

PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS

- What is Parkinson's Disease? (UpToDate):
- First described by James Parkinson in his classic 1817 monograph, "An Essay on the Shaking Palsy" [1], Parkinson disease (PD; also known as paralysis agitans) is a progressive neurodegenerative disease that affects between 100 and 200 per 100,000 people over 40, and over 1 million people in North America alone [2,3]. PD is uncommon in people younger than 40, and the incidence of the disease increases rapidly over 60 years, with a mean age at diagnosis of 70.5 years [4].
- While PD has traditionally been considered a motor system disorder, it is now recognized to be a complex condition with diverse clinical features that include neuropsychiatric and other nonmotor manifestations in addition to its motor symptomatology [5]. An accurate diagnosis of PD rests on the clinician's ability to recognize its characteristic signs and associated symptoms, especially in the early stages.

UpToDate - Clinical manifestations of Parkinson disease [Kelvin L Chou, MD](#)

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Motor features of Parkinson disease	
Cardinal manifestations	
Tremor	
Bradykinesia	
Rigidity	
Postural instability	
Other motor features	
Craniofacial	
Hypomimia (masked facial expression)	
Decreased eye blinking	
Speech disturbances (hypokinetic dysarthria, hypophonia)	
Dysphagia	
Sialorrhea	
Visual	
Blurred vision	
Impaired contrast sensitivity	
Hypometric saccades	
Impaired vestibuloocular reflex	
Impaired upward gaze and convergence	
Lid apraxia	
Musculoskeletal	
Micrographia	
Dystonia	
Myoclonus	
Stooped posture	
Camptocormia (severe anterior flexion of the thoracolumbar spine)	
Pisa syndrome (subacute axial dystonia with lateral flexion of the trunk, head, and neck)	
Kyphosis	
Scoliosis	
Difficulty turning in bed	
Gait	
Shuffling, short-stepped gait	
Freezing	
Festination	

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NONMOTOR SYMPTOMS of Parkinson's Disease:

PD has traditionally been considered a motor system disorder, but it is now widely recognized to be a complex disorder with diverse clinical features that include neuropsychiatric and nonmotor manifestations in addition to its motor symptomatology [[44-48](#)]. These features include the following:

- Cognitive dysfunction and dementia
- Psychosis and hallucinations
- Mood disorders including depression, anxiety, and apathy/abulia
- Sleep disturbances
- Fatigue
- Autonomic dysfunction
- Olfactory dysfunction
- Gastrointestinal dysfunction
- Pain and sensory disturbances
- Dermatologic findings

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- Diagnostic Criteria for Parkinson's Disease:
- MDS Clinical Diagnostic Criteria for Parkinson's Disease:
<https://www.med.upenn.edu/digitalneuropathologylab/assets/user-content/documents/educational-resources/mds-clinical-diagnostic-criteria-for-parkinson%27s-disease.pdf>

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: LAURIE MISCHLEY ND, PHD, MPH

- Who is Laurie Mischley ND, PhD, MPH?
- Laurie is a fellow Bastyr Naturopathic Doctor classmate and Bastyr University alumni who later pursued her Masters in Public Health and PhD thesis "Glutathione Deficiency in Parkinson's Disease" from Nutritional Sciences in the UW School of Public Health
- Laurie is well published researcher on many Parkinson's topics and is an avid clinician only seeing patients with Parkinsonism for the last 21 years. Her clinic is Seattle Integrative Medicine (<https://seattleintegrativemedicine.com>)
- Laurie's ongoing research projects are available at <https://lauriemischley.com>



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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: LAURIE MISCHLEY ND, PHD, MPH

- Measuring the Burden of Disease: Pro-PD Scale (Patient Reported Outcomes in Parkinson's Disease)
- “The PRO-PD was created because other scales do not permit this type of analysis. The PRO-PD is a patient-centered, continuous **measure of disease severity** that is stratifiable by symptom and correlates with quality of life and existing scales for PD severity (e.g. UPDRS, HY).[Mischley LK, 2017] **Lower Scores are Better.**”
- “We surveyed over a thousand individuals with PD and asked them to describe their symptoms. The most common symptoms were fatigue, impaired handwriting, loss of smell, memory impairment, and muscle pain.”
- “Parkinson Symptom Tracking PRO-PD” App available on the App store or online: <https://pd-symptoms.com>

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: LAURIE MISCHLEY ND, PHD, MPH

- Mischley, L.K., Lau, R.C. & Weiss, N.S. “Use of a self-rating scale of the nature and severity of symptoms in Parkinson's Disease (PRO-PD): Correlation with quality of life and existing scales of disease severity. *npj Parkinson's Disease*” **3**, 20 (2017). <https://doi.org/10.1038/s41531-017-0021-5>
- A self-rating scale was developed to permit patient-reported, remote assessment of Parkinson's disease symptom severity. The goal was to create a continuous outcome measure that does not require a clinical exam, does not fluctuate in response to dopaminergic medications, takes only a few minutes to complete, allows for stratification by symptom(s), and captures both motor and non-motor Parkinson's disease symptoms, major contributors to quality of life. The Patient Reported Outcomes in Parkinson's Disease (PRO-PD) is the cumulative score of 32 slider bars, each evaluating a common Parkinson's disease symptom. The PRO-PD has been used as an outcome measure in three studies. The baseline data from each of these studies were pooled for this analysis. Symptom frequency and severity are described, as well as correlation coefficients with existing measures of Parkinson's disease severity. Data on 1031 participants with Parkinson's disease were available for analysis. Fatigue, impaired handwriting, daytime sleepiness, slowness, tremor, muscle cramps, and forgetfulness were the most frequently reported symptoms. Persons with a relatively long duration of Parkinson's disease tended to report more, and more severe, symptoms.

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: LAURIE MISCHLEY ND, PHD, MPH

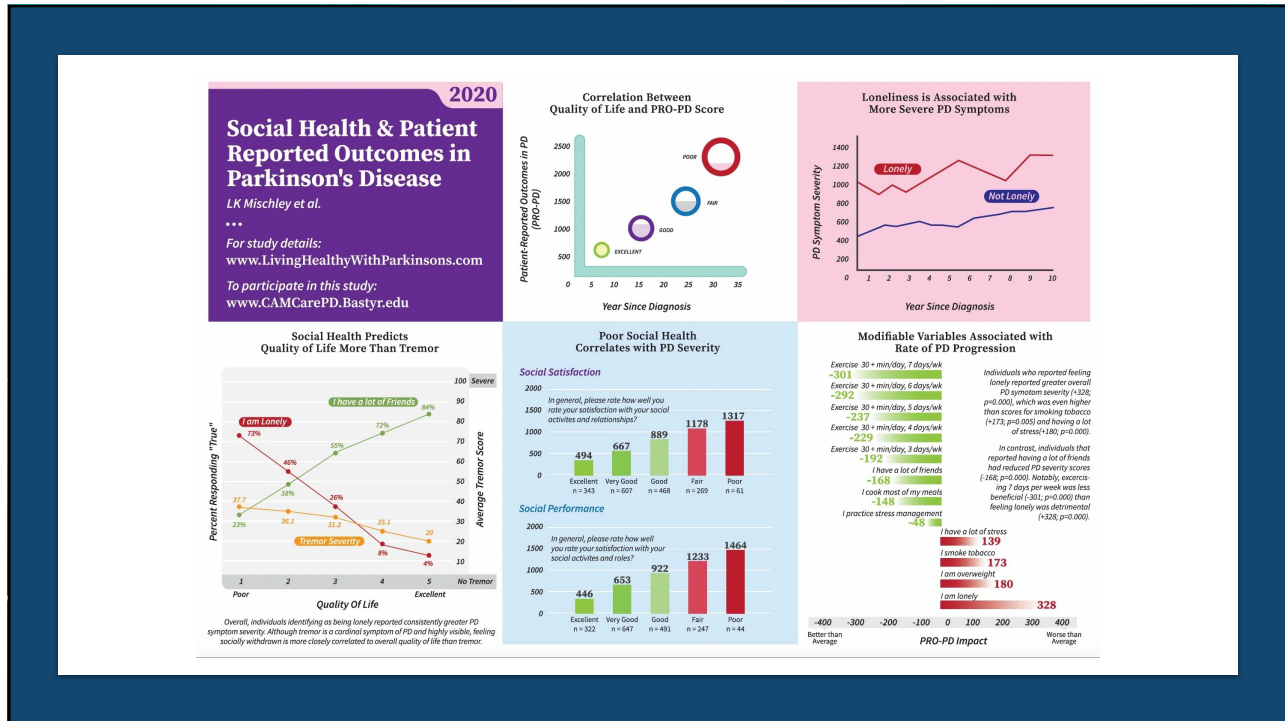
- Know your PRO-PD Score (propd.org)
- Disease modification is only possible if we have a way of measure it. The symptoms of Parkinsonism come on slowly, they fluctuate, and are often vague and difficult to rate.
- Reversal= PRO-PD Score goes down, negative slope.
- Stabilization= PRO-PD Score unchanged.
- Progression= PRO-PD Score increases over time.

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: LAURIE MISCHLEY ND, PHD, MPH

- <https://mvp-study.com>
- Modifiable Variables in Parkinson's Study: allows patients and doctors to participate in a data base of 2600 Parkinsonism patients for the purpose of determining harmful and helpful behaviors for Parkinson's progression.
- Mission statement of MVP study: "There is a tremendous amount of diversity among People with Parkinsonism (PwP); some people seem to progress quickly and others barely at all. Our goal is to collect information that will make it possible to identify relationships between your daily choices and therapies associated with different rates of progression."

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PREVALENCE OF MARCON'S IN PARKINSON'S DISEASE PATIENTS: LAURIE MISCHLEY ND, PHD, MPH

- <https://parkinson-school.com> – online learning center for integrative approach to Parkinson's
- <https://bastyrpdschool.org> Parkinson's Disease School (usually summer and sometimes Spring break) hosted by Bastyr University, created, created, delegated, organized and executed by Dr. Mischley, staff and other providers for Parkinson's patients and their loved ones.

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS:

- Evaluation of Clustered Symptoms and MARCoNS in established Parkinson's Patients was conducted at "Parkinson's School" at Bastyr University
- 34 Established Parkinson's patients (per MDS criteria) were evaluated for clustered symptoms (37 symptoms arranged into 13 clusters) and administered a MARCoNS swab
- MARCoNS nasopharyngeal swabs were generously donated by **Dr. Joseph D. Musto, M.Sc., Ph.D., BCLD/CC (ABB)** at Microbiology Dx (<https://microbiologydx.wixsite.com/dlmmicro>)

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: QUESTIONS!

- Could CIRS be a participating contributing factor in Parkinsonism and Parkinson's Disease?
- Is CIRS worth Screening in the Parkinson population?
- Could Identifying and Treating CIRS become a powerful "Modifiable Variable in Parkinson's (MVP)?"
- Could MARCoNS be an MVP?
- Pilot size Data from sampling Parkinson's Patients nasopharyngeal passages suggests MARCoNS prevalence may be higher in Parkinson's patients!!

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Parkinson's/MARCoNS Data set		Nasal Swab Result
Total Clustered Symptoms		
1	8	Non-Marcons/ Staph Aureus Coag Pos
2	8	Marcons +
3	8	Marcons + / Klebsiella Oxytoca
4	6	Marcons +
5	11	Non-Marcons/ MRSA
6	2	Non-Marcons/ MRSA
7	12	Marcons +
8	9	Marcons +
9	9	Marcons +
10	10	Non-Marcons/ Staph Aureus Coag Pos
11	12	Marcons +
12	7	Marcons + / Citrobacter Koseri
13	9	Non-Marcons/ Leclercia Adecarboxylata/ Corynebacterium sps.
14	5	Non-Marcons/ MRSA
15	5	Non-Marcons/ MRSA
16	10	Non-Marcons/ E.Coli
17	5	Marcons +
18	9	Marcons +
19	5	Marcons +
20	6	Marcons +
21	9	Non-Marcons
22	7	Marcons + / Pseudomonas Fluorescens
23	7	Non-Marcons
24	8	Non-Marcons/ Staph Aureus Coag Pos
25	8	Marcons +
26	8	Non-Marcons/ Staph Aureus Coag Pos
27	7	Non-Marcons/ Alpha Strep
28	11	Marcons +
29	4	Non-Marcons/ Sphingomonas Paucimobilis/ Corynebacterium sps.
30	4	Non-Marcons/ E.Coli
31	8	Marcons +
32	7	Non-Marcons
33	6	Marcons +
34	11	Marcons + / Enterobacter Aerogenes

18/34 Parkinson's MARCoNS positive

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: ANSWERS?

- 18/34 nasopharyngeal swabs MARCoNS positive
- 53% positive relative to 1-2% positives in healthy controls (Shoemaker 2004) and 80% positive in low MSH CIRS cases (95%+ CIRS cases with alpha-MSH <35, 80% of the low MSH CIRS cases + MARCoNS positive)
- 11/18 Parkinson's Patient MARCoNS positive had 8 or more of 13 cluster sx's
- 16/18 Parkinson's Patient MARCoNS positive had 6 or more of 13 cluster sx's
- 27/34 Parkinson's Patients were 6 or more of 13 cluster sx's regardless of MARCoNS status; 19/34 were positive for 8 of 13 cluster sx's regardless of MARCoNS status
- 4/34 Parkinson's Patients were MRSA positive (MRSA outcompetes MARCoNS per Joe Musto's work)

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PREVALENCE OF MARCONS IN PARKINSON'S DISEASE PATIENTS: MORE QUESTIONS!

- Potential Data Confounders / missing data:
- Students conducted the Clustered Sx's questionnaire; adequate cross-examination interviewing techniques?
- The Predominance of Male patients possibly influence underreporting on clustered symptoms
- Lack of Labcorp alpha-MSH, one of the discerning markers in Dr. Shoemaker's groundbreaking presentations to the American Society of Microbiology:

Melanocyte Stimulating Hormone (MSH) Deficiency in Chronic Fatigue Syndrome Associated with Nasal Carriage of Coagulase Negative Staphylococci (CoNS)

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- THANK YOU!!!
- <https://lauriemischley.com>
- Dana Bjerke ND and Bastyr student population (you are the medicine!!)
- Gabby Lamb (data collation)
- Dr. Scott McMahon MD for research and "Can Do" support
- Dr. Ritchie Shoemaker for EVERYTHING
- The Patients for their participation, enthusiasm and grit!

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