

Department of Physical Therapy and Human Movement Sciences

Laboratory for Therapeutic Interventions in Parkinson's Disease

Welcome to the **Laboratory for Therapeutic Interventions for Parkinson's Disease**. Our mission is two-fold. First, we are seeking to understand the causes and progression of Parkinson's disease. Second, we are passionate about finding treatments to help people with Parkinson's disease live their lives to the fullest. Our laboratory conducts and studies innovative research in the areas of exercise and deep brain stimulation. We have discovered that specific exercise prescriptions of both weight training and endurance exercise slow Parkinson's disease progression. Further, we have shown that deep brain stimulation reduces tremor and improves ease of movement.

The Laboratory for Therapeutic Interventions for Parkinson's Disease offers innovative research and educational opportunities for patients, their loved ones, and health and fitness professionals. Our Laboratory is the recipient of competitive grants awarded to us by the National Institutes of Health. While every source of funding is important, private philanthropic support is especially crucial to our success. The support of generous individuals and groups, like you, will provide the resources we need to attract and recruit new scientists, as well as initiate research projects that may eventually lead to major developments in treatments for Parkinson's disease.

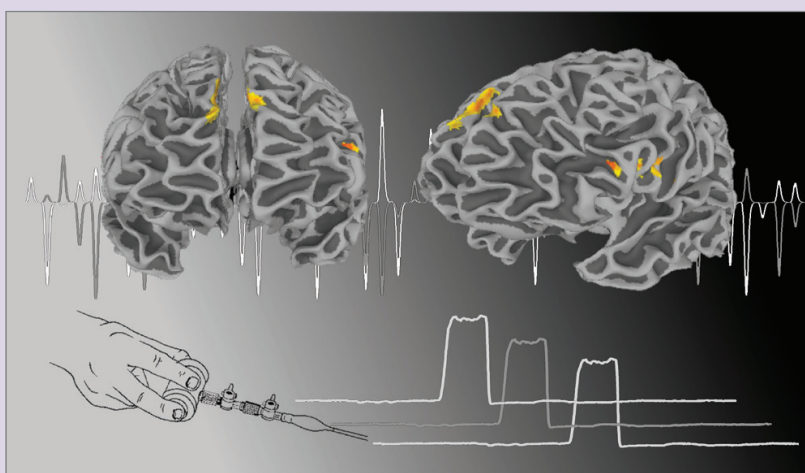
Further, your support will help us to continue to educate people with Parkinson's disease and other health and fitness professionals about optimal strategies for treating this challenging disease. Results from our Laboratory have immediate application to prescribing exercise for people with Parkinson's disease. With your support, these findings can be more rapidly disseminated to the public.

We invite your philanthropic partnership to help us pursue and achieve our research and educational missions. Every gift makes a difference and will further our important work on behalf of patients and their families. Information about making a gift to support our efforts is located on the back of this brochure. Thank you for considering a gift to help make our daily work possible.

Sincerely,



Daniel Corcos, PhD
Director



Laboratory for Therapeutic Interventions in Parkinson's Disease

Dedicated to improving the lives of people with Parkinson's disease

At the Laboratory for Therapeutic Interventions in Parkinson's Disease, we conduct breakthrough research and disseminate our research findings to improve the quality of life of people with Parkinson's disease. The Laboratory is housed in the Department of Physical Therapy and Human Movement Sciences at Northwestern University Feinberg School of Medicine and collaborates closely with the Parkinson's Disease and Movement Disorders Center at Northwestern.

The Laboratory for Therapeutic Interventions in Parkinson's Disease encompasses five state-of-the-art research facilities.

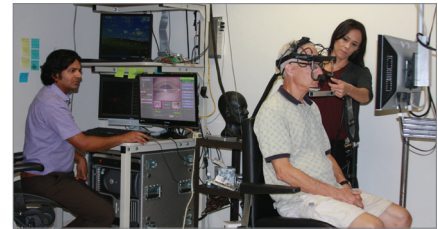
- The **Exercise Physiology Facility** investigates high intensity exercise for Parkinson's disease. This facility also serves as a resource for the Northwestern community to provide physiological assessments of oxygen consumption and maximal heart rate.
- The **Eye-Hand Coordination Facility** investigates how deep brain stimulation can be optimized and improved to help movement and cognition.
- The **Physical Function Facility** investigates posture, movement, and balance with sophisticated wearable sensors.
- The **Electrophysiology Facility** investigates how exercise improves brain function.
- The **Brain Imaging Facility** investigates brain structure and function during speech and movement using a high resolution magnet and magnet compatible sensors.

In addition to developing new knowledge, our investigators are committed to education and the sharing of research knowledge with our academic peers across the world. To achieve this goal, our researchers:

- Train Northwestern neuroscience PhD students to be the next generation of leaders paving the way to develop new insights to help people with Parkinson's and other movement disorders.
- Teach Northwestern Doctor of Physical Therapy students about the neuroscience underlying the latest advances in therapeutic interventions for people with Parkinson's disease.
- Advise fitness professionals on exercise best practices to implement in fitness and wellness centers for clients with Parkinson's disease.
- Provide educational seminars for individuals with Parkinson's disease.



Exercise Physiology Facility



Eye-Hand Coordination Facility



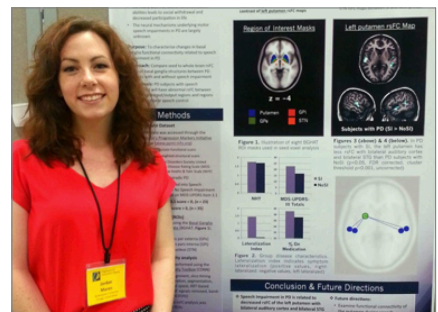
Physical Function Facility



Electrophysiology Facility



Brain Imaging Facility



Jordan Manes, Neuroscience PhD Student

Meet Our Team

In addition to Dr. Corcos, the following experts are important members of the Laboratory for Therapeutic Interventions in Parkinson's Disease:

Members of the Laboratory

Dr. Fabian J. David
Dr. Lisa Chin Goelz
Dr. Ajay Kurani

PhD Students

Jordan Manes
Miranda Munoz

Research Staff

Ellen Herschel, Research Coordinator
Liz Skender, Exercise Physiologist

Dr. Fabian J. David is a research assistant professor in the Department of Physical Therapy and Human Movement Sciences. He is a neuroscientist interested in understanding how attention and memory contribute to movements like reaching and walking, and how exercise and deep brain stimulation can help to improve movement and cognition in people with Parkinson's disease.

Dr. Lisa Chin Goelz is a movement neuroscientist interested in understanding the role of attention in eye movements and postural instability in patients with Parkinson's disease. She also is interested in the effect of therapeutic deep brain stimulation on the relationship between attention and postural stability.

Dr. Ajay Kurani is a research assistant professor in the Department of Radiology. He is interested in understanding the basis of structural and functional deficits and changes in brain morphology in patients with Parkinson's disease. He develops novel non-invasive techniques utilizing magnetic resonance imaging (MRI) in order to identify biomarkers to aid in differential diagnosis and tracking of disease progression.

Liz Skender is an ACSM-certified exercise physiologist and clinical research coordinator in the Department of Physical Therapy and Human Movement Sciences. Liz is involved in the planning, development, and implementation of exercise testing and training for individuals with Parkinson's disease.

Jordan Manes is a PhD student in Northwestern University's Interdepartmental Neuroscience (NUIN) program. Jordan's research uses brain imaging alongside speech and voice measures to understand how changes in brain function relate to speech and voice changes in Parkinson's disease.

Miranda Munoz is a second-year PhD student in the NUIN Program. Miranda is interested in cognitive deficits among individuals with Parkinson's disease and how treatments and therapies, like deep brain stimulation and exercise, might benefit those with Parkinson's.

Ellen Herschel is a research study coordinator whose work is focused on studies using MRI techniques to identify different biomarkers that can be used to differentiate and track disease progression in Parkinson's disease and related disorders.





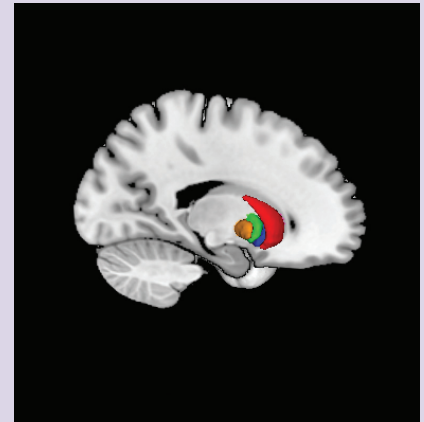
About Our Director

Daniel M. Corcos, PhD

Dr. Corcos is a tenured full professor in the Department of Physical Therapy and Human Movement Sciences. He is an honorary member of the American Physical Therapy Association and is a member of the National Parkinson Foundation Center for Excellence at Northwestern. For more than 30 years, Dr. Corcos has been consistently funded by the National Institutes of Health (NIH). He has published more than 200 peer-reviewed papers, been awarded more than \$20,000,000 in NIH funding, and has been extensively cited in the national press for his research on Parkinson's disease.

Dr. Corcos led the NIH-funded SPARX trial (Study of Parkinson's Disease and Resistance Exercise) involving 128 people with Parkinson's disease. This study showed that high intensity endurance exercise slows down the rate of Parkinson's disease progression. Other research accomplishments have shown that strength training reduces disease severity and improves cognition (the Progressive Resistance Exercise Trial for Parkinson's Disease (PRET PD)).

Dr. Corcos is the primary investigator on a current NIH-funded study examining the therapeutic effects of brain stimulation in people with Parkinson's disease. He is collaborating with colleagues at the University of Florida on an NIH funded study to identify brain imaging biomarkers that can differentiate Parkinson's disease from other neurodegenerative diseases and to track how these diseases progress over time.



How You Can Help

The Laboratory for Therapeutic Interventions in Parkinson's Disease is a laboratory dedicated to improving the lives of people with Parkinson's Disease. Our daily work is not possible without the generosity of our research participants (both with and without Parkinson's disease) whose contributions lead to better understanding and potential future treatments for this disease.

The Laboratory for Therapeutic Interventions in Parkinson's Disease has many ways for you to make a difference. Your generous contributions in support of our studies and educational efforts are most appreciated and will greatly enhance and benefit the Laboratory now and in perpetuity. Each gift makes a special difference!

For more information about participating in research at the Laboratory, please contact:

Dr. Daniel Corcos

Email: daniel.corcos@northwestern.edu

Phone: 312-908-6972

For information about making a gift to support the work of Dr. Corcos and the expert team in the Laboratory, please contact:

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