

DIMENSIONS

The Newsletter of the University of Washington Alzheimer's Disease Research Center • FALL 2015

PRECISION MEDICINE: ALZHEIMER'S TREATMENTS TAILORED TO SUIT YOU

- **Sleeping in Seattle**
- **Brain Healthy Activities**
- **Momentum for Momentia**





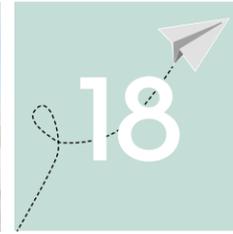
This fall, the UW ADRC turns thirty years old! To help us celebrate, we rounded up Dr. George Martin, the founding director of the UW ADRC, and asked him to appear on our inside front cover. Dr. Martin served as director of the UW ADRC from 1985, when the center was one of the first ten Alzheimer's disease centers to be funded by the National Institute on Aging (NIA), until 1998, when he transitioned into the role of co-director.

Since he wrangled together funding for the center, we've been able to learn a great deal about Alzheimer's disease, but none of it would have been possible without people like you.

Many of you have participated in our clinical trials, volunteered for the yearly follow-up visits of the Clinical Core Registry, entrusted us to care for your loved ones with Alzheimer's, undergone lumbar punctures, and enabled us to ask bigger and better questions to move the Alzheimer's research field forward.

We're truly grateful for your dedication, contributions, and participation in our scientific endeavors. If we could, we'd get you a birthday present. •

THANK YOU!



SECTIONS

- 4 Bulletins / Recent Publications
- 16 Community Opportunities / Brain Healthy Activities
- 18 Human Interest / A Letter That Traveled the World

ARTICLES

- 6 Sleeping in Seattle
- 8 Momentum for Momentia
- 10 Precision Medicine: Alzheimer's Treatments Tailored to Suit You
- 14 Good Food

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. The UW ADRC focuses on Alzheimer's biomarker research and advancing clinical treatment for dementia, particularly through precision medicine. The UW ADRC is also supported by the Friends of Alzheimer's Research, the Alzheimer's Association, the Ellison Foundation, and members of the public.

RECENT PUBLICATIONS

UW ADRC investigators are often busy conducting research, writing up their study findings, and publishing those results in medical journals. Here, we provide a quick update on some of the important papers they have published recently.

Precision Medicine

Precision Medicine: Clarity for the Clinical and Biological Complexities of Alzheimer's & Parkinson's Diseases // Thomas Montine and Kathleen Montine

The goal of precision medicine is to provide each patient with optimally timed treatments that target the specific reasons he or she is experiencing the disease (see our coverage on precision medicine on pages 10 to 13). This approach is widely accepted in cancer care and in some diseases caused by single-gene mutations, such as cystic fibrosis. It has also been endorsed by the White House Office of Science and Technology for more widespread application in other areas of medicine. This manuscript explains how precision medicine can bring greater clarity to the clinical and biological complexity of the two most common neurodegenerative diseases, Alzheimer's disease and Parkinson's disease. Comprehensive risk assessment, detection of processes that change the brain, and molecularly tailored treatments embody a precision medicine approach and provide a strategy for optimal targeting and timing of efforts to prevent, stop, or slow the progression of these diseases.

Therapeutic Implications of the Prostaglandin Pathway in Alzheimer's Disease // Eiron Cudaback, Nikolas Jorstad, Yue Yang, Thomas Montine, and C. Dirk Keene

One important indicator of Alzheimer's disease is brain inflammation, which is caused by the activation of the immune system in the central nervous system. This inflammation is not necessarily detrimental in and of itself, but the brain may become damaged over time if it experiences inflammation more frequently than normal. Epidemiologic evidence suggests that extended use of medications that combat inflammation may delay the onset of Alzheimer's, decrease symptom severity, and decrease the rate of disease progression. However, clinical trials that have attempted to evaluate these medications for treating Alzheimer's have been largely disappointing due to the medications' unforeseen side effects. In this manuscript, the researchers argue that developing a more targeted medication may offer significant therapeutic benefits for people with Alzheimer's while also minimizing the side effects participants experienced in past clinical trials. These directed strategies may help postpone some of the

negative consequences of brain aging and may ultimately lead to new therapies for Alzheimer's and other related diseases.

Free Radicals in the Brain

Influence of Lifestyle Modifications on Age-Related Free Radical Injury to Brain // Elaine Peskind, Ge Li, Jane Shofer, Steven Millard, James Leverenz, Chang-En Yu, Murray Raskind, Joseph Quinn, Douglas Galasko, and Thomas Montine

Injuries to chemical compounds known as free radicals appear to cause age-related molecular and cellular stress in the brain. To evaluate the possible sources of free radical injury, a cross-sectional, multicenter study was conducted with the help of 320 healthy research volunteers. The results of the study indicate that free radical damage increases as people age—a finding that is consistent with prior research—and that free radical injury may be more frequent in women than in men. Additionally, the study suggests that lifestyle modifications related to body mass index and smoking may be helpful in reducing this form of brain injury.

Treatments for Other Psychiatric Problems

Common Psychiatric Problems in Cognitively Impaired Older Patients // Lucy Wang, Anna Borisovskaya, Andrea Maxwell, Marcella Pascualy

Agitation, aggression, psychosis, depression, and anxiety are common in people who have cognitive disorders like Alzheimer's disease. These psychiatric problems cause distress for patients, increase caregiver burden, and make it less likely that such patients can continue living at home. In this publication, the authors detail various responses to psychiatric problems for individuals with cognitive disorders. In particular, they highlight the success of treatments that target the underlying physiological, psychological, and environmental factors that might lead to psychiatric problems for people with Alzheimer's. Successful treatment, they suggest, depends on a combination of treatments rather than limiting treatment to only medications. In fact, non-medication alternatives are often recommended as the first line of treatment for psychiatric problems in older patients with cognitive disorders. •

Hello readers,

In 1985, the same year that UW scientists received funding to form the ADRC, movie theater audiences across the country watched as Marty McFly and his scientist pal Emmett "Doc" Brown reconfigured a DeLorean to speed backward in time to 1955. The film, *Back to the Future*, then concluded with Doc traveling to 2015, our present, where he finds flying cars, hoverboards, and self-tying tennis shoes.

During the thirty years that have passed since the founding of the ADRC, we haven't quite found a way to make automobiles levitate, and we haven't yet discovered a way to prevent the devastating effects of Alzheimer's disease. However, as this issue of *Dimensions* illustrates, we have collectively made great strides scientifically and in how we as a culture envision people with Alzheimer's disease. This is, for example, an important theme in "Momentum for Momentia" (pages 8–9) and "A Letter That Traveled the World" (18–19), two articles that emphasize the value of people with dementia to our community. As these pieces demonstrate, people with dementia still have significant gifts to contribute to the community and they still can live a full life. With this in mind, we also provide some suggestions for learning, relaxing, joining a club, seeing new things, and—ahem—busting a move (16–17).

Finally, in this issue we also explore the glymphatic system (6–7), our center's focus on precision medicine (10–13), and the many good foods that might help boost our health and cognitive abilities so that we can all continue to make a difference in our homes and communities (14–15).

Great Scott! That's all, for now. Happy reading.

Murray Raskind, MD
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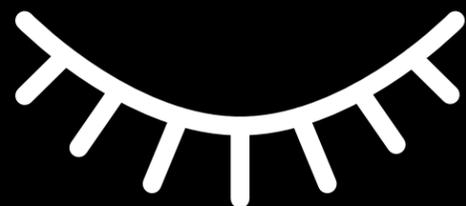
Alzheimer's Program Support Fund

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 James Policar at 206.221.7526. Checks can be made out to "UW ADRC" and mailed to UW Medicine Advancement, c/o James Policar, Box 358045, Seattle, WA 98195-8045. To donate online, visit supportuwmedicine.org/adrc.

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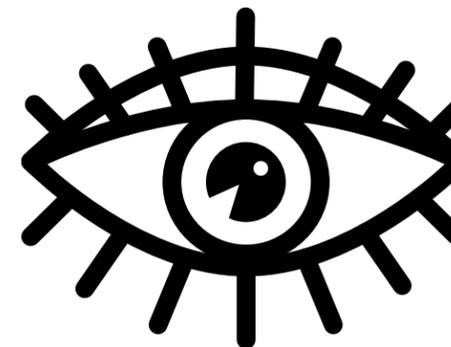
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SLEEPING IN SEATTLE

By
Lindsey
Beach



When we are awake and conscious, our brains get a workout. They string together thoughts and link words into sentences and paragraphs. They stay alert, ready to spring into action in an emergency. They crunch numbers and monitor our short-term memory so that, even as we navigate I-5 traffic at rush hour or chase our grandkids around the house, our brains are also keeping a running tally of all the grocery items we are supposed to pick up tonight at our neighborhood market. To perform these actions, our brains must be active and attentive. This doesn't leave them much time for housekeeping.

While we are awake, our bodies use the lymphatic system, a collection of organs, lymph nodes, and tissues, to neutralize and dispose of harmful toxins and byproducts. Although this system works well for the majority of our body, it doesn't extend into our brains. And so, after a day full of thinking, our brains get dirty. They get filled with used nutrients and neurotoxins, piles of metabolites around every corner. For decades, researchers have known about the accumulation of these substances, but until recently they haven't known where all of this metaphorical dirt went at the end of the day.

Given that the brain isn't particularly adept at self-cleaning when we are awake, researchers at the University of Rochester Medical Center guessed that the brain might clean itself during sleep. In a recent study, they sought to determine how this might occur, and in doing so, they discovered the

glymphatic system. This system is the brain's version of the lymphatic system; it sends neurotoxins and used metabolites out of our brains in cerebrospinal fluid (CSF), a clear liquid that cushions our brain and spinal cord.

While we are sleeping, this fluid travels throughout our brain in a series of channels that surround the brain's blood vessels. The flow of CSF is regulated by glial cells, which control the level of shrinking or swelling of the cells in the brain through a hormone known as noradrenaline.

During the day, our brains stay alert by releasing this hormone. The influx of noradrenaline causes the cells in our brains to swell and the space around our blood vessels to contract. This also causes the amount of CSF around those vessels to decrease and, thereby, the brain-cleaning activities to subside. But when we are asleep, the amount of noradrenaline decreases and the space around our brain cells increases dramatically—there is up to 60 percent more space than when we are awake. These gaps allow CSF to flow through our brain and flush out neurotoxins, including beta-amyloid, one of the substances associated with Alzheimer's disease.

This research suggests that by learning how the brain cleans itself and by helping the glymphatic system work more effectively, we may get closer to preventing or treating neurological disorders. It also gives us a good glymphatic excuse for getting an extra hour of shut-eye here and there. •

Momentum for Momentia

By Marigrace Becker
Program Manager // Community Education and Impact // UW Medicine Memory and Brain Wellness Center

In July of 2015, the Dementia Friendly America initiative was announced at the White House Conference on Aging. The initiative takes important steps to begin carving out a space for people with dementia in the everyday fabric of American life, but here in Seattle, we've already started something of our own homespun initiative.

A movement called *momentia* has begun to catch fire in the Pacific Northwest. Receiving a dementia diagnosis within an "I think, therefore I am" society carries with it very real threats to personal and social identity. In contrast, *momentia* proclaims that people who live with dementia remain valuable members of a community and deserve opportunities that reflect that membership—the opportunity to be welcomed as whole persons who demonstrate capacities rather than as defective persons who are defined by deficits, the opportunity to stay connected and enjoy public spaces rather than being socially excluded, and the opportunity to exercise agency and to impact the community for the better rather than losing all authority. With these principles, *momentia* transforms what it means to live with dementia in community by promoting dementia-friendly public programs in theaters, cafés, parks, libraries, museums, and more—programs that celebrate strengths and that are informed by persons who live with dementia.

The movement is propelled by a team of citizens including people living with dementia, care partners, and other community volunteers, alongside organizations like Greenwood Senior Center, Full Life Care, Elderwise, the Washington State Chapter of the Alzheimer's Association, Seattle Parks and Recreation, and the Frye Art Museum. Today, the Puget Sound region abounds with inclusive dementia-friendly opportunities, including Alzheimer's cafés at local coffee shops, volunteer positions at the Cherry Street Food Bank, and even improv theater workshops at Taproot Theatre.

One of the first of these dementia-friendly opportunities was launched by the Frye Art Museum in September 2010. The here:now program at the Frye offers free art gallery tours

and art-making classes for people living with dementia and their care partners. Together, family and friends can enjoy an engaging experience in which art, not dementia, is the focus.

Tour facilitators use a method designed to make art accessible for all, asking questions that focus less on specific details, like artistic medium, an artist's name, or a work's title, and more on the feelings, thoughts, and associations stirred within participants by the art in that moment. All responses are valid. "There is not really a right answer. And that's very nice," points out one participant.

Dr. Kristoffer Rhoads, a neuropsychologist who directs the Memory Wellness Program at Virginia Mason Medical Center, often refers patients and families to the Frye program. Dr. Rhoads explains, "The here:now program transcends the label of dementia and its connotations of impairment and loss. We universally hear how important this program has been for people in terms of connecting with each other, the larger community, and their own strengths."

With the success of the here:now program, the Frye Art Museum has expanded its positive dementia focus to offer a quarterly film experience for persons with dementia—Meet Me at the Movies—as well as several off-site programs.

Meanwhile, across town, the Woodland Park Zoo is the site of a free weekly walking group designed for persons living with memory loss and their care partners. Offered since 2011, this program promotes physical activity and the development of social connections within a stimulating environment. The gathering features a guided walk through zoo exhibits and ends with a social time in the zoo café.

Participant Alice Padilla and her husband Paul have been walking with the group for a few years. They remark that "our favorite part of the zoo walk is the social interaction with the other zoo walkers—being together and accepted for who we are and the feeling that we are family." Volunteer walk leader Barry Franklin seconds those feelings: "The walk

is first and foremost a social event. It gets people out moving around and sharing stories, care, and support. It's something dependable in their lives, like a rock they can hold onto."

Due to high demand, the program has recently started another group on a second day of the week. "The second day is filling up very quickly," states Katherine Painter, the Early Stage Memory Loss Coordinator for the Alzheimer's Association, "It really highlights how well-received these kind of social engagement programs are in the community."

Along with opportunities to be creative and stay connected, the Seattle area also boasts adaptive volunteer opportunities in which people who live with dementia can offer their skills and expertise to improve the community. One of the most intriguing of these opportunities emerged through a community development process in South Seattle. Recognizing that many of the programs took place in North Seattle, representatives of the Southeast Seattle Senior Center joined with other organizations to convene a Rainier Valley neighborhood gathering of people living with dementia, as well as their family and friends, to consider local options. Using images of musical instruments, nature, sports, dancing, gardening, cooking, socializing, and more, the group members identified their personal interests and then proposed a volunteer gardening opportunity.



Rachel D. Turner // Alzheimer's Association



Connecting the dots between this aspiration and other community programs, this coalition of South-enders reached out to Seattle Tilth's Rainier Beach Urban Farm and Wetlands. Then, together, they adapted Tilth's regular volunteer program to make it accessible to people living with dementia. As a result of this work, in April 2014, a monthly Fridays at the Farm volunteer experience was launched.

Each Friday session begins with a guided meditation that invites participants to be present and to connect to the natural world. Then participants choose volunteer tasks that match their individual skills and interests—from watering pepper plants to removing invasive vines.

Sarah Parkhurst, a volunteer who has attended Fridays at the Farm with her sister, explains that "it's just such a nice experience to be involved in growing all these vegetables that are used for good in the community."

Tamara Keefe, Creative Programming Director at Elderwise, emphasizes, "The desire to volunteer and contribute doesn't disappear with a diagnosis of mild cognitive impairment or dementia."

After the morning's work, participants gather around a long table with a diverse mix of other volunteers that typically includes a group of East African elders, youth performing community service, and other Rainier Beach neighbors. Over a delicious meal of farm-fresh produce, connections are formed.

"This piece—connecting within community and bridging backgrounds—there's a lot of value in that," states Keefe. "We may share in laughter or song, or we may find out the meaning of someone's name in their language. We may all have faced challenges for different reasons—for instance, as immigrants or as persons living with dementia. And we find a sense of commonality that's enlivening."

From an art museum on First Hill to a zoo on Phinney Ridge and a farm in Rainier Beach, a hopeful message

reverberates loud and clear throughout Seattle: people who live with dementia are valuable members of the community. They have unique gifts to offer, and they deserve the opportunity to stay connected, pursue joy, and make a difference in their communities. And this *momentia* movement is still growing. As Keefe declares, "Anything you can think of that you're involved in—there's a way to make it inclusive to everyone in our community. We can all be a part of making that happen!" •

To volunteer or learn about other dementia-friendly opportunities in the Seattle area, see *Brain Healthy Activities* on pages 16 and 17 or visit the online calendar at www.momentiaSeattle.org.

Precision Medicine: Alzheimer's Treatments Tailored to Suit You

by Andrew Shutes-David
and Lindsey Beach

Perhaps a friend calls, electric as she announces her engagement and then invites you to her upcoming nuptials, all in the same joyful gasp. Perhaps you've taken a job at corporate, where your coworkers roam the halls in fancified wool and tweed. Perhaps you just have a thing for sartorial eloquence, for the fabric flash of comfort and style.

Whatever the scenario, if you're in the market for a new suit, you can hop online and in several clicks of the mouse have one dispatched directly to your front door. Or you can pull a jacket and matching trousers from a rack at the thrift shop or a department store.

By taking one of these approaches, you are playing a game of averages: you know that Banana Republic and J. Crew make suits that can roughly approximate the shape of many people, and so you gamble that your height, weight, and proportions are close enough to the original cut of the suit so that you won't be swallowed up by your sleeves or left to drown in the pant legs that gather at your feet.

In some sense, you and this average suit are a fitting analogy for how doctors have attempted to treat illnesses like Alzheimer's disease. By studying large numbers of patients, researchers develop a composite sketch of signs and symptoms that roughly correspond to the average patient. There are even big books like the *Diagnostic and Statistical Manual of Mental Disorders* that help doctors classify patients into average categories that then guide them to a diagnosis. Then, once a patient can be diagnosed, physicians can prescribe the appropriate average treatment for those patients.

For some infectious diseases—for example, strep throat—this one-size-fits-all approach to medicine works great. But for complex diseases like Alzheimer's disease, an off-the-rack approach may vary in its effectiveness. That is because each case of Alzheimer's may develop from a unique set of environmental and genetic factors. As UW ADRC Director Thomas Montine explains, "Alzheimer's is driven by genetics, but it isn't just one disease. It's a disease that has many

different subtypes, and one treatment won't work for everyone." And so, if scientists were to discover an Alzheimer's treatment, prescribing that medication for all Alzheimer's patients would be a bit like purchasing a suit off the Internet: for some people the medication might work grand, but for others it would be a dud.

Alternatively, you might have the money to invest in a visit to the tailor. This tailor will poke and prod you with measuring tape and chalk. He will gather your inseam, outseam, arm length, chest width, and a dozen other variables. Then

Acquiring a custom-made suit is a luxury for most of us, but at the UW ADRC, we aspire to conduct Alzheimer's research that leads us toward custom-tailored treatment solutions for everyone.

he will use these calculations to design a suit that is precisely customized to your unique body shape. When you receive your custom-tailored suit, you know you will look your best.

Acquiring a custom-made suit is a luxury for most of us, but at the

UW ADRC, we aspire to conduct Alzheimer's research that leads us toward custom-tailored treatment solutions for everyone. "Our goal," suggests Dr. Montine, "is to create multiple treatments and to see which ones work best for each patient." This approach, which is known as precision or personalized medicine, sees patients as individuals who uniquely express disease, develop pathologies, and respond to treatments based on their individual genetic makeup and particular environmental conditions.

Precision medicine has been at the forefront of recent treatment advances in cancer, but under the leadership of our former directors, Drs. George Martin (see the inside front cover!) and Murray Raskind, and our current director, Dr. Montine, UW ADRC investigators have been at the fringes of this approach to Alzheimer's for thirty years. During its first twenty years, our center focused on pinpointing the specific genetic risks for Alzheimer's disease. This ongoing effort is still important, but the nature of Alzheimer's genetics research has evolved and is now accomplished through large, collaborative partnerships with other centers and organizations. More recently, we have focused on identifying biological markers that may help

Want to Learn More?

This personalized approach to medicine is relatively new, but there are already a variety of different perspectives on the topic. Below, we have listed some other thoughtful pieces on precision medicine.

A New World of Precision Medicine, UW Medicine

This article discusses the technological advancements that make precision possible and the ways in which a precision medicine emphasis has been applied in the UW School of Medicine. In addition to Alzheimer's, the author describes how precision medicine is helping researchers and doctors advance the treatment of other diseases, particularly cancer.

depts.washington.edu/givemed/magazine/2014/03/precision-medicine-targeted-care/

A Path for Precision Medicine, *New York Times*

Gina Kolata writes about the development of projects that utilize precision medicine to gain a greater knowledge of individuals' risks for Alzheimer's disease. Kolata describes how precision medicine could be helpful for hypothetical patients dealing with breast cancer and type 2 diabetes.

nytimes.com/2015/02/03/health/a-path-for-precision-medicine.html

Precision Medicine Initiative, the White House

The White House recently started an initiative to promote precision medicine by improving data sharing between research groups, investing in technological advancements, and protecting patient privacy.

whitehouse.gov/precision-medicine

Personalized Medicine: Great, but Some Really Serious Issues, *MedScape*

Dr. Arthur Caplan calls for doctors and researchers to consider the ethical dimensions of precision medicine. In this article, he highlights the tension between patient privacy and collaborative data sharing endeavors and how discussions of disease risk can be difficult for patients and doctors to navigate.

medscape.com/viewarticle/839899

us spot meaningful signs of Alzheimer's disease before symptoms become clinically evident.

By combining our research on Alzheimer's genes and biomarkers with experimental therapies, we seek to comprehensively classify an individual's risk for Alzheimer's, to monitor and detect changes in the disease processes before an individual develops symptoms, and to customize treatments for an individual's specific molecular and genetic causes of disease. In short, through the help of the Ellison Foundation, the Friends of Alzheimer's Research, the federal government, our donors—big and small—and the many faithful participants in the UW ADRC, we envision a future in which the treatment of every Alzheimer's patient fits like a fine custom-tailored suit.

The Gift of Precision Medicine

The physical substances involved in Alzheimer's research range in size from the microscopic, nearly invisible gene mutations that are found in a small DNA sample to the hundreds of linear feet of original data locked away in our Seattle offices or the cerebrospinal fluid samples that fill row after row in our laboratory freezers. But each component, regardless of size, plays a critical role in understanding cognition changes in individual research participants and in discovering broad patterns and insights about Alzheimer's through sweeping epidemiological research. Like all worthy endeavors, it takes objects and systems of all sizes to get good work done.

The financial side of Alzheimer's research is similar: at the UW ADRC, we rely on donations and grants of all shapes and sizes. A relatively small donation of twenty dollars, for example, pays a research assistant to perform cognitive testing on a research participant, and a larger donation allows the center to analyze twenty-plus years of cognitive testing data.

Recently, the UW ADRC began drafting plans for a twenty-million-dollar project to capitalize on the center's strengths, develop important scientific partnerships, and push the field of Alzheimer's research closer toward personalized approaches to treating and preventing

Alzheimer's disease. This shift to a more personalized, precise response builds upon the idea that each person likely has a unique genetic and molecular expression of Alzheimer's disease.

One way that our center currently works toward this mission is through pilot projects. These projects provide early-career researchers with a chance to explore new ideas and methods related to our center's focus on biomarkers, experimental therapies, and precision medicine. In support of these initiatives, the Friends of Alzheimer's Research provided a generous donation so that we were able to fund two additional pilot projects.

Moreover, after a nationwide search, Tom and Sue Ellison, who run the Ellison Foundation, chose to make a six-million-dollar donation to the UW ADRC in support of our mission. The Ellison Foundation partners with innovative nonprofits in age-related medicine, education, and human services, but for this generous donation, they sought a recipient that might specifically pursue groundbreaking research in Alzheimer's, a disease that has affected several of the Ellisons' family members. This gift will allow us to bring the field of Alzheimer's research closer to improving the precision of Alzheimer's treatment.

How the Donations Will Be Used

FRIENDS OF ALZHEIMER'S RESEARCH

Support Pilot Projects

Drs. Foraker, Marshall, Wang, and Amos will lead projects that tackle the cell-specific characteristics of the *APOE e4* allele, which is a major Alzheimer's disease risk gene; the link between traumatic brain injury and Alzheimer's; the discovery of potential genetic variants for Alzheimer's in fruit flies; and the use of nonsteroidal anti-inflammatory drugs to treat inflammation in the brains of people with Alzheimer's disease.

THE ELLISON FOUNDATION

Improve Targeted DNA Testing

The UW ADRC will use exome sequencing (a targeted, cutting-edge type of genome mapping) to test the genes of cognitively healthy individuals and to determine their potential risk of developing Alzheimer's disease.

Improve Clinical Trials

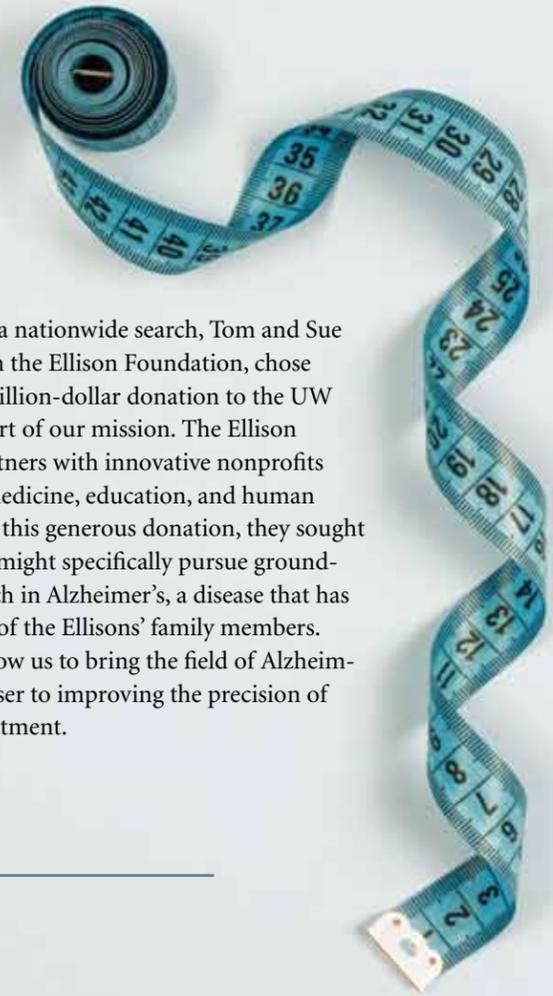
Great research requires great minds. A portion of the funds will be used to recruit a top scientist to lead new clinical trials. These trials will evaluate the preventative and treatment potential of drugs in both healthy individuals and in people with Alzheimer's disease.

Improve the Detection of Alzheimer's

Neuroimaging has become an important element in detecting and diagnosing Alzheimer's disease. The UW ADRC will test the effectiveness of an fMRI (i.e., functional magnetic resonance imaging) tool for detecting physical changes in the brain before Alzheimer's symptoms begin developing.

Improve Drug Testing

By collaborating with UW Medicine's Quellos High Throughput Screening Core, we will use stem cells from Alzheimer's research participants to test Alzheimer's medications at a much faster rate. Quellos uses state-of-the-art technology and lab-automation approaches to speed up the evaluation of drugs, making the process much more efficient when compared to traditional drug testing.



GOOD FOOD

By Lindsey Beach

While we all wish there were a secret—and delicious!—food to cure Alzheimer's disease, research has yet to discover a tasty antidote. In general, however, Alzheimer's experts recommend eating a Mediterranean diet with healthy fats, colorful fruits and vegetables, less meat, and more spices. They also agree that it is better to get our nutrients by eating raw and prepared foods rather than by taking dietary supplements.

Various research studies highlight the important role nutrition plays in cognitive processing and brain health. Here, we highlight seven different vitamins and nutritional compounds that are crucial to brain functioning, as well as a sampling of foods that rate well in terms of these vitamins and compounds.



Essential fatty acids

Findings published in the journal *Neurology* suggest that a high dietary consumption of omega-3 fatty acids may provide protection from cognitive impairment. Similar research also suggests that high rates of fish consumption are associated with lower levels of dementia and cognitive decline. Researchers believe omega-3s may play a protective role in the brain by lowering blood pressure, inflammation, and harmful triglyceride levels, as well as reducing the risk of blood clots.

// flaxseed, basil, walnuts, chia seeds, salmon //



Vitamin K

In a study published in the journal *Neurobiology of Aging*, healthy men and women over the age of seventy with higher levels of vitamin K had better verbal episodic memory performance than similar participants with lower levels of the nutrient. Episodic memory refers to our ability to recall the order of events in a specific space, like being able to remember where we parked our car in a large mall parking lot.

// kale, salami, brussel sprouts, blackberries, sage //



Zinc

Researchers from Duke University Medical Center and Massachusetts Institute of Technology suggest that zinc plays an important role in regulating the communication between neurons and the hippocampus, thereby supporting memory formation and cognitive stability. In studies where zinc levels were diminished, communication between neurons was also reduced, highlighting the importance of zinc to the nerve cells in the hippocampus.

// mushrooms, steak, pumpkin seeds, kidney beans, oysters //



Flavonoids

Research in the journals *Scientific American* and *Genes and Nutrition* suggests that flavonoids, the compounds that provide fruit and veggies with their strong color, may improve memory, learning, and other cognitive functions, like reasoning skills, decision-making, and verbal comprehension. Flavonoids have the potential to protect the brain from damage caused by neurotoxins and to reduce inflammation while also promoting new nerve cell growth in the hippocampus.

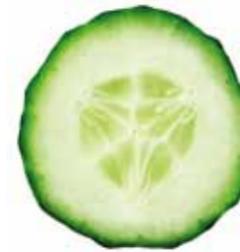
// blueberries, apples, dark chocolate, thyme, tea //



Vitamin E

Research from Oregon State University has begun to explore how vitamin E may protect the brain by preventing a dramatic loss of lyso PLs. These lyso PLs help important compounds (like DHA) enter the brain and serve their vital role in membrane repair. In effect, sufficient levels of vitamin E are needed to facilitate the delivery of over half of the compounds used in brain building and maintenance. And we could all stand to eat more foods that are high in vitamin E, as an estimated 96 percent of adult women and 90 percent of adult men in the United States do not consume enough of this nutrient.

// avocados, peanuts, chili peppers, dried apricots, green olives //



Nitrates

Nitrates are compounds found in produce that has been grown under or near soil, and these compounds can increase blood flow to the brain. Wake Forest Park researchers found that after eating a high-nitrate diet, older adults had increased blood flow to the white matter of the frontal lobes. The degeneration associated with dementia and other cognitive problems often occurs in this area of the brain, and researchers suggest that additional blood flow can bring the brain nutrients that may be helpful in fighting such degeneration.

// arugula, beets, celery, carrots, cucumbers //



Vitamin B9

Exactly how vitamin B9, also known as folate, protects the brain is unclear, but it may be through lowering blood levels of an amino acid known as homocysteine. High levels of homocysteine may trigger the death of nerve cells in the brain. To increase the amount of folate in your diet, try eating more beans (cooked black-eyed peas win the folate competition with 89 percent of the daily recommended value occurring in a single cup).

// eggs, lentils, asparagus, mangos, black-eyed peas //



BRAIN HEALTHY ACTIVITIES

By Lindsey Beach

In past issues of Dimensions we provided information about activities supporting individuals and families with Alzheimer's. There are several organizations that keep up-to-date calendars of such events in the Pacific Northwest; we recommend the following resources:

- Alzheimer's Association, Washington State Chapter | alzwa.org/calendar
- Momentia | momentiaseattle.org/calendar
- Alzheimers.net | alzheimers.net/resources/washington

In a similar vein, we would like to highlight some senior-friendly (and affordable!) activities that may help you stay lively, engaged, and healthy.



KEEP LEARNING

- The Osher Lifelong Learning Institute at the UW invites adults who are over fifty to come together to share intellectual interests and make new friends. Noncredit classes—no tests, papers, or grades to worry about!—are offered at UW campuses in Seattle, Redmond, and Everett, as well as other locations throughout the Seattle metropolitan area. | osher.uw.edu
- The Alzheimer's Association provides short online trainings, including trainings that offer legal and financial planning advice for individuals with Alzheimer's. The trainings also discuss early warning signs for Alzheimer's. | training.alz.org
- People who are interested in a more formal course to learn about Alzheimer's can sign up for the following online session at Coursera: Living with Dementia: Impact on Individuals, Caregivers, Communities and Societies. This free five-week course, which is taught by Drs. Nancy Hodgson and Laura Gitlin, aims to provide helpful information about dementia and quality care. | coursera.org/course/dementiacare



RELAX A LITTLE

Wine (in moderation and in consult with your physician) can be good for you! Washington has many wineries that boast both beautiful grounds and delicious selections.

- Here is a resource for booking your next wine-tasting adventure | washingtonwine.org
- In addition to offering a range of degrees, the Viticulture and Enology Program at Washington State University also offers interesting news about wine, including a monthly newsletter, *Voice of the Vine*. | wine.wsu.edu



JOIN A CLUB

Staying socially active and meeting new people is a great way to combat the potential loneliness and isolation some people experience as they age.

- If you are interested in exploring your German heritage, improving your watercolor skills, or building a robot dinosaur, the Seattle Networking Guide provides a comprehensive list of community events and clubs around the Seattle area. | iloveseattle.org
- Check out the Seattle Senior Coffee Club, a group that regularly meets up for coffee, visits the symphony, plays rounds of canasta, and discusses books, among other things. Join the free website and see whether there is a meet-up you'd be interested in attending. | meetup.com/The-Seattle-Senior-Coffee-Club



SEE NEW THINGS

The Pacific Northwest is jam-packed with wonderful museums, many of which offer senior discounts. Here are a few we recommend:

- Take your whole family for a walk in the Olympic Sculpture Park. The park is open 365 days a year and is always free. | seattleartmuseum.org/visit/olympic-sculpture-park
- Explore a host of cultural artifacts at the Burke Museum of Natural History and Culture, followed by a walking tour of the stunning UW campus. | burkemuseum.org
- From January 8, 2016, to February 26, 2016, Seattle's City Hall Lobby Gallery and Anne Focke Gallery will feature a major exhibition of artwork by persons living with dementia. The first of its kind in Seattle, the exhibition will be complemented by a series of sessions that explore creative expression and dementia. | theartofalzheimers.net
- Satisfy your inner bibliophile by visiting the Karpeles Manuscript Library Museum in Tacoma to view historical manuscripts and illustrations. | rain.org/~karpeles/taqfrm.html
- If you are a bit more tactile, the La Conner Quilt and Textile Museum may pique your interest. The museum is housed in a restored Victorian mansion and features frequently rotating exhibits. | laconnerquilts.org
- Missing your niche? Wikipedia has a detailed list of every museum in Washington State. | wikipedia.org/wiki/List_of_museums_in_Washington



BUST A MOVE

- Seattle Parks and Recreation organizes the Sound Steps Walking Program. Through this program, they hope to increase the physical activity and social connections of people age fifty and older. The program is free, member-directed, and accessible and welcoming to all. | seattle.gov/parks/seniors/soundsteps.htm
- The Seattle Theatre Group offers dance classes for individuals with Parkinson's disease and their caregivers all around Washington State (e.g., in Seattle, Kirkland, Des Moines, Issaquah, and Lynnwood). Dance for Parkinson's is an eight-week series of classes that combines movement, live music, and community to improve participant dance skills while also developing balance, flexibility, and coordination. And if you have two left feet, no worries! No dance experience is necessary for you to participate. | stgpresents.org/education/parkinsons

A Letter That Traveled the World

by Marigrace Becker



“Dear friend,” begins a letter that is changing the way men and women process a diagnosis of memory loss, “You are not alone.”

Clinicians at the UW Medicine Memory and Brain Wellness Clinic (MBWC) and UW ADRC noted the fear, confusion, and isolation often experienced by persons who receive a new diagnosis of memory loss. Seeking to acknowledge these feelings while also providing words of encouragement, they reached out to members of the Gathering Place, an early-stage memory-loss enrichment program in Seattle, asking them to contemplate how they might offer a message of solidarity and support.

The members of the Gathering Place immediately set to work drafting a letter, recalling what it felt like to receive their own diagnoses and believing that their words could make a unique contribution to men and women in similar situations. “We wanted to let others know—you can do this,” says group member Roger Stocker. Having lived with Alzheimer’s disease for over five years, he wanted to confidently assure others that “it can be done.”

Using their own experiences as a guide, the group attempted to compose a letter that acknowledged both the struggles and possibilities for life moving forward. In the letter, they assert that “there will be obstacles ahead . . . but you too can live a full life.”

In writing the letter, the members of the Gathering Place carefully considered every word, from the salutation to the signature block. They knew, for example, that they could conclude the letter anonymously, but as program coordinator Cayce Cheairs explains, the members wanted to personalize the letter; they wanted to stand behind their words of

hope: “They chose to use their names and their photos, and they wanted to send it out wherever it could be of use, which I want to acknowledge as incredibly brave.”

Since July 2015, the letter has been distributed on a regular basis at the MBWC and beyond. MBWC Medical Director Dr. Tom Grabowski highlights the importance of the letter, remarking, “This letter from the Gathering Place inspires resilience and hope in all of us, and it reminds us that though we would not choose memory loss for anyone, in the presence of memory loss, other strengths come to the fore.”

Across the country at Chicago’s Rush Alzheimer’s Disease Center, social worker Susan Frick shared the letter at the Without Warning program for persons with younger onset Alzheimer’s disease. She states that “it is beautiful and shows the courage and compassion of people with Alzheimer’s.” Without Warning members reciprocated by sending the Gathering Place a video of their group singing a favorite song composed by a former member. That song assures listeners, “Just know that there are those out there who see just what you see.”

Responses to the letter have been received from as far away as Scotland, and the group hopes to have the letter sent out to even more people who are adjusting to a diagnosis of memory loss. “We urge you to use the letter,” says one member. Another agrees: “I think it is going to help a lot of people.” •

Would you like to join the Gathering Place in their efforts to support persons being diagnosed with memory loss? To receive an electronic version of the letter for distribution, please contact Gathering Place facilitator Cayce Cheairs at caycec@phinneycenter.org.

Dear friend,

We are a community of people living successfully with memory loss. We understand that you also have received a diagnosis of memory loss. We want to recognize your courage in finding out what is going on. It is normal to feel disbelief, anger, fear, and denial, but know that you are not alone. Our hearts go out to you.

You may want to hide your diagnosis. Many of us did too, but we have found that sharing what we are living with lightens the load and allows us to lessen the stigma surrounding memory loss. We urge you not to hide. Connect with others who are living with memory loss, and encourage your family to get support. Acceptance is important. We are all in this together.

We have learned to live with our memory loss and still have productive lives with family and friends. We would like to give you hope that you too can live a full life. There will be obstacles to come, but you have an opportunity to give back to your community and yourself and to experience beauty, happiness, and kindness.

Sincerely,

Walt, Mark, Bob, Sarah, Roger, Ron, Helene, Rick, and Midge



**Members of the Gathering Place
Early Stage Memory Loss Enrichment Program
Greenwood Senior Center, Seattle, WA**



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