

## Is Vitamin D Deficiency Associated with Memory Loss?



The prevalence of vitamin D deficiency is increased in the elderly with up to half of all adults over age 60 being vitamin D deficient.

Although the prevalence of vitamin D deficiency may vary by geographic regions and ethnicity, it is common throughout the United States. Select populations, including women with Alzheimer's disease (AD), have an increased prevalence of vitamin D deficiency. Whether vitamin D deficiency is a cause or consequence of AD is unknown.

Because few persons are screened for vitamin D deficiency, the proportion of individuals with unrecognized vitamin D deficiency is potentially large. The primary source of vitamin D is produced from the skin following sun exposure, so having a nutritious diet may not preclude vitamin D deficiency. Multiple steps

in the metabolism of vitamin D are also adversely affected by aging. Additionally, people with darker pigmented skin are more likely to be vitamin D deficient regardless of age.

The effects of vitamin D deficiency on bone density are widely accepted; however, until recently, the consequences of vitamin D deficiency not related to the bone have been less studied. There is a growing body of literature to support a role for vitamin D in brain function and development.

In a study published in the American Journal of Geriatric Psychiatry and led by Consuelo H. Wilkins, M.D., ADRC Investigator, more than half of the 80 participants had abnormally low vitamin D levels. Participants who had vitamin D

deficiency performed worse on some memory tests and were more likely to have low mood. In a small subset of the participants, the hippocampus (a brain structure associated with memory) was smaller in participants with vitamin D deficiency.

Dr. Wilkins was recently awarded the Paul Beeson Career Development Award in Aging Research to further study vitamin D and the brain. She is recruiting participants without memory loss for her study. For more information, contact Vicki Weir at (314) 286-2683.

Wilkins CH, Sheline YI, Roe CM, Birge SJ, Morris JC. Vitamin D deficiency is associated with low mood and worse cognitive performance in older adults. *Am J Geriatric Psychiatry*. 2006 Dec; 14 (12):1032-40.



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## 2nd Annual Norman R. Seay Lecture

In continuation of a lecture series initiated in 2006, the 2nd Annual Norman R. Seay Lecture was held on October 16th this year. Peggy Dilworth-Anderson, PhD, from the University of North Carolina at Chapel Hill presented on Alzheimer's intervention in diverse cultures, stressing that the racial barriers being tackled are not based on injustices that happened 40 years ago but rather are caused by "what happened at the grocery store yesterday."

The lecture was well-attended with an audience of over 115 people, including a healthy mix of Washington University investigators, members of the ADRC African American Advisory Board (AAAB), other members of the community, and members of Dr. Dilworth-Anderson's family.

Norman Seay, a civil rights activist and leader and a member of the AAAB, presented Dr. Dilworth-Anderson with a plaque, and she returned her appreciation to him with the gift of a book of poetry written by her sister. This lecture series named in his honor is the first lecture series at the Washington University School of Medicine to be named after an African American.



Speaker Peggy Dilworth-Anderson, Ph.D. and Mr. Norman Seay

## Q & A: Responses to Participants' Questions

The following questions were asked by our participants at the annual Participant Appreciation Meeting in June 2007. Here, some of our ADRC investigators explore those questions.

### Alcohol and Alzheimer's Disease (AD)

#### ***Is alcohol intake protective, or does it increase the risk for AD?***

Our ADRC has demonstrated that alcohol use appears to have a neutral effect on the risk of developing Alzheimer disease and on the rate of disease progression for people with AD.

#### ***I've heard that red wine is helpful. Is that true?***

Studies suggest that moderate consumption of red wine lowers the risk for developing AD, but further study is needed. Any volunteers?

#### ***Is a recovering alcoholic more at risk to develop AD than a nonalcoholic?***

Research in this area is limited. Recovering alcoholic persons are not known to be at greater risk of developing AD. However, there is a form of dementia called alcohol related dementia that is associated with chronic alcohol abuse. One of the therapeutic interventions for patients with alcohol related dementia is abstinence from alcohol. Some studies suggest that for persons with alcohol related dementia, memory and thinking problems stabilize or sometimes improve with recovery from alcoholism.

#### ***Is the term MCI (mild cognitive impairment) still used to indicate early AD?***

Mild cognitive impairment (MCI) refers to a condition in which a person exhibits difficulties with memory. For instance, they may comment on trouble recalling names, dates, or appointments. Often these individuals are able to compensate by keeping notes or maintaining an appointment book. More importantly, however, is that these people are able to go about their daily activities despite these memory problems. At this stage, individuals are still independent and often do not require much assistance with day-to-day matters. MCI includes a number of conditions, one of which is Alzheimer's disease (AD). At Washington University Alzheimer's Disease Research Center, we try (successfully, as a rule) to identify the subset of MCI for which AD is the underlying cause. In those cases, MCI indeed is early AD.

### Early Alzheimer's Disease

#### ***Does most MCI become AD?***

MCI is reported to progress to AD at a rate of 10-15% per year. In comparison, normal older adults develop AD at a rate of 1-2% per year. The idea is that MCI individuals are already on the path toward AD. The threshold for that changeover depends on when additional impairments appear in domains such as judgment, reasoning, or language.

### Parkinson's Disease

#### ***Is there a relationship between Parkinson's disease and AD?***

Alzheimer disease is the most common cause of problems with memory and thinking (dementia). Parkinson disease (PD) is the most common cause of problems with movement, balance and tremor (movement disorder). AD and PD are distinct diseases; however, there is overlap in the presentation of symptoms for each disease. Up to 70% of individuals with PD will develop a dementia that often is similar in characteristics to AD. Additionally, up to 40% of individuals with AD will develop some problems with movement that are similar to PD. Examining the brains of older adults, we now know that a substantial proportion of individuals have the brain changes (pathology) of both diseases. The greatest risk factor for both AD and PD is age. AD affects 1 in 8 individuals over the age of 65, while PD affects 1 in 100 over age 55. So while it appears that there is indeed some relationship between AD and PD that still needs to be investigated, more research is needed to understand the relationship.

#### ***Are people with PD demented?***

PD initially presents with movement problems including slowness, increased stiffness, tremor, shuffling gait and balance problems. After 5-7 years of symptoms, many, but not all, PD patients will begin to experience problems with memory and thinking. PD patients with dementia respond to the same medications that are used to treat Alzheimer disease.

# MAP Participant Receives High Honors

On Saturday, November 10, 2007, Carlene W. Davis, a participant in the Memory and Aging Project, received the highest honor awarded by AARP to its volunteers. The AARP Andrus Award for Community Service is the organization's most prestigious and visible award and symbolizes that individuals have the power and ability to make a difference in the lives of others.

Aside from her contributions to the AARP St. Louis Chapter #321, Davis also volunteers for OASIS, beginning as a Peer-to-Peer Counselor and presently serving as a Group Discussion Facilitator. She is a long-time mentor for the St. Louis Public School System, currently mentoring a child at the Cote

Brilliante Elementary School. She also joined the Reading is Fundamental group in 1999.

Davis was recently installed as an Elder at the Cote Brilliante Presbyterian Church, where she holds a number of volunteer positions, and as a member of Delta Sigma Theta Sorority, Inc., she serves on the Social Action Committee that plans and executes forums for the public and gives voice to citizens' concerns.

Recipients from across the nation are chosen for The Andrus Award for Community Service for their ability to enhance the lives of AARP members and prospective members, improve the community in which the work was performed, and

inspire others to volunteer. Competition for the award is stiff; the honor is afforded one person from each of the fifty states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.



**Carlene Davis at the African American Participant Appreciation Meeting in November 2007.**

## African American Participant Appreciation Meeting

Researchers in the medical field understand that, for their results to apply to broader populations, research participants must be representative of the larger community. However, it is often challenging to recruit members of minority groups into research studies because of past discrimination in medical and educational institutions.

The Washington University ADRC is honored to have a wonderful group of African Americans who are dedicated to research participation. To show these individuals our deep gratitude for their commitment to making our research relevant to African American populations, the Memory & Aging Project and Memory & Aging Project Satellite hosted an African American Participant Appreciation Meeting in November, which was coordinated and emceed by Dr. Monique Williams. Participants mingled with each other and with ADRC staff and investigators before enjoying a delicious buffet brunch.

Ms. Deborah Hopkins, the manager of the Phyllis Wheatley Heritage Center where the event was



**Dr. Consuelo Wilkins**

held, spoke briefly about the historical importance of the Center, particularly to African American females.

The highlight of the event was a keynote speech by Dr. Consuelo Wilkins, who discussed Alzheimer's disease and the risk factors for and clinical characteristics of AD that are specific to African Americans.

We hope that the event truly displayed to our African American participants that their partnership with the ADRC is highly valued and critical to the quality of the research we conduct.

## Volunteers Needed for ADRC Studies

*Do you know of someone who might consider volunteering for a research project on cognitive aging?*

Two primary projects of the ADRC are in need of new volunteers. The **Memory & Aging Project** enrolls persons aged 65+ with mild memory problems. The **Adult Children Study** needs volunteers 45 and older for whom neither parent had AD.

*If you know of a potential volunteer, please ask that person to call the ADRC at **314-286-2683**. Thank you!*

# FOR YOUR CALENDAR



## Life, Death and the Renewal of the Neuron: The Leap from Bench to Bedside

*A symposium in honor of Eugene M. Johnson, Jr., Ph.D.,  
Professor of Neurology, and Molecular  
Biology and Pharmacology*

Friday, February 29, 2008

8:00 am - 6:00 pm

Eric P. Newman Education Center  
Washington University School of Medicine

For more information and to register, please visit  
<http://alzheimer.wustl.edu/Education/JohnsonSymposium/>

**Registration is Free!**

Sponsored by the McDonnell Center for Systems Neuroscience, the McDonnell Center for Cellular and Molecular Neurobiology, the Washington University ADRC, the Hope Center for Neurological Disorders, the Department of Molecular Biology and Pharmacology, and Ceregene, Inc.

### New Faces

- ♦ Angie Berry - MAP Nurse Clinician
- ♦ Patrick Bray - Medical Assistant 1
- ♦ Vivien Gardner - Alzheimer Treatment Unit Coordinator
- ♦ Nupur Ghoshal - ADRC Postdoctoral Fellow
- ♦ Sue Neidenbach - MAP Nurse Clinician

### NOTABLES

**Randall Bateman, MD**, received a 2007 Alzheimer's Research Forum Award.

**David Carr, MD**, was awarded the Medical Director Leadership Regional Award for HealthSouth Rehabilitation in November 2007.

**Youngjee Choi** received the Antionette Frances Dames Award in Cell Biology and Physiology to "stimulate productive scholarship" for an essay entitled, "Tackling Two Epidemics in One."

**James Galvin, MD, MPH**, received a 2007 Alzheimer's Research Forum Award.

**Nupur Ghoshal, MD, PhD**, secured a T32 award from the Department of Neurology to support her postdoctoral fellowship.

**David Holtzman, MD**, gave a special presentation at the November 2007 Society for Neuroscience meeting entitled, "The Neurobiology of apoE: Potential role in CNS disorders and Alzheimer's disease. In December, he also gave the keynote address at the 7th Eibsee

### Alzheimer's Association International Conference on Alzheimer's Disease

July 26-31, 2008  
Chicago, IL

Abstract submissions are open until **February 5, 2008**.

Online registration will open in January. Please visit  
<http://www.alz.org/icad/overview.asp>  
for more information.

meeting in Germany on the cellular and molecular mechanism of AD.

**Keoni Kauwe, MS**, received an Outstanding Presentation award at the Human Genome Variation and Complex Genome Analysis Meeting in Spain this September, as well as the Poletsky Award in November (see pg. 5)

**John Olney, MD**, received the Washington University Second Century Award in September 2007.

**Peggy Perkinson, PhD**, was an invited participant in the NAFKI's Future of Human Healthspan Conference aimed at fostering interdisciplinary research on longevity and healthy aging.

**Joseph L. Price, PhD**, received the Washington University Distinguished Educator Award for Graduate Student Teaching.

**Consuelo Hopkins Wilkins, MD**, received the Washington University Distinguished Community Service Award.

**Jeff Zacks, PhD**, was elected to the Governing Board of the Psychonomic Society for a term beginning in January 2008.



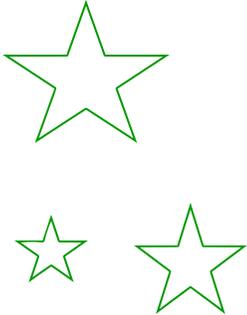
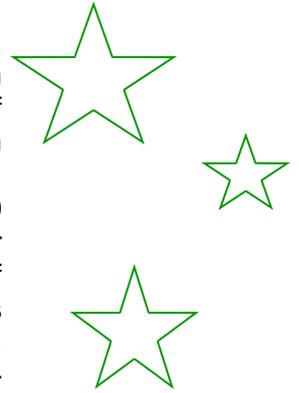
**L to R: Dr. John Morris, Keoni Kauwe, Mrs. Mildred Poletsky**

### Congratulations, Poletsky and Director's Award Winners!

On November 15, 2007, two young investigators at Washington University were each awarded \$1,000 to use in the pursuit of their educational goals and professional development. John "Keoni" Kauwe, a graduate student in Dr. Alison Goate's lab, received the Richard and Mildred Poletsky Award. This \$1,000 award, donated annually by Mrs. Poletsky in memory of her late husband's dedication to advancing our understanding of Alzheimer's disease and promoting the care of Alzheimer's patients and their families, can be used to attend conferences, purchase educational items, pay for memberships in professional organizations, or otherwise help the student or post-doctoral fellow become established as a contributing, integral investigator in the field of Alzheimer's disease research.

In the special event that a second candidate stands out as being worthy of the award, the ADRC may step forward to match Mrs. Poletsky's donation, thus contributing \$1,000 to another promising graduate student or post-doctoral fellow. Among this year's applicants, Jae-Eun Kang, a graduate student in Dr. David Holtzman's lab, displayed an excellence in research worthy of the ADRC Director's Award.

We congratulate both of these students and look forward to their professional futures with much excitement!



**L to R: Dr. John Morris, Jae-Eun Kang, Mrs. Mildred Poletsky**

### Would you like to make a gift in support of the ADRC?

You may support our research, education and service goals by joining the *Friends of the ADRC*. Members of the *Friends* are entitled to attend periodic *Friends Receptions*, and their donations support both the infrastructure upon which the ADRC depends, as well as specific research and educational projects of the Center. To join, simply call 314-286-2683.

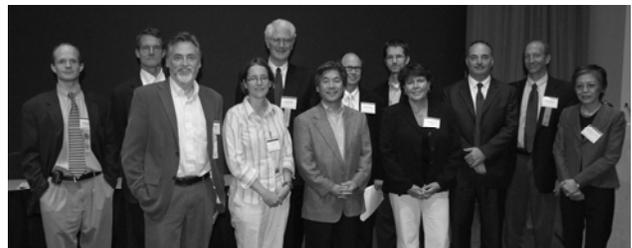
## 6th Leonard Berg Symposium

The 6th Leonard Berg Symposium: Novel Therapies for Protein Misfolding Disorders was held in September 2007 and came off as another success in the series of symposia honoring the late Dr. Leonard Berg.

Attracting local and international guests, the symposium opened with a warm welcome from Dr. Larry Shapiro, Dean of the Washington University School of Medicine. A total of 12 presenters discussed a range of topics from protein misfolding as a cause for neurodegenerative disease to synuclein misfolding in Parkinson's disease to a number of promising therapies. Over 25 graduate students, post-doctoral fellows, and other investigators presented posters about their related research.

The 6th symposium was marked with a sense of solemnity as the first in the series since Dr. Berg's passing. Drs. John Morris, Marcelle Morrison-Bogorad, and Tony Phelps issued heartfelt remarks

on Dr. Berg's enormous contributions to the field, his can-do spirit, and his devotion to his family. Dr. Berg's wife, Gerry, and his daughter, Kathy, were in attendance to hear these fond memories, which were given as the keynote address during the first day's lunch.



6th Berg Symposium faculty presenters (L to R): Dr. Randall Bateman, Dr. Karl Kiebertz, Dr. Henry Paulson, Dr. Julia George, Dr. John Morris, Dr. Richard Morimoto, Dr. Jeffery Kelly, Dr. Timothy Miller, Dr. JoAnne McLaurin, Dr. Guy Seabrook, Dr. David Holtzman, Dr. Virginia Lee (Dr. Patrick May not pictured)

*HORIZONS* is the newsletter of the **Alzheimer's Disease Research Center (ADRC)** — a research program in the Department of Neurology, Washington University School of Medicine, funded by grants from the National Institute on Aging and private donations. The ADRC supports and promotes interdisciplinary research on Alzheimer's Disease. The Memory & Aging Project (MAP) — the clinical research office of the ADRC — provides expert clinical assessments of cognitive functioning in normal aging and dementia.

**John C. Morris, MD**, Director, ADRC, & Director, MAP

**Eugene M. Johnson, PhD**, Associate Director, ADRC

**David M. Holtzman, MD**, Associate Director, ADRC

**Martha Storandt, PhD**, Psychometric Core Leader

**Nigel J. Cairns, PhD, MRCPATH**, Neuropathology Core Leader

**Alison Goate, DPhil**, Associate Director and Genetics Core Leader

**Mark Mintun, MD, & Denise Head, PhD**, Neuroimaging Core Leaders

**J. Philip Miller, MA**, Biostatistics Core Leader

**Monique Williams, MD**, African American Satellite Leader

**James E. Galvin, MD, MPH**, Education Core/Rural Satellite Leader

 **Washington University in St. Louis**  
SCHOOL OF MEDICINE

 **Alzheimer's Disease Research Center**  
Washington University St. Louis

4488 Forest Park Avenue  
Suite 130  
St. Louis, MO 63108  
(314) 286-2881; 286-2683; Fax 286-2763  
<http://alzheimer.wustl.edu>

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