

DIMENSIONS

The Newsletter of the University of Washington Alzheimer's Disease Research Center • FALL 2011

FINGERS CROSSED

Potential for Progress in
a New Era of Alzheimer's

- Heart to Heart Interview
- Improv for Alzheimer's
- The Head + The Heart
- So Long, Farewell



The UW ADRC Research Biomarkers participated in the Walk to End Alzheimer's. We raised **\$2560.00** and it would be great if you marched with us next year!



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DIMENSIONS

The University of Washington Alzheimer's Disease Research Center (UW ADRC) is affiliated with the University of Washington and the Veterans Affairs Puget Sound Health Care System. The UW ADRC has been funded by the National Institute on Aging since 1985 to facilitate cutting-edge research on Alzheimer's disease and related dementias. In particular, the UW ADRC focuses on Alzheimer's biomarker research and advancing clinical treatment for dementia. The UW ADRC is also supported by the Friends of Alzheimer's Disease Research, the Alzheimer's Association, and members of the public.

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ICAD UPDATES

Several ADRC doctors attended the annual Alzheimer’s Association International Conference on Alzheimer’s Disease in Paris, France, this year. Here are some of their highlights:

- There is growing evidence that traumatic brain injury is a risk for Alzheimer’s disease. A study from Dr. Kristine Yaffe of University of California, San Francisco, found that military veterans with traumatic brain injuries had greater than twice the risk of developing Alzheimer’s than veterans with no history of traumatic brain injury. It also supports the preliminary findings of work going on in our own ADRC, where we are evaluating dementia risk in younger veterans who have experienced blast concussions in Iraq and Afghanistan.
- The results of a major epidemiology study from Utah found no evidence that nonsteroidal anti-inflammatory drugs (NSAIDs), such as Motrin and Aleve, protect against Alzheimer’s disease. These findings suggest that we should continue carefully using these drugs for arthritis and other musculoskeletal painful conditions but not to lower our risk of Alzheimer’s.
- The increasing importance of biomarkers was obvious during the meeting. Both brain imaging and body fluid markers (especially blood and cerebrospinal fluid biomarkers) are being studied extensively in Alzheimer’s disease. Right now, these methods appear to be most applicable to diagnosing of Alzheimer’s, but our hope is that they will soon be useful for assessing the impact of treatments for Alzheimer’s as well.
- Dr. Eric Larson, Clinical Professor in the UW Department of Medicine and Executive Director of the Group Health Research Institute, was a keynote speaker. He described his research, conducted with many of the investigators at Group Health and the UW ADRC, on risk factors for Alzheimer’s disease. In particular, he noted that research continues to suggest that exercise and management of such problems as high cholesterol and high blood pressure may lower the risk for Alzheimer’s disease.
- Dr. Thomas Montine, the lead neuropathologist in the UW ADRC, co-chaired a session regarding the new diagnostic criteria for the pathological diagnosis of Alzheimer’s disease. This was an important follow-up to the clinical criteria for Alzheimer’s disease that was published earlier this year. Similar to the clinical criteria, the new pathological approach will include a closer look at changes that are related to early brain changes, that is, changes that occur before the actual symptoms of Alzheimer’s become obvious. In the long run, we hope that this work will lead to treatments that delay or prevent the onset of Alzheimer’s disease.





Hello Readers,

After making it to this page in *Dimensions*, you are probably realizing that quite a bit has changed. Welcome to the new *Dimensions* newsletter! The UW ADRC Education Core now is excited to provide center updates, relevant research reports, and other dementia-related materials in a format that is simple and easy to read.

Our renewed commitment to our readers is that we will provide engaging information about our center's research in a way that translates complex scientific material into informative articles that you can follow and gain knowledge from. We are dedicated to making that information look accessible, so expect more pictures, graphs, and informational charts in future issues. The scope of *Dimensions* is also being widened to include more opinion pieces, art work, and material that reflects the day-to-day realities of Alzheimer's disease and the Alzheimer's research experience.

As we refresh and strengthen our communications throughout our center with an improved newsletter and website redesign, we hope to increase both the quality and quantity of Alzheimer's information we produce. Our goal is to provide you with materials you enjoy reading and can trust to be accurate.

The *Dimensions* team is also continuously looking for new ideas. We would love to hear your suggestions and feedback on our latest issue. Please contact Lindsey Beach at lindsey.beach@va.gov or **206.764.2984**.

Happy reading,

James Leverenz, MD
Education Core Director

Lindsey Beach
Dimensions Managing Editor

Alzheimer's Program Support Fund

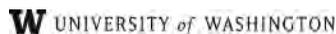
The ADRC's Program Support Fund helps junior faculty to use their expertise and innovation to pursue promising research studies within the UW ADRC. Your community partnership in the Program Support Fund is essential to these continued efforts to find better treatments and a prevention for Alzheimer's disease. For more information regarding the Support Fund, please contact Susan Martin at **206.764.2703**, **800.329.8387 x 62702**, or at susan.martin@va.gov. Checks can be made out to "UW ADRC" and mailed to: VAPSHCS, S-116 6-East, Attn: Susan Martin, 1660 South Columbian Way, Seattle, WA 98108. To donate online, visit www.washington.edu/giving/make-a-gift and search for "Alzheimer's Program Support Fund".

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heart to heart

Dr. Jeannine Skinner was recently awarded a UW ADRC pilot grant to fund her research project focusing on African Americans, exercise, prediabetes, and memory function. In this interview, she tells a bit about herself and her new study, the **Health Education, Aerobic, and Resistance Training for Prediabetic African Americans** (the **HEART** study).

How did you become interested in geriatric neuropsychology?

My interest in research related to older adults stems from my close relationship with my grandparents. I have always been in awe of how gracefully my grandmother, who is now eighty-nine years old, has aged through the years. My grandfather passed away years ago from complications of diabetes. At the time, the decline in my grandfather's physical and cognitive health was puzzling to me. I had a hard time wrapping my mind around how this man, this strong man, this father of ten and grandfather of twenty-seven, was declining in front of my eyes, yet I couldn't physically see anything wrong with him. I was just a kid at the time, and I had concluded that diseases had a look—I thought that when people were sick, they would be extremely thin or large, move slowly, and stay in bed all day. My grandfather exhibited none of these signs of disease. Since then, I have witnessed many seniors struggle with diabetes and other cardiovascular diseases. I have also observed how these chronic conditions have a profound impact on an individual's ability to function and live independently. Collectively, these experiences sparked my interest in how cardiovascular conditions, diabetes in particular, affect cognitive aging.

What is your study about?

My study will examine how healthy aging education and different types of physical activity affect memory and other thinking abilities. We will also examine how healthy aging education and different types of physical activity affect insulin sensitivity (that is, how the body processes sugar), as well as hormones and proteins in the blood.

And what is participating in your study like?

The HEART study will consist of three visits: a screening visit, baseline visit, and exit visit. These visits will include a careful discussion of the study, an oral glucose tolerance test to measure how well a person's body processes sugar, and the collection of blood to measure hormones and protein levels. We will also administer cognitive testing to measure memory and other thinking abilities. For the six-month program, participants will be randomly assigned to a healthy aging education program, an aerobic training program, or a strength training program.

Looking for people with prediabetes seems like a very specific group. Why prediabetes?

Prediabetes is the optimal point at which to intervene in the disease process. Research has shown that the disease processes which are associated with diabetes and many other cardiovascular diseases are present years, if not decades, before someone starts to have clinical signs of the diseases. We also know that prediabetes is associated with a later decline in cognitive function and an increased risk for Alzheimer's disease. In addition, African Americans have one of the highest prevalence rates of type 2 diabetes (T2D) in the United States; therefore, intervention at the prediabetic state is extremely important for African Americans.



Dr. Jeannine Skinner, HEART Study researcher

Why are there two exercise programs in the HEART study?

Previous research on exercise for older adults has focused largely on the benefits of aerobic exercise. We know that aerobic exercise improves general health, and aerobic exercise has been shown to protect against age-related brain volume loss and to improve cognitive function. Resistance training, on the other hand, has received less attention. We know that as people age, they lose muscle mass and gain fat mass, and resistance training helps protect against age-related muscle loss. We also know that increases in skeletal muscle mass are associated with improved insulin sensitivity. And there is a growing body of research which suggests that African Americans may find resistance training more beneficial than aerobic exercise in improving their T2D profile as measured by insulin sensitivity.

Can you talk a little bit more about how memory concerns are unique to the African American community?

African Americans are woefully underrepresented in cognitive aging research. However, among those research studies that have been conducted in the African American community, most studies report that African Americans are disproportionately affected by Alzheimer's disease compared to Caucasian Americans and other racial groups. We also know that many of the risk factors which are associated with Alzheimer's disease are problematic in the African American community, including diabetes, high blood pressure, and obesity. These disparities oblige researchers to make a concerted effort to investigate the possible causes for such racial differences in risk factors and to study potential interventions for these devastating diseases within particular ethnic communities.

What potential does your study have to improve the aging process for African Americans?

If we learn that different types of physical activity or aging education may be more beneficial than others in improving memory and other thinking abilities for African Americans with prediabetes, this study would suggest a new and relatively inexpensive way for slowing the progression of Alzheimer's disease without the use of medications.

What are you hoping to discover through your research?

I hope this study contributes to a greater scientific understanding of how we might treat T2D and Alzheimer's disease and improve cognitive function in African Americans who are at risk for diabetes. I also hope that this work will set the stage for a larger research study to examine the long-term effects of exercise interventions in African Americans from our local community.

If someone is interested in the HEART study, what should they do?

This is an easy process! To get more information about the HEART study, a person can call the Memory Wellness Program at **206.764.2586** or **888.291.7316**. We are seeking African Americans who are fifty years and older, not taking diabetes medications, and currently not exercising.

Any final comments, statements, or exclamations?

Older African Americans and other communities of color have unique cultural, environmental, and sociodemographic factors that affect their physical and cognitive aging throughout their lives, and research which focuses on these underrepresented communities will not only shed light on these factors but will also help to move the entire field of scientific research forward. •

WHERE WE ARE NOW

PRAZOSIN STUDY BY LUCY WANG, MD

Why is your study important to the Alzheimer's community?

As people progress into the moderate and severe stages of Alzheimer's disease (AD) disruptive behaviors can become persistent problems. Doctors treat such agitation with antidepressants and psychotics, but these medications can cause side effects like drowsiness and trouble moving, and they don't work for everyone. This study seeks an alternative approach by way of prazosin, a low-cost medication. Prazosin may be a good alternative because it tones down the brain's response to adrenaline, a response that is increased in AD and that may contribute to agitation. My hope is that prazosin may increase the quality of life for people with AD and extend the amount of quality time they can spend with their loved ones.

How many people have you enrolled in this study?

Twenty participants have enrolled and our goal is for one hundred participants to complete the study.

Why do you need so many people in your study?

In a 2009 study of twenty-two participants, we found that prazosin effectively treats disruptive agitation, but a much larger study is needed to confirm this finding. By participating in this study, volunteers can contribute important knowledge to the medical community about treating agitation in AD.

As a researcher, what is something you enjoy about the Prazosin for Agitation study?

Most of the study is done over the phone, and as the study prescriber, I get to talk with people on the phone at least every other week. I find it fun to get to know the families who participate. And I often hear great stories or receive useful advice from our study volunteers. •

SIMBIO STUDY BY DANIEL MORELLI

Why is your study important to the Alzheimer's community?

In the SimBio study, we investigate the potential of the cholesterol-lowering medication simvastatin to prevent Alzheimer's. Since the 1980's, simvastatin has been used to reduce the risk of heart attack and stroke, but unlike other cholesterol medications, simvastatin can also function in the brain, where it may slow or prevent Alzheimer's brain changes. By examining biomarkers in blood and spinal fluid before and after participants take simvastatin, we hope to learn more about how Alzheimer's develops and about possible treatments for the disease.

How many people have you enrolled in this study?

To date, thirty people have enrolled. Ideally, we hope to enroll 120 participants.

Why do you need so many people in your study?

We need a large number of participants so that we can identify subtle differences in treatment effectiveness in the groups we are comparing—younger and older adults, men and women, individuals with the ApoE 4 genotype and individuals without the genotype, and individuals taking simvastatin and individuals taking the placebo.

Any funny stories from the study?

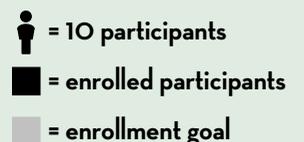
In an Alzheimer's study, participants suspect that the entire study is an elaborate memory test. People think that remembering who I am over the course of my monthly beard and mustache changes is a memory test or that finding our clinic space in the twisting hallways of the VA is a memory exercise. They're not! The memory test is just one small part of our study visits. •



PRAZOSIN PARTICIPANT ENROLLMENT



SIMBIO PARTICIPANT ENROLLMENT



A Dance to Remember



By Lindsey Beach • Photos by Lee Barnhart

A *square-dancing neurologist* sounds like the beginning of a dry science joke, but if you were in Edmonds on February 27, 2011, there is a good chance you were within a mile or two of one. And if you were in the Masonic Lodge attending the Annual Alzheimer's Benefit Square Dance, you would be in the same room.

A square dancing club, the Sky Valley Whirlwinds, hosted the fun event and about one hundred square dancers, including the UW ADRC's neurologist, Dr. James Leverenz, were in attendance. The event was a fundraiser in honor of Marty Bahr, a loving husband, brother, and father who died of early-onset Alzheimer's disease at age fifty-nine. Marty was an active research participant and patient at the Rush University ADRC, the center which received previous proceeds from the event. This year, Marty's brother and wife, the organizers of the event, decided to give contributors a choice of donating funds to the Rush University ADRC or to local Alzheimer's research efforts through the UW ADRC. After a fun-filled

dance, \$2,803.47 were donated to the UW ADRC, dollars that will directly support junior ADRC researchers and innovative approaches to solving the problem of Alzheimer's.

Square dancing may seem like a distant stranger to Alzheimer's disease, but it actually incorporates many brain healthy activities—coordinating motion, aerobic activity, sequential thinking tasks, and an active social life. Not only does square dancing keep your brain healthy, but it is also a lot of fun; just ask Dr. Leverenz at your next research appointment!

If you are interested in attending next year's square dance, please contact the organizer, Joe Bahr, at [206.310.5627](tel:206.310.5627). The 5th annual dance is scheduled for Sunday, February 26, 2012. •



Dr. James Leverenz

\$31,229.25

total donations made to the UW ADRC from October 2010 to October 2011

5 donations over **\$999**

total number of donations between September 2010 and September 2011 **214**

\$527 was raised through a lemonade stand and a high-school student's senior project

87 total number of gifts that were under \$50

4 the number of grants awarded to the UW ADRC by the Fraternal Order of Eagles and Eagles Auxiliary of Tacoma and Renton

THANK YOU!

FINGERS CROSSED

POTENTIAL FOR PROGRESS IN A NEW ERA OF ALZHEIMER'S

Written by Lindsey Beach • Reviewed by James Leverenz, MD

A lot happened in 1984—Apple introduced the first Macintosh computer, the space shuttle *Discovery* landed after its maiden voyage, and comprehensive guidelines for diagnosing Alzheimer's disease were developed by a panel of dementia experts and the National Institute on Aging (NIA). Since then, the Internet changed the world and the Berlin Wall fell, but the Alzheimer's guidelines remained the same. That changed in April of 2011, however, when the criteria for diagnosing Alzheimer's underwent a major overhaul to reflect the information we have learned over the last twenty-seven years about the disease and to outline future research efforts to overcome it. At the UW ADRC, we are crossing our fingers and hoping that this new era of Alzheimer's will result in precise diagnoses and effective treatments for Alzheimer's patients and their families and that the Alzheimer's research community can move forward in discovering new tests and treatments for those who suffer.



CHANGES IN THE ALZHEIMER'S DIAGNOSIS

A major change in the new criteria is the inclusion of a diagnostic category for preclinical Alzheimer's disease. It is well known among researchers that the brain changes caused by Alzheimer's disease start years, if not decades, before the first signs and symptoms of memory loss and behavior changes are seen. This period of time is called preclinical (or presymptomatic) Alzheimer's disease, and recent advances in Alzheimer's biomarker analysis and brain imaging provide researchers the ability to detect evidence of Alzheimer's changes while they are happening. The preclinical category was created specifically for researchers to have better diagnostic guidelines for testing potential prevention therapies. And until such research is successful, doctors in community clinics or hospital settings *cannot* diagnose preclinical Alzheimer's disease. However, in the future it is possible that Alzheimer's will be optimally treated in people who have high levels of Alzheimer's brain changes but "normal" memory, even years before significant memory problems become apparent.

Another significant change to the criteria is the inclusion of mild cognitive impairment (MCI) due to Alzheimer's

er's disease. This is a phase of Alzheimer's disease in which people may take more time to perform tasks or may notice problems with their memory but can still care for them-

selves and get along in their daily lives without help from others. Some individuals with MCI do not progress to full Alzheimer's disease, but many do, making it critical that doctors are aware

IN THE FUTURE IT IS POSSIBLE THAT ALZHEIMER'S WILL BE OPTIMALLY TREATED IN PEOPLE WHO HAVE HIGH LEVELS OF ALZHEIMER'S BRAIN CHANGES BUT "NORMAL" MEMORY, EVEN YEARS BEFORE SIGNIFICANT MEMORY PROBLEMS BECOME APPARENT.

of early changes in a patient's memory and functioning. Presently, doctors can only diagnose patients with MCI due to Alzheimer's disease by taking into account their abilities at memory testing, neurological examinations, and interviews with people who are close to the patients. There are no laboratory or brain imaging tests that can conclusively diagnose individuals with MCI due to Alzheimer's.

The new diagnostic guidelines for Alzheimer's disease have also modified the 1984 definition of probable Alzheimer's disease to include (1) probable Alzheimer's disease, (2) possible Alzheimer's disease, and (3) probable or possible Alzheimer's disease with evidence of Alzheimer's brain changes. Probable Alzheimer's and possible Alzheimer's are categories intended for clinical use, whereas probable or possible Alzheimer's disease with evidence of Alzheimer's brain changes will be used only in the research setting for now. Individuals who are diagnosed with probable Alzheimer's will be characterized by a subtle and gradual onset of memory decline whereas individuals who are diagnosed with possible Alzheimer's will be characterized by a very sudden onset of memory problems or by symptoms that might suggest other causes for their memory problems, such as a stroke or Parkinson's disease. Probable or possible Alzheimer's disease with evidence of Alzheimer's brain changes is a category that is designed for use in a research setting, where biomarker and imaging evidence may be used to increase the certainty that an individual's dementia is caused by Alzheimer's disease. Currently, the only definitive way to diagnose an individual with Alzheimer's disease is by identifying distinctive brain changes from a brain autopsy after the person has passed.



DIAGNOSIS OVER THE DECADES



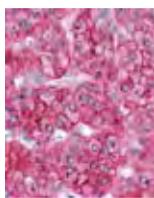
1901

The German psychiatrist Alois Alzheimer identified the first case of what became known as Alzheimer's disease. He observed the disease in a fifty-year-old woman he called Auguste D.



1977

In the year that *Star Wars* hit the silver screen, a conference on Alzheimer's concluded that findings of presenile and senile dementia were nearly identical. This led doctors to begin diagnosing all patients who experienced the same symptom patterns, disease course, and neuropathology with Alzheimer's disease, regardless of their age.



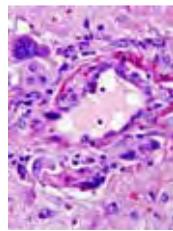
1993

Researchers identified APOE-4, a gene that is found on chromosome 19, as the first gene known to raise the risk for Alzheimer's without guaranteeing that a person who has the gene will develop the disease.



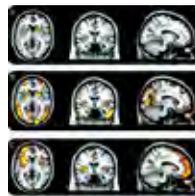
1910

Alzheimer's disease was first described as a distinct disease by Emil Kraepelin, who referred to it as presenile dementia and included it as a subtype of senile dementia in the eighth edition of his *Textbook of Psychiatry*.



1984

George Glenner and Cai'ne Wong identified a "novel cerebrovascular amyloid protein" known as beta-amyloid, which appeared to be the prime suspect in causing the formation of Alzheimer's-related brain plaques and in triggering nerve cell damage.



2004

Researchers engineered Pittsburgh Compound B, a radioactive compound that enters the brain through the bloodstream and attaches itself to beta-amyloid deposits, where it can be detected by positron emission tomography (PET) imaging.

1910–1977

The diagnosis of Alzheimer's disease (or presenile dementia as Kraepelin knew it) was assigned to people between the ages of forty-five and sixty-five who developed symptoms of dementia, whereas people who developed such symptoms after age sixty-five were diagnosed with senile dementia.



1986

Researchers discovered that tau protein is a key component of tangles, which are the second pathological hallmark of Alzheimer's disease and another prime suspect in nerve cell degeneration.

2011

Three workgroups convened by the Alzheimer's Association and the National Institute on Aging issued updated criteria and guidelines for diagnosing Alzheimer's disease. As part of these guidelines, the workgroups proposed a research agenda to define a new pre-clinical stage of Alzheimer's.

THE STATE OF ALZHEIMER'S BIOMARKERS

Biomarker and brain imaging tests are at the forefront of the changing Alzheimer's diagnosis, but they can also be a source for confusion in terms of why they are important, what they are testing, and what they mean for people suffering from Alzheimer's disease.

Biomarkers are physical substances and measurements that *mark* a particular *biological* state. For example, a high PSA (prostate specific antigens) level suggests that a man has prostate cancer and high blood pressure levels suggest that a person has hypertension. Some Alzheimer's biomarkers can be found in a substance called cerebrospinal fluid (CSF) that surrounds the brain and spinal cord. High

levels of a normal protein called tau in CSF indicate brain cell damage, and low levels of brain amyloid protein in CSF indicate that harmful amyloid plaques are occurring inside the brain. Together, these protein levels are the current signature Alzheimer's disease biomarkers found in CSF.

People with biomarker evidence of Alzheimer's disease are at an increased risk of developing memory and behavior difficulties and of eventually developing the disease. The next steps in Alzheimer's biomarker research are to identify additional biomarkers that are linked to changes in memory; develop reliable measurements and clear standards for the relationship between biomarker levels and preclinical Alzheimer's, MCI, and Alzheimer's disease; and to standardize biomarker measurements across all Alzheimer's research centers. Once these research goals are met, there is a higher likelihood that biomarker tests may be used to diagnose and confirm Alzheimer's disease in a clinical setting, which will help patients, families, and doctors choose the best possible treatments for Alzheimer's. Another future benefit of biomarker tests is that physicians will be able to tailor treatments to their specific patients and to adapt those personalized treatments to patient responses.

BIOMARKERS OF THE FUTURE MAY

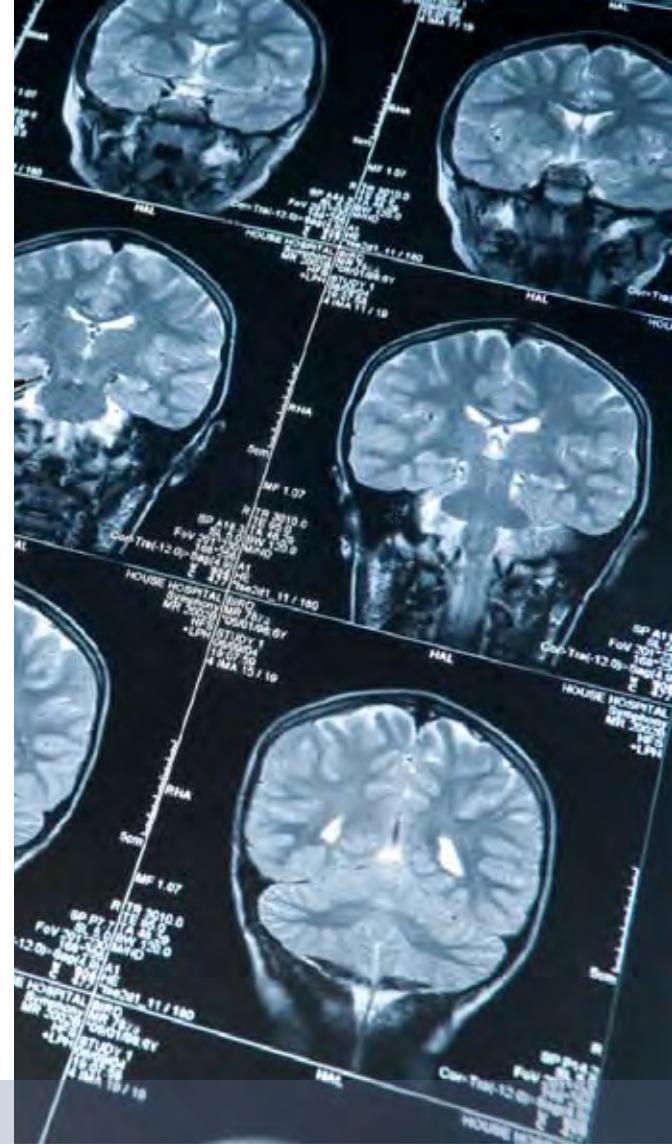
- Improve dementia diagnosis accuracy
- Monitor treatment effectiveness
- Guide the best treatment options
- Predict how dementia will progress
- Help discover new information about Alzheimer's brain changes



THE STATE OF BRAIN IMAGING

Brain imaging is another promising biomarker tool being developed to better diagnose Alzheimer's disease. Currently, the two major imaging techniques are positron emission tomography (PET) and magnetic resonance imaging (MRI) scans. Two different types of PET scans can help doctors identify Alzheimer's disease processes. One PET scan identifies areas in the brain where the Alzheimer's process has killed or damaged brain cells, by measuring how well that area uses simple sugars. The second PET scan shows the presence of the amyloid protein deposits in the brain, which are a signature sign of Alzheimer's. MRI scans can reveal areas of the brain that have shrunk, or atrophied, due to Alzheimer's disease progression.

Brain images can be interpreted in multiple ways, making advanced recognition training in the latest Alzheimer's images critically important for doctors and neurologists who specialize in aging disorders. Currently, Medicare will cover a PET scan to differentiate between Alzheimer's disease and another type of dementia (fronto-temporal dementia), but in the future, imaging may also be used to increase or decrease the level of certainty about a diagnosis of Alzheimer's or to distinguish Alzheimer's from other kinds of dementia in a patient with memory loss. And once brain imaging can be better analyzed in a reliable way, imaging tests will likely be used to determine whether or not a person has Alzheimer's disease.



OUR RESEARCH EFFORTS

The SimBio study, which began in 2010, takes seriously the preclinical phase of Alzheimer's disease and the importance of monitoring Alzheimer's disease biomarkers. UW ADRC researcher Dr. Gail Li is investigating the cholesterol-lowering medication simvastatin, which is commonly known as Zocor, as a potential prevention medication for Alzheimer's. The placebo-controlled study is currently looking for adults who are forty-five to sixty-four years of age with "normal" memory. She is collecting CSF before and after participants take the study medication (or placebo) so that she can measure the changes in Alzheimer's biomarkers. Dr. Li hopes that using simvastatin during the preclinical phase of Alzheimer's disease, when people have no signs of memory loss, will result in lower the levels of Alzheimer's biomarkers in study participants and less memory trouble in the future.

The UW ADRC research registry and CSF repository is another good example of our center's attention to the future of the Alzheimer's diagnosis. Our research registry currently follows participants for many years, even decades. The goal of collecting important participant data over time, rather than in a single one-time visit, is to develop more sensitive measurements of memory change in

the future. Many individuals in the research registry have also volunteered to donate CSF, and this CSF can be used to analyze participants' Alzheimer's biomarker levels as their memory changes over time. Additionally, our center's CSF repository allows researchers to analyze thousands of biomarker samples at once, a significant improvement over analyzing one sample at a time.

The UW ADRC is also participating in the future of Alzheimer's imaging through the Help End Alzheimer Disease 2 (HEAD-2) study. This study is examining UW ADRC registry participants who have donated CSF and taken part in PET and MRI brain scans, as well as slit-lamp eye exams. The eye exam is looking for amyloid beta deposits on participants' eyes. UW ADRC researchers are attempting to learn whether this simple eye exam may provide diagnostic information that is similar to the information that is gathered from the PET and MRI scans, CSF Alzheimer's biomarkers, and measurements of participant memory changes. The hope of the HEAD study is to discover a noninvasive and inexpensive test that may be used to diagnose Alzheimer's disease in the future. •



IMPROV FOR ALZHEIMER'S

by Julianne Hill

Many newly diagnosed Alzheimer's patients go through a stressful phase of realizing they are losing their memory while still having enough insight to know that, over time, they will no longer be able to care for themselves.

So a team of researchers from Chicago—a city known for improvisational theater—is testing a new idea that unscripted theater games can improve the well-being of these patients. “Improv is all about being in the moment, which for someone with memory loss, that is a very safe place,” says Mary O’Hara, a social worker at the Cognitive Neurology and Alzheimer’s Disease Center at Northwestern University’s Feinberg School of Medicine. “Maybe thinking about the past and trying to remember makes the person a little anxious or even a bit sad because their memory is failing. And maybe thinking about the future too much is also anxiety provoking. So being in the moment is such a safe and a good place to be.”

The Northwestern researchers are working with the Tony Award–winning Lookingglass Theatre Company. There are already theater programs that use improv for Alzheimer’s patients in the later stages of the disease, but this collaboration is unique because it’s for early-stage patients.

“There’s no experience required, there’s no script, there’s no memorization,” O’Hara says. “They bring to it just their creative potential. And they are so successful at this.”

Christine Mary Dunford, with Lookingglass, leads the group of novice performers in very simple improv games. One “of the basic tenets of improv that is perfect for working with people with dementia is the concept of yes,” Dunford says. “So, fundamental to all our work is that whatever answer someone comes up with, the rest of us are going to be able to work with it.”

Researchers don’t expect these games to stop or slow the progress of Alzheimer’s disease, but they are inves-

tigating whether engaging the creative abilities of these early-stage patients improves their lives.

“We’re asking people to tell us how they’re feeling about their physical health, their mood,” says Darby Morhardt, a research associate professor at Northwestern. “How do they feel about their memory? How do they feel about their family, about their relationships? And also, how do they feel about their current situation as a whole and their life as a whole?”

“When we think of people with Alzheimer’s and other dementias, we think about people who are losing skills on a daily basis,” says improv coach Dunford. “But here, they’re learning some new things, too. It gives them a sense of self-confidence that they were able to accomplish this. And in this disease, there’s not a lot of opportunity to feel a sense of accomplishment.” •



Local Connection: The Greenwood Senior Center hosts an innovative afternoon enrichment program for adults living with early-stage memory loss. The program, called the Gathering Place, incorporates exercise, coping skills, cognitive activities, and such creative arts as theater. Through a partnership with Taproot Theatre, participants enjoy regular visits from professional actors, acting games, and quarterly trips to senior matinee productions. The program runs from 1 p.m. to 4 p.m. each Thursday and costs \$35 per session, which includes the cost of all materials and refreshments.

To register, call Carin Mack at 206.297.0875.

Adapted from an article that appeared in the “Your Health” section of NPR.org on August 15, 2011.

THE HEAD



THE HEART

CAN COMMON IRREGULAR HEARTBEAT RAISE THE RISK OF DEMENTIA?

The most common kind of chronically irregular heartbeat, known as atrial fibrillation, is associated with a greater risk of dementia, including Alzheimer's disease. This discovery by scientists at Group Health Research Institute and their collaborators was published on August 1, 2011, in the *Journal of the American Geriatrics Society*.

"Both atrial fibrillation and dementia increase with age," said Dr. Sascha Dublin, a Group Health Research Institute assistant investigator who led the research. "Before our prospective cohort study, we knew that atrial fibrillation can cause stroke, which can lead to dementia. Now we've learned that atrial fibrillation may increase dementia risk in other, more subtle ways as well."

Dr. Dublin and her colleagues found that people with atrial fibrillation, a condition that affects more than three million Americans, were more likely to have other cardiovascular risk factors and cardiovascular disease than people without atrial fibrillation. Given these findings, they looked to see if atrial fibrillation increased dementia risk more than just through its association with other kinds of heart disease.

Participants were followed for an average of seven years, and over this time, participants with atrial fibrillation had a 40 percent to 50 percent higher risk of developing dementia of any type, including probable Alzheimer's disease, than participants without atrial fibrillation. This was true even for people who did not also have a stroke during the follow-up period.

The research was part of Adult Changes in Thought (ACT), an ongoing joint project of Group Health and the University of Washington that studies dementia risk factors for older adults. Started in 1994, ACT is led by Dr. Dublin's coauthor, Dr. Eric B. Larson, Group Health Vice President for Research and Group Health Research Institute Executive Director. ACT focuses on finding ways to delay or prevent dementia, including Alzheimer's



Photo: Group Health Research Institute

disease, and declines in memory and thinking. It aims to deepen our understanding of how the body—especially the brain—ages. ACT participants are members of Group Health Cooperative, a nonprofit health care system in the Pacific Northwest.

Dr. Dublin's study, which ran from 1994 to 2008, followed 3,045 people and relied on Group Health's advanced electronic data systems to determine whether participants had atrial fibrillation. Study participants were evaluated every two years with cognitive tests and interviews, and participants whose ACT tests indicated possible dementia took part in physical, neurological, and psychological exams, as well as, in some cases, brain scans. A panel of experts determined the correct diagnosis for participants with cognitive problems.

In discussing her findings, Dr. Dublin says that atrial fibrillation may increase dementia risk by weakening the heart's pumping ability, which may reduce the circulation

of oxygen to the brain. She also suggests that atrial fibrillation may increase the chance of tiny blood clots going to the brain, which may cause small, clinically undetected strokes. Moreover, these body processes may also be exacerbated by other factors that contribute to dementia, such as inflammation.

Dr. Dublin said that an important next step in understanding the relationship between atrial fibrillation and dementia is to study whether any treatments for atrial fibrillation reduce the risk of developing dementia. She also hopes that their results reach the doctors who care for people with atrial fibrillation and dementia.

"Right now, we think we are protecting our patients' brains as long as they don't have a stroke, but tiny insults over time can add up," said Dr. Dublin, who is a primary care physician at Group Health. "This paper is a wake-up call, telling us that we need to learn more about how to protect brain function, while continuing to give patients with atrial fibrillation the best possible care." •

Adapted with permission from an article that appeared on the Group Health Research Institute Newsroom website on August 8, 2011.

COMMUNITY OPPORTUNITIES

The Alzheimer's Café

Mae's Phinney Ridge Café, 2nd Tuesday of the month

Contact: Carin Mack, 206-297-0875

The Alzheimer's Café provides people with memory loss and their caregivers an opportunity to socialize in a safe environment. Reservations are not necessary and the only cost is for ordered dessert and beverages. Sponsored by the Greenwood Senior Center.

here:now

Frye Art Museum

Contact: 206.432.8211 or here:now@fryemuseum.org

here:now provides gallery discussion tours and art-making opportunities for those living with dementia to enjoy. The programs are free of charge, but space is limited and preregistration is required. Sponsored by the Frye Art Museum and the Alzheimer's Association.

Memory Care & Wellness Services

Tacoma, WA

Contact: 253.798.4600 or 800.562.0332

This project evaluates the benefits of adult day services for people with dementia and their caregivers. The Memory Care & Wellness Services occurs two days a week, giving caregivers time for their own needs. Family caregivers will be asked to complete a questionnaire up to four times over a two year period.



EXERCISE FOR BODY AND BRAIN

Memory Concerns?
You may be eligible to participate in an exercise and memory research study if you answer **YES** to the following:

- 50 Years or Older?
- Mild Memory Concerns?
- In Good Health?
- Not Taking Diabetes Medications?
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Participants Will Receive:

- Study-Related Blood Tests and Memory Screening
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University of Washington & Veterans Administration
MEMORY WELLNESS PROGRAM
1-866-638-8813
www.memorywellness.org

The Memory Wellness Program
University of Washington
VA Puget Sound
Healthcare System

NEWS & NEWSWORTHY

- Dr. Murray Raskind was appointed to the Western and Central Washington Alzheimer's Association board.
- The Education Core celebrated the UW ADRC African American Advisory Board members for their year and a half of service.
- Dr. Debby Tsuang became the Director of the Geriatric Research, Education, and Clinical Center (GRECC) at the Seattle VA in September.
- Drs. Elaine Peskind, Murray Raskind, Thomas Bird, and Eric Petrie were all named Top Docs in the August issue of *Seattle Met* magazine.
- Dr. Suzanne Craft's nasal insulin pilot study received wide national news coverage. Several other UW ADRC doctors were coauthors on the paper.



Difficult Behaviors and Alzheimer's disease

The Alzheimer's Disease Research Center is studying a new use for an old medication. We are currently investigating the use of a blood pressure medication, prazosin, for its effectiveness in the treatment of behavioral problems. Potential participants must have Alzheimer's disease or a related dementia and be living at home with a caregiver willing to accompany them to the research clinic in Seattle, stable medically, and stable on any current medications. Each study participant will have a 50:50 chance of being on the medication, prazosin, or on placebo (a sugar pill) for the first half of the study. In the second half all participants receive prazosin. All participation is free of charge.

**For more information, call
1-800-317-5382**

What developments in Alzheimer's research have you witnessed during your time here?

I've been at the center for twenty-five years. I began working with Dr. Tom Bird in August 1986, and there have been amazing developments in Alzheimer's research since then. We now have a better understanding of different kinds of dementia, and we have learned that there can be different clinical presentations and different changes occurring in the brain for each of these different forms of dementia. And we now know that genetics plays a role in some cases of Alzheimer's disease. We have identified three rare genetic mutations that are known to cause some cases of Alzheimer's disease, and we have discovered other genes that may be risk factors for the development of Alzheimer's disease. From a treatment perspective, new brain scans and biomarker research are enabling physicians to diagnose Alzheimer's disease and other dementias earlier and more accurately. We have a lot of ground left to cover, but this has been encouraging progress.

What will you miss most after you leave?

I will miss working on a research endeavor that helps ease the burden of Alzheimer's disease, working with an extraor-



Ellen Steinbart, RN

inary research team to better understand the genetics of Alzheimer's disease, and working with the many wonderful families who have participated in the research.

What are your plans for retirement?

I am engaged to be married, and we will be moving to Pittsburgh, Pennsylvania. We will drive cross-country this fall with our new little Airstream travel trailer in tow, and we look forward to lots of travel in the next few years. I plan to come back to Seattle frequently to see family and friends. I also plan to stay connected to what is happening in the field of Alzheimer's disease research. •

SO LONG, FAREWELL { an ode to retirement }



Beth Hutchings, PA-C

What was the UW ADRC like when you first started?

In 1991, when I was hired as a physician assistant for the ADRC, there were not yet any FDA-approved treatments for Alzheimer's disease, so my hope was to help address this need by recruiting participants into clinical trials. At that time, the ADRC only had a few employees, and none of us had computers. My small office had three staff members trying to use telephones at the same time,

creating a chaotic jumble of overlapping conversations. Another office doubled as an exam room so the staff members who occupied it had to work elsewhere whenever a research participant would come in for a visit.

What will you miss most after you leave the ADRC?

I will miss the potlucks. I will also miss the people and the camaraderie of the center; it is a great group of people. I will miss meeting all the extraordinary people who

volunteer for the ADRC, the people who have shared their amazing experiences with me. I have heard stories of exotic lands, love, and tragedy. I have known research subjects who have had wonderful fifty-, sixty-, and seventy-year marriages and who continue to demonstrate their love to each other every day. I will always remember these stories. One of the reasons for my retirement is that my work with the ADRC has taught me the importance of living my own good life while I am healthy enough to enjoy it.

What does retirement have in store for you?

I do not think that I will ever have time to read all of the books that I would like to read. And when I am retired, there will be no excuse for a lack of daily exercise. Also, my husband and I have quite the list of travel plans: we would like to visit all the states in the union and all of the providences in Canada, see as many national parks as possible, drive the Alcan Highway in Alaska, and adventure to destinations far, far away.

Favorite quote from research: "You know you're old when your daughter celebrates her seventy-fifth birthday." •

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