It is increasingly recognized that exercise builds brain health. At a fundamental level, brain structure and function depend on the expression of the brain’s genes, the blueprints for the brain’s cells.

In a recent paper published in the journal Neurobiology of Aging, Carl Cotman, Nicole Berchtold, and colleagues demonstrated that in the brains of healthy older people, exercise reprograms gene expression patterns to a more youthful state, even in cognitively normal people, ages 75 to 100 years old. Genes that were particularly targeted are those that boost cellular energy production and build synaptic connectivity, suggesting mechanisms by which exercise rejuvenates brain health and slows cognitive aging. Their study is the first to report that exercise can reprogram gene expression in the human brain of cognitively healthy older individuals. In practical terms, this finding should encourage exercise participation for those who are sedentary.

Dr. Cotman is currently leading a national clinical trial, the EXERT study, to evaluate whether moderate to high intensity exercise can improve cognition in older adults with memory concerns. To learn more about the EXERT study, call 949.824.0008 or email research@mind.uci.edu.

Contributed by Carl W. Cotman, PhD (center) and Nicole C. Berchtold, PhD (right), pictured with Maria Shriver (left). Dr. Cotman is the Founding Director of UCI MIND and Distinguished Professor of Neurology and Neurobiology and Behavior. He is internationally recognized for his contributions on how exercise builds brain health. Dr. Berchtold is an Associate Project Scientist at UCI MIND in Dr. Cotman’s laboratory, which studies the mechanisms causing neuronal degeneration in Alzheimer’s disease and the development of interventions to promote successful aging. Photo credit: Katja Heinemann/HBO.
Dear Friends of UCI MIND,

We hope you are enjoying a pleasant and restful summer. This summer, as you see below, UCI MIND researchers were busy playing a prominent role in the annual Alzheimer’s Association International Conference. More than 30 faculty, staff, and trainees presented their important work, including an exceptional plenary lecture by Dr. Ruth Benca, attended by several thousand researchers from around the globe.

In academia, summer also invariably means saying goodbye. This summer, we send off some of our outstanding staff members, Ryan Bohannan, Chad Caraway, Vanessa Lin, and Ivy Nguyen, who resume their scholarly pursuits in graduate and medical education. These remarkable young people have held important positions at UCI MIND, and you may have had the chance to get to know them yourself.

We are proud of what they have learned in their time with us and excited to follow their careers. A new and impressive group of staff members join us as a result, as well as several new distinguished faculty members (page 1). As our team grows, we increase our research productivity allowing us to make a bigger, faster difference in the fight against Alzheimer’s disease and other neurodegenerative conditions—our singular pursuit.

What makes UCI MIND exceptional is that each faculty member brings a unique expertise and research program, such as the study of exercise (page 1) or sleep (page 3), facilitating innovative collaborations here at UCI MIND. And as ever, recruiting and maintaining leading faculty, funding innovative research, and training the next generation of researchers are made possible by strong support from the local community. We are excited to honor some of those supporters at the 10th annual UCI MIND gala (page 3).

From the Director

Joshua D. Grill, PhD

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UCI MIND was well-represented at the Alzheimer’s Association International Conference in Los Angeles in July, where 6,000 researchers from more than 70 countries gathered to share new ideas and progress in the fight against Alzheimer’s disease and related dementias. Some highlights:

Bryce Mander, PhD, presented research using local slow-wave measures during non-REM sleep to track beta amyloid status.

Ruth Benca, MD, PhD (right), presented a distinguished plenary lecture on the state of sleep medicine research in Alzheimer’s disease and brain health.

The MODEL-AD team led by UCI MIND investigators (left), presented over a dozen projects sharing the latest advances toward a next generation mouse model for Alzheimer’s disease.

Chelsea Cox, MPH, MSW, presented research on attitudes toward preclinical Alzheimer’s disease trials based on interviews with participants in the UCI C2C Registry.

Ira Lott, MD, Liz Head, PhD, and Mark Mapstone, PhD, played a prominent role in discussion about the state of Alzheimer’s disease research in individuals with Down syndrome.

Claudia Kawas, MD (right), participated on an esteemed panel discussion of a newly identified pathological cause of dementia.

Two postdoctoral fellows, Lindsay Hohsfield, PhD (below right), and Davis Woodworth, PhD (below left), received awards for the best posters among all postdoctoral trainees in the entire conference – Lindsay presenting work on the role of microglia in Alzheimer’s disease, and Davis presenting work on imaging of hippocampal sclerosis.
The U.S. Food and Drug Administration (FDA) recently required black box warning labels be added to some sleep medications commonly used to treat insomnia, including eszopiclone (Lunesta), zaleplon (Sonata), and zolpidem (Ambien, Ambien CR, Edluar, Intermezzo, Zolpimist). The decision was based on reported incidents of individuals engaging in activities during sleep while on these medications, including sleep walking, sleep driving, sleep eating, and sleep cooking. On rare occasions, these symptoms have resulted in serious injuries or life-threatening incidents, which has led to the inclusion of the black box label. The FDA has also issued a contraindication for use of these medications in any individual that has already experienced these behaviors while taking these medications.

Since insomnia is a fairly common sleep disorder, particularly in older individuals, it is important for both the medical community and the general population at large to know that the American Academy of Sleep Medicine (AASM) has already indicated that the primary intervention for insomnia is not sleep medications but cognitive behavioral therapy for insomnia (CBT-i). Sleep medications, such as those now including black box labels, should only be implemented in those who cannot undergo CBT-i, have ongoing symptoms following CBT-i, or as a temporary adjunct supporting CBT-i. Use of such medications should only occur after careful consideration with a board-certified sleep medicine specialist. If you or someone you know has concerns about sleep, consult a physician or call UCI Sleep Medicine Services at 714.509.2230.

Contributed by Bryce Mander, PhD, Assistant Professor of Psychiatry and Human Behavior. Dr. Mander is a leading expert in the neuroscience of sleep and brain health. His research looks at how sleep disturbance impacts brain function, thinking, and memory in older adults, particularly those at risk for dementia.
30 Years of DISCOVERY
HOPE on the Horizon

Join national experts on October 25, 2019 at the Irvine Marriott!

**AGENDA**

- **Lessons Learned of Mice (& Men)**
  Frank LaFerla, PhD  
  University of California, Irvine  

- **Advances in Clinical Diagnosis**
  David Sultzer, MD  
  University of California, Irvine  

- **Gifted Brains Yield Priceless Gains**
  Julie Schneider, MD, MS  
  Rush University  

- **Brain Scans & Biomarkers**
  William Jagust, MD  
  University of California, Berkeley  

- **Panel: Hope on the Horizon**
  Moderator: Joshua Grill, PhD  
  University of California, Irvine  

- **Detection in the Digital Era**
  Rhoda Au, PhD, MBA  
  Boston University  

- **Risk & Prevention Across the Lifespan**
  Rebecca Gottesman, MD, PhD  
  Johns Hopkins University  

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