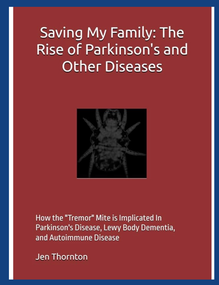
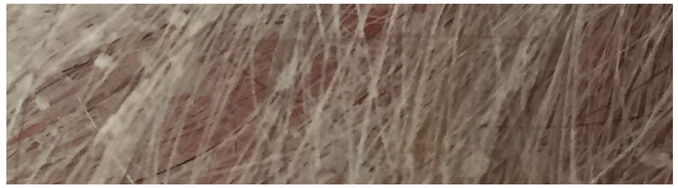
A Prevention-Oriented Trial Framework for Vector-Mediated Contributors to Parkinson's Disease and Related Synucleinopathies

Jennifer Thornton, Independent Researcher and Author of "Mites, Microbes and Neurodegeneration: A unified environmental hypothesis for Parkinson's disease, Alzheimer's disease and Lewy body dementia" (Published in the Journal of Alzheimer's Disease 3/2026) and Published Book: *Saving My Family: The Rise of Parkinson's and Other Diseases*



BACKGROUND

Parkinson's disease (PD), dementia with Lewy bodies, and related synucleinopathies lack validated prevention strategies, despite growing evidence that environmental and biological factors may contribute to disease initiation. Epidemiologic and mechanistic data increasingly implicate peripheral tissues as potential sites of early pathology. Dermatologic and ocular conditions—including rosacea, ocular rosacea, seborrheic dermatitis, cataracts, and melanoma—are associated with elevated PD risk and may provide accessible interfaces for early detection and intervention.



Seborrheic Dermatitis

METHODS

We propose a prevention-oriented, randomized trial enrolling individuals newly diagnosed with PD and individuals at elevated risk based on relevant dermatologic or ocular phenotypes. Participants would undergo standardized skin and ocular swabbing with DNA-based PCR assays to detect mites (e.g., Demodex and scabies) and associated microbes or pathogens. Participants would be assigned to targeted vector and/or microbe eradication therapies or to standard-of-care control groups. Post-treatment resampling would confirm eradication. Longitudinal follow-up would include clinical assessments (motor and cognitive scales), biomarker evaluation (including cutaneous phosphorylated α-synuclein using tools such as the Syn-One biopsy), and repeat microbiological sampling. Neuroimaging may be incorporated where appropriate.

Scar from Melanoma Surgery and Acute Rosacea

Melanoma has been linked to mites in our article Mites, Microbes and Neurodegeneration: A unified environmental hypothesis for PD, AD, & LBD.

RESULTS

- The primary outcome is whether confirmed eradication of vectors and associated microbes correlates with stabilization, slowed progression, or prevention of synucleinopathy-related clinical and biomarker changes. Secondary outcomes include changes in skin and ocular biomarkers, α-synuclein burden, and longitudinal clinical trajectories.
- This framework is supported by epidemiologic observations, including reduced PD risk following lindane treatment for scabies, as well as mechanistic plausibility that mites may carry neurotoxic compounds, transmit microbes, or facilitate prion-like propagation.
- Additional support includes evidence that house dust mites exacerbate Alzheimer's-related pathology, overlap of Lewy body pathology between Alzheimer's and Parkinson's disease, and shared lymphatic drainage pathways between ocular tissues and the central nervous system, particularly relevant in ocular rosacea.

Chronic ocular symptoms

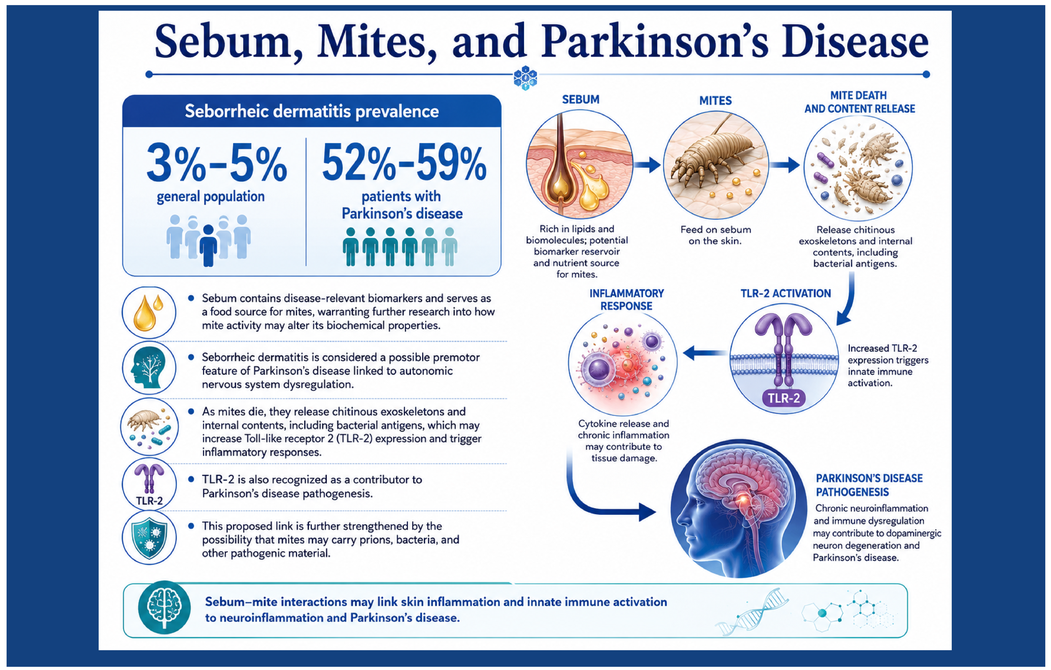
This is consistent with **mite** involvement which preceded the diagnosis of Lewy body dementia (AKA Parkinson's disease with dementia depending on the timing of symptom onset). **Demodex mites** are now being recognized more frequently in ophthalmic practice; however, prior to 2018, only one ophthalmologist identified mites despite numerous consultations. Rosacea has been linked to mites in scientific literature as well as associated with an increased risk of Parkinson's disease.

Did you know?

Lewy body pathology can be found in the eyes and tears.

CONCLUSION

This Trial Design Forum advances a testable, closed-loop, prevention-focused paradigm integrating dermatologic, ocular, microbiological, and neuropathological markers to evaluate peripheral initiation hypotheses in synucleinopathies.
By directly identifying, treating, and verifying eradication of potential vector-mediated contributors, this multidisciplinary framework offers a novel approach to prevention-oriented research in Parkinson's disease and related disorders.



In patients with **seborrheic dermatitis**, researchers found four Malassezia species along with mites-primarily **Demodex brevis** at 65% and **Demodex follicolorum** at 26%-supporting a microbial/acarid component in seborrheic dermatitis.(Mokronosova et al., 2012). **Nationwide Study showed Scabies was associated with a 1.46 fold increased risk Parkinson's disease, while treatment with lindane (Pesticide) was linked to a significantly lower risk, suggesting a potential protective effect of lindane (PESTICIDE)**. (Tsai et al., 2024)

ACKNOWLEDGEMENTS

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SCAN ME

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