UC DAVIS ALZHEIMER'S DISEASE CENTER

Memory and Aging

A NEWSLETTER ABOUT BRAIN HEALTH AND HEALTHY AGING FALL 2017

Message from the director

It is estimated by 2050 there will be more people over the age of 65 than under the age of 15. This rapid aging of the American population makes it urgent to understand brain aging from a broader focus than simply managing diseases of the brain. Brain science has progressed rapidly in the last ten years; for the first time, we are able to conduct non-invasive imaging of the living brain to determine brain structure and study disease pathology. Risk factors for early brain aging have been identified, and we can now intervene to modify risk and create resilience.

As millions of Americans struggle with the daily realities of age-related cognitive impairment, millions more will face declining brain health in the next century. A key feature of aging is that it is a dynamic process with great heterogeneity. In particular, racial, ethnic and economic differences are associated with disparities in cognitive health risk factors and outcomes. For example, individuals with obesity, hypertension and diabetes are at greater risk for accelerated brain aging and dementia.

The decline of our mental acuity with aging can be devastating and have a profound impact on a person's ability to enjoy a full and productive life. Surrounding aging parents, grandparents and other relatives with dementia or Alzheimer's disease are supportive families who devote

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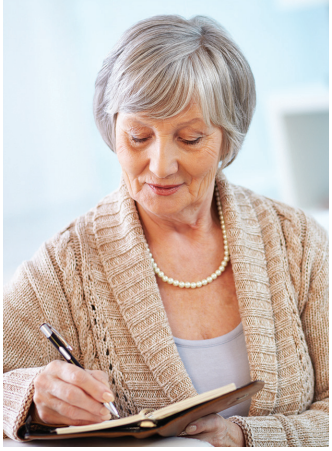
Brain Boosters



Staying independent and active is important to many seniors. To support this goal, researchers at the UC Davis Alzheimer's Disease Center developed a program that teaches strategies to help maintain independence and promote optimal brain health. The group-format program – known as "Brain Boosters" – meets for two hours each week for 10 weeks.

The program aims to enhance strategies many adults already use by making them more effective. Skills include effective use of calendars and to-do lists, as well as implementing organizational strategies at home. For example, many people use calendars, but as one recent graduate of the program remarked, "I am now making sure to habitually write all of my appointments down and check my calendar on a daily basis."

The program also encourages adopting healthy lifestyles that promote brain health. For instance, the program helps adults increase physical exercise and find more ways to challenge their brain with mentally stimulating activities. In class, participants set their own goals, develop plans to make changes in their daily life, and receive and provide support from other members. The program also incorporates ways to reduce stress and boost emotional well-being, as chronic stress can have harmful effects on the brain and reduce overall quality of life.

The Alzheimer's Association recently awarded grant funding to formally study the effects on participants' ability to learn and incorporate the skills taught in the program. Early results suggest that participants have increased use of compensation strategies and engagement in brain health activities – including cognitively stimulating activities and socializing. ■

Spanish Mini Medical School celebrates milestone

The UC Davis Spanish Mini Medical School, La Mini Escuela de Medicina en Español, a unique educational event given entirely in Spanish tailored to middle-aged and older adults and caregivers, marks its 10th anniversary on October 7, 2017.

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time, energy and other resources to caring for their loved ones. Beyond the personal toll on patients and their families, nearly one-third of older Americans depend on social security and safety net benefits, which means that deteriorating cognitive health represents a substantial challenge to our healthcare system. And, of course, there is the incalculable loss to society of a healthy, engaged and contributing senior population.

While medicine has achieved great progress with prevention of some early-life diseases such as hypertension and high cholesterol, diseases of aging remain a major challenge. As a consequence, heart disease and cancer-related mortality have declined over the last 20 years, while the number of individuals affected by cognitive deterioration or disease is steadily increasing. Late-life cognitive impairment is a complex public health, social and economic problem that demands a bold response – a paradigm shift that leads science and society to view brain health as critically important.

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Maintaining brain health throughout life directly benefits cognitive ability – even in the onset of common age-related brain diseases, such as stroke and Alzheimer's disease – making it possible to preserve our critical faculties as we age. In today's knowledge economy, brain health is more essential than ever to managing complex tasks and living productive, fulfilling lives.

Charles DeCarli, Director
UC Davis Alzheimer's Disease Center

Alzheimer's Disease Center welcomes new East Bay clinic director

Associate Professor David Johnson joined the Alzheimer's Disease Center in August, taking on the role of director of the UC Davis Alzheimer's Disease Clinic in the East Bay.

Johnson is responsible for the clinical-cognitive assessment, analysis and interpretation of the older adult research participants in the Bay Area.

Johnson, who holds a Ph.D. in clinical psychology from Washington University, joined UC Davis from the University of Kansas (KU), where he was director of the Neuropsychology and Aging Laboratory in the College of Liberal Arts and Sciences and director of Neuropsychology in the Alzheimer Disease Center at the KU Medical Center.

A research scientist, Johnson has expertise in clinical and neuropsychological assessment of healthy aging and dementia and advanced longitudinal research methodology. His work has contributed significantly to the detection of very early signs and component processes of Alzheimer's disease and related dementias.

"My primary academic interest is to investigate the biologic bases of behavior that identify healthy aging and distinguish it from dementia," he says. "My research program focuses on improving the sensitivity and specificity of cognitive and biological markers of Alzheimer's disease and on developing and testing clinical interventions that inhibit disease progression."

Fundamental to Johnson's research is a broad appreciation of how dementia affects individuals as well as the social networks that support them. He applies his specialty training in assessment to biological data to develop biomarkers of Alzheimer's disease in late life.

Johnson and his research laboratory associates have authored 27 publications and collaborated on many national grants, including from the National Institutes of Health, Department of Defense and Department of Health and Human Services, as well as the Michael J. Fox Foundation. He is also principal investigator of the Exploratory/Developmental Research Grant from the Fogarty International Center entitled Epidemiology and Development of Alzheimer's Disease in Urban and Rural Costa Rican Older Adults. ■

Alzheimer's Caregiver Workshop

Saturday, Nov. 4, 2017
8 a.m. – 12:30 p.m.

UC Davis MIND Institute Auditorium

Reservations required at
UCDavis-ALZ-caregiver.eventbrite.com

Alzheimer's Disease Center to co-lead major Latino dementia study

The UC Davis Alzheimer's Disease Center will co-lead a $14.7 million multi-year grant from the National Institutes of Health to study contributors to dementia in the Latino population in the United States. The multicenter study will examine the biological underpinnings of stroke, mild cognitive impairment and Alzheimer's disease among Hispanics, and pursue new therapeutic directions to reduce brain health disparities.

"This is the largest study of Latinos with cognitive impairment ever done," says co-principal investigator Charles S. DeCarli, Alzheimer's Disease Center director. "Latinos are the fastest growing minority population in our aging population, so cognitive impairment in this group is an important public health concern."

UC Davis and nine other institutions across the country will participate in the research. The investigators will draw from the more than 16,000-patient cohort of the ongoing Hispanic Community Health Study/ Study of Latinos (HCHS/SOL), a multicenter epidemiologic study primarily focused on cardiovascular and pulmonary diseases. An ancillary study, the Study of Latinos-Investigation of Neurocognitive Aging (SOL-INCA), is examining genetic and cardiovascular disease risk factors for neurocognitive deficits, and will also provide important data for this research.

DeCarli, a UC Davis Health professor of neurology, notes that the Latino population is especially important to study in the field of dementia because they have a higher prevalence of diabetes, hypertension and obesity compared to non-Hispanic Caucasians, all risk factors for stroke and dementia. Rates of Alzheimer's disease are about 1.5 times higher than in white non-Hispanics.

The study will make use of leading-edge magnetic resonance imaging (MRI) techniques, which can help assess vascular brain injury and patterns of atrophy seen in Alzheimer's disease. MRIs will be acquired at the partnering institutions and evaluated at UC Davis.

Study investigators also will explore the role of genetics in Alzheimer's disease. The E4 variant of the apoliprotein gene has been strongly implicated in increasing the risk of early-onset Alzheimer's disease in non-Hispanic Caucasians, but paradoxically, some Hispanic ethnic groups have a very low frequency of this allele despite high rates of dementia. ■

Healthy Brain initiative launched

Information abounds on the kinds of exercise that can keep your body strong, but what will keep your mind healthy? That's a question researchers hope to answer with the Healthy Brain Aging Initiative, a long-term research project under development among numerous UC Davis departments.

Charles DeCarli, a professor of neurology, and Kim McAllister, the director of the Center for Neuroscience, are leading the initiative, which seeks to better understand brain development and aging, then develop therapies to promote brain health.

DeCarli said research already has shown that a robust, healthy brain will be able to better resist the degenerative effects of diseases like Alzheimer's. But despite extensive research into those diseases, little is known about how brain health changes over the span of a person's life or what a healthy brain looks like.

"I believe we have to have a paradigm shift that leads scientists and society to view brain health across our lifespan as critically important," DeCarli said, noting that the absence of disease might not be the best measure of a brain's health.

UC Davis is uniquely poised to tackle this topic, with experts in the Center for Neuroscience, the Alzheimer's Disease Center, the California National Primate Research Center and other departments in schools across the university, the initiative leaders say.

This is excerpted from a story in the spring/summer 2017 issue of UC Davis Magazine. ■

UC DAVIS
ALZHEIMER'S DISEASE CENTER

4860 Y St., Suite 3900
Sacramento, CA 95817

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MILESTONE, CONTINUED

This year's event offers participants practical education pertinent to their daily lives including strategies for living longer and healthier, pain management, Alzheimer's disease and other dementias, and phlebology.

Featured presenters include: world-renowned UC Davis faculty members Sergio Aguilar-Gaxiola, director of the Center for Reducing Health Disparities; Lorena Garcia, associate professor of Public Health Sciences; David Copenhaver, associate professor and director of Cancer Pain Management & Supportive Care; and Robert Coronado, founder of the Coronado Vein Center and vice-president of the American Society of Cardiovascular Phlebology.

To mark this monumental occasion, participants will enjoy lunch to mariachi music from Mariachi Los Gallos, followed by a speech from Mexico's Consul General Liliana-Ferrer. The event is sponsored by the UC Davis Alzheimer's Disease Center, UC Davis Latino Aging Research Resource Center, UC Davis Center for Reducing Health Disparities, and the Coronado Vein Center. ■

Olichney awarded Cloud grant from the Alzheimer's Association

John Olichney, associate professor in the Department of Neurology and Center for MIND and Brain and Alzheimer's Disease Center clinical core co-leader, received a grant from the Alzheimer's Association to study whether seniapoc improves cognitive function and brain inflammation in individuals with early Alzheimer's disease.

Seniapoc is a drug with properties that allow it to enter the brain more easily and stay in the body longer than the closely related to TRAM-34, a drug that blocks the flow of sodium and potassium across nerve cells and affects cellular function. In mice with an Alzheimer's-like condition, TRAM-34 helped to reduce brain inflammation, prevent nerve-cell damage and improve memory.

The safety of seniapoc has been established in trials in people with asthma and sickle-cell anemia, and researchers hope to repurpose the drug for the treatment of Alzheimer's disease.

Olichney and colleagues will conduct a Phase II clinical trial of seniapoc in 40 people who have early Alzheimer's disease. One-fourth of the participants will receive a placebo and the others the drug. Participants will be treated and monitored for one year, while their brains' structure and cognitive function are measured. Blood and cerebrospinal fluid also will be collected and tested to determine if the drug reduces markers of brain inflammation.

The grant was made possible through funding from Part the Cloud, which benefits the Alzheimer's Association. ■