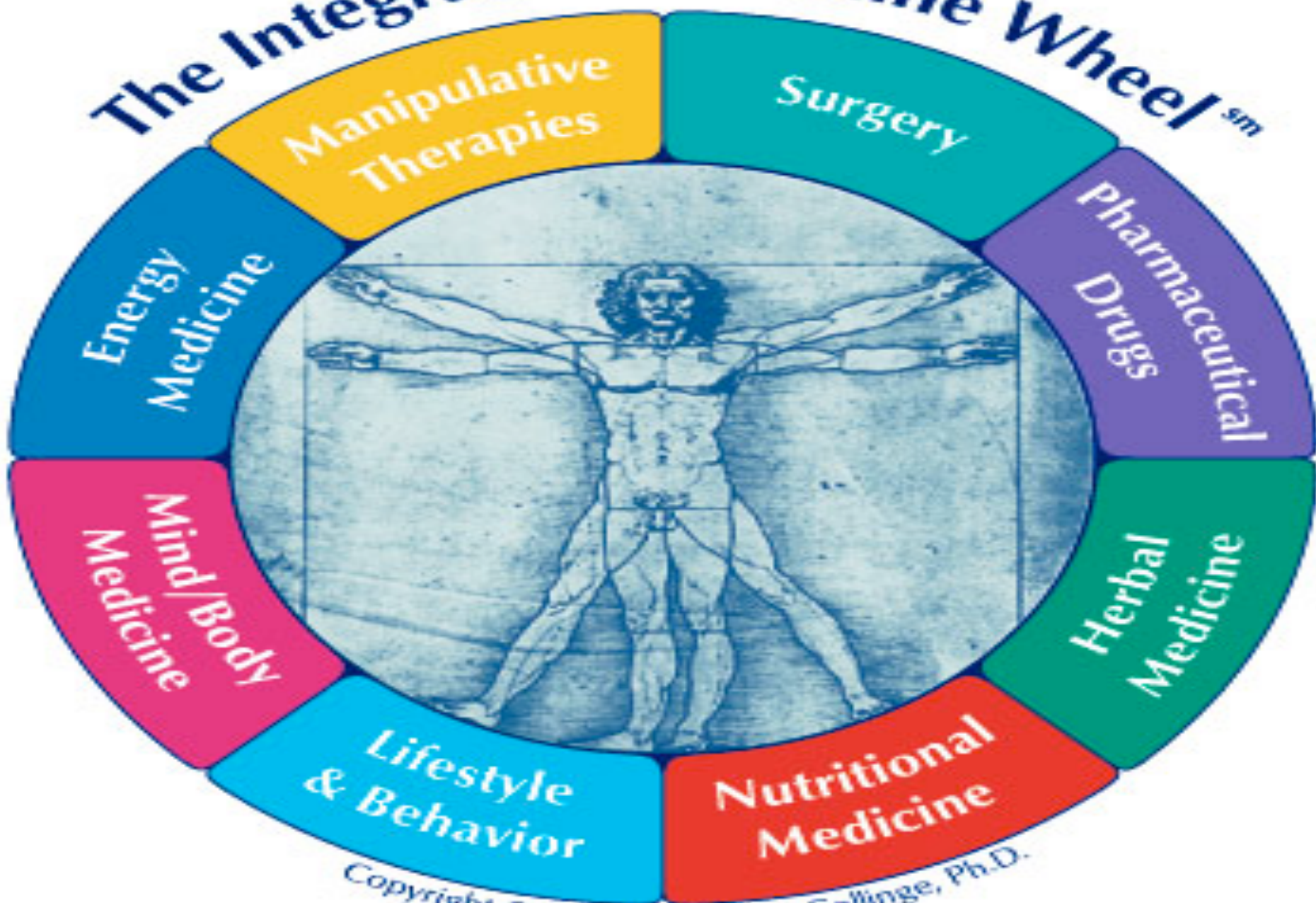
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# Integrative Medicine in Parkinson's Disease (PD)

- What is Integrative Medicine?
- Why Integrative Medicine in PD?
- Which Integrative therapies in PD?
  - Movement / Manipulative (Massage)
  - Mind-Body (Yoga)
  - Energetic (Acupuncture)
  - Supplements/Diet (Coq10)

# The Integrative Medicine Wheel<sup>SM</sup>



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# Parkinson's Disease: Health-Related Quality of Life, Economic Cost, and Implications of Early Treatment

Jack J. Chen, PharmD

- Balance
- Sensory (↓ Smell)
- Gastrointestinal (constipation)
- Urinary
- Autonomic / Cardiovascular (low blood pressure)
- Mood (depression)
- Sleep (Insomnia)
- Fatigue
- Pain
- ...



# *Why Integrative Medicine? Balance*

- Those with PD:
  - 70% had a fall within 1 year after diagnosis
  - 50% of this group fell again in the next year
- PD have a **3.2-fold** ↑ risk of hip fracture than those without PD

# Why look at Integrative Medicine? Balance

- *“As pharmacological methods are only partially effective in addressing balance and gait problems, non-pharmacological approaches are needed to address these issues.”*

Hackney ME, Earhart GM. Effects of dance on movement control in Parkinson's disease: a comparison of Argentine tango and American ballroom. *J Rehabil Med.* 2009;41(6):475-481.

Gage H, Storey L. Rehabilitation for Parkinson's disease: a systematic review of available evidence. *Clin Rehabil* 2004; 18: 463–482

# A Meta-Analysis of Randomised Placebo-Controlled Treatment Trials for Depression and Anxiety in Parkinson's Disease

- 9 trials:
- Antidepressants for depression moderate effect but non-significant
- Antidepressants on anxiety in PD was large but also non-significant
- 2 integrative treatments resulted in significant large effects:
  - Omega-3 supplementation
  - CBT



## Pain in Parkinson's disease: Prevalence and characteristics

- *Pain is frequent and disabling ... and is significantly more common in PD compared to the general population.*
- Pain reported by **83%** of PD patients.
  - Musculoskeletal pain in 70%,
  - Dystonic pain in 40%
  - Nerve pain in 20%
  - Central Nerve pain by 10%



# Towards an understanding of fatigue in Parkinson disease

P Hagell,<sup>1,2</sup> L Brundin<sup>3</sup>

- *Fatigue... associated with symptoms of:*
  - *Depression and anxiety ...*
  - *Compromised motivation ...*
  - *Postural/gait impairment and *Pai**
- *related to neuroinflammatory mechanisms*
- *...anti-inflammatory therapies, could be effective.*

– *n*

# Towards an understanding of fatigue in Parkinson disease

P Hagell,<sup>1,2</sup> L Brundin<sup>3</sup>

- *Fatigue may ...related to neuroinflammatory mechanisms.*
- *..novel treatment options, including anti-inflammatory therapies, could be effective.*

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  - Mind-Body (Yoga)
  - Energetic (Acupuncture)
  - Supplements/Diet (Omega-3s)

# Active Music Therapy in Parkinson's Disease: An Integrative Method for Motor and Emotional Rehabilitation

CLAUDIO PACCHETTI, MD, FRANCESCA MANCINI, MD, ROBERTO AGLIERI, CIRA FULFANO, MD, AND GIUSEPPE NAPPI, MD

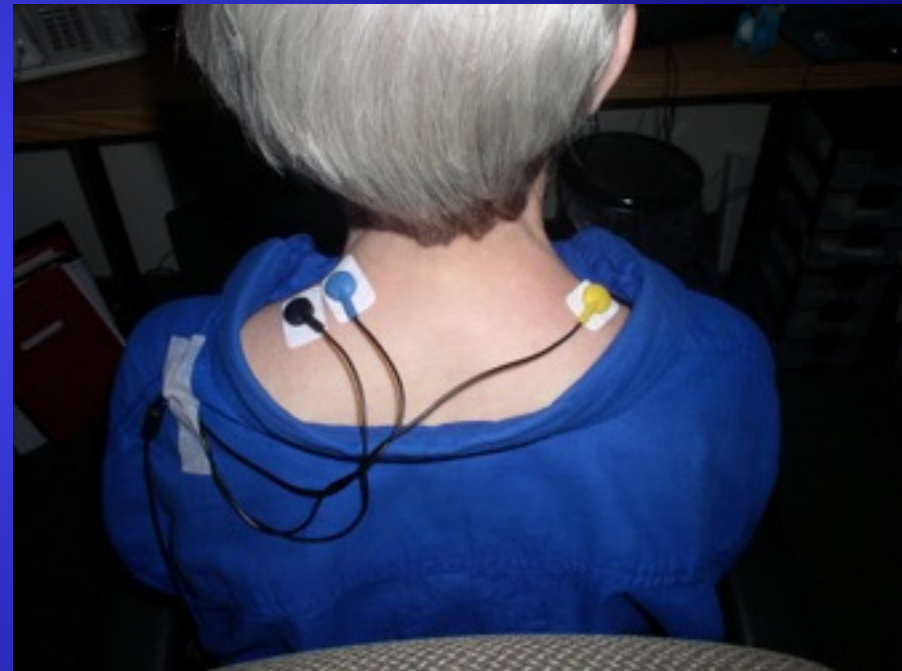


- Music therapy had a benefit on bradykinesia &
- Emotional functioning / mood
- *Improvements in activities of daily living and in quality of life were also documented in the MT group*
- *Physical therapy improved rigidity*

- “...beneficial effect related to its high level of sensory stimulation and high degree of personal interaction.
- ... our study suggests a connection between emotions and the facilitation of movement.”

# Biofeedback

- muscle biofeedback  
x 15 weeks
- Significant ↓ in  
muscle tension
- no change in motor  
skills compared with  
controls.



Sihumtkair ROo. The response of manual motor function-ing in parldnsonians to frontal EMG biofeedback andnal progressive relaxation, Biofeedback Self Regis! 1980:5:229-234,29.

# Massage

- Massage may reduce latency of PD medication
- Reduce rigidity & provide relief of tremor for 3 to 5 hours following therapy session.



Steeffel L. Massage therapy as an adjunct healing modality in Parkinson's Disease. Alternat Comp Titero 1996

Miesler DW, Parkinson's disease and massage therapy. Massage Ther 1996;35:34-37.

# Neuromuscular therapy (NMT) pilot study



- 8 treatment resulted in a significant improvement in the movement ability
- Benefit in most subject not retained a week after the therapy sessions ended



# Activity



- “60% of Americans >65 years do not achieve recommended daily activity
- ...Activity levels in individuals with PD are 15% ↓ than those of age-matched controls
- Dance may ... promote adherence while also incorporating ... dynamic balance and continual adjustment to environmental demands.”

ORIGINAL REPORT

EFFECTS OF DANCE ON MOVEMENT CONTROL IN PARKINSON'S DISEASE:  
A COMPARISON OF ARGENTINE TANGO AND AMERICAN BALLROOM

Madeleine E. Hackney, BFA<sup>1</sup> and Gammon M. Earhart, PhD, PT<sup>1,2,3</sup>

From the <sup>1</sup>Program in Physical Therapy, <sup>2</sup>Department of Anatomy and Neurobiology and <sup>3</sup>Department of Neurology,  
Washington University School of Medicine, St Louis, MO, USA

- ***Randomly assigned to:***
  - *Tango, Waltz/foxtrot or Wait list*
- **1-h classes 2x/ week; total 20 classes**
- **Balance, functional mobility, forward and backward walking were evaluated**

# Results

- ***Both dance groups improved more than control group***
  - Balance
  - 6-minute walk distance
  - Backward stride length
- **Tango improved more than waltz/foxtrot**

# Mindful Exercise - Tai Chi



# *Tai chi and postural stability in patients with Parkinson's disease*

- Funded by the National Institute of Neurological Disorders and Stroke
- 195 with PD randomized to tai chi, resistance training, or stretching.
- 60-minute sessions 2x/wk x 24 weeks.
- Outcomes: maximum excursion & directional control, stability of gait, falls strength, timed up-and-go tests, scores on UPDRS.

# Tai Chi in PD

- *The tai chi group performed better than the resistance-training & stretching in*
  - *Directional control*
- *The tai chi group outperformed the resistance-training group in*
  - *Stride length and functional reach*
- *Tai chi and resistance significantly lowered the incidence of falls*
- *No serious adverse events*

## Efficacy and Safety of Acupuncture for Idiopathic Parkinson's Disease: A Systematic Review

- 9/10 studies showed a positive effect from acupuncture as compared with their control
- Only 2 studies described details about adverse events.
- Need for better trials

## **Does Integrative Medicine Enhance Balance in Aging Adults? – Proof of Concept for Benefit of Electro-acupuncture Therapy in Parkinson's Disease**

**Nima Toosizadeh<sup>1</sup>, Hong Lei<sup>2</sup>, Michael Schwenk<sup>1,3</sup>, Scott J. Sherman<sup>2</sup>, Esther Esternberg<sup>4</sup>, Jane Mohler<sup>3</sup>, and Bijan Najafi<sup>1,3</sup>**

<sup>1</sup> interdisciplinary Consortium on Advanced Motion Performance (iCAMP) and Southern Arizona Limb Salvage Alliance (SALSA), Department of Surgery, College of Medicine, University of Arizona, Tucson, USA.

<sup>2</sup> Department of Neurology, College of Medicine, University of Arizona, Tucson, USA.



# Diet / Supplements in Parkinson's Disease (PD)



## Major Nutritional Issues in the Management of Parkinson's Disease

- *Optimization of pharmacologic treatment ... is essential, but nutritional interventions should also be planned with regard to*
  - Prevent weight loss or gain;
  - Optimization of levodopa pharmacokinetics
  - Improve GI function (e.g., difficulty swallowing and constipation)
  - Prevention and treatment nutritional deficiencies (vitamins and minerals)

# Dietary Pattern's Association with Incident Parkinsonism and Progression of Parkinsonian Signs with Aging

- *April 2017 The FASEB Journal*
- *The MIND, Mediterranean and DASH dietary patterns are associated with decreased risk of Parkinsonism and may slow the progression of Parkinsonian signs with age.*

# The MIND Diet

Mediterranean-DASH diet Intervention for  
Neurodegenerative Delay

## WHAT TO EAT

Every day	<ul style="list-style-type: none"><li>• 3 servings of whole grains</li><li>• 1 serving of vegetables</li><li>• 1 glass of wine (5 oz)</li></ul>
Most days	<ul style="list-style-type: none"><li>• Leafy green vegetables (6x)</li><li>• Nuts (5x)</li></ul>
Every other day	<ul style="list-style-type: none"><li>• Beans (3x)</li></ul>
Twice a week	<ul style="list-style-type: none"><li>• Poultry</li><li>• Berries</li></ul>
Once a week	<ul style="list-style-type: none"><li>• Fish</li></ul>

## WHAT TO LIMIT

Less than 1 T. a day	<ul style="list-style-type: none"><li>• Butter and stick margarine</li></ul>
Less than 5x/week	<ul style="list-style-type: none"><li>• Pastries and sweets</li></ul>
Less than 4x/week	<ul style="list-style-type: none"><li>• Red meat</li></ul>
Less than 1x/week	<ul style="list-style-type: none"><li>• Whole-fat cheese</li><li>• Fried fast food</li></ul>

# Brain-gut-microbiota axis in Parkinson's disease

The gut-brain axis in Parkinson's disease: Possibilities for food-based therapies

Neurology. 2016 Sep 20;87(12):1274-80. doi: 10.1212/WNL.0000000000003127. Epub 2016 Aug 19.

**Probiotics and prebiotic fiber for constipation associated with Parkinson disease: An RCT.**

- **CONCLUSIONS:**
- *The consumption of a fermented milk containing multiple probiotic strains and prebiotic fiber was superior to placebo in improving constipation in patients with PD.*

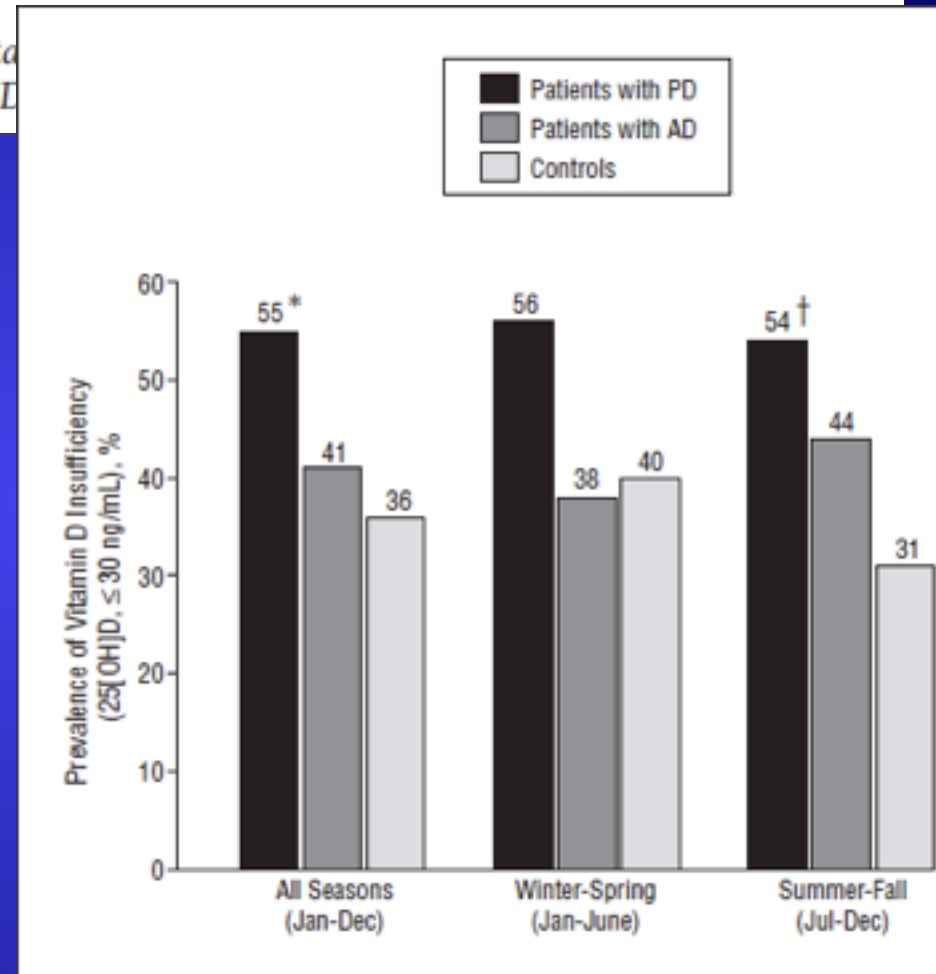
# Prevalence of Vitamin D Insufficiency in Patients With Parkinson Disease and Alzheimer Disease

Marian L. Evatt, MD, MS; Mahlon R. DeLong, MD; Nata  
Ami Rosen, MS; Shirley Triche, RN; Vin Tangpricha, MD

*“A significantly higher prevalence of hypovitaminosis in PD vs both healthy controls and patients with AD.*

*These data support a possible role of vitamin D insufficiency in PD.”*

*Arch.Neur.2008*



**Figure.** Prevalence of vitamin D insufficiency in patients with Parkinson disease (PD), patients with Alzheimer disease (AD), and matched healthy controls. \* $P = .008$  for PD patients vs controls and  $P = .05$  for PD patients vs AD patients. †,  $P = .02$  for patients with PD vs controls. 25[OH]D indicates 25-hydroxyvitamin D. (To convert 25(OH)D to nanomoles per liter, multiply by 2.496.)

# Omega-3s in PD

- Effect of fish oil supplementation (vs placebo) in PD with depression
  - 42% with  $\geq 50\%$  ↓ in depression
  - 22% with remission
  - 6% discontinued fish oil

Putting It All Together...



# • • • • • ESSENCE

## Education

- Knowledge about the condition and its management
- Information on the effects of lifestyle factors on health including reducing, or eliminating harmful behaviours and increasing health promoting behaviours

## Stress management

- Promoting group-support, meditations and greater emotional intelligence

## Spirituality

- Increasing individual's ability to explore personal 'meaning' and/or 'purpose' in life

## Exercise

- Promoting increased physical activity for reduced risk of chronic disease and improved mental health outcomes, such as self-esteem, depression and anxiety

## Nutrition

- Encouraging health nutrition through the provision of information on the benefits of micronutrients in food and outcomes of a diabetogenic diet
- Promoting simple strategies for improving health food choices

## Connectedness

- Information about the importance of professional and emotional support in the self-management of chronic disease

## Environment

- Raising awareness of the importance of reducing exposure to harmful chemicals
- Promoting increased sun exposure (at safe levels)

RESEARCH ARTICLE

Open Access



# The effects of a mindfulness-based lifestyle program for adults with Parkinson's disease: a mixed methods, wait list controlled randomised control study

- Improvement in function and wellbeing associated with PD
- Improvements ...activities in daily living and mindfulness were retained at 6-months post intervention

# Conclusion

- Integrative Medicine important to approach the larger complex of PD
- Several IM therapies with strong, consistent evidence
- Other areas need to be considered on a case by case basis: nutrient deficiency
- Important to discuss all treatments you are considering so they can be coordinated for optimized care.

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**THANK YOU!**

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