



# LIVING WELL

PARKINSON'S DISEASE CONFERENCE



# The Role of Integrated Medicine in Managing PD

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Living Well Parkinson's Disease Conference

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# About Me

- Degree in Molecular Biology & Chemistry from Western New England University in Springfield, MA
- Degree in Naturopathic Medicine from Bastyr University in Seattle, WA
- Complementary and Alternative Medicine in PD Research Assistant
- Residency with to Drs. Laurie Mischley & Marco Vespignani at Seattle Integrative Medicine with a focus in neurology
- Practice consists primarily of patients with PD with a focus on gastrointestinal health
- Neurology focused clinical rotation at Bastyr Center for Natural Health
- Other projects: Parkinson's Disease Summer School
- Regular speaker at PD support groups and Parkinson's disease conferences including both in the US and in Canada



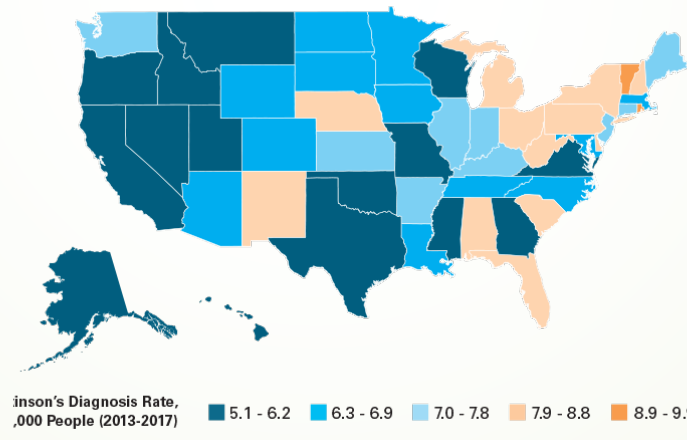
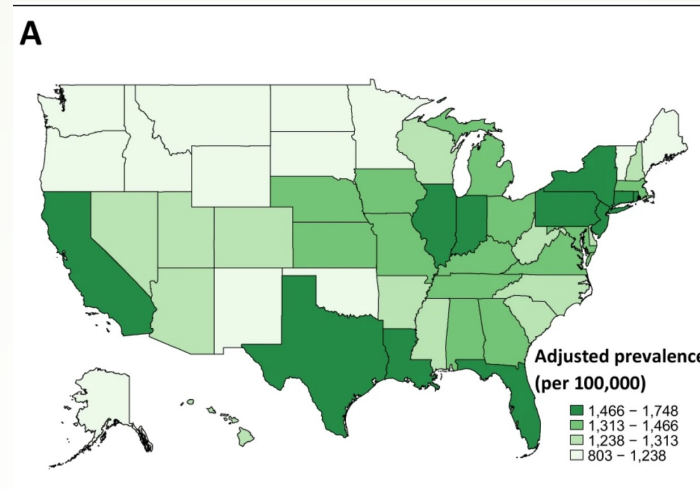
# Parkinsonism brief history

- Parkinson's disease – 1817 by James Parkinson
- 1913 – levodopa isolated from seedlings of *Vicia faba*
- 1960 – chemical differences identified – low levels of dopamine are caused by *degeneration* of nerves in the substantia nigra
- 1961 – Benefits seen in PD patient
- It is the 2<sup>nd</sup> most common neurodegenerative disease, next to Alzheimer's disease



# How Common is It?

- The prevalence rate of Parkinson's Disease has grown more than 50% in the span of five years in the younger population
- More common in men than women
- Where does Pennsylvania fall in the prevalence? When adjusted for age, race and sex, its one of the top!



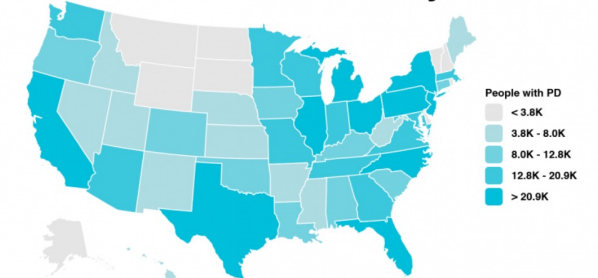
## Parkinson's Foundation Parkinson's Prevalence Project

What is it?  
Parkinson's Foundation  
study to determine  
Parkinson's disease (PD)  
prevalence in  
North America.

930,000  
people in the  
U.S. with PD  
by 2020

1.2 million  
people in the  
U.S. with PD  
by 2030

### Parkinson's Prevalence by State



1978

Study nearly  
doubles 1978  
Parkinson's  
prevalence  
total.



Study  
confirms men  
are more likely  
to have PD  
than women.

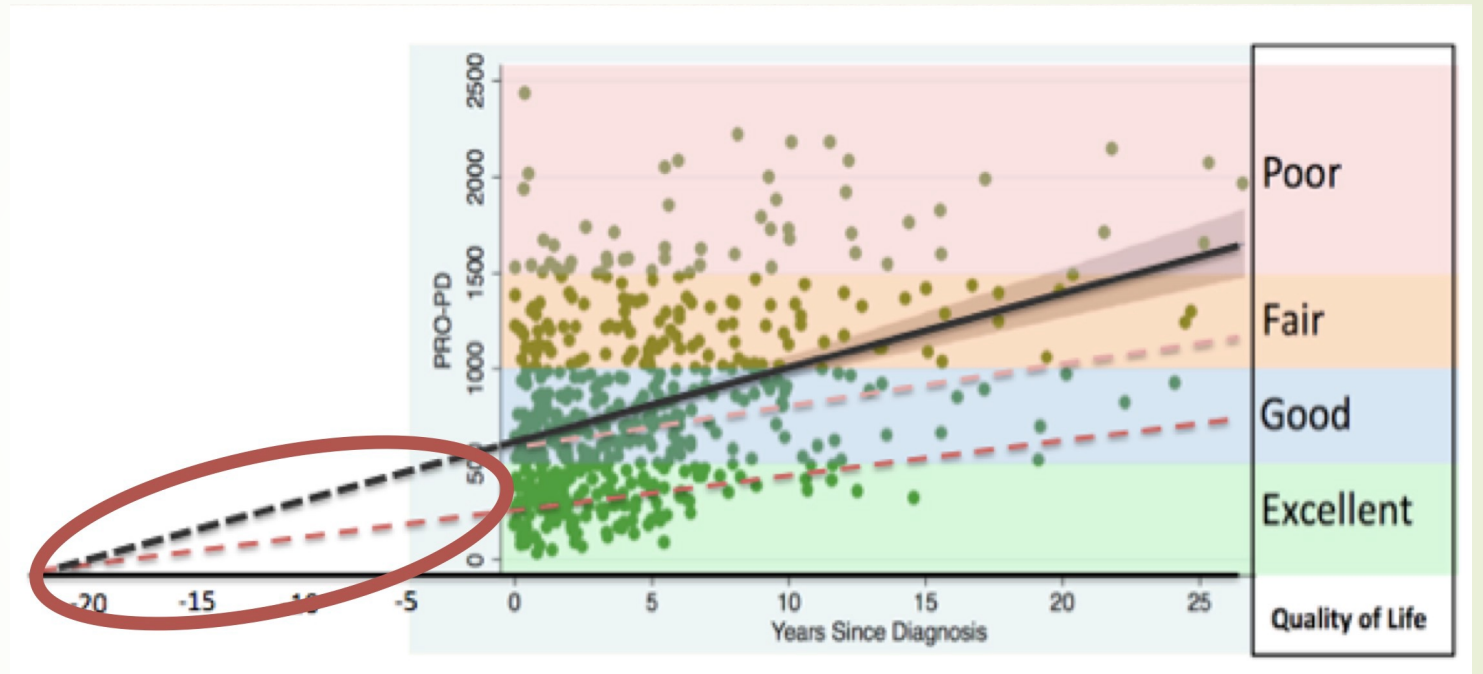


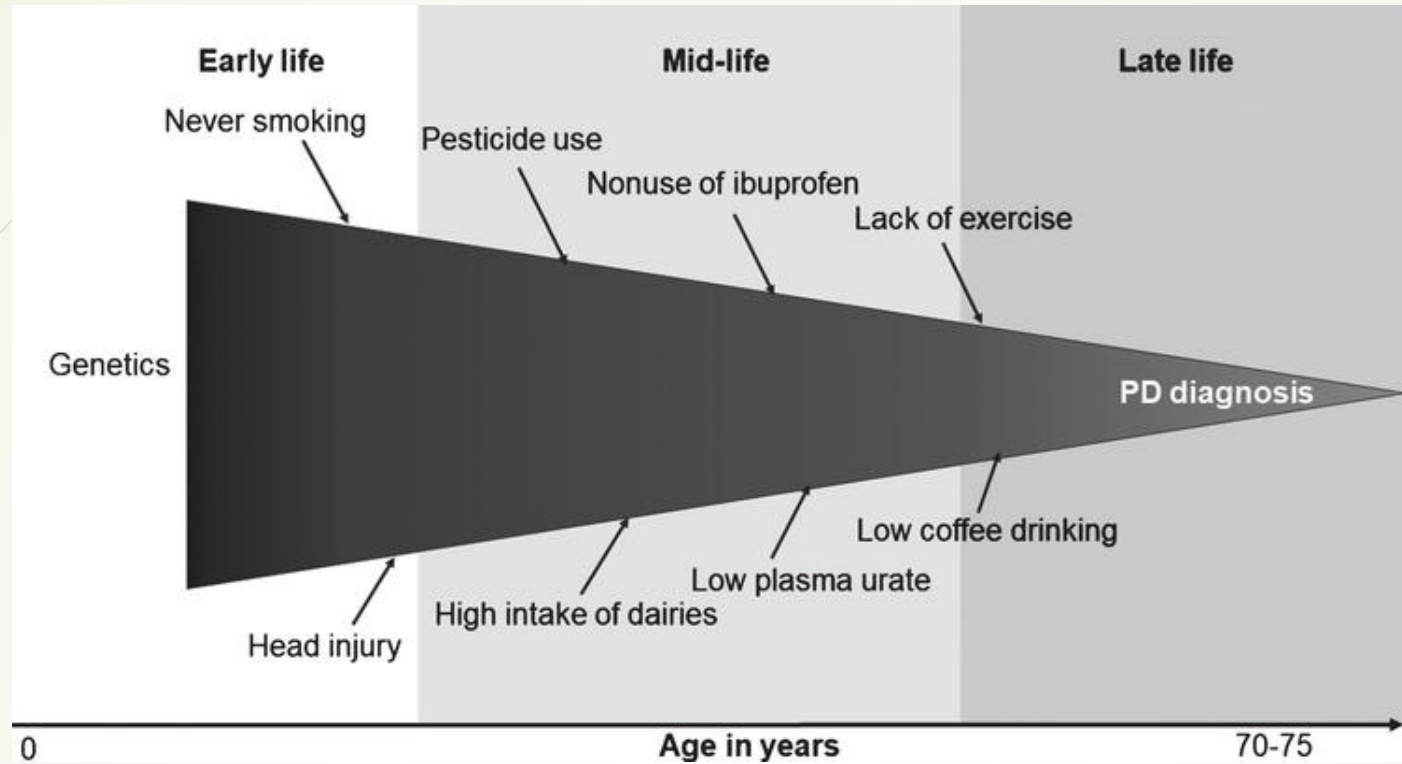
Study confirms  
number of people  
diagnosed with  
PD increases  
with age,  
regardless  
of sex.

 Parkinson's  
Foundation

# Early Detection! Early Prevention! Slowing Progression

- Super smellers<sup>1</sup>
- Loss of smell
- REM sleep disorder
- Constipation
- Biomarkers





Risk factors

# Parkinson's personality

- Reflective, rigid, stoic, slow-tempered, frugal, orderly, and persistent
- industrious, rigidly moral, serious, and non-impulsive
- Not novel seeking





# Most Common Symptoms

## Motor

- Tremor
- Bradykinesia
- Micrographia
- Gait instability & shuffling
- Freezing
- Difficulty rising from chair
- Dyskinesia

## Non-motor

- Constipation
- Anosmia
- Depression/Anxiety
- Insomnia
- Apathy
- Fatigue
- Daytime sleepiness
- Forgetfulness
- Seborrhea, toenail fungus
- Weight loss
- Parkinson's Personality





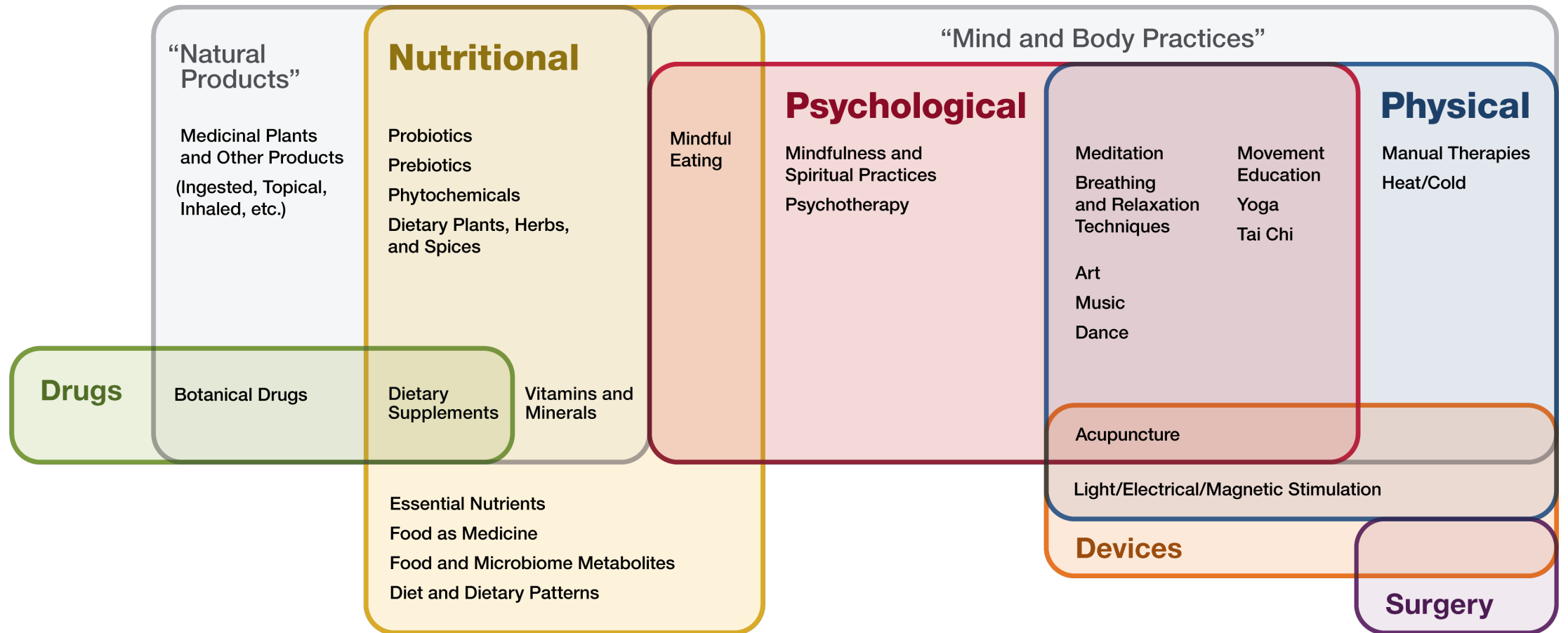
# Integrative Health



- ▶ National Center for Complementary and Integrative Health defines:

"Integrative health also emphasizes multimodal interventions, which are two or more interventions such as conventional health care approaches (like medication, physical rehabilitation, psychotherapy), and complementary health approaches (like acupuncture, yoga, and probiotics) in various combinations, with an emphasis on treating the whole person rather than, for example, one organ system. ***Integrative health aims for well-coordinated care among different providers and institutions by bringing conventional and complementary approaches together to care for the whole person***" (NCCIH, 2021)

- ▶ There is a *NEED* and *DESIRE* both conventional and alternative treatment options!



# Nutrition vs. Diet

➤ NUTRITION – What Nourishes



• DIET: What we eat





# What diet is best?

Association between dietary practices and Parkinson's disease progression

Food item (serving size)	Mean change in PRO-PD score (SE)*	P value (95% CI)*	Mean change in PRO-PD score (SE)**	P value (95% CI)**
Fresh vegetables (1/2 cup)	-53.2 (7.9)	<0.000 (-68.7 to -37.6)	-48.9 (8.3)	<0.000 (-64.7 to -33.1)
Fresh fruit (1/2 cup)	-44.1 (8.5)	<0.000 (-60.7 to -27.5)	-40.7 (8.6)	<0.000 (-57.5 to -23.9)
Nuts (1/4 cup or 2 tbsp spread)	-38.5 (7.5)	<0.000 (-53.2 to -23.7)	-33.2 (7.6)	<0.000 (-48.1 to -18.4)
Fish (4 oz)	-37.1 (8.9)	<0.000 (-54.6 to -19.5)	-29.5 (9.1)	0.001 (-47.3 to -11.6)
Olive oil (1 tsp)	-34.1 (6.8)	<0.000 (-47.4 to -20.8)	-31.4 (6.8)	<0.000 (-44.7 to -18.1)
Wine (6 oz)	-23.6 (5.3)	<0.000 (-34.1 to -13.1)	-14.6 (5.6)	0.009 (-25.5 to -3.7)
Turkey (4 oz)	-20.2 (18.7)	0.281 (-57.1 to 16.7)	-10.8 (19.2)	0.573 (-48.7 to 27)
Coconut oil (1 tsp)	-18.6 (5.5)	0.001 (-29.3 to -7.8)	-20.2 (5.5)	<0.000 (-31 to -9.4)
Fresh herbs (1 tsp)	-14.9 (6.4)	0.02 (-27.4 to -2.4)	-8.9 (6.5)	0.169 (-21.7 to 3.8)
Spices (1/4 tsp)	-14.2 (6.4)	0.027 (-26.7 to -1.6)	-13.4 (6.4)	0.037 (-26 to -0.8)
Eggs (1 egg)	-9.5 (8.2)	0.251 (-25.6 to 6.7)	-9.7 (8.3)	0.241 (-26 to 6.5)
Cheese (1 slice, 1/2 oz, 1 tbsp)	11.7 (6.9)	0.091 (-1.9 to 25.3)	15.5 (6.9)	0.026 (1.9 to 29.1)
Yogurt (3/4 cup)	13.5 (7.5)	0.073 (-1.3 to 28.3)	15.2 (7.6)	0.046 (0.2 to 30.1)
Ice cream (1/2 cup)	13.8 (7.4)	0.064 (-0.8 to 28.3)	18.3 (7.5)	0.015 (3.6 to 32.9)
Soda (12 oz)	15.4 (7.8)	0.049 (0.03 to 30.7)	15.2 (7.9)	0.054 (-0.3 to 30.6)
Beef (4 oz)	16.2 (8.3)	0.051 (-0.1 to 32.4)	21.8 (8.3)	0.009 (5.5 to 38.1)
Fried food (4 oz)	19.5 (8.8)	0.027 (2.2 to 36.8)	23 (8.9)	0.009 (5.6 to 40.4)
Canned vegetables (1/2 cup)	19.9 (7)	0.005 (6.1 to 33.6)	18.3 (7)	0.009 (4.5 to 32.1)
Diet soda (12 oz)	20.7 (6.1)	0.001 (8.7 to 32.8)	23.6 (6.1)	<0.000 (11.6 to 35.6)
Canned fruit (1/2 cup)	36.1 (7.9)	<0.000 (20.5 to 51.6)	32 (7.9)	<0.000 (16.5 to 47.6)

Sound  
familiar??



# More about food

- Mediterranean diet – Rotterdam Study followed 9414 people over 14 years. Found that Mediterranean diet had a protective effect on developing PD (Strikwerda AJ, 2021)
- Ketogenic diet – high fat, low carbohydrate (around 50g). 8 week study of 47 PwP showed improvement in urinary symptoms, pain/sensory disturbance, fatigue, daytime sleepiness, and cognitive impairment (Phillips MCL, 2018)
- Rule of thumb...



Eat the rainbow every day!



And no that doesn't mean Skittles!

- Each year the Environmental Working Group (EWG) analyzes the data from the FDA and US Department of Agriculture to develop a list of foods that have the most and least amount of pesticide use/exposure.
- List: Dirty Dozen & Clean 15.

Does it need to be organic?



# MOST

1. Strawberries
2. Spinach
3. Kale, collard, and mustard greens
4. Nectarines
5. Apples
6. Grapes
7. Cherries
8. Peaches
9. Pears
10. Bell and hot peppers
11. Celery
12. Tomatoes

# LEAST

1. Avocados
2. Sweet Corn\*
3. Pineapple
4. Onions
5. Papaya
6. Sweet peas (frozen)
7. Eggplants
8. Asparagus
9. Broccoli
10. Cabbage
11. Kiwi
12. Cauliflower
13. Mushrooms
14. Honeydew melon
15. Cantaloupe



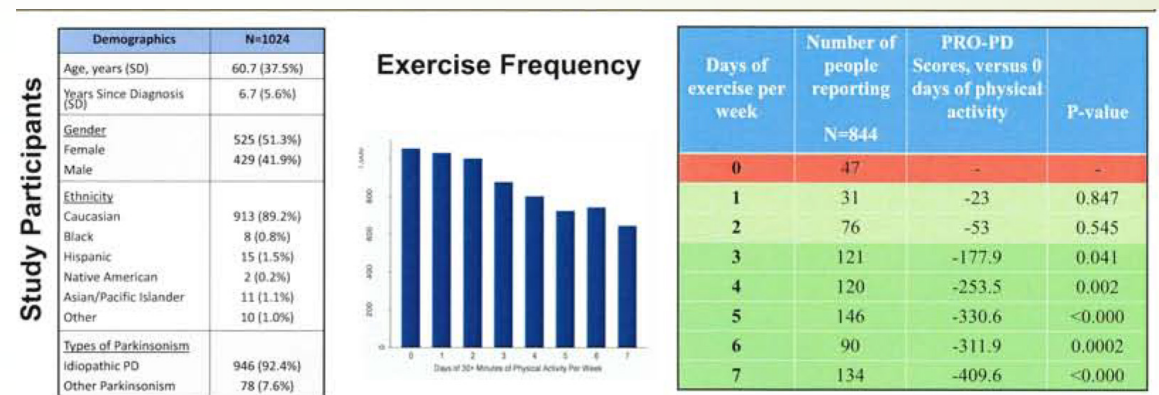
# Medication & Food

- Carbidopa/levodopa – take away from protein
  - Medication - 30 minutes before food OR 1-2 hours after food
- Medication absorption
  - Lemon water – 20ml lemon juice with each dose of l-dopa. Small study of 38 patients who became refractory to therapy. Increases concentration of l-dopa by 60 and 180min. Improved motor PD symptoms.<sup>(7)</sup>
  - Fiber rich plant – Plantago – animal & human studies showed increased absorption of levodopa and more stable concentrations of plasma levodopa over time (3.5g/200ml water)<sup>(8,9)</sup>



# Exercise

- All say MOVE YOUR BODY
- You want to be sweating
- Make it novel!
- 30 minutes of daily exercise had the greatest positive impact *by far* (with the best results seen by those exercising 7 days per week
- Movement also affects bowel movement!!!! (more later)



# What type is best?


- Aerobic
- Cycling
- Boxing
- Weight training
- Functional training
- Tai Chi
- Yoga
- Strength Training





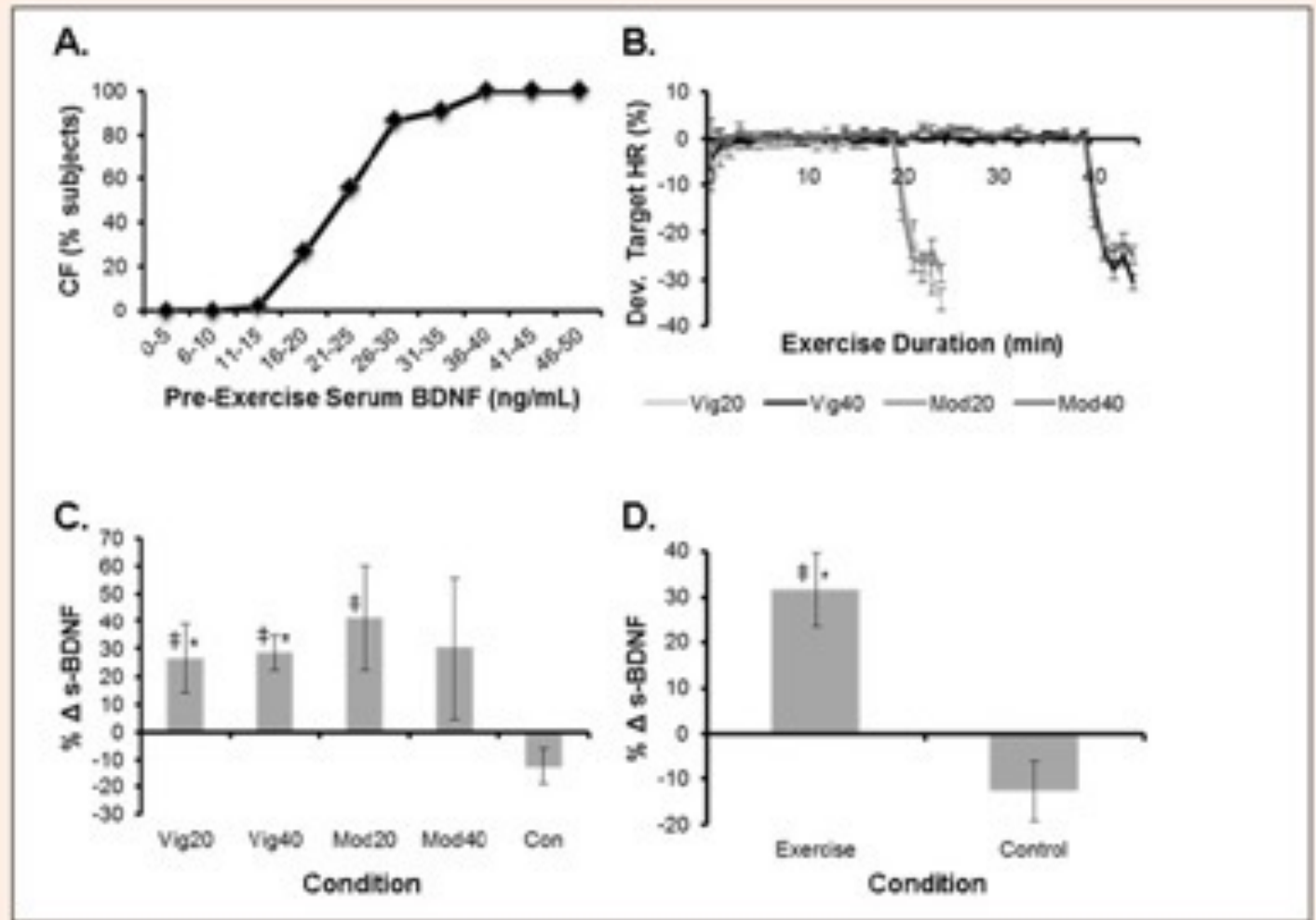


# Potential benefits of exercise

- Balance
  - Strength
  - Improvement in motor symptoms including bradykinesia
  - Smoother & faster gait
  - Less constipation & GI complaints
  - Less daytime fatigue
  - Improved mood
  - Better executive functioning
  - Improved endurance
- 
- Don't forget, you are a whole person! Not just someone with PD. Exercise optimizes full body health and decreases likelihood of diseases such as CVD
- 

# Lets talk BDNF

- What is it?
  - Brain Derived Neurotrophic Factor – it is a hormone in the regulation of neuron morphology and survival
  - Involved in cell development and growth, mood regulation, and cognitive functions such as learning and memory.
- Low levels in the blood – associated with neurodegeneration
- BDNF has a crucial role in neuroplasticity!





# Social connection

- Loneliness top indicator of disease development (in general) and progression of PD
- Dietary restrictions can cause isolation and loneliness
- Pandemic increasing loneliness, decreased movement and some worsening of PD symptoms
- Support groups & Intimacy



# Collaboration

It's not an

**“OR”**

it's

**“AND”**





Questions?



# References

- 1. Mantri S, Fullard ME, Beck J, Willis AW. State-level prevalence, health service use, and spending vary widely among Medicare beneficiaries with Parkinson disease. *NPJ Parkinsons Dis.* 2019;5:1. Published 2019 Jan 24. doi:10.1038/s41531-019-0074-8
- 2. BCBS Health of America Report 2017
- 3. Trivedi DK, Sinclair E, Xu Y, et al. Discovery of Volatile Biomarkers of Parkinson's Disease from Sebum. *ACS Cent Sci.* 2019;5(4):599-606. doi:10.1021/acscentsci.8b00879
- 4. National Center for Complementary and Integrative Health. Complementary, Alternative, or Integrative Health: What's In a Name? National Center for Complementary and Integrative Health website accessed at <https://www.nccih.nih.gov/health/complementary-alternative-or-integrative-health-whats-in-a-name> on April 3, 2022.
- 5. Strikwerda AJ, Dommershuijsen LJ, Ikram MK, Voortman T. Diet Quality and Risk of Parkinson's Disease: The Rotterdam Study. *Nutrients.* 2021;13(11):3970. Published 2021 Nov 7. doi:10.3390/nu13113970
- 6. Phillips MCL, Murtagh DKJ, Gilbertson LJ, Asztely FJS, Lynch CDP. Low-fat versus ketogenic diet in Parkinson's disease: A pilot randomized controlled trial [published correction appears in *Mov Disord.* 2019 Jan;34(1):157]. *Mov Disord.* 2018;33(8):1306-1314. doi:10.1002/mds.27390
- 7. Yazawa I, Terao Y, Sai I, Hashimoto K, Sakuta M. [Gastric acid secretion and absorption of levodopa in patients with Parkinson's disease--the effect of supplement therapy to gastric acid]. *Rinsho Shinkeigaku.* 1994 Mar;34(3):264-6. Japanese. PMID: 8200147.
- 8. Fernandez N, Carriedo D, Sierra M, Diez MJ, Sahagun A, Calle A, Gonzalez A, Garcia JJ. Hydrosoluble fiber (Plantago ovata husk) and levodopa II: experimental study of the pharmacokinetic interaction in the presence of carbidopa. *Eur Neuropsychopharmacol.* 2005 Oct;15(5):505-9. doi: 10.1016/j.euroneuro.2005.01.006. Epub 2005 Mar 23. PMID: 16139167.
- 9. Fernandez-Martinez MN, Hernandez-Echevarria L, Sierra-Vega M, Diez-Liebana MJ, Calle-Pardo A, Carriedo-Ule D, Sahagún-Prieto AM, Anguera-Vila A, Garcia-Vieitez JJ. A randomised clinical trial to evaluate the effects of Plantago ovata husk in Parkinson patients: changes in levodopa pharmacokinetics and biochemical parameters. *BMC Complement Altern Med.* 2014 Aug 12;14:296. doi: 10.1186/1472-6882-14-296. PMID: 25112783; PMCID: PMC4139609.
- 10. Subramanian I, Farahnik J, Mischley LK. Synergy of pandemics-social isolation is associated with worsened Parkinson severity and quality of life. *NPJ Parkinsons Dis.* 2020 Oct 8;6:28. doi: 10.1038/s41531-020-00128-9. PMID: 33083522; PMCID: PMC7545190.

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