

THE **Continuum**
From Bench to Bedside



PHOTO: SARAH KIEWEL

SENIOR CITIZENS PARTICIPATING AT THE HEALTH GAMES RESEARCH

Director's welcome

There is an adage claiming that the number of "senior moments" we experience increases as we age. In reality, these experiences are part of an aging process that begins as early as in our thirties and may be the result of memory loss, but they may also be caused by our diminished ability to organize information in an efficient way.



MARCO PAHOR, MD

Scientists, clinicians and educators at the UF Institute on Aging and the VA Geriatric Research, Education and Clinical Center (GRECC) are pursuing both behavioral and pharmacological interventions which focus on maintaining our memory as we age, while improving the quality of life.

This issue features some of our latest research, which ranges from studying nutritional supplements (such as CoQ10), to employing behavioral strategies designed to improve attention, with an eye towards ameliorating memory and preserving cognition. This has been achieved through collaboration with several colleges at the UF Health Science Center, including Nursing, Public Health and Health Professions, and Medicine.

To pursue nutritional interventions, we have also partnered with other entities including the McKnight Brain Institute and the UF Institute of Food and Agricultural Sciences (IFAS). Disseminating this information to the public through seminars and community meetings is one of our main goals.

For a list of seminars presenting our research and more, please visit our website at: www.aging.ufl.edu.

Innovative ideas aiming to improve seniors' independence

For the past several decades, Dr. Michael Marsiske has been studying cognitive changes associated with aging and interventions to improve them. Marsiske is an Associate Professor in Clinical and Health Psychology at University of Florida's College of Public Health and Health Professions (PHHP), and recruitment core leader in the UF Pepper Center.

"A key interest has been in the everyday functional consequences of late life mental changes," reports Marsiske. Marsiske and College of Nursing faculty member Ann Horgas, along with colleagues at six other institutions nationally, just received renewed funding for the Advanced Cognitive Training for Independent and Vital Elders (ACTIVE) study.

Funded by the National Institute on Aging and the National Institute of Nursing Research, ACTIVE will explore the ten-year maintenance of cognitive training in a racially and ethnically diverse cohort that initially included 2,802 adults aged 65 and older. "In the initial study period,



M. MARSISKE, PHD

PHOTO: RANDY BATISTA

Innovative ideas aiming to improve seniors' independence

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we found that participants who received up to ten sessions of training in memory, reasoning, visual attention/processing and speed maintained performance advantages for at least five years after the training period. Participants who received additional booster training experienced even larger gains. In addition, participants who received training reported having fewer limitations in certain activities of daily living, a finding that reached significance for our reasoning training group," said Marsiske.



P. BELCHIOR, OT

The newly funded follow-up study will examine whether performance benefits of training might persist beyond the five-year mark. Marsiske was recently awarded a grant in collaboration with Patricia Belchior and William Mann (with the Department of Occupational Therapy, PHHP) from the Robert Wood Johnson Foundation (RWJF). Part of RWJF's Pioneer Portfolio, the "Health Games Research" initiative is a national program of the Robert Wood Johnson Foundation that funds research to enhance the quality and impact of interactive games that are used to improve health.

The UF investigators' new study will examine the ability of an action-vidéo game to improve visual attention in older adults. "Research has shown that visual attention is important to late life mobility, including driving," said Marsiske. "We are therefore interested in finding effective, low-cost treatments that seniors can use in their homes that may translate to improved everyday independence." 🌴

Study on cognitive function during calorically restricted regimen

By Steve Anton, PhD

Calorie restriction has been shown to extend lifespan and reduce age-related diseases in numerous species, and may also increase longevity in humans. In recent human studies, caloric restriction (25% energy deficit for six months) produced physiological changes that are thought to increase lifespan, such as lowered fasting insulin levels and lowered 24-hour body temperature.

Members of our research team (Christiaan Leeuwenburgh, PhD, Stephen Anton, PhD, and Bhaskar Malayappan, PhD), recently found that prolonged caloric restriction (20% energy deficit for one year) decreased damage to DNA and RNA in human white blood cells. Although these findings suggest that caloric restriction may be beneficial to humans, research is just beginning to explore the potential effects caloric restriction has on human health.

A very important area of research is exploring the effect caloric restriction has on cognitive functioning, including learning and memory. Based on animal studies, caloric restriction appears to improve cognitive functioning and reduce age-related cognitive decline; however, some human studies indicate caloric restriction may adversely affect cognitive functioning. To date, most human studies have involved self-reported dieters who may have experienced decreased cognitive functioning due to increased thoughts about food and body weight, rather than the negative effect of caloric restriction itself. Additionally, the methods these individuals used to restrict calories may also impact cognitive functioning.

To further explore the potential role caloric restriction has on cognitive functioning, Dr. Anton was involved in the first randomized controlled trial to test the effects of six months of caloric restriction on cognitive functioning in healthy men and women (age 25 to 50) who did not report dieting before entering the study. Findings from this study indicated caloric restriction did not adversely affect memory or cognitive functioning; performance on all tests was similar to a healthy diet control group. This suggests caloric restriction does not have negative effects on cognitive and memory functioning in humans, but future studies with larger sample sizes are needed to



confirm these results. 🌴



Living with chronic health problems

Eufortyn may be helpful for people with chronic fatigue syndrome

By Jinze Xu, PhD



DARYA VOROBYEVA, JINZE XU, PHD AND CHRISTIAAN LEEUWENBURGH, PHD
WORKING ON THE EUFORTYN STUDY IN THE BIOLOGY OF AGING LABORATORIES

With the progression of age, the susceptibility to free radicals increases, and the decline of skeletal muscle fibers and strength becomes inevitable; this often enables stereotyping older persons as fragile.

According to recent research findings, it appears that many age-associated changes may be caused by the failure of the mitochondria, the cellular power plants. As a result, the cells do not receive adequate adenosine triphosphate (ATP), the essential fuel for cellular energy, from the mitochondria. Coenzyme Q10, an essential ATP generating component of the cell, has long been prescribed for chronic fatigue syndrome patients. Most importantly, it appears that naturally occurring CoQ10 declines with advancing age.

Dr. Jinze Xu, working in the laboratory of Dr. Leeuwenburgh, is using an animal model of aging to examine how Eufortyn, a novel form of this supplement, affects several crucial markers of age-related deficits, including mitochondria function, physical and cognitive performance, and nucleic acid oxidative damage.

These results could determine the precise mechanisms by which Eufortyn mitigates skeletal muscle aging and how it improves mitochondrial energy production. Following these pre-clinical studies, future clinical studies will investigate whether this new compound may improve strength, fatigue resistance and independence in elderly populations. 🌴

Promotions: Emanuele Marzetti, MD, PhD, has been promoted to the faculty position of Lecturer with the Division of Biology of Aging. ■ Silvia Giovannini, MD, has been appointed as a Post Doctoral Associate with the Division of Biology of Aging.

Honors and awards: Michael Marsiske, PhD, Associate Professor, is the recipient of the Audrey Schumacher Award for Teaching Excellence, Department of Clinical and Health Psychology, University of Florida. ■ Andrea M. Boyd, RN, MA, MSN-CNS, successfully defended her PhD in Nursing Science with a Minor in Exercise Physiology April 2008. She received the "Outstanding Student Award" for the graduating doctoral Class of 2008. ■ Constance R. Uphold, PhD, ARNP, FAAN, was elected Chair of the VA Nursing Research Advisory Group (NRAG); she will have a major leadership role in guiding the national nursing research agenda throughout the VA Healthcare System. ■ Two GRECC associate health trainees have won the 2008 Outstanding GRECC Poster Awards: Best GRECC Research Poster for Kameron Carden, Speech Pathology Trainee; and Best Clinical/Education Poster for Ryan Patel, Optometry Trainee. ■ The Biology of Aging trainees Darya Vorobyeva and Alex Nguyen were approved as recipients of the USB scholarship for 2008-2009.

Grants: Christy Carter, PhD, was awarded a NIH/NIA Administrative Supplement to ACE Inhibition and Physical Performance in Aged Rats - the goal of the project is to expand our examination of the mechanisms by which Enalapril treatment may improve skeletal muscle quality and function. ■ Michael Marsiske, PhD, was awarded the NIH/NIA ACTIVE Phase III: UF/WSU Field Site - the major goals are to investigate the long-term effects of training in basic intellectual aptitudes on older adults' abilities to perform tasks of daily living. Dr. Marsiske was also awarded the NIH/NIA - Physical, Cognitive and Mental Health in Social Context grant - this training grant is designed to instruct new generations of multi-disciplinary researchers in aging. ■ Nihal Tumer, PhD, Philip Scarpace, PhD, and Christy Carter, PhD, were awarded a VA Rehab R&D grant entitled "Obesity and Age Impaired Physical Performance; Gene Therapy Interventions". ■ Constance Uphold, PhD, ARNP, FAAN, Ron Shorr, MD, MS, and Rebecca Beyth, MD, MSc, were awarded a Veterans Affairs Health Services R&D QUERI Service Directed grant entitled "Web-Based Informational Materials for Caregivers of Veterans Post Stroke".

Congratulations!

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Sustaining Research

Research is the key to unlocking new discoveries that help us **R**age more healthily and maintain a higher level of physical and cognitive independence. At the UF Institute on Aging, our scientists are intensely committed to better understanding the mechanisms of aging, to identify how we can mitigate its harmful effects and help individuals live life with good health and high function.

Through the support of alumni and friends, the Institute on Aging can sustain current research and take it into new phases, create new research endeavors ranging from identifying new discoveries at the cellular level to developing preventive and rehabilitation methods in clinical studies, and generate resources for the committed scientists needed to conduct the research now and in the future.

To learn more about how you can invest in a healthier and more independent tomorrow for us all, please contact Troy Munn, director of development, at (352) 224-8537 or tmunn@aging.ufl.edu. 