



# THE PARKINSONIAN

NORTHWEST PADRECC/Parkinson's Disease Research, Education & Clinical Center

## FOCUSED ULTRASOUND THALAMOTOMY AND RADIOSURGICAL THALAMOTOMY

Joanna O'Leary, MD

Several of my patients have asked me recently about possibly treating their tremor with either focused ultrasound thalamotomy or radiosurgical (a.k.a. Gamma Knife®) thalamotomy, rather than stereotactic surgical thalamotomy or deep brain stimulation. With growing interest in these technologies, it is important for practitioners and patients to better understand the pros and cons of each procedure in order to make well-informed decisions about treatment of their disease.

Both focused ultrasound thalamotomy and radiosurgical thalamotomy are experimental techniques that are not yet approved by the Food and Drug Administration (FDA). They are both radiological techniques that destroy a tremor center in the brain, called the ventral intermediate nucleus of the thalamus, without the need for surgical incisions.

Focused ultrasound thalamotomy uses concentrated ultrasound waves to heat up an area of brain and permanently destroy tissue in that region. This technique produces immediate improvement in tremor. It also has the advantage of being able to test the target for improvement in tremor before making a permanent lesion rather than relying on imaging alone to determine if the correct target has been identified. In the very small number of studies that have been performed, there has been improvement in tremor with this technique. There have also been minimal serious adverse side effects, although a small number of patients do experience permanent sensory changes such as numbness in a hand.

Radiosurgical thalamotomy uses radiation to similarly destroy brain tissue. However tremor improvement is often not achieved until several months after the radiation has been applied. Unlike focused ultrasound thalamotomy, the intended target is confirmed via imaging techniques rather than with immediate confirmation of tremor improvement at the time that the radiation is applied. The size of the lesion created cannot always be predicted with the potential for creating damage to unintended parts of the brain. Several studies of radiosurgical thalamotomy have been performed showing improvement in tremor.

While these two techniques are promising in many ways, they have several limitations compared to deep brain stimulation. One of the major limitations is that thalamotomy of any sort (focused ultrasound, radiosurgical or stereotactic surgical) can only be performed on one side of the brain, thus tremor can only be improved on one side of the body. This is because surgeries that destroy both sides of the thalamus cause difficulty walking, slurred speech and difficulty swallowing. With deep brain stimulation you can target both sides of the brain resulting

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### 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 e-mail them to [nwpadrecc@va.gov](mailto:nwpadrecc@va.gov) with "Newsletter submission" as the subject line.

Or mail to: Portland VA Medical Center  
 P3-PADRECC  
 3710 SW US Veterans Hospital Rd.  
 Portland, OR 97239

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in potential improvement on both sides of the body. While slurred speech, imbalance and other symptoms can occur with deep brain stimulation, we are able to adjust the stimulator settings to reduce or eliminate these symptoms in most patients.

In addition, while thalamotomy can treat tremor well, it has little effect on other Parkinson's symptoms. With deep brain stimulation, we typically target other brain centers (e.g. the globus pallidus or the subthalamic nucleus). Stimulating these targets can improve tremor as well as dyskinesia, slowed movements, and stiffness. Destroying the thalamus alone has minimal or no effect on these other symptoms. As a result, usually we reserve thalamotomy for patients with essential tremor, a condition involving tremor alone, rather than Parkinson's disease which has multiple other associated symptoms.

Deep brain stimulation does have a risk of bleed associated with it. Five percent of patients who have this procedure performed are known to have bleeds. The vast majority of those bleeds do not lead to any permanent deficit, but about 1% of the time patients can have a bleed that causes permanent damage. Focused ultrasound thalamotomy and radiosurgical thalamotomy are appealing because the theoretical risk of bleed and unintended brain damage is lower, however they are both still in an experimental phase right now and we have yet to gather enough information on a large number of patients.

When choosing whether to proceed with surgery and which surgery is ideal for you, it is important to consider what facets of your disease you are trying to improve, whether that surgery is targeted to your condition and whether the risks are justified based upon the severity of your disease.

## Tai Chi at the VA

Mondays 1:00 – 2:00 (for veterans with chronic pain)

Wednesdays 1:00 – 2:00 (for veterans 60+)

An 8-session series of a modified Yang form

Meets in the gym/fitness center on the VA Vancouver campus in Bldg 14

The next class begins in February 2014

Tai Chi is a noncompetitive, self-paced program of gentle physical exercise. In tai chi, the patient performs a defined series of postures or movements in a slow manner – standing or seated. Each movement or posture flows into the next without pausing. Patients may participate in only one 8-week series to allow access for other patients into the program.

### Benefits of Tai Chi:

Reduce stress

Improve muscle strength and definition

Increase energy, stamina and agility

Increase feelings of well-being

Patients may self refer by calling x 34372 to request participation in next class; all calls are returned to verify interest.

Any provider from any program in the medical center, who is able to identify the patient as physically able to do mild exercise for 30 minutes seated or standing, may submit a consult. Accommodation is addressed to make the class accessible to all. (Tai Chi is taught standing or seated)

Referral information is available in CPRS:

New Consult > Outpatient Consult > Mental Health > Internal Referrals > either P2 Groups /Classes OR Vancouver Groups /Classes > Tai Chi Movements > Patients call x 34372 to request participation in next class; all calls are returned to verify interest.



The NW PADRECC Presents

# Health & Wellness Fair 2014

for Movement Disorders and Healthy Aging

**No Registration Required!**

Call us at (503) 721-1091 for questions



**VA HEALTH CARE** | Defining EXCELLENCE in the 21st Century

**Friday, June 13, 2014**

**9:30 a.m. to 1:00 p.m.**

Portland VA Medical Center Auditorium

**Keynote Speaker 11:00 a.m.**

*Healthy Sleep, Healthy Brain*

**Presented by:**

**Eilis Boudreau, MD, PhD**

# Will you leave FREEZING OF GAIT behind this spring?

Over the next few months, as spring afternoons warm into summer and Oregon sunshine entices us outdoors, freezing is the last thing on anyone's mind – except for the researchers in the new 'Balance Disorders Laboratory' at the PVAMC. Dr. Fay Horak, a world-renown expert in how the brain controls balance and walking, and her research team received a new VA grant to study the symptom of freezing of gait, a brief absence of forward progression of the feet, despite the intention to walk, in people with Parkinson's Disease (PD). Freezing of gait is not only frustrating and embarrassing, it makes it difficult to walk and fully engage in activities of daily living and can lead to falls and serious injuries.

What type of interventions best improve mobility in people with PD who experience freezing? With generous VA research support and a new laboratory space at the PVAMC to provide exercise and education classes, this project will boost PD research at the VA and promote fitness and self-efficacy (a take-charge attitude) for people with PD. This research will result in a better understanding about how the brain controls balance and walking and will lead to novel technology to overcome freezing of gait.

When it comes to the tools and instruments used in this research, as any former subject in a Balance Laboratory study will tell you, the technology is amazing, almost futuristic. The laboratory's bioengineers, neuroscientists, and physical therapists use the newest research approaches to measure how exercise and education can improve walking and balance, such as body-worn movement and muscle monitors and functional brain imaging. Pairing these novel approaches to measuring mobility and brain function with neurological exams, patient histories, and questionnaires enables this team to get new insights into what causes freezing of gait and what to do about it.

As they chart the benefits of different approaches to improve mobility for people with PD, Dr. Horak's laboratory is looking for any veterans with PD who have balance or walking problems, not just those who freeze. They will be looking for patients who are able to commit to a 12-week program that meets 1-3 times a week, as well as those who are not ready or able to enroll in such classes, but are still interested in participating in research. Healthy control subjects, without PD, will also be needed.

To enroll or inquire for more information about the study, contact Research Assistant, Mike Fleming at 503-220-8262, extension 51713.



## Parkinson's Wellness at the Quarry

In March, PADRECC's Clinical Coordinator, Susan O'Connor, RN, and Program Coordinator, Betsy Minium, took the NW PADRECC on the road. They participated in a Health and Wellness Fair sponsored by The Quarry



Senior Living Community in Vancouver, Washington. The Quarry has a unique Parkinson's disease care program including purposefully-designed apartments for residents with movement disorders. Some features these apartments have include environmental supports, such as automatic door openers, and motion detection lighting. The Quarry has a program for shorter-term respite care as well as long-term living arrangements. The Quarry's Wellness Fair provided an opportunity to offer Veteran residents educational material and information about benefits available at the VA to individuals with Parkinson's disease and movement disorders. If you are interested in learning more about the Quarry's Parkinson's program, you can visit their website at [www.lifestylesllc.com/thequarry](http://www.lifestylesllc.com/thequarry) or call 1-877-778-2779.



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1660 S. Columbian Way  
Seattle, WA 98108  
Phone: (206) 764-2021  
nwpadrecc@va.gov

## CALENDAR OF EVENTS

Upcoming classes, support groups, and other events related to movement disorders

### PORTLAND PADRECC

#### HEALTH AND WELLNESS FAIR

June 13, 2014, 9:30am to 1:00 pm. Please see flyer on page 2 for additional information.

### OHSU PARKINSON CENTER

#### PAWS FOR PARKINSON'S

June 21, 2014. 9:00am to 12:00pm.

Bring your friends - furry or human - and please join us at the base of the aerial tram for a fun, family friendly benefit for Parkinson's disease. Events include 1k or 4k dog walk, a vendor fair, and a silent auction. Registration is \$25 and includes an event t-shirt and pet trash bag dispensers. Register, start, or join a team! For questions please call Diana at 503 494-7243

### PARKINSON'S RESOURCES OF OREGON (PRO)

#### ADVANCE STAGE CAREGIVER TRAINING IN BEND

June 30, 2014 9:00am to 4:00pm at Touchmark at Mt. Bachelor Village. This workshop is specifically for family caregivers exploring how to meet and support care needs as Parkinson's disease progresses in a loved one. \$20, Lunch included. For more information please visit [www.pro.eventbrite.com](http://www.pro.eventbrite.com)

#### PATIENT EMPOWERMENT LECTURE WITH DR. RICHARD DEWEY OF UT SOUTHWESTERN.

August 18, 2014 from 2:00pm to 3:00pm the Embassy Suites, Portland Airport. This event is free, but registration is required. Please visit [www.pro.eventbrite.com](http://www.pro.eventbrite.com)

#### 10th ANNIVERSARY OF SOLE SUPPORT FOR PARKINSON'S 1K & 5K Awareness Walk and Fundraiser

September 6th in Portland at Moda Center  
September 27th in Medford at Bear Creek Park  
September 28th in Eugene at Alton Baker Park  
Registration and event details at [www.solesupport.org](http://www.solesupport.org)

#### LIVING WITH PARKINSON'S CONFERENCE; Treatment Options and Strategies for People with Parkinson's and their Family Members

September 20, 2014 in Boise, Idaho. 9:00 am to 3:30 pm  
\$20 registration before Sept. 5th, \$25 after. Includes lunch. Scholarships available. Please visit [www.nwpcf.org](http://www.nwpcf.org)

### Check out our website:

[www.parkinsons.va.gov/northwest](http://www.parkinsons.va.gov/northwest)

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
- Video library