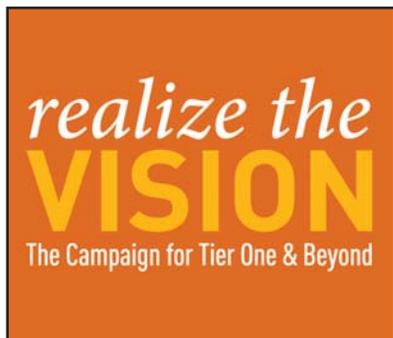


Neural Activities

THE NEWSLETTER OF THE CENTER FOR VITAL LONGEVITY

Center launches major donor campaign



The Center for Vital Longevity has set a goal to raise \$15 million over the next three years to support its mission of ensuring the cognitive health and vitality of current and future generations.

The center's goal is part of UT Dallas' first comprehensive fundraising campaign in its 43-year history. The \$200 million campaign 'Realize the Vision: The Campaign for Tier One & Beyond' is a key part of UT Dallas' quest to become a nationally competitive research institution. The Center for Vital Longevity, an affiliated center of the UT Dallas School of Behavioral and Brain Sciences, shares this vision of research excellence.

CAMPAIGN continued on page 5

On Our Minds *A message from the center directors*

Training the next generation of aging-mind researchers



Denise Park, PhD



Michael Rugg, PhD

Graduate students, along with young scientists who have just completed their PhD (postdoctoral scientists or "postdocs") constitute the majority of the scientific workforce at the Center for Vital Longevity and are, by far, the largest research expense in our enterprise. Why are these young scientists so vital to our mission?

Graduate students and postdocs are scientists in training. They are the scientific leaders and innovators of the future, as well as the lifeblood of our research enterprise today. These trainees often have their pick of many different universities and research sites around the world. They come to work with a faculty mentor at the Center for Vital Longevity who is responsible for guiding them through their training and supervising their research. Graduate students pursue a course of academic study and

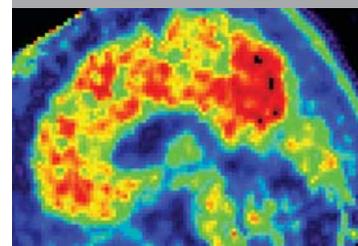
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vitallongevity.utdallas.edu



RESEARCH UPDATE

Did you know that a specific part of the brain is specialized to recognize faces?

Brain imaging studies have shown that in young adults, specific regions of the brain are tuned to respond only to faces, whereas another part of the brain responds specifically to outdoor scenes. Researchers at the Center for Vital Longevity recently reported that these distinctions are blurred in older adults. Young adults, for example, show a distinct pattern of brain activity when shown a person's face, as opposed to a place or a word. But this pattern of activity becomes less distinctive in older adults. A study led by center co-director Dr. Denise Park and University of Michigan colleague Dr. Thad Polk investigated the causes of these

age-related changes in brain activity. The work was recently published in the *Journal of Neuroscience*.

The researchers asked over 300 participants, ranging in age from 20 to 89 years, to view images of faces or houses while their brain activity was measured in an MRI scanner. Interestingly, the scientists found that two kinds of changes occur in the brain's "face network" as we age.

First, the region of the brain important for recognizing key facial features like eyes, nose, and mouth, becomes less specialized in older adults, and unlike in young adults, is active in response to other objects like houses. Second, regions of the brain important for processing other types of facial information, like mood or emotion, become overall less active in older adults.

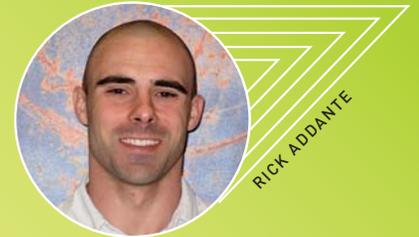
"Our results are important because they suggest that different aging mechanisms appear to be occurring in different regions of the brain," said the study's lead author Dr. Joonkoo Park, now a postdoctoral scientist at Duke University.

More broadly, the results might help explain why older adults can be slower to recognize a familiar face or even less responsive to certain social cues.

"We have found evidence that some of the declines we see in memory and reasoning in older adults are partially due to this decreased neural response to certain categories of visual information—a 'fuzzy' neural response to a picture can make it harder to later remember or reason," said Dr. Park. "Understanding the specific ways in which aging affects different regions of the brain is an important step toward developing ways to counter the negative effects of aging on the brain." 🌞

SCIENTIST SPOTLIGHT

Meet the Center for Vital Longevity researchers.



RICK ADDANTE

Dr. Rick Addante joined the center in October 2011 as a postdoctoral researcher in the laboratory of Dr. Michael Rugg after receiving his PhD in neuroscience from University of California, Davis. He is interested in understanding how different brain states support successful memory formation and retrieval. In addition to being a research scientist, Dr. Addante is also a licensed pilot, scientific research diver, and a former NCAA wrestler and coach.



SARA HABER

Dr. Sara Haber joined the lab of Dr. Denise Park as a postdoctoral researcher in February 2012. Her research is focused on understanding how memory processes, both behavioral and neurological, change with age. Dr. Haber received her MA in cognitive and brain science at University of Nevada, Reno and her PhD in cognitive neuroscience from Rice University. In her free time she enjoys camping and playing billiards.

Mental Notes

Center hosts visiting professor and collaborator

At the University of Michigan, faculty members are eligible for a sabbatical—a respite from teaching and administrative demands to focus on one’s research—once every seven years. When the time came for psychology professor Dr. Patricia Reuter-Lorenz, the Center for Vital Longevity was her top choice for a sabbatical stay.

“I knew I wanted to spend my time in an environment that was stimulating, welcoming, and comfortable, said Dr. Reuter-Lorenz. “I wanted to work with colleagues on innovative projects that had the potential for continued, ongoing collaboration, and to expand my knowledge

and skills to feel rejuvenated and invigorated. CVL fulfilled all of my requirements!”

Dr. Reuter-Lorenz spent six weeks at the center, working primarily with center co-director Dr. Denise Park, a former colleague of hers in Michigan, and postdoctoral scientists Drs. Ian McDonough, Kristen Kennedy, and Karen Rodrigue. Together they submitted a grant proposal to fund research aimed at identifying people at risk for Alzheimer’s disease. They also made progress on a new research project that is examining how age affects brain function and cognitive performance.



Dr. Patti Reuter-Lorenz.

“Patti is a wonderful friend and insightful scientist and colleague,” said Dr. Park.

“Collaboration leads to better science and we are lucky to have her as a partner in our efforts to understand the aging mind.” ☀️

BENCHMARKS

FDA approves important center research tool

In April, the U.S. Food and Drug Administration (FDA) approved the first diagnostic test for amyloid plaques in the brain associated with Alzheimer’s disease.

Center co-director Dr. Denise Park is one of a small group of scientists who has been using the tool, a compound called florbetapir (Amyvid), in her research on early signs of Alzheimer’s. She was featured in a *Wall Street Journal* article on the subject saying that the compound “is likely to play an important role in learning both how to diagnose and treat the disease.” ☀️

Read the article online at <http://on.wsj.com/HqJdz5>

Visit our new & improved web site!

vitallongevity.utdallas.edu

The screenshot shows the website for the Center for Vital Longevity at the University of Texas at Dallas. The header includes the center's name and logo, along with a tagline: "We are dedicated to unlocking the secrets of the aging mind and the maintenance of cognitive health for life. LEARN MORE." The main content area features a large image of a brain scan with highlighted regions, titled "Understanding human memory". Below this, there are several news items and research highlights, including "CVL Research Labs" and "Support CVL". The footer contains contact information and social media links.

Questions About Cognition

Do you have a question about the aging mind and how it works? To submit a question, please visit us online at: vitallongevity.utdallas.edu/newsletter

How does stress affect the brain?

Stress is a normal reaction to the demands of life, but too much stress can overload the brain



with powerful hormones that are only intended for short-term duty in emergency situations.

Excess cortisol, the primary stress hormone, has been shown to damage and even kill brain cells in the hippocampus, a region important for learning and memory. And a recent Yale University study found that high levels of cumulative stress can reduce brain volume and function in otherwise healthy people. The researchers found chronic stress to be associated with less gray matter in the prefrontal cortex, which is involved in regulating our emotions and physiology. Reductions in gray matter can impair brain function and render the body less prepared to deal with stressful situations in the future.

Fortunately, there are healthy ways to cope with stress that can help protect our brains from stress's negative effects including regular exercise, plenty of sleep, and relaxation techniques like meditation or yoga. ☀️

Support the Center

REALIZE THE VISION

The Center for Vital Longevity is a young institution on the fast track to becoming one of the leading aging-mind research centers in the world. With your support, we can seize the opportunities that will shape our future. The center's \$15 million campaign goal includes the following opportunities for your generous investment:

- **Frontiers of the Aging Mind Fund** to support sophisticated brain-imaging studies
- **Enabling Independence through Technology Fund** to support innovative ways to foster independence of older adults
- **Community Enrichment Fund** to support community and scientific outreach
- **Endowed Chairs and Other Naming Opportunities**

For more details visit vitallongevity.utdallas.edu/support

SALLIE ASCHE FUND FOR VITAL AGING

The Center for Vital Longevity lost a cherished friend and supporter this spring. Sallie Asche was one of the very first supporters of the center and a founding member of the center's Advisory Council.



To honor her memory, the center has established the **Sallie Asche Fund for Vital Aging**. This fund will support lectures and research on the science of the aging mind with the hope that future generations will no longer suffer from the cognitive frailty that too often comes with age.

You can support the Sallie Asche Fund for Vital Aging by making a contribution online at vitallongevity.utdallas.edu/support/ or by mail with a check made payable to "The Sallie Asche Fund for Vital Aging: UT Dallas" and mailed to the Center for Vital Longevity, 1600 Viceroy Drive, Suite 800, Dallas, TX 75235. ☀️

To discuss opportunities for supporting the center's work, please contact Patti Broyles, Director of Development, at **972-883-3728** or visit vitallongevity.utdallas.edu/support to make a gift online.

CAMPAIGN *continued from page 1*

The center is already on the fast track to becoming one of the leading research centers on the aging mind in the world. It boasts one of the highest concentrations of cognitive aging researchers in the nation and will soon welcome three new faculty members to its talent pool. The center has recruited more than 1000 Dallas–Fort Worth residents for research studies on how the brain and memory change with age. And since 2010, center scientists have published more than 50 peer-reviewed scientific papers on memory, the aging brain, and the effects of physical and mental exercise on brain function.

“Our center has accomplished a great deal in a short time and with little private funding,” said center co-director Dr. Michael Rugg, adding that currently, the center’s work is largely supported by competitive research grants from the National Institutes of Health.

But he adds that additional funds are needed to ensure the rapid pace of discovery required to improve the cognitive health of our aging populace. The center’s campaign funding priorities include endowed chairs and other naming opportunities, as well as funds to support sophisticated brain-imaging studies, community enrichment and efforts to foster independence of older adults through technology.

Private funds are also needed on an annual basis to continue recruitment of the best and brightest students and young scientists; to support innovative research projects that are difficult to fund with restricted federal dollars; and to offset the rising costs of brain-imaging studies, which are the cornerstone of the center’s research.

To help achieve its campaign goal, the center has recruited Patricia Broyles as its new Director of Development.

“Patti has an impressive track record of fundraising for the Museum of Nature & Science, the Dallas Museum of Art, and Southern Methodist University” said center co-director Dr. Denise Park, “and we are thrilled to have her on board as an ambassador for our center.” 🌻

For more details about the center’s campaign funding priorities, see *SUPPORT THE CENTER* on page 4.



“I am so pleased to be joining the Center for Vital Longevity and UT Dallas at such a pivotal time and am confident that the ‘Realize the Vision’ campaign will propel us farther and faster toward to our shared goal of research excellence.”

—Patti Broyles
Director of Development

ON OUR MINDS *continued from page 1*

research that culminates in the award of a master’s degree or PhD. Postdocs typically work more independently than students, aiming to accumulate sufficient experience and publications to compete, within a few years, for a faculty position in a research university, where they will establish new research programs and advise and mentor their own students and postdocs.

Graduate students and postdocs help author research papers describing key scientific findings and their accomplishments play a key role in maintaining the international visibility of research groups at the Center for Vital Longevity. Many of our trainees have won notable national awards and are a major source of pride for our center, as frequently reported in this newsletter. Our former trainees have gone on to positions at prestigious institutions around the world including University of Toronto, University of Michigan, Brandeis University, and University College London.

The Center for Vital Longevity is currently home to 9 graduate students and 11 postdocs, with more joining us this fall. A named fellowship or award for our students is a wonderful way to support the center and our research leaders of the future. 🌻

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THE SCIENCE OF THE AGING MIND

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