CENTER FOR VITAL LONGEVITY

THE SCIENCE OF THE AGING MIND

MAKING AN IMPACT

2019 Annual Review

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THE UNIVERSITY OF TEXAS AT DALLAS

CENTER FOR VITAL LONGEVITY

THE SCIENCE OF THE AGING MIND

The Center for Vital Longevity is dedicated to pursuing research that will lead to cognitive health for life. Our research focuses on understanding how and why cognitive abilities change with age, and how these changes relate to changes in the brain's structure and function. We aim to identify, as early in life as possible, brain markers that predict who is most likely to maintain cognitive health as they grow older and who is most at risk of falling victim to Alzheimer's disease or other causes of age-related cognitive impairment. With this knowledge, we hope to develop behavioral and cognitive interventions that can prevent, slow or even reverse age-related cognitive decline.

Welcome to our Annual Review.

As you will see, during the past year CVL has maintained its impressive trajectory of scientific productivity, buoyed by the signal achievements of CVL faculty over the past 18 months in obtaining additional federal research funding to support their research programs. Along with a substantial number of peer-reviewed **scientific papers**, CVL members have presented their research at numerous national and international scientific meetings, including our very own (and very successful) **Dallas Aging and Cognition Conference** in January 2019.

In addition to our scientific activities, CVL also has been active in the community. Highlights include the annual **Booziotis Distinguished Lecture** in May, the launch of our "new-look" **Director's Research Circle**, and the establishment of a **new community of supporters** in the early stages of their professional careers. We are excited to build on these and other developments as we enter our **10th year** as a research center at The University of Texas at Dallas. We will mark this milestone in several ways over the course of the year, culminating in a major event that will celebrate not only the center but the extraordinary scientist who founded it, Dr. Denise Park.

Last but by no means least, 2019 stands out as the year we welcomed our newest faculty colleague, **Dr. Kendra Seaman**. Dr. Seaman's arrival increases the number of research groups in the center to seven and expands the topics that we cover to include such important questions as how decision-making and assessment of risk vary with age.

We look back on the achievements of the past year with pride but not complacency. There is much left to do before we will understand how to give everyone the best chance of lifelong cognitive vitality. We hope we can count on your support as we strive to contribute to this goal.

With deep appreciation,

Dr. Michael Rugg

Director, Center for Vital Longevity

Distinguished Chair in Behavioral and Brain Sciences

As you will learn in this report, the Center for Vital Longevity is an ever-expanding and highly successful enterprise. I am incredibly proud of the unprecedented success CVL faculty have had in securing highly competitive NIH funding that supports research in memory and brain aging, identifying brain markers of Alzheimer's disease as early as middle age, and developing interventions to maintain cognitive vitality for life. The future looks incredibly bright for CVL as our early faculty hires—Drs. Chandramallika Basak, Kristen Kennedy, Karen Rodrigue, and Gagan Wig—lead the charge to make lifetime cognitive vitality the norm for every member of our society. They already hold positions as journal editors, are members of NIH review panels, international keynote speakers, officers in major research societies and contribute substantially to the rapidly increasing national and international reputation of UT Dallas. Moreover, researchers mentored at CVL are much sought after by other universities, having accepted positions at Notre Dame, Harvard and UC Berkeley. Center research grants also add jobs and contribute to the thriving economic vitality of the Dallas-Fort Worth Metroplex. Center Director Dr. Michael Rugg is an exceptionally effective and tireless leader and advocate for the CVL. We thank you, our loyal supporters, for your guidance, confidence and many contributions to our success. Let us all keep up the good work!

With great pride,

Dr. Denise Park

Director of Research, CVL

UT Regents' Research Scholar

Distinguished University Chair in Behavioral and Brain Sciences

As Advisory Council Chair, it is my pleasure to welcome you to the Center for Vital Longevity's 2019 Annual Review. I am delighted to share a report of the Center's progress and highlight the exciting things we are doing in the community. Our Director's Research Circle relaunch and the launch of our new CVL Network have both been well-received with great turnout and interest. I'm happy to see new faces and returning faces at these events, and look forward to growing our education and community outreach in the new year. Dallas is privileged to have such a talented team of cutting-edge researchers right here in our backyard, and it is my honor to support their work as chair of the Advisory Council.

Thank you for your interest in and support of the Center for Vital Longevity, and our pursuit of research that will lead to cognitive health for life.

Lindsey Kluempers

Chair, Advisory Council, CVL

Visit us online at
vitallongevity.utdallas.edu

Read more University news at
utdallas.edu/news

Innovation IMPACT

Research reports from the seven CVL labs

Basak Lab delves into large-scale data analysis of clinical trials

Dr. Chandramallika Basak visits with Advisory Council members during the fall Director's Research Circle event at CVL headquarters.

In 2019, Dr. Chandramallika Basak's Lifespan Neuroscience and Cognition Lab continued its research on game-based cognitive training through two ongoing clinical trials in older adults. Both trials are funded by the National Institute on Aging (NIA), and are focused on how cognitive training using virtual games can improve cognitive plasticity and brain functioning in healthy older adults.

The Basak lab also completed the second year of a three-year NIA-funded clinical trial, which is in collaboration with Posit Science Corporation and the University of Iowa. In this multisite study, the team is investigating the effects of brain training on older adults' brain structure, function and cognition. The lab anticipates the data analysis will lead to insight on how adaptive the human brain is in older age. Dr. Basak was chosen for a generous grant from AWARE Dallas that will be gifted in 2020.

Dr. Basak and her lab presented research at nationally and internationally recognized conferences, including the Dallas Aging and Cognition Conference, Society for Neuroscience in Chicago, and Annual Meeting for Psychonomic Society in Montreal. The lab published two papers and graduated two doctoral candidates (Dr. Margaret A. O'Connell and Dr. Shuo Qin). In one forthcoming study that has been accepted for publication, Dr. Basak and her students (Qin and O'Connell) conducted a meta-analysis of 215 cognitive training studies on aging.

"The goal of the study was to determine if cognitive training is effective in improving cognition not only in healthy aging individuals, but also in Mild Cognitive Impairment patients," Dr. Basak said. "If so, we wanted to identify what types of approaches are most effective in improving cognition, and whether individual differences in education level and mental status interact with the extent of cognitive gains. I am excited about the findings, as I believe they will provide important insight to the controversial field of cognitive training."

In another published study, Dr. Basak collaborated with Dr. Julia Evans of the Callier Center for Communication Disorders, Evans' student Amy Berglund-Barraza and Dr. Fenghua Tian at UT Arlington. The team used functional Near Infrared Spectroscopy technology to determine how word frequency impacts prefrontal brain regions during a working memory task. Results suggest that words of differing frequencies place different demands on cognitive processing. CVL

Innovation
IMPACT

35
faculty-authored, peer-reviewed scientific journals and/or publications in 2019

$8 million
in new federal research funding was awarded to CVL labs in 2018-2019.

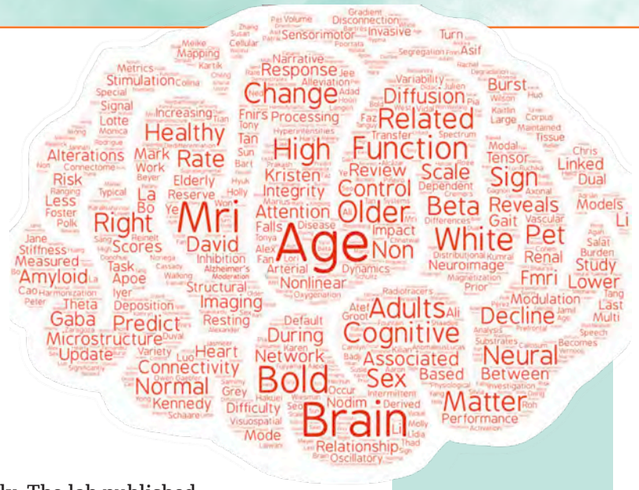
Kennedy Neuroimaging of Aging and Cognition (KNAC) Lab makes advances in longitudinal study

In 2019, the KNAC lab presented and published research from its National Institute on Aging-funded lifespan aging sample in collaboration with Dr. Karen Rodrigue. The lab recently completed data collection for the second wave in this three-wave longitudinal study and began analyzing longitudinal data. The lab anticipates that these data will provide exciting insights into how individual brain function changes as people age.

KNAC lab members presented nationally and internationally at the Dallas Aging and Cognition Conference, Society for Neuroscience in Chicago, Human Brain Mapping in Rome, and the International Society for Behavioural Neuroscience in Taormina, Sicily. The lab published several papers this year, including a study led by Dr. Christina Webb, which focused on the complex associations of white matter connectivity with brain function and their joint roles in predicting cognitive aging. A study led by doctoral student David Hoagey examined the coupled aging of the brain's gray and white matter components.

Dr. Kristen Kennedy gave an invited colloquium talk at her alma mater, Hendrix College in Arkansas, and at Stony Brook University on Long Island. She co-edited a special issue for *NeuroImage* on brain aging (see sidebar). She continues her second term as handling editor for the journal *NeuroImage*, and is serving as area head of cognitive neuroscience for the School of Behavioral and Brain Sciences. In 2019, Dr. Kennedy also was awarded the Aage Møller Teaching Award. CVL

Dr. Kristen Kennedy was honored last spring as the recipient of the 2019 Aage Møller Teaching Award, which recognizes faculty members who show exceptional commitment to their students. The award was presented by Dr. Steven L. Small, dean of the School of Behavioral and Brain Sciences.



Above: Word cloud highlighting relative strength of trends in brain aging

KENNEDY FEATURED IN EDITORIAL ISSUE OF *NEUROIMAGE*

A special journal issue in *NeuroImage*, edited by Dr. Kristen Kennedy and Dr. David H. Salat from Harvard, captured the trends and topics in the study of brain aging in 24 papers. In an introductory editorial to the issue, it was concluded that three major trends emerged: more longitudinal studies of people over time are needed; studies that combine multiple types of measures of the brain are valuable; and linking age differences in brain properties to cognition is paramount to advancing our field.

Park Aging Mind Lab continues a broad focus on memory, aging and early Alzheimer's disease

Through the Dallas Lifespan Brain Study (DLBS), the Park lab is focused on understanding changes in the brain and behaviors that predict cognitive health as well as transitions to cognitive decline.

One question the study addressed was, "What does it mean if an older adult reports that they believe their memory has declined but shows no evidence of any cognitive abnormalities?" In a recent publication, the research team reported that people who thought they had declined did show decreases in memory over the four previous years. In addition, the lab reported that the link that connected memory decline to the belief of decline appeared to be deposits of amyloid on the brain, a protein associated with Alzheimer's disease (AD). This suggests that older adults may be able to recognize subtle brain pathology before it can be detected by clinicians.

Last year, the Park lab reported that very low amyloid deposits, even in middle age, was associated with small amounts of memory decline. Why is this important? Research suggests that the window for risk of AD may be detectable as much as 20 years before disease occurs, and that in the future with more research, it may become possible to predict AD at an early age and prevent it, just as health practitioners can now prevent strokes with early detection and control of blood pressure.

Other researchers have found the tau protein (the brain tangles associated with AD) is much more destructive than the amyloid protein. Dr. Denise Park led a team of researchers at The University of Texas Southwestern Medical Center (UTSW) to secure the ability to make the materials needed for tau imaging in the cyclotron at UTSW. This was a two-year process that required filing an Investigational New Drug application with the Food and Drug Administration. Final approval to conduct neuroimaging of tau with DLBS participants was approved in December 2019.

The Park lab also created a 3,500-square-foot adult learning and research center called EngAGE in Las Colinas that was funded by the National Institute on Aging to determine if engaging adults in a demanding three-month photography training program for 15 hours per week enhances cognitive function compared to less demanding activities.

Finally, Dr. Park was invited to write a comment in the *Proceedings of the National Academies of Science*, as well as an editorial in *Neurology* regarding her evaluation of two studies published by major research groups that examined predictors of cognitive decline. The Park lab also applied for additional major funding for the EngAGE project. CVL

IN THE NEWS

The Park Aging Mind Lab was featured in "After the Fact," a podcast produced by The Pew Charitable Trusts. The production crew from Washington, D.C., including host Ray Suarez, a former "PBS NewsHour" correspondent, spent a morning interviewing instructors, participants and Dr. Denise Park at the engAGE study headquarters. The podcast was part of a series on learning and the mind.

Visit **pewtrusts.org** to listen to the podcast.

Innovation
IMPACT

20%
increase in scientific and administrative support positions for the year at CVL

16
invited scientific conference presentations given by CVL faculty in 2019

Rodrigue Lab publishes key findings on role of brain iron as a biomarker of neural decline

Significant findings for the Rodrigue Cognitive Neuroscience of Aging Lab in 2019, published in *NeuroImage*, showed that iron accumulation in the brain interacts with genetic risk for inflammation to predict poorer cognitive performance, specifically the ability to switch between tasks. Additionally, forthcoming Rodrigue lab findings show that brain iron is correlated with functional brain activation on a working memory task, where individuals with higher iron show decreased brain activation during a cognitively challenging task.

These findings are the foundation of the $3.2 million National Institutes on Aging grant awarded to the Rodrigue lab in 2018 that, in part, hypothesize that iron accumulation might be a key factor that contributes to pathological aging such as Alzheimer's disease (AD).

Also linked to the 2018 grant is new evidence which is being compiled for publication in early 2020 showing that older adults with both higher iron content in the basal ganglia of their brain and elevated beta-amyloid plaque have smaller entorhinal cortex volumes—a region of the temporal lobe that is affected early in the development of AD pathology. Dr. Karen Rodrigue presented these findings in a "Featured Research Symposium" at the 2019 Annual Alzheimer's Association meeting in Los Angeles in July 2019.


Dr. Karen Rodrigue

This finding is among the first evidence to suggest that brain iron may work in tandem with other AD biomarkers to negatively impact the brain in asymptomatic, cognitively healthy older adults.

In addition to the annual Alzheimer's Association meeting, various members of the Rodrigue lab presented data nationally and internationally at the Society for Neuroscience meeting in Chicago, the Human Brain Mapping meeting in Rome, and the International Society for Behavioural Neuroscience in Taormina, Sicily. CVL

fNIM Lab continues its studies of brain and memory aging

In the Functional Neuroimaging of Memory Lab (fNIM), Dr. Michael Rugg and his colleagues published nine peer-reviewed journal articles over the course of 2019 on topics ranging from fMRI studies of memory and aging to recordings of brain activity in epilepsy patients.

Functional Neuroimaging of Memory Lab members

One of the most significant findings to be reported was that measures of "neural differentiation"—the selectivity with which certain brain regions respond to items belonging to different visual categories such as pictures of outdoor scenes or faces—predict how well the items will be remembered in a later memory test. This association between differentiation and memory was equally strong in young and older adults, suggesting that it reflects an age-independent component of brain function. These findings were replicated in a subsequent study presented at November's meeting of the Society for Neuroscience in Washington, D.C.

Another significant finding from the lab came from a study that describes a striking reversal in the relationship between the thickness of the cerebral cortex and memory performance in different age groups, challenging the adage that bigger is always better. The relationship was found to be negative for people in their 20s—when a thinner cortex predicted better memory—but was positive in adults aged around 65-75 years. The results for the young adults are in line with studies of brain development suggesting that cognition benefits from a process that "prunes" superfluous connections between neurons during late childhood and adolescence. In later life, however, cognitive function benefits from the retention of neuronal connections.

Over the year, Dr. Rugg was an invited speaker at three international conferences. Additionally, fNIM lab members presented their research findings at the Dallas Aging and Cognition Conference, and the annual meetings of the Cognitive Neuroscience Society in San Francisco and the Society for Neuroscience in Washington, D.C. CVL

15
Research colloquia given by CVL faculty in 2019

Dr. Kendra Seaman (center), and her team pose for a Facebook photo announcing the new lab and recruitment of research assistants.

Dr. Kendra Seaman establishes the Aging Well Lab

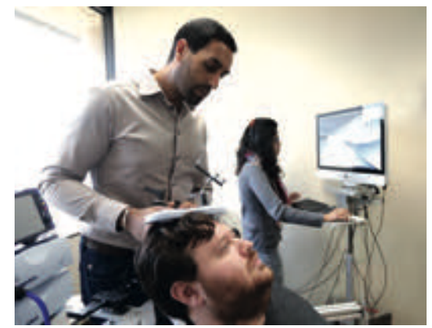
In the fall of 2019, CVL welcomed principal investigator Dr. Kendra Seaman making her the seventh faculty member to join the center. Her new lab, the Aging Well Laboratory, will focus on the intersections of learning, motivation and decision-making across the adult lifespan using a variety of behavioral, modeling and neuroimaging techniques. Dr. Seaman also is serving as assistant professor of psychology and cognitive neuroscience in the School of Behavioral and Brain Sciences.

"As demographics shift and our population grows older, the decision-making abilities of older adults have increasingly profound economic and social consequences," says Dr. Seaman. "My lab will focus on gaining a better understanding of how aging does, or does not, influence decision-making. With this knowledge, we can improve the health and well-being of older adults and those who care for them."

> "My lab will focus on gaining a better understanding of how aging does, or does not, influence decision-making."
>
> **Dr. Kendra Seaman**

During her new lab's startup phase last fall, Dr. Seaman has focused on hiring researching assistants and introducing her work to the Dallas community through talks at both the CVL and the Center for BrainHealth.

Dr. Seaman comes to the CVL from Duke University, where she was a postdoctoral scholar in the Motivated Cognition and Aging Brain Lab. CVL



Dr. Wig applies Transcranial Magnetic Stimulation.

Wig Lab awarded $2.9 million from NIA to investigate role of socioeconomic status in Alzheimer's disease risk

The Wig Neuroimaging Lab, led by Dr. Gagan Wig, was awarded a $2.9 million grant from the National Institute on Aging (NIA) to further investigate relationships between socioeconomic status (SES) and the brain. The new study will focus on identifying individual risk factors and their link to brain networks in lower-SES middle-age adults that might be predictive of cognitive decline and Alzheimer's disease (AD) in older age.

The new project will look at several variables that are affected by an individual's SES and their environments, including access to health care and healthy food, exercise, sleep, education, occupation, stress levels and mental stimulation. Through a better understanding of how these health and lifestyle variables impact the brain in middle age, the lab hopes to identify risk factors, in addition to genetics, that predict AD.

"Our goal is to identify the critical features of an individual's lifestyle and environment that lead to brain and cognitive decline. Doing so could also help us understand why some people age relatively gracefully while others are more vulnerable to rapid age-related decline and dementia," Dr. Wig said.

The study will track approximately 150 middle-age participants over four years and hopes to begin enrolling participants in the spring of 2020.

The research builds upon Wig's previous work published in 2018 in the *Proceedings of the National Academy of Sciences* linking a person's environment to the way their brain is organized. Findings from this study were also reported in the May 2018 issue of *The Atlantic* magazine in the article, "How Income Affects the Brain: A new study links lower socioeconomic status to detrimental brain." CVL

> "Our earlier work allows us to say that ... there is a correlation between socioeconomic status and brain function and anatomy. Now, we plan to examine some of the specific features which characterize aspects of an individual's health, lifestyle and environment to learn which have the largest impact on brain and cognitive aging."
>
> **Dr. Gagan Wig**

Community IMPACT

At CVL, we are dedicated to sharing our research and knowledge with the community and supporting like-minded organizations that seek to fight Alzheimer's disease and cognitive decline. ***Here are highlights from our community engagement in 2019.***

Dear CVL supporters,

Thank you for your generosity in 2019. Your gifts and support fuel innovation and research, community outreach and education. Because of you, CVL continues to thrive.

I'm enjoying getting to know many of you on a more personal and professional level as I enter my second year at CVL, and I look forward to our partnerships growing in 2020. From the Director's Research Circle and CVL Network events to the upcoming 10-year anniversary celebration, there are so many ways to be involved. And if you have an idea for community outreach and programming, I'd love to hear it. Our strength lies in our ability to come together as like-minded individuals who are dedicated to pursuing cognitive health for life.

Thank you for your continued support of the Center for Vital Longevity. I hope you enjoy our 2019 annual review.

See you soon,

Megan Harrison EMBA'19
Director of Development

CVL hosts AWARE luncheon in February

Dr. Christina Webb, a postdoctoral research associate in Dr. Kristen Kennedy's lab, shared her research on "False Memories in the Aging Brain" with members of AWARE during their February membership meeting. The talk focused on the science behind how and why false memories (memories for events that did not actually happen) are formed in young and older adults.

The meeting was held at the CVL headquarters in support of AWARE, a nonprofit organization whose mission is to fight Alzheimer's disease by providing support to other nonprofit organizations that are working on the front lines. CVL is honored to be a recipient of previous AWARE grants and is grateful for the organization's support of our research. CVL

Harvard professor speaks at Jean & Bill Booziotis Lecture

On April 25, CVL welcomed Dr. Elizabeth Phelps, Pershing Square Professor of Human Neuroscience at Harvard University, as keynote speaker for its sixth annual Jean & Bill Booziotis Distinguished Lecture.

Dr. Phelps' lecture, "Memory, Emotion and the Brain: The Good, the Bad, and the Ugly," described her research on the impact of emotion on our memories, for good and ill. From 9/11 to Christine Blasey Ford, Dr. Phelps reviewed the science behind emotion's impact on our memories. The event was free and open to the public, and took place at the Communities Foundation of Texas Mabel Peters Caruth Center.

The event was part of CVL's Booziotis Lecture Series, made possible by the late Jean and Bill Booziotis. Former president of Booziotis and Company Architects Bill Booziotis served as a member of the CVL Advisory Council. The series was established to allow members of the Dallas area community to hear firsthand from leading scientists working in the fields of cognitive neuroscience and aging. CVL

The **Jean & Bill Booziotis Distinguished Lecture** occurs annually in the spring and is free and open to the public.

Save the date for **May 6, 2020** for the next lecture.

New CVL Network launches with "Brain Myths Debunked"

In November, CVL early career scientists launched a new group for emerging professionals–The CVL Network. The inaugural event was held at the restaurant PS214 in Dallas, and patrons enjoyed appetizers, drinks and prizes while listening to CVL researchers Drs. Chris Foster and Christina Webb discuss common brain myths and why they aren't true. The group aims to engage and educate up-and-coming community and business leaders about CVL research and discoveries. CVL

The next meeting of **The CVL Network** will be scheduled soon.

New members are welcome.

Contact **Megan.Harrison@utdallas.edu** for information.

Community IMPACT

CVL team supports Alzheimer's Association #Walk2EndAlz

CVL faculty, staff, friends and pets joined to participate in the Oct. 5 Alzheimer's Association Walk to End Alzheimer's. The team raised nearly $1,200 for the cause and displayed posters from CVL labs in the new Research Emporium, where walk participants can learn about local research.

Director's Research Circle expands, draws Dallas community to CVL

In 2019, Director's Research Circle (DRC) members were invited to join CVL researchers for exclusive, behind-the-scenes opportunities to engage with leading researchers in cognitive neuroscience and learn first-hand about their research. Events included a dinner with keynote speaker, Dr. Lars Nyberg, and other invited scientists at the Park Cities Club during the Dallas Aging and Cognition Conference Jan. 26; a VIP reception with 2019 Distinguished Booziotis Lecturer Dr. Elizabeth Phelps of Harvard University in April; and a fall event at the CVL featuring a presentation from new principal investigator Dr. Kendra Seaman on motivation and decision-making, preceded by a reception with CVL researchers.

The DRC is an exclusive membership program for community members who share an interest in learning about cognitive vitality and supporting CVL research. Membership participation fuels CVL's research to understand how the brain changes as people age, how to maximize cognitive health, and how to slow or prevent memory decline. CVL

Researchers in the Lifespan Neuroscience and Cognition Laboratory visit with members from AWARE and BVB Dallas on October 16, 2019.

Education IMPACT

CVL is dedicated to supporting emerging scientists through mentorship in the labs and financial support made possible by generous donors.

Supporting Emerging Scientists

Two former CVL postdoctoral researchers shared reflections with us on their time at the Center and the impact of CVL on their education and research. **Both Drs. Josh Koen and Sara Festini were recipients of a fellowship from the Aging Mind Foundation, which provided highly impactful financial support during their time at CVL.**

"I'm extremely grateful for the Aging Mind Foundation's support of my research. With their postdoctoral fellowship, I was able to complete several research projects, including one that examined the relationship between living a busy lifestyle and cognitive function. I also appreciated being able to collaborate with such a renowned group of brain scientists, and my experiences at CVL continue to influence my career."

Dr. Sara Festini
Assistant Professor of Psychology at the University of Tampa

"The funding from the Aging Mind Foundation provided me the opportunity to refine my research skills, and to engage with the community that might one day benefit from our research.

Working with Dr. Rugg helped me develop into an independent researcher. He always challenged me intellectually on my ideas and pursuits, which really honed my ability to focus on the big-picture questions and why they are critical to understand.

Additionally, the other researchers at CVL established and promoted a vibrant scientific (and collaborative) environment. All faculty at CVL contributed to my development as a scientist in more than one way. They provided the support, knowledge and enthusiasm that continually motivated me to pursue my career and research questions."

Dr. Josh Koen
Assistant Professor of Psychology at the University of Notre Dame

CVL researchers make a widespread impact on the scientific community through publishing research in peer-reviewed publications, presenting at scientific conferences, and hosting top neuroscientists to share their knowledge and findings with the Dallas community.

CVL kicked off 2019 by hosting the biennial **Dallas Aging and Cognition Conference**. Throughout the academic year, CVL hosted weekly **Science Luncheons** featuring top scientists in the field.

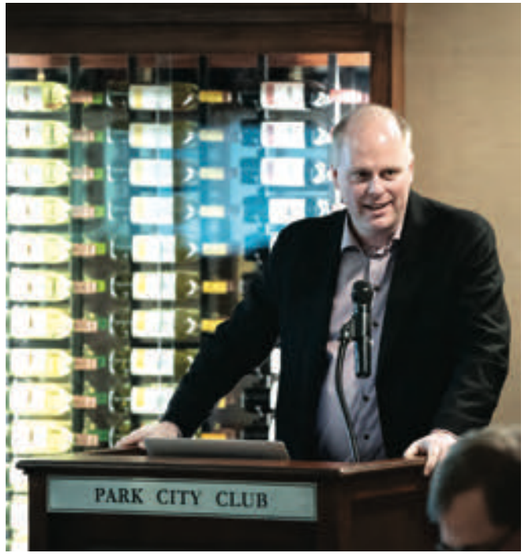
Neuroscientists share latest findings on aging and cognition

More than 200 scientists converged in Dallas for two days in January to share the latest findings in the cognitive neuroscience of aging.

Hosted by the CVL, the biennial Dallas Aging and Cognition Conference (DACC) attracted an international audience of researchers who shared their latest scientific findings through a series of talks and poster presentations.

The 2019 DACC featured speakers included Dr. Carol Barnes from the University of Arizona, Dr. Thad Polk from the University of Michigan, Dr. Brad Dickerson from Harvard University, Dr. Mara Mather from the University of Southern California and Dr. Angela Gutchess from Brandeis University. Topics included animal models of neurocognitive aging, changes in brain structure and function with age, the healthy brain in transition to disease, and the social and emotional underpinnings of neurocognitive aging.

Dr. Lars Nyberg, who directs the Center for Functional Brain Imaging at Umeå University in Sweden, gave the keynote address. He discussed the many factors that affect cognitive aging, including physical fitness levels, socioeconomic status and educational achievement, all of which can serve as buffers against cognitive decline. CVL



Dr. Lars Nyberg presents at the Director's Research Circle dinner January 27, 2019 at Park City Club.


Dr. Michael Rugg presents at a CVL Science Luncheon brown bag on December 2, 2019.

Science Luncheon Series attracts students, faculty, researchers to CVL

The CVL Science Luncheon Series is a brown bag science talk that takes place on Mondays at CVL during the academic year. The series is an opportunity for scientists to share their work with colleagues and students and is simulcast live to the main UT Dallas campus. CVL

Education
IMPACT

Thank you to all our **donors and supporters** for making 2019 a successful year and year of growth for CVL. Through financial support and the gift of your time, you have truly made an impact on our pursuit of cognitive longevity for life.

LEGACY SOCIETY

The Legacy Society are individuals who make a planned gift commitment to CVL.

Jean* and Bill Booziotis*
Madeline Christensen
Katherine L. Freiberger
David Pomberg and Jerri Hammer MS'97
E. Michelle Miller MS'05
Kaye Patton

*deceased

DIRECTOR'S RESEARCH CIRCLE MEMBERS

The Director's Research Circle (DRC) is an exclusive membership program that brings together like-minded community members who share an interest in learning more about the ways we can all enjoy cognitive vitality throughout our lives and prevent the devastating consequences of age-related cognitive diseases such as Alzheimer's disease and other forms of dementia.

Kelley M. Atwood
Chela and Norman Abdallah
Gregory K. Boydston
Peggy Dear
Lisa Shardon and Angelo DeFillippo
Robert Dotson
Lisanne and Richard Glew
David Pomberg and Jerri Hammer MS'97
Jannah Hodges
Milla P. Jones
Carol and Scott Murray
Joanne H. Pratt
Nancy P. Shutt
Nancy O'Neil and John Stilwell
Cindy D. Marshall and Duc Tran
Larry and Emily Warder
Jane A. Wetzel

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MSB Interiors

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Scott Murray
Murray Media

Nancy O'Neil
Community Volunteer

Charles Seay IV
Phynd Technologies

Lisa Shardon
Home Health Companion

Dr. John Stilwell
UT Dallas

Larry Warder
Deloitte Consulting, Retired

Save the Date

2020 Jean and Bill Booziotis Distinguished Lecture

Featuring

Laura L. Carstensen, PhD

Stanford Center on Longevity

"A New Map of Life"

Wednesday, May 6, 2020

7–8:30 p.m.

Location

Communities Foundation of Texas
Mabel Peters Caruth Center
5500 Caruth Haven Lane, Dallas, TX 75225

This event is free and open to the public.

Visit **vitallongevity.utdallas.edu** *for more info.*

THE UNIVERSITY OF TEXAS AT DALLAS

The Center for Vital Longevity
1600 Viceroy Drive, Suite 800
Dallas, TX 75235
(972) 883-3200

Stay Connected with Us

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vitallongevity.utdallas.edu