



# The Parkinsonian

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Northwest PADRECC  
Parkinson's Disease Research, Education & Clinical Center

## Motor Fluctuations: What, When, & Why

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Beginning with the discovery of levodopa in the 1960's, the treatment of Parkinson's disease has focused on dopaminergic therapy for the symptoms of rigidity, slow movement, and tremor. A neurologist may start the dopamine agonists ropinirole (Requip) or pramipexole (Mirapex) when symptoms are milder and carbidopa/levodopa (Sinemet) when symptoms worsen. The benefit from these medications may continue for several years without much noticeable change.

Typically when levodopa is started, the effect lasts most or all day. This long duration effect enables patients to miss an occasional dose of medication and not notice wearing off. Regularly dosed medication may control the symptoms of tremor, rigidity, and slow movement through the entire day. This is known as the long duration response, and it may last for several years. Over time, the long duration response is replaced by a short duration response. In this situation, the duration of benefit from levodopa is reduced and "motor fluctuations" may occur, where one may fluctuate between states of more smooth movement without tremor and the parkinsonian state of tremor, rigidity, and slow movement. The noticeable reduced effect of medications between each dose is termed "wearing off" or "OFF time." This contrasts with the periods of good tremor control and supple and more fluid movement termed "ON time."

Medication wearing off usually begins at the end of each dose and thirty minutes or so before the next dose of levodopa. As Parkinson's disease progresses, wearing off from levodopa occurs earlier and earlier. Some people notice "sudden OFF's," which is switching from ON to OFF in a matter of minutes.

Dyskinesia is the abnormal involuntary

movement of the arms, legs, neck, or torso. It often appears as fidgeting. Dyskinesia is a very common side effect of levodopa and tends to go hand in hand with "ON time." Dyskinesia usually shows up around the time motor fluctuations begin. It is most noticeable when the levodopa is at its peak dose, within an hour or two of taking the pill. This is known as peak-dose dyskinesia. For some, dyskinesia is most severe just as levodopa takes effect and when it is starting to wear off. This is called biphasic dyskinesia. Learning to characterize dyskinesia may be difficult for the individual patient and often requires help from an observant family member or neurologist.

Clinical research has shed light on possible mechanisms of motor fluctuations. As Parkinson's disease progresses, the brain's ability to store dopamine decreases. The brain then relies on a steady supply of the dopamine precursor, levodopa, from the blood. Numerous studies have shown the improvement in parkinsonian symptoms reflects the minute to minute concentration of levodopa in the blood. Other research suggests a more complex process may result in motor fluctuation. One leading hypothesis suggests that the pathway stimulated by dopamine receptors changes over the course of Parkinson's disease. This may depend on whether dopamine receptors are simulated continuously through the day or in short bursts. So when levodopa reaches the brain in surges from oral medications, instead of more continuously, this may change dopamine receptors in a way that predisposes to motor fluctuations.

Many studies have determined that levodopa absorption may be the most important step in getting a good medication response. Since

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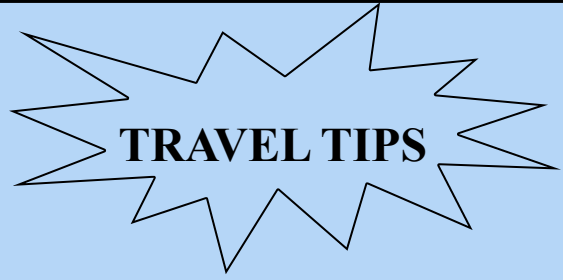
(Motor Fluctuations continued from page 1)

levodopa is taken orally, the bowel must absorb it into the blood before it is transported to the brain for neurotransmission. When levodopa is taken along with large amounts of protein it may interfere with transport into the brain.

The main message in the current treatment of motor fluctuations is to keep it steady. First, the dose of levodopa must be high enough to result in improved symptoms. Then, levodopa should be given often enough to keep the clinical response smooth throughout the day, and sometimes night. Drugs like entacapone and tolcapone can increase "ON time." These medications are given with each dose of carbidopa/levodopa. Pramipexole and ropinirole have a weaker but longer duration of effect than levodopa. These are often started before carbidopa/levodopa. However, a clinician may try to continue them even after a patient starts carbidopa/levodopa to fill in the gap when wearing off occurs. Selegiline may be used early in Parkinson's disease to reduce the severity of wearing off in between doses of carbidopa/levodopa.

It is important to take carbidopa/levodopa regularly since this is the best way for a neurologist to determine the medication response and make the most appropriate changes. Taking levodopa 30 to 60 minutes before meals may speed the absorption and result in more quickly achieving ON time. Eating a few crackers with medication is a good way to settle the stomach if this is a problem. Another strategy to get quicker ON time is to crush up regular release carbidopa/levodopa. This may shorten the amount of time needed for digestion.

Deep brain stimulation (DBS) can be particularly effective for people with Parkinson's disease who have severe motor fluctuations and the abnormal involuntary movement known as dyskinesia. This is something a neurologist may bring up if the medication options have been exhausted. For the right patient at the right time DBS is a good compliment to medications.



With summertime fast approaching, many people are beginning to think about planning vacations. Here are some travel tips to consider when planning a trip:

- Ask travel agencies, car rentals, hotels, and attractions if there is a senior citizen discount.
- If using a travel agency, ask for packages that include any special arrangements that you may need.
- Inquire about advantages with airlines - some airlines sell day passes to their lounges or have passenger assistance programs.
- Many airlines will issue a pass to allow non-travelers through security in order to help travelers needing assistance.
- Include extra time on your itinerary to enjoy the sights - it is not necessary to rush to take in everything at once.
- Make sure you pack extra medication or call ahead to inquire if there is a pharmacy available to refill any prescriptions.
- Don't limit yourself to indoor activities! Outdoor trips, such as camping, can still be enjoyable. Companies now offer adaptive items such as zipper-less tents, camping stoves with large knobs, and raised tent beds.

[www.aaa.com](http://www.aaa.com)  
[www.ehow.com/about\\_4571481\\_travel-tips-elderly.html](http://www.ehow.com/about_4571481_travel-tips-elderly.html)

### Want to Contribute?

This newsletter is yours, and we think you should be involved. If you have any art, poems, stories, or articles you would like to share with other Parkinson's patients, please send them to the address listed below or e-mail them to [nwpadrecc@va.gov](mailto:nwpadrecc@va.gov) with "Newsletter submission" as the subject line.

**Portland VA Medical Center  
P3-PADRECC  
3710 SW US Veterans Hospital Rd.  
Portland, OR 97239**

### Have a Question? Ask the Doctor.

Do you have a question about Parkinson's Disease that you would like to see answered in our newsletter by one of our doctors or nurses? If so, please submit your question to [nwpadrecc@va.gov](mailto:nwpadrecc@va.gov) or call (503) 721-1091. You can also mail requests to:

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## Recruiting VA Studies

### **Pacific Northwest UDALL Center (PANUC): Clinical Core and Sample Collection (VA IRB # 2332; OHSU IRB # 6154)**

Dr. Joseph Quinn is conducting this research study to examine the changes in thinking and memory of Parkinson's disease patients over time. A second goal is to determine the role genetics plays in cognitive impairment in Parkinson's disease. You must have a diagnosis of Parkinson's disease to participate in this study.

There are two different groups in this study. The first group is the clinical group. The clinical group involves two visits over five years to the Portland VA Medical Center. At each visit, you will undergo tests of thinking and memory and have a blood draw of about four tablespoons. Each visit will last for about one to one and a half hours.

The second group is the annual group. The annual group involves five visits over five years to the Portland VA Medical Center. At each visit, you will undergo tests of thinking and memory and have a blood draw of about four tablespoons. Each visit will last for about two hours. After the first visit, you will undergo a lumbar puncture. A lumbar puncture is known as a spinal tap. A spinal tap is where a special needle is inserted between bones in your back and fluid is removed. The spinal tap will take about two to two and a half hours. You have the option to undergo a second spinal tap three years after the first spinal tap. You will be compensated \$200.00 for each spinal tap that you complete.

This is a research study and not for treatment or diagnosis of Parkinson's disease. You may not benefit from participating in this study. However, by serving as a subject, you may help us learn how to benefit patients in the future. For more information on how to participate, please contact Susan O'Connor, RN, Study Coordinator at (503) 721 – 1091 or by mail at 3710 SW US Veterans Road, Portland, Oregon 97239.

### **Using Multiplex Families to Map Genes that Modify Susceptibility and Age at Onset in Parkinson's Disease (VA IRB # 2371)**

Dr. Kathryn Chung is conducting this research study to identify genes that increase a person's risk of developing Parkinson's disease (PD) or related disorders. The goal of this study is to better understand and treat PD and other related disorders. If a gene or genes that cause(s) PD can be identified and characterized, the diagnosis and treatment of PD will be improved. The overall goal of this study is to find genes that increase the likelihood of developing Parkinsonian symptoms and certain PD-related problems, such as difficulties with thinking and memory.

You are eligible to participate in this study if you have two or more individuals in your family that are living with Parkinson's disease. Your family members must also enroll in this study.

This study involves one visit to the Portland VA Medical Center. At this visit, you will undergo a physical examination, questions about your family history, a brief test of thinking and memory and have a blood draw of about four tablespoons. This visit will last for about 2 1/2 hours.

This is a research study and not for treatment or diagnosis of Parkinson's disease. You may not benefit from participating in this study. However, by serving as a subject, you may help us learn how to benefit patients in the future. There is no compensation for participation in this study. For more information on how to participate, please contact Brenna Lobb, MS, MPH, Study Coordinator at (503) 220 – 8262 extension 51871

### **The Washington State Parkinson's Disease Registry (VA IRB # 31675)**

If you have a diagnosis of Parkinson's Disease or atypical parkinsonism, you are eligible to participate in the Washington state Parkinson's Disease Registry which is co-directed by Cyrus Zabetian, M.D., M.S. and James Leverenz, M.D. This is a research registry which notifies participants about clinical studies in which they may be eligible to participate. Enrollment occurs by phone and consists of 15 screening questions and an interview about diagnosis, symptoms, medications and family history. This usually takes less than 30 minutes. For information on how to participate, call toll free (888) 365-9901 or visit our website at [www.registerparkinsons.org](http://www.registerparkinsons.org), where you can start the screening process online.

# Calendar of Events

## Portland Patient Education Talks

All talks listed will be held in the Portland VA Medical Center Auditorium. Please arrive early for parking. For more information or to register call (503) 721-1091.

**Hospice Care: When is It Time?** Friday August 5, 2011 10:00a.m. - 11a.m. The program will cover what hospice includes, when it may be time, and hospice options available for Veterans.

## Parkinson's Resources of Oregon

**Family Caregiver Training:** Wednesday, June 1, 2011. Eugene, OR. This 6 hour program is for family members caring and supporting a loved one with advanced stage Parkinson's disease. The program will cover topics such as physical changes to expect as Parkinson's progress and treatments that might be helpful, changes in psychosocial wellbeing, legal and financial tools to support the family as well as discussions on grief, family dynamics and assistance locating community services. \$20 fee/scholarships available. Call (800) 426-6806.

**Patient Empowerment: Understanding Treatment Options:** Tuesday, June 28, 2011, 2:30 p.m. Lake Oswego, OR. Dr. David Shprecher, Assistant Professor of Neurology, University of Utah will lead a presentation for people with Parkinson's and their family members to help understand and best manage the symptoms of Parkinson's disease. This is a free presentation but pre-registration is required. Call (800) 426-6806.

**Movement Classes:** Weekly fitness classes held in a variety of locations providing instruction for people with Parkinson's. Call: (800) 426-6806.

**Communication Programs:** Classes and groups to help people learn how to keep their voices and expressions loud and strong. Current locations include Corvallis and Portland, OR. Call: (800) 426-6806.

## Parkinson's Center of Oregon (PCO)

**Newly Diagnosed Educational Session:** Occurs every other month. A three-hour session for people recently diagnosed with PD and their spouse or family member. Participants may ask any questions of a PD specialist and long-time patient. \$20/person; refreshments served. For more information, call (503) 494-9054.

**Paws for a Cause - A Benefit for Parkinson's Disease.** Saturday, July 16, 2011 Events begin at 8:30a.m. at the base of the OHSU tram. Bring your friends, furry or human, to this fun benefit walk. Choose a 1K or 5K walk option. Registration is \$15 and includes a T-shirt and porta-pet trash bag dispenser. Register at [www.firstgiving.com/pco](http://www.firstgiving.com/pco) or by calling 503-494-9054.

## PADRECC Website

The PADRECC website provides information about Parkinson's Disease and other movement disorders, as well as services available to veterans and their caregivers. Here are some things you can find on the website:

- ◆ PADRECC clinic, staff, and contact information
- ◆ Information about Parkinson's Disease and its treatments
- ◆ Information about support groups and outside resources
- ◆ Patient Education events

**Check out the newly updated PADRECC Website at:**  
<http://www.visn20.med.va.gov/portland/PADRECC>

To receive the Parkinsonian by e-mail please forward a request to [nwpadrecc@va.gov](mailto:nwpadrecc@va.gov)  
Call (503) 721-1091 to be removed from our mailing list



**Department of  
Veteran Affairs**

### Portland VA Medical Center

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