UNIVERSITY of FLORIDA INSTITUTE ON AGING

THE Continuum

FROM BENCH TO BEDSIDE

VOL. 1 • ISSUE 1 • SUMMER '06

PHOTO BY SARAH KIEWEL

Christiaan Leeuwenburgh in his lab with Stephanie Wohlgemuth.

Cutting calories slightly can reduce aging damage

BY DENISE TRUNK

A lifelong habit of trimming just a few calories from the daily diet can do more than slim the waistline – a new study shows it may help lessen the effects of aging.

Scientists from UF's Institute on Aging have found that eating a little less food and exercising a little more over a lifespan can reduce or even reverse aging-related cell and organ damage in rats. The discovery, described in the journal *Antioxidants and Redox Signaling*, builds on recent research in animals and humans that has shown a more drastic 20 percent to 40 percent cut in calories slows aging damage. The UF findings indicate even small reductions in calories could have big effects on health and shed light on the molecular process responsible for the phenomenon, which until now has been poorly understood.

"This finding suggests that even slight moderation in intake of calories and a moderate exercise program is beneficial to a key organ such as the liver, which shows significant signs of dysfunction in the aging process," said Christiaan Leeuwenburgh, Ph.D., an associate professor of aging and geriatric research at the UF College of Medicine and the paper's senior author.

UF scientists found that feeding rats just 8 percent fewer calories a day and moderately increasing the animals' activity extended their average lifespan and significantly overturned the negative effects of cellular aging on liver function and overall health.

An 8 percent reduction is the equivalent of a few hundred calories in an average human diet and moderate exercise is equivalent to taking a short walk. ■

PHOTO BY DENISE TRUNK

Marco Pahor

Director's welcome

I speak for the University of Florida Institute on Aging's physicians, researchers and health-care service providers when I welcome you to the first edition of our quarterly newsletter, *Continuum*. Florida's Institute on Aging is staffed by professionals dedicated to high-quality interdisciplinary and translational research who are focused on improving the health and independence of older adults.

Our continuing goal, to be at the forefront of research, health care, education and career development in the area of aging, is set in order to make significant contributions to the preservation of independence and to the prevention and rehabilitation of disabilities affecting senior citizens.

UF's Institute on Aging has its academic home in the College of Medicine's department of aging and geriatric research, which supplies the infrastructure for faculty members from diverse disciplines who wish to pursue a career primarily focused on aging research and education. We have established a Career Development Division to train and guide future geriatricians and we also work closely with physicians and researchers at the Malcom Randall Veterans Administration Medical Center.

I hope that this newsletter will provide you with useful information as to how we are fulfilling our mission to be a one-stop resource for aging research, education and patient care. ■

Research Highlights

Elders' ability to walk predicts future health outcomes

As people age into their 70s, their ability to walk a quarter mile becomes an important predictor of overall health and even how long they might live, according to study findings published in the *Journal of the American Medical Association*.

Of nearly 3,000 healthy seniors studied, those who were able to complete a quarter-mile extended walking test were three times as likely to live longer and were less likely to suffer from cardiovascular disease and physical infirmity as they aged, said Marco Pahor, M.D., director of UF's Institute on Aging and the multi-institutional study's co-principal investigator at its Memphis site.

Decreasing mobility, along with lack of muscle strength and a decline in aerobic ability, are common aspects of aging that can diminish quality of life, Pahor said. Understanding the mechanisms of how people lose mobility can keep people functioning independently longer, he added.

"This shows the predictive value of a simple performance task," Pahor said. "This will help us develop a testable standard for fitness, which is the first step toward creating a strategy for maintaining independence in older people." ■

Clinical

New clerkship makes the most of geriatric education

PHOTO BY SARAH KIEWEL

Dr. John Meuleman, left, Dr. Rebecca Beyth, Dr. Miho Bautista, Peggy Smith and Michelle Griffin developed the department of aging and geriatric medicine's new mandatory two-week rotation in geriatrics. The first group of fourth-year students will attend the course in July at four clinical sites, two in Jacksonville and two in Gainesville.

Beginning in July, all fourth-year medical students will add a new component to their medical education – a two-week clerkship in geriatric medicine.

Coordinated by the Geriatric Clerkship Development Team and led by director John Meuleman, M.D., and Miho Bautista, M.D, in the UF Institute on Aging, the course will expose students to numerous situations in treating and communicating with geriatric patients.

Rebecca Beyth, M.D., an associate professor in the College of Medicine's department of geriatrics and aging research, and associate director of the Rehabilitation Outcomes Research Center, is chief of a new division that will oversee the clerkship, the career development and education division.

"The students are going to see patients in different clinical settings — whether it is the VA or university private practice, nursing home or Shands Hospital — to make sure they are getting exposure to everything they would see, depending on what they do in their future careers," Beyth said. "Maybe they won't go into geriatrics, but even if they go into internal medicine they are going to have to deal with older patients, and even if they go on to be pediatricians they are going to have to deal with the parents or grandparents of the patients they treat. So they need to have understanding." ■

"It is our continuing goal to be at the forefront of research, education and career development in the area of aging, and make significant contributions to the preservation of independence, and prevention and rehabilitation of disabilities affecting our senior citizens." — *Marco Pahor*

Basic Science

Obesity cause uncovered molecule by molecule


Philip J. Scarpace

Obesity, and its association with type 2 diabetes and hypertension, has been pinpointed by the Centers for Disease Control and Prevention as an important public health concern that affects more than 30 percent of American adults. As people age, obesity can also compound other health problems and decrease mobility.

Philip J. Scarpace, Ph.D., a professor of pharmacology and an affiliate professor in the Institute on Aging's department of aging and geriatric research, uses gene therapy as a way to understand the molecular mechanisms in regions of the brain that cause both diet-induced and age-related obesity.

Scarpace and his team have two ongoing studies funded by the National Institutes of Health's National Institute on Aging that are focused on the action of leptin, the role of leptin resistance in obesity and the effect of the neuropeptide POMC on obesity.

A third goal of Scarpace's research is to reverse or prevent the development of obesity using gene delivery techniques aimed at both circumventing leptin resistance and independently activating energy expenditure mechanisms.

"Our goal is a scientific goal," Scarpace said. "But such discoveries may lead us or others to develop new treatments for obesity and the diabetes associated with obesity." ■

IOA Announcements

Lauren Crump, M.P.H., has been promoted to a faculty position, assistant in the department of aging and geriatric research in the Institute on Aging.

Christiaan Leeuwenburgh, Ph.D., an associate professor of aging and geriatric research, is an invited speaker at two professional conferences in July, one in Lausanne, Switzerland and the other in Moscow, Russia.

Beverly Roberts, Ph.D., a professor in the College of Nursing, was awarded an opportunity grant to assess the "Effects of Tai Chi on physical performance, functional limitation and disability."

Michael G. Perri, Ph.D., an associate dean in the College of Public Health and Health Professions, received an opportunity grant to study "Biological effects of weight loss plus exercise in obese older African-American women."

Featured Faculty

Pam Duncan leads multicenter effort to study stroke rehabilitation

UF scientists have been awarded a five-year, multicenter federal grant to lead a national group of researchers who will study rehabilitation techniques designed to improve walking in the first year after stroke.

"These are critical questions that are very important as we address the needs of aging patients," said Pam Duncan, Ph.D., the study's principal investigator and associate director of the UF Institute on Aging.

The study, known as the Locomotor Experience Applied Post-Stroke trial, or LEAPS, is funded by the National Institute of Neurological Disorders and Strokes and the National Center for Medical Rehabilitative Research.

Difficulty walking is the most common disability associated with stroke, said Duncan, who is also a professor of aging and geriatric research in the UF College of Medicine and a research career scientist for the Department of Veteran Affairs. The focus of the trial is a clinic-based program in which patients practice walking on a treadmill.

The multisite, randomized trial will assess whether there is a difference in the proportion of subjects who successfully recover walking ability using this therapy versus a group given a therapist-supervised, home-based exercise program.

Researchers will separate 400 patients ages 18 and older into study groups based on the severity of their strokes and their level of walking impairment. They also will gauge whether initiating the therapy two months after stroke versus six months after stroke makes a difference in its effectiveness and will seek to identify the optimal duration of therapy. Patients will be reassessed one year after treatment.


PHOTO BY SARAH KIEWEL
Pam Duncan

"Timing the intervention is important," Duncan said. "For example, after a stroke, a patient will experience some spontaneous recovery. We need to learn when we should provide therapy, during this period of recovery or later, when recovery has stabilized?"

The study will evaluate the success of the therapeutic methods tested by measuring how much walking ability study subjects regain, and whether that improvement is great enough to help them act independently. ■

Institute on Aging Executive Committee

Editorial Board

PHOTO BY SARAH KIEWEL

Make a GIFT

For information on making a gift to the University of Florida Institute on Aging, please call (352) 265-7227.

The state of Florida has the largest proportion of persons age 60 years or older in the nation, and this age group represents the fastest growing segment of the population. The UF Institute on Aging serves as the major catalyst for developing interdisciplinary research, education and health care to improve the health, independence and quality of life of older adults. The institute faces special needs to develop research, clinical and educational programs that address the health and quality of life of older persons.

The Institute on Aging and the Department of Aging and Geriatric Research Administrative Offices

1329 SW 16th Street, 5th Floor/ Gainesville, FL 32608
ph: (352) 265-7227

The University of Florida Institute on Aging
PO Box 100107
Gainesville, FL 32610
www.aging.ufl.edu

Institute on Aging
UNIVERSITY OF FLORIDA

UNIVERSITY OF FLORIDA