

*Fostering the health and well-being of Veterans through research impacting visual and neurocognitive function*

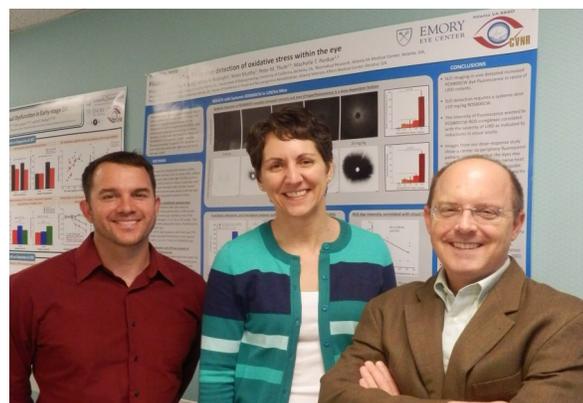
## New Project Focus: Bridging Animal and Human Models of Exercise-Induced Visual Rehabilitation

By Jeffrey H. Boatright, PhD

Chalk up another benefit of exercise — it is good for your eyesight, too! We all know that exercise is good for our hearts and muscles, but can taking a walk or riding a bike protect your eyesight? Three researchers at the Center for Visual and Neurocognitive Rehabilitation (CVNR) are testing that question with the help of a group of Veterans.

Atlanta VAMC Research Scientists Joe Nocera and Keith McGregor previously discovered that riding stationary bicycles, an activity called “spinning,” improved mental capabilities of aging Veterans. Based on these findings, VA Research Career Scientist Machelie Pardue proposed testing whether aerobic exercise protects against blindness in mice with retinal degeneration. She and VA Research Biologist Jeff Boatright found that the eyes of mice that were running regularly were protected. Importantly, they found that protection of the eyes depended on brain-derived neurotrophic factor (BDNF), a blood protein known to be important in many other beneficial effects of exercise in humans and animals.

Taking their research full circle, Drs. Pardue, Nocera, and Boatright are now testing whether both mice and humans show similar increases in blood levels of BDNF during and after exercise. If so, it may be that such BDNF measures can be used to predict whether



**L-R: Drs. Joe Nocera, Machelie Pardue and Jeff Boatright**

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exercise will protect vision in our aging Veteran population. So far, their results and those of others in this area suggest that even modest activity can protect eyesight.

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*Jeffrey H. Boatright, PhD, is the Principal Investigator of the VA Rehabilitation Research and Development SPiRE Award (C1924-P) Bridging Animal and Human Models of Exercise-induced Visual Rehabilitation. For more information about participation opportunities, please contact Holly Hudson, at (404) 321-6111, x 7099. You can find links to more information about Dr. Boatright's earlier work on our website, [www.varrd.emory.edu/news-events/](http://www.varrd.emory.edu/news-events/)*

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## **New Investigator: Welcome Dr. Amy Rodriguez!**

We are honored to welcome Amy Rodriguez, PhD to the CVNR. Dr. Rodriguez is a speech-language pathologist and rehabilitation scientist. She joined the CVNR last summer, after completing a postdoctoral fellowship at the University of Queensland in Brisbane, Australia. Dr. Rodriguez is passionate about her research, which is aimed at developing new treatments for people with language impairment due to neurologic disorders. Currently, she is investigating the effect of exercise on word learning in healthy aging, aphasia and mild cognitive impairment. The ultimate goal of her research is to develop exercise-based treatments for word retrieval problems, which are the most common language complaints in healthy aging and neurologic disease.



**Amy Rodriguez, PhD**

Dr. Rodriguez's work adds a new dimension to the exercise research program within the CVNR because her current studies investigate the immediate effects of exercise rather than the long-term effects. She had this to say about her approach: "Immediate exercise paradigms will help us identify the optimal dose, timing and type of exercise that benefits learning. Making the most of a single exercise session — that is, immediate effects — will lead to future understanding about the combined effect of those single sessions over time — the long-term effects. This approach will allow us to develop exercise-based word retrieval interventions that take advantage of both the immediate and long-term benefits of exercise."

Dr. Rodriguez's grandfather was a Veteran of the Korean War, and she values the opportunity to honor him and give back to other Veterans through her research. Outside of work, Dr. Rodriguez enjoys singing and taking on physical challenges such as the US Marine Corps Mud Run, OxFam 100K, and walks with her spirited American Bulldog, Herbie.

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*Amy Rodriguez, Ph.D., is a Research Scientist with the Department of Veterans Affairs. She is the Principal Investigator of Effects of Aerobic Exercise on Word Learning in Older Adults. For more information about this study, please contact Holly Hudson, at (404) 321-6111, x 7099.*

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## Participant Perspective: SLEEP-E Dyads

by David L. Barlow

I learned about the sleep study from one of my VFW buddies. As a Vietnam Veteran with a service related hearing problem that interferes with my sleep, I felt this would be a good opportunity to learn about the possibility of improving my sleep. My precious bride, Cherie, agreed!

The things I liked about the program are the efforts to do things for older Veterans who are typically overlooked. The activities were fun and the exercise part was excellent. It's the kind of stuff that anyone can do. It was clear that the

researchers were trying to increase activity levels among older people. There were many choices, so if you didn't like something, you had other options — we did not get bored! We really enjoyed the research staff visits. They were very professional and made the program more personal. The two FaceTime calls with Dr. Griffiths were a lot of fun. This was our first time using FaceTime, so it was a great opportunity to try it out.

“...they are trying to do things for older Veterans who are typically overlooked..”

Overall, the SLEEP-E Dyads program was extremely easy to use. It was Cherie's first time using an iPad. Everything was picture-driven and she found it easy to use. I learned a lot about my sleep habits. The videos showed us a variety of ways to improve our sleep. We were very pleased to learn that our lifestyle has contributed positively to the quality of our life. We do not drink or smoke, we are moderately active, and we do not have TV or other electronic devices in our bedroom. I cannot emphasize enough the value of sharing my life with the woman I love. Our love of being together transcends any difficulty the world presents and we encourage all couples to give of their time to each other and enjoy the life God has given them.

I would absolutely recommend SLEEP-E Dyads to Veterans, caregivers or anyone, really. I went around bragging about the program and even put it on my Facebook page! There is such a tremendous population of Veterans that need to be reached. It is remarkable that a program of this magnitude is doing so.



David and Cherie Barlow

*Patricia Griffiths, PhD is the Principal Investigator of Improving Sleep in Veterans and Their Family Caregivers (SLEEP-E Dyads), VA Rehabilitation Research and Development Career Development Award (E7249W).*



**For information about participating  
in research at our Center,  
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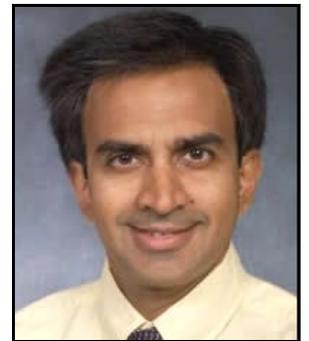
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## A Word from Our Director

The Atlanta VA Center for Visual and Neurocognitive Rehabilitation (CVNR) comprises three interwoven programs of research, focusing on Retinal and Neural Repair; Visual Rehabilitation; and Neurocognitive Rehabilitation. The CVNR continues to evolve dynamically. We now have two active Cores supporting our research programs — a Neuroimaging Core directed by Dr. Bruce Crosson and a Molecular Biology Core directed by Dr. Jeffrey Boatright — and are preparing to add two more Cores, one on Physical Exercise and one on Tele-rehabilitation. These Cores each consolidate particular areas of expertise in order to facilitate collaborative research in pursuit of our mission to enhance the health of Veterans with visual and/or neurocognitive problems. We are particularly excited about the arrival of our new iPads to be used in our Tele-rehabilitation programs!



**Krish Sathian, MD, PhD**  
Executive Director

On behalf of the CVNR, I would like to personally thank the Veterans and all our research participants who help to make our scientific discoveries possible.