



*Research and development to improve the everyday function and quality of life of aging Veterans with vision loss and their caregivers.*

## New Project Focus: Automated Building Navigation Information

Spend a few minutes on the main floor of the Atlanta VA Hospital and you WILL see people who are lost or confused. *Indoor navigation and wayfinding* in large and complex environments can be a challenge and even more daunting with vision or cognitive losses.

Basic to this research is **capturing detailed building layout information** that can be manipulated by a computer database **customized to the needs of an individual user**. For example, persons who are totally blind might need information about features in hallways they can feel by touch or cane, whereas persons who can still see shapes and color contrast at doorways would need a different set of information.



James Marston, PhD  
Principal Investigator

This newly funded VA Rehab R&D Merit project will:

1. Convene a panel of blind-mobility experts to **develop a set of profiles** specific to the cues and landmarks detectable by persons with different skill and residual vision.
2. **Test these profiles** with various navigation tasks.
3. Collect detailed building survey information, which will be used to test the profiles **against standard route learning information and techniques** usually provided by a blind-mobility trainer.
4. After the **profiles are refined**, we will test the newly developed system by having persons **preview** (tactile or large print map and audio description of routes) **and then travel these routes** via auditory information from a regular cell phone.

Our hope is that this system will enable first time VA Medical Center visitors, especially those with vision or cognitive disabilities, to find their way independently.



Participant testing the Route Capture System

*This study, "Capturing and Presenting Route Descriptions for People with Vision Loss," is supported by the VHA Office of Research and Development, Rehab R&D Service. For more information about this study, call Dr. Marston at the Atlanta VA Rehab R&D Center at (404) 321-6111, ext. 6792.*

<b>ALSO inside this issue:</b>	<b>Brain Corner: Brain Transformation</b>	<b>2</b>
	<b>Featured Researcher: Mabelle Pardue, PhD</b>	<b>2</b>
	<b>Research Participant Perspective: Tango for Visually Impaired Vets</b>	<b>3</b>
	<b>A Word from Our Director: About Our Center</b>	<b>4</b>

## Dr. Pardue Studies Therapies to Slow or Halt the Progression of Retinal Degeneration



Mabelle Pardue, PhD

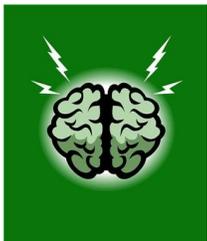
The leading causes of vision loss are retinal degenerations and diabetic retinopathy. Dr. Mabelle Pardue is studying the underlying mechanisms of these diseases and developing treatment strategies. Dr. Pardue has investigated therapies to slow or halt the progression of retinal degeneration with treatments such as *synthetic bile acids* that stop cell death, and low-level *electrical stimulation* to promote cell survival. In addition, she is involved in the testing of *retinal prosthetics* to restore vision that has been lost. More recently, Dr. Pardue has

started a research program to investigate early *biomarkers* for diabetic retinopathy. Currently, diabetic retinopathy is diagnosed by late stage vascular changes in the retina. Dr. Pardue's laboratory is working to develop *functional vision tests* that might be used to screen for retinopathy in diabetic patients. In addition, she is studying the mechanisms of the disease in order to develop new treatments that could stop the progression of retinopathy that leads to vision loss.

For more information about Dr. Pardue and her research, please visit our web site at [www.varrd.emory.edu](http://www.varrd.emory.edu).

## Brain Corner: Brain Transformation

Brain *plasticity* is the revolutionary discovery that **your brain can change at any age**. There is much you can do to more effectively function with a vision loss. **Your brain is never too old to learn new and surprising "tricks."**



What you can do to transform your brain:

- Challenge your brain** each day! Learn new things and new ways of doing things
- Reward yourself**; over time small improvements become BIG accomplishments
- Refuse to worry**; worry does not help!
- Be patient with yourself**; progress is made in spurts and jumps
- Focus on the positive** in the present moment; be here now

**You can start NOW**, wherever you are and no matter what your doing!

**Just Make Up Your Mind!**

**The VA Rehab R&D Center hosts scientific seminars throughout the year.**

**Please check our website [www.varrd.emory.edu](http://www.varrd.emory.edu)**

**for time and location information.**

## Tango for Visually Impaired Vets - "I Had a Blast!"

I had a most delightful summer as a research participant in group-tango class for older veterans with vision problems. This class had volunteer Emory students as our dance partners. I thought that nobody could teach me – *legally blind* – how to do the tango. Boy was I wrong; I had a blast! We talked about ourselves, Dr. Madeleine Hackney (the Principal Investigator of the study), how "NOT to grow melons," "how to remodel an upstairs home," plus, I learned how to do tango steps! One of my favorite volunteers acted as my "eyes" in filling out a form for me. She was nervous about spending time with a "white-hair" but found it was OK. Madeleine had dance sessions each day and this helped my legs. I redeveloped my longer stride during this class.

Madeleine had two laboratories that we attended separately for "before" and "after" tests. These were to see if we could carry a cup of water and how fast we walked. The best test was the *balance test* in which we were in a harness; it was fun and challenging.

I also got to know the other "young vets." I am 78 and a real Korean War Navy vet. The other young vets were from WWII and most are in fairly good shape. I enjoyed one WWII vet who was in my ride van. The last day I went to class (my 20<sup>th</sup> class!), we got to his home and I got out with him, shook his hand and said, "keep in touch." He said, "Ed, this beat boring!" – and IT SURE DID.

*This study, "Exercise Effects on Mobility and Fall Risk in Visually Impaired Elders," is supported by the VHA Office of Research and Development, Rehab R&D Service. For more information, call Dr. Hackney at the Atlanta VA Rehab R&D Center at (404) 321-6111, ext. 5006.*

"Madeleine had dance sessions each day and this helped my legs. I redeveloped my longer stride during this class."



Ed Sporleder, the author, with the study staff:  
L-R: Karen Chu, Mr. Sporleder,  
Dr. Madeleine Hackney, Rachael Maynard,  
Chandana Papadesu, and Mark Needelman

**For information about participating in research at our Center,  
call (404) 728-5064.**



ATLANTA

VA Rehabilitation R&D  
Center of Excellence

for

AGING VETERANS WITH VISION LOSS

1670 Clairmont Road  
Decatur GA 30033

Telephone

404-728-5064

Toll-free

1-800-944-9726

Ext. 5064

[www.varrd.emory.edu](http://www.varrd.emory.edu)



Veterans Health Administration  
**Research  
Development**  
Improving Veterans' Lives → [www.research.va.gov](http://www.research.va.gov)

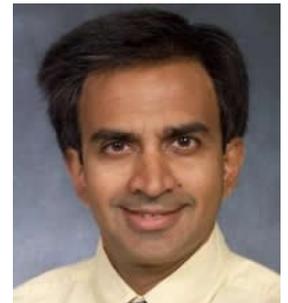
Atlanta VA Rehab R&D Center of Excellence

NEWSLETTER Winter 2011

## A Word from Our Director: About the VA Rehab R&D Center of Excellence

The Atlanta VAMC Rehabilitation R&D Center of Excellence is focused on enhancing veterans' health by conducting research on the rehabilitation of visual and related neurological impairments. Our research spans the gamut from the basic science of *repair mechanisms* through the development of creative *rehabilitative interventions* to improve function and social re-integration.

Our investigators and staff come from a variety of backgrounds and collaborate to synergistically develop novel approaches and foster the translation of scientific discoveries into clinically relevant treatments. Most of our investigators also hold academic appointments at Emory University or Georgia Institute of Technology.



Krish Sathian, MD, PhD  
Medical Director,  
Acting Center Director

This newsletter offers a glimpse into some of our recent activities;  
**look out for more in subsequent editions!**