

# MOVING AHEAD

WINTER 2009



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Dear Friends:

I hope everybody had a great summer in the beautiful Lowcountry and is enjoying the cooler fall weather. The first edition of the Moving Ahead newsletter was a big success and we would like to continue this source of information for you on a regular basis.

Things stay busy in our program as we continue to care for our patients in our Rutledge Tower clinic. MUSC Neurosciences is branching out though and getting closer to your home with some services important for our movement disorders patients. Dr. Saima Athar now has a sleep disorders clinic in North Charleston, and I have moved some of my Botulinum Toxin injection clinics to our satellite office in Mt. Pleasant. Dr. Steve Takacs from our Deep Brain Stimulation Program sees patients in Mt. Pleasant as well. We hope this facilitates access for those of you living close to the North or Mt. Pleasant areas.

Our clinical research program is running at high speed. We currently have five active clinical trials (see Clinical Trials Update in this newsletter), and recruitment has been going very well. As some of you might have already heard, MUSC was just awarded a \$20 million grant from the National Institute of Health to facilitate the "bench to bedside process" of the research endeavor. This means that the University will be given the opportunity to fund pilot programs looking at getting basic science research moved forward and applied to "real people". The Movement Disorders Program will continue their close collaboration with the neuroscientists in the department to work on translating this effort into the science of Parkinson's disease and other Movement Disorders. Dr. Lotta Granholm, the director of the MUSC Center on Aging, is a key collaborator in this process. You can learn about her research in today's Researcher's Profile.

I will take a few lines to also update you on exiting news from the 13th International Movement Disorders Society Congress held in Paris this June. First of all, Dr. Travis Turner from our group received a travel grant to be able to present his research related to the neuropsychology of Parkinson's disease on behalf of the Murray Center. Dr. Turner did an outstanding job and we are very proud of his accomplishments. Another highlight amongst the many scientific presentations at this year's meeting was research presented by the Cleveland Clinic on the effects of forced-exercise on motor symptoms and neuronal activity

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in Parkinson's disease. 10 people with PD underwent a 40-minute exercise session on a stationary tandem cycle with a trainer setting the bicycling rate at a speed above the person's usual performance. This way, people were forced to cycle faster and at a steady, "healthy" rate of cycling. The research team was able to demonstrate that the forced exercise improved Parkinson's motor scores (as measured by the UPDRS) in the same way that a dose of levodopa does. In addition, the research participants underwent functional MRI scanning before and after exercise. It turns out that the exercise activity increased brain motor cortex activation to a similar extent than levodopa therapy. The Murray Center is currently writing a proposal to study the implications of forced treadmill exercise for freezing of gait in Parkinson's. Please see Vicky Salak's article on freezing of gait in this newsletter.

Finally, I will share with you that we are still recruiting for another physician to join our Movement Disorders Program. Hopefully by the time the next newsletter will come around, I will be able to introduce our new colleague!

Thank you again for all your continued support and trust in us as your physicians,

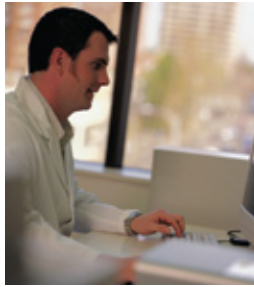
Sincerely,

**Vanessa Hinson, MD, PhD**

**Movement Disorders  
Program Director**

**Interim Director of the  
Murray Center for Research  
on Parkinson's Disease and  
Related Disorders**

## CLINICAL TRIALS AT THE MURRAY CENTER



### **Stopping disease progression in PD**

The Murray Center was selected by the NIH to participate in nationwide research efforts to define agents capable of stopping or slowing down the progression of Parkinson's Disease. There are currently two clinical trials available for participation:

**NET-PD:** This study examines the safety, tolerability and efficacy of creatine in early Parkinson's Disease for patients within 5 years of diagnosis.

**QE3:** This study is for patients with early PD who are not requiring symptomatic treatment and studies the safety, tolerability and efficacy of coenzyme Q10.



### **Essential Tremor (ET)**

ET is more common than Parkinson's Disease and can be quite frustrating to deal with. Affected individuals often have difficulties drinking from a cup or using eating utensils because of severe tremors. The Murray Center is offering participation in a clinical trial examining the safety and efficacy of pregabalin for the treatment of ET.



### **CD-Probe**

Allergan is currently conducting a study (CD-PROBE) to gather information that may help healthcare professionals better understand the diagnosis and treatment of cervical dystonia using BOTOX. This also includes patient input regarding their recent healthcare, effects on work due to cervical dystonia and their impression of change after treatment. This study is open to patients with cervical dystonia that require BOTOX treatment for cervical dystonia, are new to Dr. Hinson's practice and have not previously received BOTOX treatment for their cervical dystonia. There is total of 4 visits over a 12-16 week period.

**If you are interested in participating or learning more about these clinical trials, please contact Jennifer Zimmerman, RN, clinical research coordinator for the Murray Center, at 843-792 9115.**



## **FREEZING OF GAIT PHENOMENON**

**VICKY SALAK, NP**

In addition to the hallmark symptoms of Parkinson's Disease, resting tremor, slowness and rigidity, many PD patients experience "freezing of gait". This phenomenon is commonly described by patients as "my feet are stuck to the floor". Although more complex with varying degrees and differing visual cues, this is essentially what occurs. The patient's feet will literally stick to the floor as the top part of their body continues forward causing an imbalance and increased risk of falls. There is a "disconnect" between the cognitive perception to move and the motor ability. Unfortunately, this phenomenon seems to be more prevalent with the progression of disease. The freezing of gait is triggered by visual cues such as doorways, change in flooring and crowded spaces. Therefore, many patients have found that the freezing is more prevalent in their homes. But there

also seems to be a cognitive component, as patients become more consciously aware of their gait, with no distractions such as talking or dual-tasking, the freezing seems to be more controlled. Patients often find their own specialized ways of breaking

### **The freezing of gait is triggered by visual cues such as doorways, change in flooring and crowded spaces.**

the freezing, such as marching in place, jogging, or stepping over a line.

Initially, freezing may respond to medication dosing, however, with progression this becomes more random and less responsive to medications. At this point, treatment becomes more safety-focused and using a walker, a more conscious effort on walking and cueing, such as verbal reminders

to take longer steps, weight shifting –left/right, marching in place and stepping over a laser light line, can be helpful. This is even more evident in patients with deep brain stimulation surgery. Although the symptoms of rigidity, slowness and tremor are dramatically improved, there is little if no effect on freezing gait.

Exercise has become a focus for PD patients and recent studies have shown some improvement in PD symptoms with forced exercise. The Movement Disorders Program at MUSC is currently starting a pilot study to look at freezing gait in patients with DBS, since all other symptoms of the illness will be well controlled with stimulation. Utilizing forced treadmill training and virtual reality to de-sensitize the visual triggers, we will monitor for improvement of freezing gait episodes. We will keep you posted on our outcome.

# RESEARCHER'S PROFILE:

## LOTTA GRANHOLM-BENTLEY, Ph.D.

Lotta Granholm-Bentley is a native of Sweden and came to the US in 1985 as a postdoctoral fellow, to the Department of Pharmacology at University of Colorado in Denver. Her Ph.D. thesis dealt with the role of thyroid hormones for development and aging of the brain, and she continued to focus on aging-related diseases as a postdoctoral fellow and, later, as an Associate Professor when she returned to Sweden 3 years later. She received her Ph.D. thesis in 1984 and has more than 100 published articles, most of them related to neurodegeneration and aging. After returning to Denver for several years in 1991, Dr. Granholm was recruited to MUSC in 2000, and was elected to be the Director for the Center on Aging in 2001. Since she became the Director for the Center on Aging, funding in age-related research has increased 10-fold at MUSC, from \$3.5M to \$33M this year, much because of recruitment of faculty in this field, and because of a heightened interest in Parkinson's and Alzheimer's disease as well as other disorders afflicting the elderly at our University.



### **A program project grant on Parkinson's disease:**

In 2006, our research group received funding from the National Institutes on Aging (approximately \$1M/year for 5 years) to study biological mechanisms underlying Parkinson's disease (PD) and other age-related motor dysfunction disorders. The research group consisted of faculty members from 4 different departments at MUSC (Neuroscience, Psychiatry, Ophthalmology, and Biometry) and a collaborator from University of Umeå

in Sweden. The primary goal of our research program is to identify the neurobiological underpinnings of age-related motor dysfunction related to PD. Recent studies have suggested that a combination of hereditary predisposition and environmental factors play a role in parkinsonism. This would suggest that individuals with PD are predisposed to the disease through a genetic change, for example a different conformation of a protein, or reduced function of proteins in the brain which are neuroprotective. We have focused our work on one such protein, the growth factor GDNF. We found that mice with a genetic loss of GDNF are more vulnerable to toxins during their life, and we used two different types of toxins: A) Methamphetamine (a drug of abuse), and B) LPS (a toxin produced during bacterial infections). Both of these toxins

lead to parkinson-like motor loss and loss of dopamine neurons in the brain (the neurons that die in the brain of PD patients), and the effects were much stronger in the brains of mice with a loss of GDNF. These findings are important because they suggest that something as simple as an infection can cause trouble several decades later, and the same is true for methamphetamine: if an individual is carrying a genetic predisposition and uses methamphetamine when they are young, this can lead to parkinsonism several decades later in life. We now continue the work exploring exactly what happens in the brain, and how we can prevent damage from occurring. This could lead to novel therapies for Parkinson's disease, and to discoveries related to its etiology.

## DEVELOPMENT NEWS

Philanthropy plays a vital role in our efforts to help find a cure for Parkinson's disease and other related movement disorders. It is through charitable donations that we are able to fund new research, enhance clinical care, and recruit and retain high quality faculty and staff. You can join us



**Coach Tim Touchberry, Gary Brewer, Mike Collie, Russ Touchberry, Buck Creighton, Paul Walsh**

by making a gift today, or even planning for one in the future through an estate gift. Director of Development, Debbie Bordeau can help you learn more about our program as well as how you can best help us. Contact her at 843-792-4342 or email: [bordeau@musc.edu](mailto:bordeau@musc.edu).

This past spring, Gary Brewer decided that he wanted to help make a difference in the lives of people with Parkinson's disease. His former coach and mentor, Coach Tim Touchberry, of Summerville, SC, had been diagnosed with Parkinson's disease. Gary, along with Coach's family and friends gathered for a golf tournament called "Putting for Parkinson's." Together they raised over \$6,000 to support research at MUSC.

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## WHAT LEGACY WILL YOU LEAVE?

We all desire significance – to lead happy and fulfilled lives surrounded by family and friends. And for many of us, there is a compelling need to make a difference – to leave a lasting impact on the people most dear to us and the world in which we live.

The search for significance and desire to plan for the future leads many to ponder their legacy. There are a number of ways to leave a legacy, including planning a gift from your estate. These gifts can come from your will, retirement plan, insurance plan, or through a life income plan such as a gift annuity or trust.

For more information, contact Toni Jernigan at [jernigat@musc.edu](mailto:jernigat@musc.edu) or call 843-792-2236 or 800-810-6872.



**Dave Fleming, Gary Brewer, Richard Waring, Bryan Nye**