



# On The Move!

The official newsletter for the University of Colorado Movement Disorders Center

## Faculty

**Maureen Leehey, MD, FAAN**  
*Chief, Movement Disorders*

**Lauren Seeberger, MD, FAAN**  
*Director, Movement Disorders Center*

**Jeanne Feuerstein, MD**  
**Emily Forbes, DO, MS**  
**Michelle Fullard, MD, MSCE**  
**Trevor Hawkins, MD**  
**Drew Kern, MD, MS, FAAN**

**Jessica Barr, PA-C**  
**Heather Baer, MD**  
**Samantha Holden, MD, MS**  
**Christina Vaughan, MD, MHS**

## Contact Us

**Movement Disorders Center**  
303-724-8984  
[movement@ucdenver.edu](mailto:movement@ucdenver.edu)  
[www.cumovement.org](http://www.cumovement.org)

**For appointments**  
720-848-2080

**To participate in clinical research**  
303-724-4644

**To donate to our center**  
303-724-9146  
[giving.cu.edu](http://giving.cu.edu)

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# Balance and Falls in Parkinson Disease

Alex Baumgartner, MD

Falling is one of the most problematic symptoms of Parkinson disease. Falls can result in injury, disability, loss of independence, and reduced quality of life. In addition, falls create significant stress for families and caregivers. Some studies have suggested that as many as 7 in 10 people with Parkinson's will fall each year, and more than half of those people will fall more than once. One of the most serious injuries that can result from falling is a hip fracture. Unfortunately, hip fractures happen about four times more in people with Parkinson disease compared to people of similar ages who do not have Parkinson's. Even for those who do not struggle with falls, a feeling of being off balance or having 'close calls' can cause just as much distress.

### What causes imbalance and falls?

There are numerous reasons why people with Parkinson's are more likely to fall. First and foremost is the Parkinson's itself. Although every person with Parkinson's is different, many share similar symptoms which may make them more likely to fall. Many people tend to develop a stooped posture; this forward lean may cause them to tend to fall forward. 'Festination' refers to an abnormal walking pattern in Parkinson's where people tend to lean further and further forward, causing their feet to move faster and faster to try to catch up. 'Freezing' refers to a problem where one or both legs seem to be stuck in place,



Photo courtesy of [Unsplash](https://unsplash.com/photos/Crete-Griechenland) - Crete, Griechenland by Leonhard Niederwimmer

making it very difficult to take the next step. Both festination and freezing can lead to falls. People with Parkinson's also have slower movements and slower reaction times, which make it more difficult to catch themselves if they stumble.

Some people with Parkinson disease experience a dramatic drop in their blood pressure when they stand up; this is called 'orthostatic hypotension'. If the blood pressure drops low enough, they may fall. Medications used to treat Parkinson's, including Carbidopa/Levodopa (Sinemet, Rytary, or others) can actually make this problem worse. Other medications, especially those that can cause sleepiness or sedation, can increase the risk of falling. Some examples include Clonazepam (Klonopin) and Zolpidem (Ambien).

There are several other symptoms that people with Parkinson's experience,

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which may make them more likely to fall. These include poor vision, problems with thinking and memory, depression, pain, arthritis, and needing to go to the bathroom very urgently. This is not a comprehensive list, but these are some of the biggest contributors to falling in people with Parkinson disease.

### *What can I do to prevent falls?*

The first step in preventing falls is to address any factors that may be putting you at higher risk. One of the best places to start is at home. It is important to remove any tripping hazards, such as power cords and loose rugs (or securing them to the floor), and to clear things like tables, plants, and boxes from high traffic areas. You may also want to put non-slip mats, a shower seat, or grab bar in the bath or shower. Adding lighting around the home can also make it easier to avoid tripping. Consider installing night lights, a bedside lamp that is easily within reach from your bed, and glow-in-the-dark light switches. The shoes you wear, both at home and outside, are also very important. Loose-fitting or slick shoes can make it easier to trip and fall, so consider switching to sturdy shoes with strong grip on the soles.

Similarly, it is important to address any other medical issues which may be increasing your risk of falling. These should be discussed with your doctor, but some examples include:

**Vision:** It is important to make sure your prescription for corrective lenses is correct, as well as to discuss any other symptoms including double vision, loss of vision, dry eyes, etc.

**Hearing and inner ear conditions:** In some cases, damage to the inner ear can cause imbalance. Symptoms can include dizziness or hearing loss, among others.

**Blood pressure:** If your blood pressure drops significant when you stand up, it may make you more likely to fall. If this happens, you may feel lightheaded or woozy, though in some cases you may not feel anything abnormal.

**Nerve damage:** If there is nerve damage in the feet or toes, it can make it difficult for your brain to tell where your legs are and what they are doing. Symptoms can include numbness, tingling, or a pins and needles sensation.

**Medications:** Review your list of medications (including any over-the-counter supplements) with your doctor to discuss whether any may be increasing your chance of falling. In some cases, your doctor may discuss adding medications, for example to raise your blood pressure so that it does not drop dangerously low when you stand.

**Keeping a record** of how often you fall (or come close to falling) can also be helpful to review with your doctor. Make note of certain situations, locations, or times where you seem to fall more often.

Finally, one of the best things you can do to improve your balance and reduce your risk of falling is to maintain an exercise program. Multiple studies of people with Parkinson disease have shown that regular exercise improves stability and decreases falls. Generally speaking, any exercise program is better than no exercise, but working with a Physical Therapist will allow you to develop a program that is specifically focused on your balance. Some studies have also suggested that Tai Chi may be particularly helpful for balance.

### *What might my doctor recommend?*

In addition to the issues discussed above, your doctor may recommend some other testing or interventions. One of the most common is a formal evaluation by Occupational and Physical Therapists. They can help identify any areas of concern and help you develop a training program tailored to your specific needs. Many will also perform a home safety evaluation, where they will come to your home and help identify any tripping hazards, as well as make recommendations about adding equipment to your home, like grab bars in the shower or tub.

You may consider wearing an emergency alert device. This is a device worn around the wrist or neck, which can detect a fall and alert someone near you as well as emergency services. There are several brands and manufacturers available, including some of the newer smart watches which have this technology built in.

### *What do I do if I fall?*

If you do fall, try to stay calm. If you are hurt, call for help, either by shouting, banging on the wall or floor, or using your emergency alert device or smart speaker (if you have one). If you are not hurt and feel well

enough to get up, do so slowly by rolling to your side, then pushing up to a side-sitting position, then to your hands and knees. Make your way to a sturdy piece of furniture. With your strongest leg closest to the furniture, use both hands to push up until you are able to sit on the piece of furniture. Wait a few minutes before standing; use this time to double check that you are not injured. You may wish to practice this technique in different rooms of your house, but be sure to have a friend or relative close by who is able to help you in case you are not able to get up.

## Interested in Participating in Research?

We are always looking for patients interested in research. For more information or to get involved with our research, please contact our research recruitment specialist. 303-724-4644.

To view a list of our studies, please visit [www.cumovement.org](http://www.cumovement.org). Hover the mouse over the 'Research' tab and then click on 'Current Studies.' You will be directed to a list of our current studies on the Neurology department's website.

## We are grateful for all who ask "How can I help?"

Our faculty and staff are dedicated to making advancements in Parkinson's disease. When our faculty is not in clinic, they are conducting research trials, providing education to the community, and training the next generation of Movement Disorders specialists. In addition, our faculty fosters interest in the field of movement disorders by supporting the work of young researchers through our pilot grant program.

These efforts are also supported by generous philanthropic supporters. We're grateful to all who ask "How can I help?" Because of generous people, support continues for Parkinson disease research and programs like this. Give now by visiting: <https://giving.cu.edu/fund/movement-disorders-center-gift-fund>.

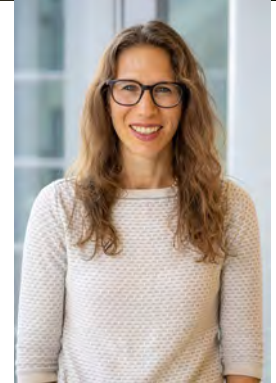


Photo by [Sarah Dorweiler](#) on [Unsplash](#)

## Researcher Spotlight | Jeanne Feuerstein, MD

### What was your first experience or memory with research?

My father was a scientist and my mother was an academic physician, so I grew up with basic science research and clinical research. I remember as a kid, when I was sick, my dad would set up a little bed for me in his lab and when I was feeling better, I would burn rubber gloves on lasers. My first science project that I can remember was in 6th grade and I looked at the impact of listening to different types of music on reading comprehension.



### When did you know that research would be a part of your career?

When I was a medical student, I spent a summer doing research at the Memory and Aging Center at USCF. I was such a rich and impactful time for me and the intertwining of research and clinical care was presumed; nearly every patient we saw was in a study.

### What are your research interests?

My main general interest is cognitive changes [changes in thinking or memory] in movement disorders. I am particularly interested in cognitive changes in dystonia and in essential tremor. I am also particularly interested in investigating hallucinations in Parkinson's disease.

### What contribution this far are you most proud of?

My research (to be published) evaluating cognition in patients with cervical dystonia and blepharospasm identified a distinction between the two groups that has not been previously identified. This could have pretty significant implications; most importantly, they may benefit from different types of treatments.

### What are some challenges you've experienced that you didn't expect?

Time is the biggest challenge I face as a clinician, as a researcher, and as an adult human. It's so hard to have enough time to get everything done (and keep a little to have some fun too).

## Updates from the Parkinson's Foundation Center of Excellence

Co-directors | Maureen Leehey, MD, FAAN & Lauren Seeberger, MD, FAAN

The Parkinson's Foundation is continuing their **PD Health @ Home** series. The foundation is hosting Mindfulness Mondays and Wellness Wednesdays. More information can be found at [Parkinson.org/PDHealth](https://www.parkinson.org/PDHealth). You can also find new PD-tailored workout videos every Friday.

Parkinson's disease (PD) affects 1% of the population above age 60. Genetic testing for Parkinson's disease has become more accessible over the last decade. Current estimates indicate that 10-15% of Parkinson's disease is caused by specific mutations; this estimation is higher in certain populations. Although not everyone with PD has a genetic mutation, all people with PD have similar symptoms caused by a loss of dopamine in specific areas of the brain. Better understanding genetic causes of Parkinson's disease helps scientists discover the molecular mechanisms which cause this dopaminergic loss. Understanding how this loss occurs in people with genetic mutations may help our understanding of the process by which it occurs in all people with PD—even those without a mutation.

**PD GENERation: Mapping the Future of Parkinson's Disease** is a Parkinson's Foundation initiative to lead the way in accessible, equitable, and broad genetic testing in People with Parkinson's disease. By providing genetic testing for genes associated with PF at no cost to patients, the PD GENERation study hopes to increase access to clinical trials for disease-modifying therapy, advance scientific understanding of causes of Parkinson's disease, and improve research initiatives. Ultimately, broad genetic testing may lead to better treatment and care. You can learn more at <https://www.parkinson.org/blog/research/6-Genetic-Testing>

**April is Parkinson's Awareness Month.** Take the #KnowMorePD quiz and test your knowledge to see how much you know about Parkinson's disease. Then, share the quiz on social media so your friends and family can take the quiz as well.



## Updates from the Lewy Body Dementia Research Center of Excellence

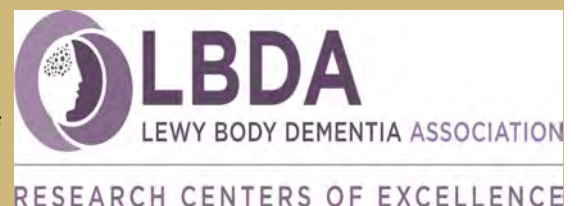
Co-directors | Samantha Holden, MD, MS & Victoria Pelak, MD

Based on the accomplishments of our Lewy Body Dementia Association Research Center of Excellence for the 2019-2020 academic year, our center was **ranked among the top 6 of the 26 national LBDA research centers**. Dr. Samantha Holden, our center's co-principal investigator, was selected as a co-chair for the Community Engagement Working Group for the LBDA. In this position, Dr. Holden has led the development "Lewy Briefs", short videos presenting important information on LBD from experts. These videos can be found on the [LBDA's YouTube channel](#).

Our center hosted a virtual screening of "**SPARK: Robin Williams and his Battle with Lewy Body Dementia**" on March 5, 2021. Dr. Holden was joined by Dr. Karina Drake, a geriatric psychiatrist, and Dr. Evan Plys, a geriatric psychologist, for a Q&A panel discussing the film and its messages. This panel discussion [can also be viewed on the LBDA's YouTube channel](#). Over 420 people attended this virtual event live, including attendees joining from across the U.S., as well as some from the U.K. and Ireland.

We completed two industry-sponsored clinical trials in 2020, evaluating two new drugs to help cognition in people with LBD. One of the studies, investigating neflamapimod in people with dementia with Lewy bodies (DLB), met its primary endpoint, demonstrating that people who received the drug had some improvements on their cognitive testing results. This drug will next be used in a larger clinical trial in people with DLB to confirm these results.

Dr. Victoria Pelak presented a featured educational session at the annual meeting of the North American Neuro-ophthalmology Society on visual symptoms associated with Lewy Body Dementia (LBD) and the features that differentiate LBD from Alzheimer's disease. The live session was attended by 369 physicians and is available to another 639 registered participants and is part of the wider goal of the RCOE to increase awareness of LBD among physicians.



# Functional Neurologic Disorders: A Common Yet Cryptic Cause of Movement Disorders

By: Michael Korsmo, MD

Anna was only 32 years old when the shaking in her hands started. Several weeks after it all started, she took a leave of absence from her job as a high school IT specialist after an apparent seizure at work. Over the course of a year, she saw several doctors who were baffled by her presentation. The seizure medications didn't seem to have any effect on the spells of unresponsiveness and whole body shaking. The tremor meds didn't make a dent either. After a Neurologist diagnosed her with a Functional Neurologic Disorder, Anna was finally able to get the treatment she needed to make a full recovery.

A Functional Neurologic Disorder (FND) is defined as neurologic symptoms for which no typical structural problem is identified. FNDs can display in many ways. In the case of a functional tremor, there is an involuntary tremor-like shaking of an extremity but there is no underlying structural problem like with Parkinson's Disease or Essential Tremor to explain it. Another common FND, Non-Epileptic Seizures, can cause spells that look very similar to actual epileptic seizures. However, the spell would have no related seizure-like changes on brain wave testing nor does it respond to seizure medications. FNDs can even coexist with other neurologic conditions as there are many cases of patients with both Epileptic and Non-Epileptic Seizures.

FNDs are common within the practice of Neurology. There remains no blood test or imaging scan to confirm a FND but there are often typical, tell-tale

signs during the physical examination which help Neurologists make the diagnosis. This is why Movement Disorders specialists spend a significant amount of time during their fellowship training to recognize these disorders.

The underlying cause of FNDs remains unknown, but progress is being made using advanced imaging techniques such as with fMRI scans. These scans have shown overactivity in certain areas of the brain

responsible for various emotions. One general theory is that overactivity in a deep structure called the amygdala, which is responsible for basic emotional states such as fear and anxiety, triggers similar overactivity in a nearby structure called the

supplemental motor area which causes abnormal involuntary movements.

One way to think about FNDs is to consider the difference between a computer and its software or programs. The brain and its structure are the computer or hardware and the processes carried out by the brain are the software or programs. Imagine an important part of a computer breaking down, such as the power supply or hard drive. This is how many neurologic diseases cause trouble. They alter or cause breakdown of the physical structure of the brain. FNDs cause dysfunction through a different mechanism. Now imagine a program like a text editor crashing or freezing on the computer because of a bug in its software program. In an FND, all the hardware in the computer is intact. It's the software



Photo by [Harpreet Singh](#) on [Unsplash](#)

that's the issue.

It is true that underlying psychiatric disorders, ongoing psychosocial stress, and even remote traumatic events underly many FNDs. However, the absence of these stressors does not rule out an FND.

Because FNDs are not due to a structural problem or degenerative process, there can be significant improvement and even a cure through appropriate treatment. The best treatment typically involves a team approach utilizing physical therapy, occupational therapy, cognitive behavioral therapy, and psychotherapy with or without medications.

In summary, FNDs are a common, treatable cause of significant disability. An absence of a structural cause does not mean the symptoms FND patients are experiencing aren't very real. Patients with a FND are not "faking it." There is hope through effective treatment.

To learn more about FND, visit the following websites:

<https://www.fndsociety.org/>

<https://fndhope.org/>

<https://www.neurosymptoms.org/>

<https://www.fndcourage.org/>

## Save the date for our upcoming events!

**May 6, 2021 @ 5:30PM | The Genetics of Huntington's Disease: From Testing to Family Planning** Join our genetic counseling team—Kaitlin Smith, MS, CGC, Emily Todd, MS, CGC, and Hannah Elfman, MS, CGC as they talk about the process for getting tested and family planning. Find registration information on our website. Registration is required to receive the link. This talk will be moderated by Lauren Seeberger, MD, FAAN.

**September 25, 2021 | 8th Annual Parkinson's Disease Symposium** Please save the date for our next virtual symposium. Stay tuned for additional details.

**Coming this fall | Huntington Disease Education Day** The University of Colorado in partnership with the Movement Disorders Foundation is excited to bring you an 3-hour educational summit. Dr. Lauren Seeberger and Dr. Rajeev Kumar (MDF) will give the most updated information on HD research. Additional topics will include care partner resources and managing cognitive decline. (These details are still tentative and subject to change.)

**Did you miss an event?** No need to worry . Our recorded events are available for viewing on our website [www.cumovement.org](http://www.cumovement.org). Hover your mouse over 'Community' and then click on 'Educational Resources.'

You can find a recording of our most recent talk "**Newly Approved Medications for Parkinson's Disease**," given by Dr. Michael Korsmo.