

# REFRAMING PARKINSONISM AS A SYNDROME

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4th Annual Optimism Retreat  
26 Aug 2018  
Mercer Island, WA, USA

# Disclosures

Aug 2018 - Contact: [info@EducationIsMedicine.com](mailto:info@EducationIsMedicine.com)

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- Advisory Boards: Brian Grant Foundation, Next Frontier Biosciences
- Consulting: Synapse Medical Intelligence
- Founder: NeurRx, Social Purpose Corporation
- Owner of PRO-PD scale (free scores available at [www.PROPD.org](http://www.PROPD.org))
- Research funding: Michael J Fox Foundation, PD Families
- Institutional Affiliation: Bastyr University, National University of Naturopathic Medicine
- Clinical Practice: Seattle Integrative Medicine

# DISEASE VS. SYNDROME

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- ▶ Disease
  - ▶ A condition that impairs normal functioning and is typically manifested by distinguishing signs & symptoms.
  - ▶ Has a clearly defined reason behind it.
- ▶ Syndrome (Greek: “run together”)
  - ▶ A set of medical signs and symptoms that are correlated with each other.
  - ▶ Not necessarily an identifiable cause

# PELLEGRA

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## Signs and symptoms [\[edit\]](#)

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Pellagra is classically described by "the four Ds": [diarrhea](#), [dermatitis](#), [dementia](#) and [death](#).<sup>[4]</sup> A more comprehensive list of symptoms includes:

- High [sensitivity to sunlight](#)
- [Aggression](#)
- [Dermatitis](#), [alopecia](#) (hair loss), [edema](#) (swelling)
- Smooth, beefy red [glossitis](#) (tongue inflammation)
- [Red skin lesions](#)
- [Insomnia](#)
- [Weakness](#)
- [Mental confusion](#)
- [Ataxia](#) (lack of coordination), [paralysis of extremities](#), [peripheral neuritis](#) (nerve damage)
- [Diarrhea](#)
- [Dilated cardiomyopathy](#) (enlarged, weakened heart)
- Eventually [dementia](#)

Frostig and Spies (acc. to Cleary and Cleary) described more specific psychological symptoms of pellagra as:<sup>[5]</sup>

- Psychosensory disturbances (impressions as being painful, annoying bright lights, odors intolerance causing nausea and vomiting, dizziness after sudden movements)
- Psychomotor disturbances (restlessness, tense and a desire to quarrel, increased preparedness for motor action)
- Emotional disturbances

# THREE TRUTHS IN SCIENCE

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First, they say it isn't true.

Then they say it is true, but not important.

Then they say it is true & important,

But not new.



# WHAT IS PARKINSONISM?

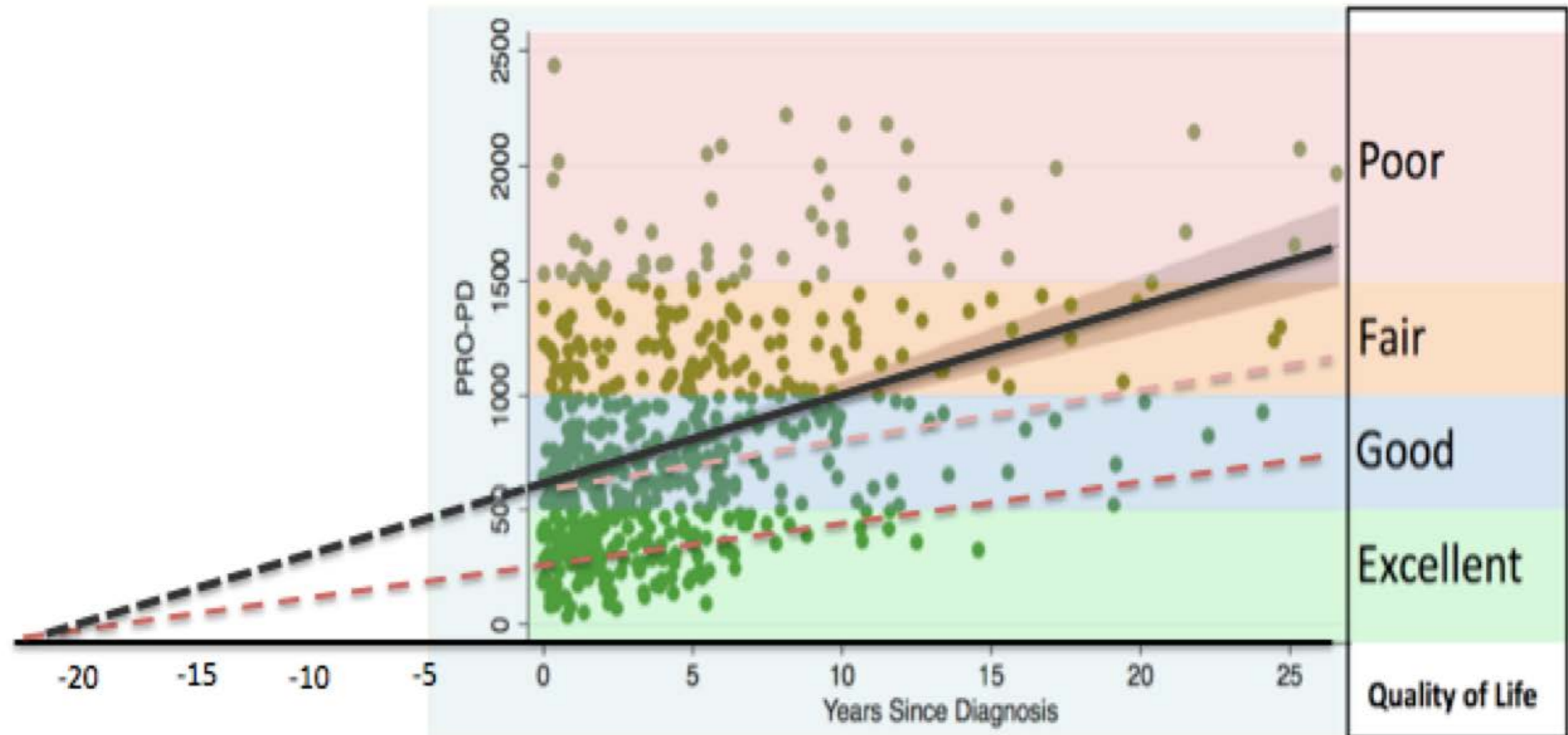
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<u>Percent of Patients Reporting Symptom</u>	<u>Symptoms</u>
80-85%	Fatigue, Impaired Handwriting, Hyposmia
70-80%	Memory impairment, Muscle pain, Daytime sleepiness, Slowness, Tremor, Sexual impairment, Balance, Urinary dysfunction, Stooped posture
60-70%	Lack of motivation, Insomnia, Difficulty walking, Anxiety, Difficulty rising, Impaired speech
50-60%	Constipation, Difficulty dressing, Depression, Withdrawn, Acting out dreams, Comprehension, Restless legs, Drooling
40-50%	Dizzy on standing, Visual disturbance, Falls
30-40%	Dyskinesia, Freezing
<30%	Nausea, Hallucinations

# THE RATE OF PARKINSON PROGRESSION

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- ▶ Know where you stand!
- ▶ Free scores available at: [www.PROPD.org](http://www.PROPD.org)



# PATIENT-REPORTED OUTCOMES: WHO KNOWS BEST?

**Falling**  
\* must provide value

Never Occasionally Daily

0

reset

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**Rising from Seated Position**  
\* must provide value

With ease With effort Unable to rise

31

reset

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**Dressing, Eating, & Grooming**  
\* must provide value

With ease With effort Unable

51

reset

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**Motivation/ Initiative**  
\* must provide value

Engaged, active Withdrawn, detached, or isolated

23

reset

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**Handwriting or Typing**  
\* must provide value

Great; with ease Slow or small Completely illegible

76

reset

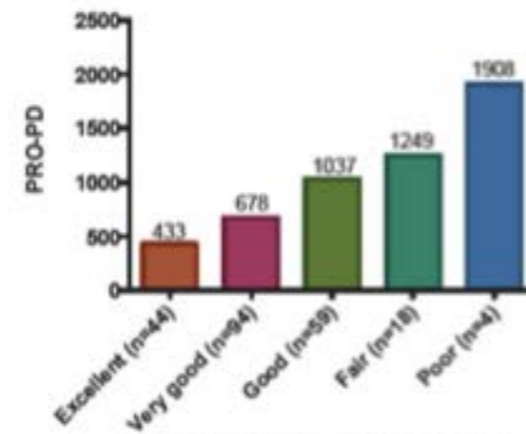
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**Depression (feeling sad, blues)**  
\* must provide value

Mentally healthy Persistent sorrow Severe

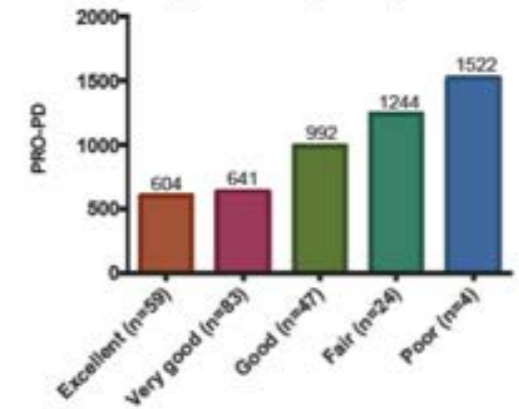
18

In general, would you say your quality of life is:



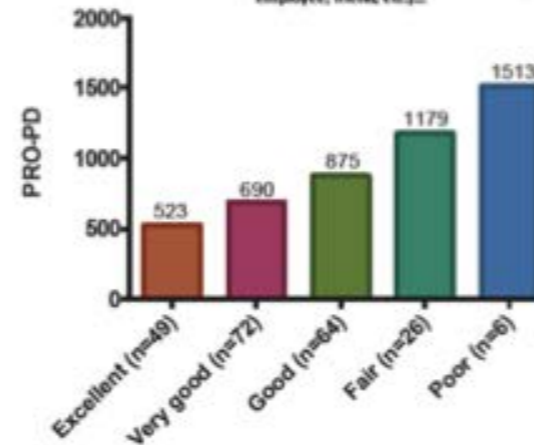
Patient-Reported Quality of Life

In general, how would you rate your mental health, including your mood and your ability to think?...



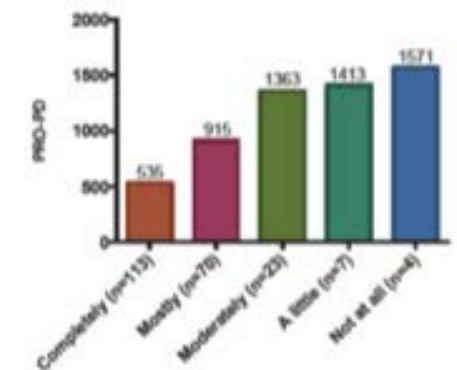
Mental Health

In general, please rate how well you carry out your usual social activities and roles. (This includes activities at home, at work and in your community, and responsibilities as a parent, child, spouse, employee, friend, etc.)...



Social Satisfaction

To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?...



Patient-Reported Physical Capacity



# WHEN/ WHERE DOES IT START?

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- ▶ Enteric nervous system
- ▶ Earliest symptoms:
  - ▶ Lack of thirst
  - ▶ Dehydration
  - ▶ Constipation



For Journalists

Mayo Clinic Radio

Español



By Jim McVeigh

## Study Determines Saliva Gland Test can Spot Early Parkinson's Disease

February 1, 2016



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NEUROLOGICAL HEALTH

## Does Parkinson's Begin in the Gut?

A growing body of evidence links the neurodegenerative disease to the gastrointestinal tract, opening new possibilities for treatment

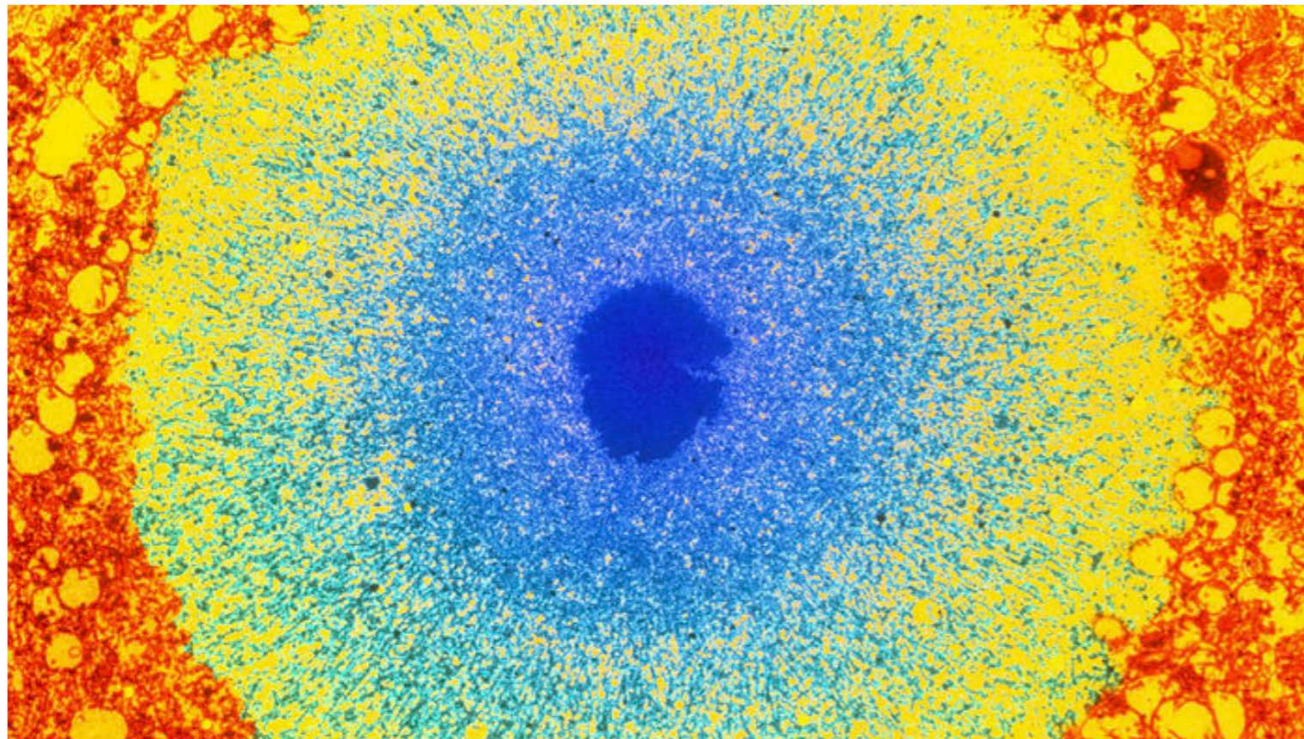
# INTESTINAL INFLAMMATION AS THE TRIGGER?



*J Innate Immun.* 2017 ; 9(5): 456–463. doi:10.1159/000477990.

## A role for neuronal alpha synuclein in gastrointestinal immunity

Ethan Stolzenberg<sup>1</sup>, Deborah Berry<sup>2</sup>, De Yang<sup>3</sup>, Ernest Y. Lee<sup>4</sup>, Alexander Kroemer<sup>5</sup>, Stuart Kaufman<sup>5</sup>, Gerard C.L. Wong<sup>4</sup>, Joost J. Oppenheim<sup>3</sup>, Supti Sen<sup>2</sup>, Thomas Fishbein<sup>5</sup>, Ad Bax<sup>6</sup>, Brent Harris<sup>7</sup>, Denise Barbut<sup>8</sup>, and Michael A. Zasloff<sup>5</sup>



A Lewy body, made largely of  $\alpha$ -synuclein protein (blue), in a neuron. Lewy bodies are the pathologic hallmark of Parkinson's disease. LYSIA FORNO/SCIENCE SOURCE

## The rogue protein behind Parkinson's disease may also protect your gut

By Meredith Wadman | Jun. 27, 2017, 4:30 PM



# GUT-BRAIN CONNECTION

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- ▶ **Central nervous system**

- ▶ Brain
- ▶ Spinal cord

- ▶ **Enteric nervous system**

- ▶ Part of Autonomic Nervous System
- ▶ Mesh-like neurons that governs GI function
- ▶ Has its own reflexes, etc.
- ▶ Makes 50% of the body's dopamine
- ▶ Dopamine receptors all throughout the body

# WHAT CAUSES PROTEIN AGGREGATION IN THE GUT?

- ▶ Intestinal inflammation
  - ▶ Acrolein?
  - ▶ Lactose intolerance?
  - ▶ H pylori?
  - ▶ SIBO?
  - ▶ Pesticides?
  - ▶ Calcium?



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Acrolein-mediated neuronal cell death and alpha-synuclein aggregation: Implication in Parkinson's Disease

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**Abeje S Ambaw**, *Purdue University*

[J Clin Neurol](#). 2016 Apr; 12(2): 147–150.

Published online 2016 Feb 26. doi: [10.3988/jcn.2016.12.2.147](https://doi.org/10.3988/jcn.2016.12.2.147)

PMCID: PMC4828559

PMID: [26932258](https://pubmed.ncbi.nlm.nih.gov/26932258/)

Association between Parkinson's Disease and  
*Helicobacter Pylori*

[Gülşah Çamcı](#)<sup>a</sup> and [Sıdıka Oğuz](#)<sup>b</sup>

# DAIRY: HOW MUCH IS TOO MUCH?

- 5 studies suggest the more dairy you eat, the more likely you are to get PD
- Our study showed the more dairy people ate, the faster their disease progressed.



to focus the market process and sales goals.

There may be several mechanisms responsible to explain the association between PD progression and dairy consumption:

- (1) Dairy intake lowers uric acid [19]. Uric acid quenches peroxynitrite in the CNS, and low uric acid levels are associated with greater PD incidence and faster PD progression [20].
- (2) Dairy consumption is associated with insulin resistance [21]. There is a growing body of evidence that PD and other neurodegenerative diseases are a form of “type III diabetes” [22].
- (3) Lactose intolerance, occurring when the enzyme, lactase, that digests the milk sugar decreases with age, is especially common in individuals of African, Asian, Hispanic, and Native American descent [23]. Consuming dairy in the absence of sufficient lactase may contribute to intestinal inflammation and intestinal permeability.
- (4) Presence of a neurotoxic component or contaminant, for example, pesticides, may be present in dairy [23].
- (5) Introduction of bovine microbiota, facilitating seeding of methanogenic organisms, leads to the development of methane-dominant small intestinal bacterial overgrowth (SIBO) and other forms of abnormal intestinal flora [24–26].

# WHAT DOES THE RESEARCH SAY?

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## *Research Article*

### **Role of Diet and Nutritional Supplements in Parkinson's Disease Progression**

**Laurie K. Mischley,<sup>1</sup> Richard C. Lau,<sup>2</sup> and Rachel D. Bennett<sup>1</sup>**

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*Objectives.* The goal of this study is to describe modifiable lifestyle variables associated with reduced rate of Parkinson's disease (PD) progression. *Methods.* The patient-reported outcomes in PD (PRO-PD) were used as the primary outcome measure, and a food frequency questionnaire (FFQ) was used to assess dietary intake. In this cross-sectional analysis, regression analysis was performed on baseline data to identify the nutritional and pharmacological interventions associated with the rate of PD progression. All analyses were adjusted for age, gender, and years since diagnosis. *Results.* 1053 individuals with self-reported idiopathic PD were available for analysis. Foods associated with the reduced rate of PD progression included fresh vegetables, fresh fruit, nuts and seeds, nonfried fish, olive oil, wine, coconut oil, fresh herbs, and spices ( $P < 0.05$ ). Foods associated with more rapid PD progression include canned fruits and vegetables, diet and nondiet soda, fried foods, beef, ice cream, yogurt, and cheese ( $P < 0.05$ ). Nutritional supplements coenzyme Q10 and fish oil were associated with reduced PD progression ( $P = 0.026$  and  $P = 0.019$ , resp.), and iron supplementation was associated with faster progression ( $P = 0.022$ ). *Discussion.* These are the first data to provide evidence that targeted nutrition is associated with the rate of PD progression.

# THINGS WE CAN CHANGE VS THINGS WE CAN'T

Dietary behaviors associated with Parkinson's disease progression

Dietary behaviors	Mean change in PRO-PD score (SE)*	P value (95% CI)*
I routinely prepare meals for others.	-141.1 (29.3)	<0.000 (-198.7 to -83.6)
I cook most of my meals.	-115.1 (30.2)	<0.000 (-174.4 to -55.7)
I buy food from a local farmers (co-op, farmer's markets)	-98 (28.3)	0.001 (-153.5 to -42.5)
I try to eat organically grown foods when possible.	-61.3 (28.1)	0.029 (-116.5 to -6.2)
I drink from a plastic bottle.	11.2 (5.4)	0.039 (0.6 to 21.8)
I am overweight.	169.4 (28.5)	<0.000 (113.5 to 225.3)
It is difficult to afford groceries.	443.5 (51.2)	<0.000 (343.1 to 543.9)
I find it difficult to afford healthy food.	473.6 (46.1)	<0.000 (383 to 564.1)

# The Quest for a Loophole

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- “What about soft cheeses? Goat cheese? Camel milk?”
- “What about grass-fed beef?”
- “But the milk I buy is organic.”
- “I only use a little bit of cream in my coffee.”



# SHOULD I EAT ORGANIC?

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## DIRTY DOZEN

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EWG's 2017 Shopper's Guide to Pesticides in Produce™



**“I try to eat organically grown foods when possible.”**

We surveyed over 1000 PwP. People who responded TRUE had a **PRO-PD score** approximately **75 points lower** than those who don't make the effort (-74.9 (28.1); p=0.008 (-130 to -19.8)).

Data after adjusting for age, gender, income, and years since diagnosis. (Mischley et al 2017)

# Rx: Medi Diet

[Perspective](#) > [Medscape Psychiatry](#) > [Brain Food](#)

COMMENTARY

## Should the FDA Approve the Mediterranean Diet for Depression?

Drew Ramsey, MD

[DISCLOSURES](#) | February 22, 2018

- Who teaches?
- Financial support?
- CEO of Medi Diet?
- How to package & deliver?



### Should the FDA Approve the Mediterranean Diet for Depression?

Two studies show impressive improvements in depression scores with a healthy diet high in plant-based foods and omega-3 fats.

MEDSCAPE.COM

# PROBIOTICS

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- ▶ Billions of bacteria live in your gut
- ▶ Play a role in nutrient production, absorption, immune system function, and inflammation.



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# PROBIOTICS

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- ▶ Even more important than probiotics, **prebiotics** are the foods that feed the good bugs.
- ▶ Usually **high-fiber foods**
  - ▶ Whole grains
  - ▶ Garlic, onions, leeks
  - ▶ Green leafy vegetables
  - ▶ Artichokes
  - ▶ Banana
  - ▶ Asparagus



# FECAL TRANSPLANTS

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- ▶ = Bacteriotherapy
- ▶ Most of your stool is actually bacteria
- ▶ Transfer of stool from a healthy donor into the GI tract of a person with disease
- ▶ Currently FDA-approved for *C. Difficile* infections
- ▶ PwP have different bacteria than healthy controls
- ▶ Available in UK (& on the 'black market' in the US) for PD

# BEFORE SWAPPING STOOL....

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- ▶ You can essentially give yourself a 'fecal transplant' by
  - ▶ Eradicating infectious organisms
    - ▶ Pharmaceutical antibiotics/ antifungals
    - ▶ Herbal antibiotics/ antifungals
    - ▶ Elemental diet
  - ▶ Changing to a plant-based diet
    - ▶ High in prebiotics
    - ▶ High in probiotics
    - ▶ Low in contaminants, animal-products, & processed food

# BACTERIOPHAGES: OVERLOOKED .....CULPRITS.....

- ▶ Bacteriophages are viruses that infect and replicate inside the bacteria living in your intestinal tract
- ▶ Bacteriophages shift the normal flora
  - ▶ Increasing intestinal permeability
  - ▶ Causing chronic inflammation
  - ▶ Temperate cells become virulent/lytic
  - ▶ Eventually cause host cells to die
- ▶ PwP had more virulent strains of bacteriophages and >10x decrease in *Lactococcus* species vs. healthy controls.
- ▶ This strain of bacteriophages is found in **dairy products**.

# Diet: Avoid

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- Red meat, processed meat
- Dairy
  - Cheese
  - Yogurt
  - Ice cream
- Fried foods
- Soda / Diet soda
- Canned Fruits
- Canned Vegetables

Mischley LK, 2016.  
Diet & Supps in PD  
Progression.

[https://www.huffingtonpost.com/2014/08/15/french-fries-healthy-fast-food\\_n\\_5678580.html](https://www.huffingtonpost.com/2014/08/15/french-fries-healthy-fast-food_n_5678580.html)





# Diet: Encourage

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- Fresh veggies
- Fresh fruit
- Nuts & seeds
- Non-fried fish
- Olive oil
- Coconut oil
- Wine
- Spices
- Fresh herbs



# Summary Treatment Plan

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- **Daily Exercise**

- Intense, requires concentration

- **Social**

- Join groups, be needed

- **Mindfulness**

- **Sleep**

- Go to bed early
- Brisk walk outside each morning

- **Plant-based (Medi) diet**

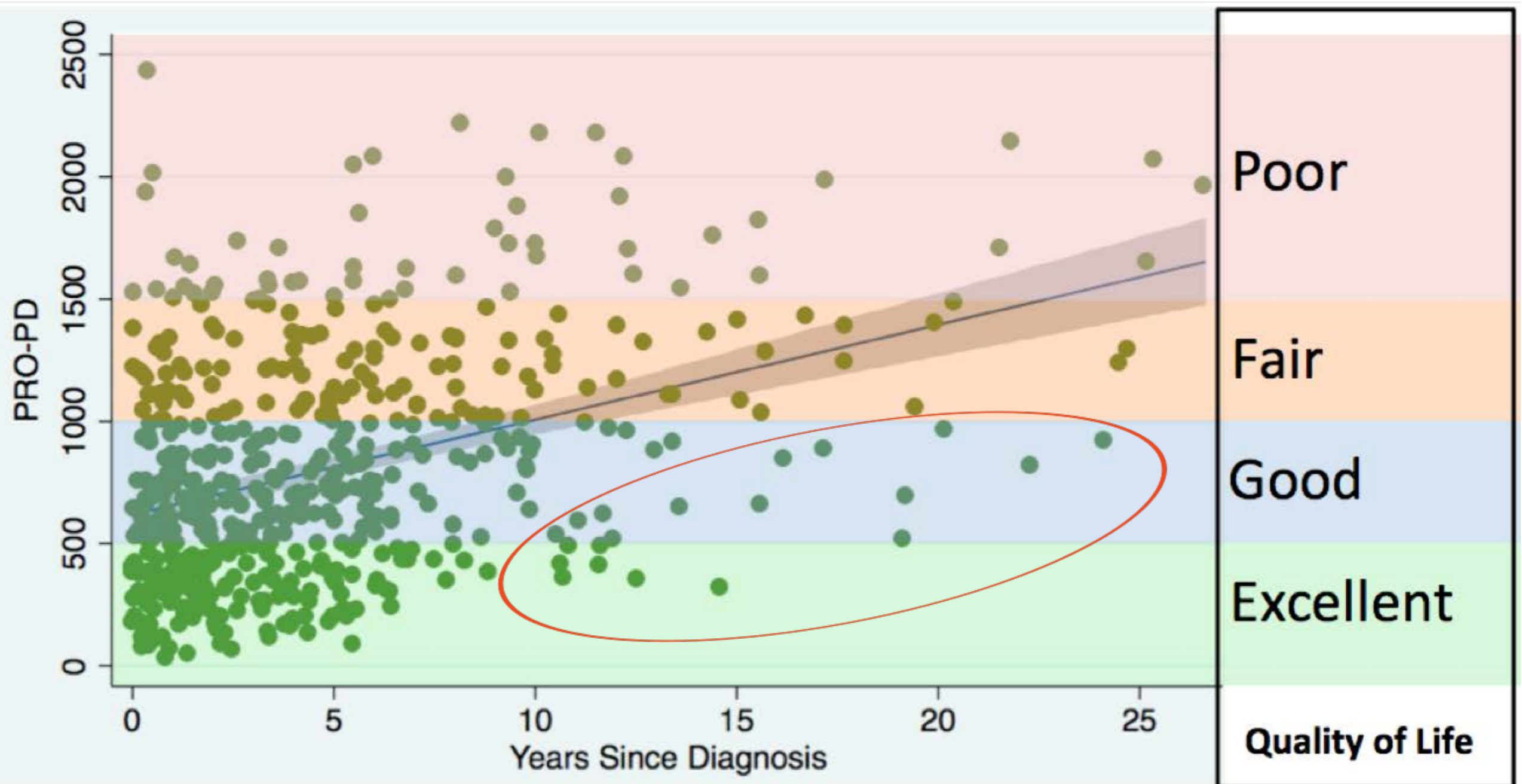
- **Encourage:** Fresh vegetables/fruits, nuts & seeds, fish, olive/coconut oil, wine, spices

- **Avoid:** Red meat, dairy, soda, fried foods, canned fruits/vegetables

- Individualized Plan for **Supplements**

- Keep all your providers informed.
- Fish oil, Q10, glutathione...
- Vit D, B-vitamins, melatonin...

# SETTING GOALS: HOW BAD DO YOU WANT IT?



# THANK YOU!

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- Questions: [info@EducationIsMedicine.com](mailto:info@EducationIsMedicine.com)