



MOVEMENT DISORDER DIGEST

News from the Johns Hopkins Parkinson's Disease and Movement Disorders Center | Spring/Summer 2019

DIRECTOR'S CORNER *KELLY MILLS, MD, MHS*



Thank you for taking the time to read the Movement Disorder Digest from the Johns Hopkins Parkinson's Disease and Movement Disorders Center, a Parkinson's Foundation Center of

Excellence and Lewy Body Disease Center of Excellence. By reading this and becoming engaged in our community of people with movement disorders and their caregivers, your invaluable partnership inspires us and enables us to advance the treatment of patients with movement disorders.

I am excited to share with you that we not only have six physicians and providers specifically trained in the evaluation and treatment of movement disorders, but that our team also includes nurses, a health educator, office coordinators, and even research coordinators who help to fulfill our mission of patient-centered care, research, and education. We offer advanced therapies for movement disorders and work with allied health providers to give comprehensive care, but our mission pushes us to go beyond just excellent care in the clinic.

We support and facilitate educational opportunities for patients, such as an evening educational series for Parkinson's disease, regional support groups for Parkinson's disease, an atypical parkinsonism support group, educational events for ataxia patients, and even

educational events for physicians and other providers, so they can become better partners in care for all movement disorders patients in the region. These events are open to anyone, regardless of whether they see a provider at our center or elsewhere. Our health educators have been involved in the establishment of many of the support groups in the tri-state region and continue to run a yearly support group leader training to help motivated individuals obtain the skills and resources needed to start a local group. Our nurses and health educators also field numerous questions from our hotline, and help to get you answers or direct you to someone who can help.

Our team also takes pride in partnering with many, many motivated individuals who sacrifice time and sweat to raise funding for research, education, and community outreach as part of the yearly Pacing-4-Parkinson's event.

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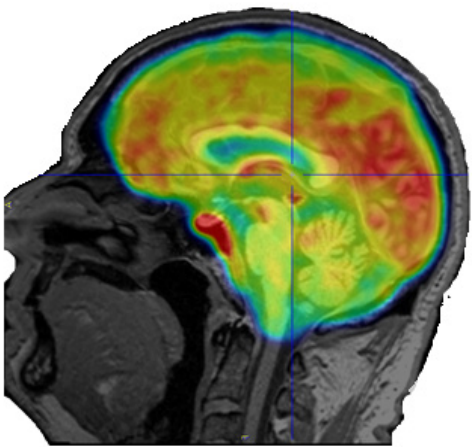


JOHNS HOPKINS
M E D I C I N E



EDUCATION

Not only does this allow us to support community-based programs such as the Parkinsonics singing program, Drum-PD/HD drumming program for Parkinson's and Huntington's disease, Rock-Steady Boxing, and Guitar-PD program for Parkinson's disease, it also allows us to support important pilot research that advances the field toward finding new treatments for Parkinson's disease and atypical parkinsonisms.



With some of the most ground-breaking basic science in Parkinson's disease, MSA, PSP, ataxia and other disorders here at Johns Hopkins, it is essential that we have funding for pilot research studies to help translate these findings into the clinic. This year, we hope to have at least two clinical trials that test whether drugs can slow or stop Parkinson's disease, and much of the basic science behind these treatments occurred right here at Johns Hopkins!

As you see, our mission takes us well beyond the clinic room and I'm hopeful that our center can impact you or your loved one through direct clinical care, educational events, community outreach support, and/or research opportunities. Please let us know how we can help you, a loved one, or your community! ■

MARIJUANA IN MOVEMENT DISORDERS

ANKUR BUTALA, MD



The use of marijuana or cannabis for medicinal reasons is gaining popularity. But there is a lack of good data about various conditions and

anecdotal reports on the Internet are often highly personal. Physicians usually favor pharmaceutical compounds because there is rigorous quality testing to ensure consistent responses.

THC and CBD

Marijuana strains vary widely in their ratio of THC to CBD and numerous other cannabinoids present in them. Tetrahydrocannabinol (THC), causes the "high" associated with marijuana, while Cannabidiol (CBD) which is the second most common cannabinoid, is widely thought to have beneficial effects on diseases. THC is known to improve pain and makes you feel "happy", however can affect mood and thinking.

Cannabinoids in your brain

Human brains have natural cannabinoids that bind to receptors in the basal ganglia, a key part affected in most movement disorders including Parkinson's disease (PD). Small studies on the effect of CBD on tremors, slowness and stiffness of PD showed mixed results with some benefits. The CBD doses used in these studies were often low, and variable from study to study, hence it is hard to make any definitive statement on the overall benefits at this time. It is notable that even when the target symptoms did not improve, many patients in these studies reported improvement in anxiety, pain, sleep and quality of life. A study in 7 patients showed that an FDA-approved synthetic cannabinoid, Nabilone, improved levodopa-associated dyskinesias.

Cont'd on Page 3



EDUCATION

Find your target symptoms

In general, you should have a specific set of symptoms you would like to target. Discuss with your doctor whether it is expected to respond. Choose symptoms that are subjectively and objectively measurable, so your doctor can provide feedback whether it is helping or not.

How do I get the prescription?

The process differs from state to state and the list of conditions for which it is approved may also vary. In Maryland, for example, the patient must first register with the Maryland Medical Cannabis Commission (MMCC).

The MMCC provides a Patient ID card. Next, she/he will have to obtain a written certification from a provider registered with the MMCC. The patient can purchase the medical cannabis from licensed Maryland dispensary with the written certification. Note that there is no prescription involved. The type of plant and concentration of THC-CBD to use are determined by trial and error and target symptoms.

Exercise caution

Patient reactions and responses to marijuana are highly variable and depend on many things like their genetics and prior history of use. If you have a personal or family history of mental illness (particularly Bipolar Disorder or Psychotic Disorders), pre-existing memory issues, and a heart or lung problem, you should discuss these in detail with your doctor before considering medical marijuana as they have major implications. Nausea, dizziness, mood changes, and problems with thinking can be especially problematic in patients with movement disorders.

Additional information:

Maryland Medical Cannabis Commission:
<https://mmcc.maryland.gov/Pages/home.aspx>
National Center for Complementary and Integrative Health (NCCIH): <https://nccih.nih.gov/health/marijuana>

WHAT IS YOUR WHY?



CHELSEA GANC

I believe that everything happens for a reason. I believe that every connection, no matter how small or big, has an everlasting impact.

As a course assignment, I was instructed to interview an individual with a chronic illness. Despite wanting to take the easy route and simply interview a family member, I opted to interview someone with a chronic illness I hadn't heard much about: Parkinson's. Fast forward six months later, as a recent graduate applying for positions in Health Education, I stumbled upon the posting for the position in the Johns Hopkins Parkinson's Disease and Movement Disorders Center. Immediately, my heart flashed back to the connection I had made with the gentleman I interviewed for that course assignment. I instantly felt that this position was posted at the right place, at the right time.

Despite my limited experience working with Parkinson's Disease, I knew that I would be able to make a difference in this role, should I be lucky enough to be offered the position. As fate would have it, almost a year after accepting the offer to join the team in the Movement Disorders Center here at Johns Hopkins, I have discovered the very essence of my why: to empower others. My role as the Center's Health Educator affords me the opportunity to interact and educate the Parkinson's community on a regular basis. Through education and companionship, it is my hope that those individuals wrestling with this exhausting disease will feel empowered to take control and fight to live their best lives. There is no better reward for me than to see those who once felt helpless radiate hopefulness.





CENTER UPDATES

Education is one of the core missions of the Center and our Fellowship offers training in the diagnosis and management of a wide variety of movement disorders and scholarly research in the field. To learn more, visit https://www.hopkinsmedicine.org/neurology_neurosurgery/education/fellowships/movement_disorders/

FAREWELL FROM OUR GRADUATING FELLOWS



BONNIE KAAS, MD

It is bittersweet for me to say farewell to Johns Hopkins Neurology. It is difficult to believe that I have spent my last decade here (medical school, neurology residency, and then movement disorders fellowship).

Above all else, I will miss working with the amazing, inspiring people (physicians, nurses, staff, students, and patients) who have helped me grow as a doctor, teacher, and colleague. The fact that I will be staying in the region and will be able to maintain an affiliation with the institution makes this big transition easier. Thank you to everyone who has helped me along the way!



SURAJ RAJAN, MSc, MD

Standing at the threshold of this fellowship, it is hard to say exactly which part of this journey I will cherish the most. Learning from some of the best clinicians and researchers in the world, or being immersed in the art of patient-centered care? Or perhaps being in

the company of exceptionally talented nurses, geneticists, therapists, social workers and research assistants who love their jobs and shared their enthusiasm.

There aren't enough words to thank my Attendings, my co-fellows and our patients for helping me carve a niche of my own, and for their support as we move on to independent practice. I hope I can do justice to them by emulating their best qualities.

WELCOME TO OUR NEW FELLOWS



JUMANA ALSHAIKH, MD

Dr. Jumana Alshaikh graduated 1st in class from her medical school in Saudi Arabia, and then worked as a research fellow at George Washington University. She is finishing her Neurology residency at the University of

Chicago where she also completed a 1-year fellowship in Clinical Medical Ethics and served as a member of the Graduate Medical Education Committee and a member of the Resident Advisory Council. Her interests include Deep Brain Stimulation, Huntington disease, Tourette's syndrome, neuroethics, and patient safety and quality improvement. Outside of work she enjoys trying new ethnic restaurants and city life.



MAITREYI MURTHY, MD

Dr. Maitreyi Murthy is a graduate of Siddhartha Medical College, India and has a Master of Philosophy (M.Phil) in International Health. She began her Neurology residency at the University of Arizona, and moved to Rutgers New Jersey

Medical School, from where she will be graduating soon. Dr. Murthy is interested in Atypical Parkinsonian disorders, as well as the behavioral and cognitive aspects of Movement Disorders. She believes that Teleneurology could assist in providing healthcare to far-flung areas of the country. She is an avid traveler and enjoys hiking. She also likes exploring small towns and delving into their culture and history.



SPOTLIGHT



Dan Dreibelbis

This edition's community spotlight takes time to showcase *Pedaling for Parkinson's™*. Founding member of the YMCA of Central Maryland *Pedaling for Parkinson's™* program, Dan Dreibelbis sits down for a Q&A with Chelsea Ganc.

What is Pedaling for Parkinson's?

Pedaling for Parkinson's™ is a program that uses high-cadence pedaling as a way to improve motor functions and relieve many symptoms. Fast pedaling is not a cure for Parkinson's, but there is compelling research that shows on average, a 35% improvement in motor function is possible.

How did the group get started?

I was watching 60 Minutes one night and they ran a show on Pedaling for Parkinson's. It showed how patients were pedaling on these stationary bikes. In 2017, I was asked to be on the oversight committee board at Ellicott City YMCA. As a committee board member, I asked senior management to support this program. Senior management supported my request and had some resources that were readily available to help get the program financed. To help pay for instructor's expenses, a call was made to Judy Friedman and Rona Rosenbaum with Maryland Association for Parkinson's Support (MAPS).

How has it grown since its conception?

In February of 2018, we first started with 3 patients, two guys and myself. After a slow start, we decided to alert a handful of doctors and support groups in the area of the

program, highlighting the benefits that it holds for Parkinson's patients. Now, in 2019, we have about 25 participants every week.

How, if at all, has Pedaling for Parkinson's changed your attitude towards PD?

I feel like I'm more in control of my PD symptoms. It's also given me the ability to get myself into better shape. I notice that I am doing better physically. I hear others in the group share the experience. In addition, the comradery of the group has afforded each of us the ability to share our difficulties. I am more inclined to share more about myself.

What is the best part about Pedaling for Parkinson's?

The comradery. It's been wonderful. We've gone from a medical outlook to a social club.

Are caregivers welcome?

Yes. The caregivers have contributed immensely. It's mostly wives of the patients. Ever since they have arrived on the scene, the atmosphere has been more social and has contributed to the cohesiveness of the group. The caregivers have made it a fun time!

Last question: what is your favorite song to pedal to?

I have two: *Sweet Caroline* by Neil Diamond and *Put em' up* by Moon Taxi.



RESEARCH HIGHLIGHT

COULD PARKINSON'S DISEASE START IN THE GUT ?

Courtesy of Rachel Butch (JHMI) for the original article and interviews in www.hopkinsmedicine.org/news/newsroom/news-releases



“These findings provide further proof of the gut’s role in Parkinson’s disease, and give us a model to study the disease’s progression from the start,” says Ted Dawson, M.D., Ph.D., director of the Johns Hopkins Institute for Cell Engineering and professor of neurology at the Johns Hopkins University School of Medicine.

In experiments in mice, Johns Hopkins Medicine researchers say they have found additional evidence that Parkinson’s disease originates among cells in the gut and travels up the body’s neurons to the brain. The study, described in the June issue of the journal *Neuron*, offers a new, more accurate model in which to test treatments that could prevent or halt Parkinson’s disease progression.

Parkinson’s disease is characterized by the buildup of a misfolded protein, called alpha-synuclein, in the cells of the brain. As more of these proteins begin to clump together, they cause nerve tissues to die off, leaving behind large swaths of dead brain matter known as Lewy bodies. As brain cells die, they impair a person’s ability to move, think or regulate emotions.

The new study builds off observations made in 2003 by German neuroanatomist Heiko Braak that showed people with Parkinson’s disease also had accumulations of the misfolded alpha-synuclein protein in the parts of the central nervous system that control the gut. The appearance of these neuron-damaging proteins is consistent with some early symptoms of Parkinson’s disease, which include constipation, says Hanseok Ko, Ph.D., associate professor of neurology at the Johns Hopkins University School of Medicine. Braak hypothesized that Parkinson’s disease advanced up the nerves connecting the gut and the brain like going up a ladder.

A growing body of evidence has implicated the gut-brain connection in initiating Parkinson’s disease. The researchers were most curious whether the misfolded alpha-synuclein protein could travel along the nerve bundle known as the vagus nerve, which runs like an electrical cable from the stomach and small intestine into the base of the brain.

To test this, the researchers injected synthetic misfolded alpha-synuclein created in the lab into the guts of dozens of healthy mice. The researchers sampled and analyzed the mouse brain tissue at one, three, seven and 10 months after injection. Over the course of the 10 month experiment, the researchers saw evidence that the alpha-synuclein began building where the vagus nerve connected to the gut and continued to spread through all parts of the brain.

The researchers then conducted a similar experiment, but this time surgically cut the vagus nerve in one group of mice and injected their guts with the misfolded alpha-synuclein. Upon examination at seven months, the researchers found that mice with severed vagus nerves showed none of the signs of cell death found in mice with intact vagus nerves. The severed nerve appeared to halt the misfolded protein’s advances, says Dawson.

Cont'd on Page 7

RESEARCH HIGHLIGHT

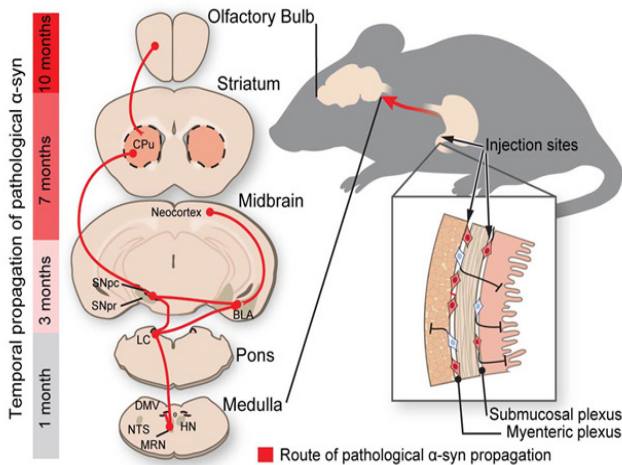


Figure: Route of Parkinson's disease-causing protein propagation in mice. Credit: Ted Dawson MD, PhD.

The researchers then investigated whether these physical differences in Parkinson's disease progression resulted in behavioral changes. To do this, they evaluated the behavior of three groups: mice injected with misfolded alpha-synuclein, mice injected with misfolded alpha-synuclein with cut vagus nerves, and control mice with no injection and intact vagus nerves. The researchers looked at tasks they commonly used to distinguish signs of mouse Parkinson's disease, including nest building and exploring new environments.

The researchers first observed the mice build nests in their enclosure as a test for fine motor dexterity, which is commonly affected by Parkinson's disease in humans. Healthy mice often make large, dense mounds in which to burrow. Smaller, messier nests are often signs of problems with motor control.

Seven months after injection, the researchers provided the mice with nesting materials and observed their nest building behavior for 16 hours, scoring their capabilities on a scale of 0–6. They found that mice that received the misfolded alpha-synuclein injection scored consistently lower on nest building.

While the control and severed vagus nerve groups consistently scored high on the nest building scale, mice that received the misfolded alpha-synuclein scored low. In ways similar to Parkinson's disease symptoms in humans, the mice's fine motor control deteriorated as the disease progressed, says Ko. The researchers also measured anxiety levels of the mice by monitoring how they responded to new environments. The mice affected by cognitive decline are more anxious, causing them to be more likely to stay toward the sheltered edges of a box.

The research team found that control mice and mice that had their vagus nerves cut to protect against Parkinson's disease spent more time exploring the center of the box. On the other hand, mice that received the misfolded alpha-synuclein injection but had intact vagus nerves spent less time exploring the center of the box and moved mostly around the borders, indicating higher anxiety levels, consistent with symptoms of Parkinson's disease.

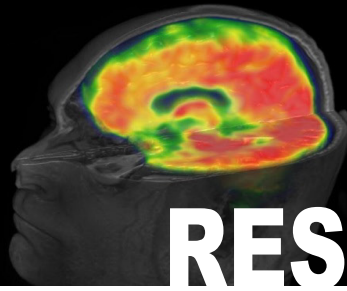
Overall, the results of this study show that misfolded alpha-synuclein can be transmitted from the gut to the brain in mice along the vagus nerve, and blocking the transmission route could be key to preventing the physical and cognitive manifestations of Parkinson's disease.

"This is an exciting discovery for the field and presents a target for early intervention in the disease," says Dawson.

The researchers now plan to explore what parts of the vagus nerve allow the misfolded protein to climb to the brain, and to investigate potential mechanisms to stop it.

Full citation: Sangjune Kim, Seung-Hwan Kwon, Tae-In Kam, Nikhil Panicker, Senthilkumar S. Karuppagounder, Saebom Lee, Jun Hee Lee, Wonjoong Richard Kim, Minjee Kook, Catherine A. Foss, Chentian Shen, Hojae Lee, Subhash Kulkarni, Pankaj J. Pasricha, Gabsang Lee, Martin G. Pomper, Valina L. Dawson, Ted M. Dawson, Han Seok Ko. *Transneuronal Propagation of Pathologic α -Synuclein from the Gut to the Brain Models Parkinson's Disease*; *Neuron*. 2019 Jun 17. pii: S0896-6273(19)30488-X. doi: 10.1016/j.neuron.2019.05.035. [In Press]

This work was supported by the JPB foundation, the National Institute of Neurological Disorders and Stroke (NS38377, NS082205 and NS098006) and the Morris K. Udall Parkinson's Disease Research Center.



RESEARCH STUDIES

Your participation will allow you to have firsthand experience with developing new medical treatments that may be beneficial to others. Current treatment methods for neurologic disorders are only available because of volunteer participants in clinical trials. Clinical trial information is excerpted from www.clinicaltrials.gov.

1. XTRA PET for Cognitive Function in Parkinson's (NA_00076249)

Objective: To understand the brain chemistry involved in cognitive function in PD pts, and how this affects the outcome of DBS surgery

Eligibility: PD patients scheduled to undergo DBS; PD patients not considering DBS

P.I.: Kelly Mills, MD **Contact:** Research Assistant: 410-955-6672

2. Rotigotine for Anxiety in Parkinson's (NA_00092051)

Objective: Eight-week study of rotigotine for the treatment of anxiety disorders in PD.

Eligibility: Individuals diagnosed with PD experiencing anxiety.

P.I.: Gregory Pontone, MD **Contact:** Kate Perepezko: 410-614-1242

3. APL-130277 (Sublingual Apomorphine) for the Acute Treatment of OFF Episodes (NA_00086593)

Objective: Evaluate APL-130277 (sublingual version of apomorphine) in treatment of sudden "off" periods in Parkinson's disease.

Eligibility: Individuals w/ PD, taking levodopa and having at least 2 hours of "off time" daily

P.I.: George Ricaurte, MD, PhD **Contact:** Kori Ribb: 410-614-2216

4. Evaluation of the Personal KinetiGraph (PKG) to improve insight into Parkinson's disease symptoms

Objective: To understand the utility of the data of a wearable Personal KinetiGraph in the clinical management of PD in routine clinical care

Eligibility: PD patients in NPF registry; responsiveness to dopaminergic medications; No DBS/DUOPA

P.I.: Kelly Mills, MD **Contact:** Emily Carman: 410-955-8909

5. Investigations of Neurovascular Abnormalities in the Olfactory Cortex Using Advanced MRI Technologies (IRB00141396)

Objective: To investigate neurovascular abnormalities in the olfactory cortex using advanced MRI techniques

Eligibility: PD patients diagnosed for more than 3 years who are able to tolerate an MRI brain scan and undergo smell and memory identification tasks

P.I.: Jun Hua, PhD **Contact:** Adrian Paez, 443-923-9551

6. Udall Center Brain Donation Program (NA_00032761)

Objective: Examine the pathological changes in the brain tissue of individuals diagnosed with PD or related disorders as compared to controls

Eligibility: Individuals diagnosed with PD or atypical PD and those without a neurological diagnosis

P.I.: Liana Rosenthal, MD, PhD, PhD **Contact:** Catherine Bakker: 410-616-2814

7. Dystonia Coalition (NA_00074297)

Objective: Create an international repository to learn more about dystonia, treatment methods and patient response

Eligibility: Individuals over the age of 18 who have primary dystonia

P.I.: Alex Pantelyat, MD **Contact:** Sydney Baybayan: 410-955-6692

8. Genetic Characterization: Movement Disorders (NA_00055442)

Objective: To study the genetic risk factors involved in movement disorders

Eligibility: Individuals with PD, atypical parkinsonism, dystonia, ataxia and Lewy body dementia

P.I.: Jeffrey Rothstein, MD, PhD **Contact:** Sonja Scholz, MD, Email: sscholz5@jhmi.edu

9. 4RTNI-2 (NA_00130505)

Objective and Eligibility: Select individuals with CBD, PSP or variant PSP; healthy controls; caregiver component

P.I.: Alex Pantelyat, MD **Contact:** Diane Lanham: 443-287-4156

10. Longitudinal Biomarkers of Individuals with Atypical Parkinsonism (IRB00062534)

Eligibility: Individuals w/ dx of MSA, PSP, CBS or DLB; able to complete annual follow-up visits for 5+ years

P.I.: Alex Pantelyat, MD **Contact:** Vanessa Johnson: 410-616-2815

11. Biomarker Discovery and Validation in Progressive Supranuclear Palsy (DIVA-PSP) (IRB00173663)

Eligibility: Individuals with a diagnosis of PD or PSP, healthy controls; (caregiver/study partner also required for participation)

P.I.: Alex Pantelyat, MD **Contact:** AJ Hall: 410-616-2813

12. Multimodal MRI in PSP (IRB00062534)

Eligibility: Individuals diagnosed w/ PSP (PSP-RS, PSP-SL, PSP-CBS) or PPA; willingness/ability to complete MRI and lumbar puncture

P.I.: Alex Pantelyat, MD **Contact:** Diane Lanham: 443-287-4156



PACING FOR PARKINSON'S

PACING 4 PARKINSON'S | P4P

Pacing 4 Parkinson's was established in 2009 to help raise awareness of Parkinson's disease and funds for the Johns Hopkins Parkinson's Disease and Movement Disorders Center. The funds raised support the center's tripartite mission of patient care, research, and education and outreach. This event has become an annual tradition allowing us to bring together the local community and hundreds of patients and their families and friends.

Over the years, Pacing 4 Parkinson's (P4P) has raised over **\$955,000** and has become one of the largest charity teams at the Baltimore Running Festival. All of the funds raised go to support the research, education/outreach, and clinical efforts of Johns Hopkins Medicine, with 80% of all funds directed to these initiatives within the Parkinson's Disease and Movement Disorders Center at Johns Hopkins. The other 20% is earmarked to support broader patient care, education and discovery initiatives, like basic science research that is central to the advancement of knowledge in all disciplines of medicine, the training of the next generation of care providers and researchers, and ensuring facilities are comfortable for patients and their families. Programs popular among our patients like Parkinsonics, Drum PD, Rock Steady Boxing, Yoga PD, Support Groups, and the Educational Series have all benefited from P4P.

The center invites you to participate in the 11th Annual Pacing 4 Parkinson's at the **Baltimore Running Festival** on **Saturday, October 19, 2019**.

To learn more, visit www.pacing4parkinsons.org or email pacing4parkinsons@gmail.com.





ACTIVITY & EXERCISE PROGRAMS

Sponsored in partnership with by the Johns Hopkins PDMD Center, Pacing for Parkinson's and the Maryland Association for Parkinson Support

Parkinson's Exercise Program- Brick Bodies at Padonia

2430 Broad Avenue, Lutherville Timonium, MD 21093

Free Class; members & non-members at Brick Bodies

For more information, visit info@marylandparkinsonsupport.org or 443-470-0279

ParkinSonics Community Chorus

Every Wednesday, 1:30-3:30PM

Govans Presbyterian Church, Sharp Hall 5828 York Road, Baltimore, MD, 21212

For more information, contact info@marylandparkinsonsupport.org or 443-470-0279.

Dance for Parkinson's

Goucher College, Decker Sports and Recreation Center- Todd Dance Studio

1012 Dulaney Valley Road, Towson, MD

Tuesdays 3:30PM

Free Class

For more information contact, ellentalles@comcast.net or 410-419-2956

Rock Steady Boxing & Parkinson's Pedaling Class- Forest Hill

For more information, including days and times, call or check class schedule.

Forest Hill Health and Fitness, 2217 Commerce Road, Forest Hill, MD 21050

For more information contact, www.foresthillhealthfitness.com or 410-893-4153

Pedaling for Parkinson's

Pedaling for Parkinson's uses high cadence cycling (80-90 RPM's) to improve motor function and relieve many symptoms. This program is free to guests with medical consent.

Monday, Wednesday, Friday 11:30AM-12:30PM

The Y in Ellicott City (Dancel)

4331 Montgomery Road

Ellicott City, MD 21043

Contact: 410-465-4334



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ASSOCIATION FOR
PARKINSON
SUPPORT, INC.

Find your way with us





PROGRAM CALENDAR

PARKINSON DISEASE EDUCATIONAL SERIES

3rd Wednesday of Every Month
6:00-8:00 PM

St. Thomas Episcopal Church
1108 Providence Road, Towson, MD 21286

ATYPICAL PARKINSONISM SUPPORT GROUP

This Is designed for individuals with Multiple System Atrophy (MSA), Corticobasal Degeneration (CBD), Progressive Supranuclear Palsy (PSP), and Dementia with Lewy Bodies (DLB) as well as their caregivers.

4th Thursday of Every Month
2:00-4:00 PM

St. Thomas Episcopal Church
1108 Providence Road, Towson, MD 21286

EDUCATION & EMPOWERMENT: A GUIDE FOR THE NEWLY DIAGNOSED

July 22nd; October 14th, 2019
1:00-4:00PM

Good Samaritan Hospital
5601 Loch Raven Blvd., Baltimore, MD 21239
The meeting will be held on the 2nd-floor conference room.

ADVANCED SURGICAL THERAPIES SEMINAR

Talk on deep brain stimulation (DBS), ultrasound-guided surgery, intestinal dopamine gel pump and other advanced therapies in parkinsonism.

July 25, Thursday, 2019.
6:00-8:00 PM

St. Thomas Episcopal Church
1108 Providence Road, Towson, MD 21286

LEWY BODY DEMENTIA SUPPORT GROUP

This is designed for those with Dementia with Lewy Body as well as those experiencing cognitive challenges secondary to their Parkinson's Disease as well as their caregivers.

1st Monday of Every Month
1:00-3:00PM

St. Thomas Episcopal Church
1108 Providence Road, Towson, MD 21286

UPCOMING EVENTS

PACING 4 PARKINSON'S: BALTIMORE RUNNING FESTIVAL

Saturday, October 19th
Baltimore Inner Harbor

Visit <https://pacing4parkinsons.org/> to learn about our team or register.

For more information on these events,
please contact
Chelsea Ganc
410-955-6684 | cganc1@jhmi.edu



CENTER OF EXCELLENCE

MOVEMENT DISORDER DIGEST

The Johns Hopkins Parkinson's Disease and Movement Disorders Center is dedicated to the tripartite mission of education, research, and excellent care of those living with movement disorders.

Johns Hopkins Outpatient Center
601 North Caroline Street, Suite 5064
Baltimore, MD 21287
Ph: 410-955-8795

www.hopkinsmedicine.org/neuro/movement

Please consider supporting our center!

The work of the Johns Hopkins Parkinson's Disease and Movement Disorders Center would not be possible without the generous support from our patients and the community. For more information about supporting the center, please contact the Development Office at **443-287-7877**.

Disclaimer: The Movement Disorder Digest is published by the Johns Hopkins Parkinson's Disease and Movement Disorders Center to provide timely and useful information. Every effort has been made to verify the accuracy of the content. However, this newsletter is not intended to provide specific medical advice, and individuals are urged to follow the advice of their physicians. The PDMD Center is not responsible for the information or opinions expressed in its articles. If you prefer not to receive fundraising communications from Johns Hopkins Medicine, please contact us at 1-877-600-7783 or FJHMOptOut@jhmi.edu. Please include your name and address so that we may honor and acknowledge your request.

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Ted Dawson, MD, PhD
Kelly Mills, MD, MHS
Emile Moukheiber, MD
Alex Pantelyat, MD
George Ricaurte, MD, PhD
Liana Rosenthal, MD, PhD

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Maitreyi Murthy, MD
Jumana Alshaikh MD
Sonja Scholz, MD, PhD

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Regina Poole, BA
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Movement Disorder Digest
Johns Hopkins Parkinson's Disease
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601 North Caroline Street, Suite 5064
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PRSRST STD
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THE MAIL MAN