

EXPANDING ON SUCCESS

Dear friends and colleagues,

At the UF Institute on Aging, we are broadening our understanding of the science of aging so we can all live longer, healthier and more independent lives. And during 2017, the institute enjoyed robust growth as it works toward these core goals.

It was a year of great activity by our faculty and staff. We supported **50 grants** through the year with a total, multiyear value of \$196 million, or \$28 million in 2017 alone. To put this in perspective, that is \$8.69 for every \$1 the university invests in the institute.

We greatly expanded our reach to Jacksonville with the establishment of a **National Institutes of Health-funded Jacksonville Aging Studies Center**, or JAX-ASCENT. This state-of-the-art, clinical translational research facility for multidisciplinary research will closely partner with the Institute on Aging and the Claude D. Pepper Older Americans Independence Center. It will fill a knowledge gap in translation and dissemination of research and efficacy studies involving underserved, minority older adults who are at high risk of geriatric conditions.

We extended the continuum of care for patients by launching an **Acute Care for the Elderly program**, an innovative approach to elder care at UF Health Shands Hospital. The program shortens hospital stays and reduces complications, expenses and unnecessary medical tests by allowing a team trained in elder care to focus on the specialized needs of these patients.

An **online master's degree program** we launched in 2015 produced its first graduates in 2017. The program, awarding degrees in medical sciences with a concentration in gerontology, is especially popular with working professionals.

The year also saw an **expansion of our faculty** as we welcomed into our ranks Marcela V. Avila, M.D.; Anna Gardner, Ph.D.; So dam Kim, M.D.; Robert T. Mankowski, Ph.D.; and Susan G. Schneider, M.D.

And we're not stopping with these achievements and others as we work to make 2018 just as successful. We will continue to build on the great progress we have made. We thank you for your support, which is so crucial to our program, now and into the future.



Marco Pahor, M.D.
Director, UF Institute on Aging



Marco Pahor, M.D.

GROUNDBREAKING RESEARCH

UF Health took the first steps in 2017 toward opening a groundbreaking research facility in Jacksonville to focus on aging studies, a move that also will enrich the work of Institute on Aging researchers in Gainesville.

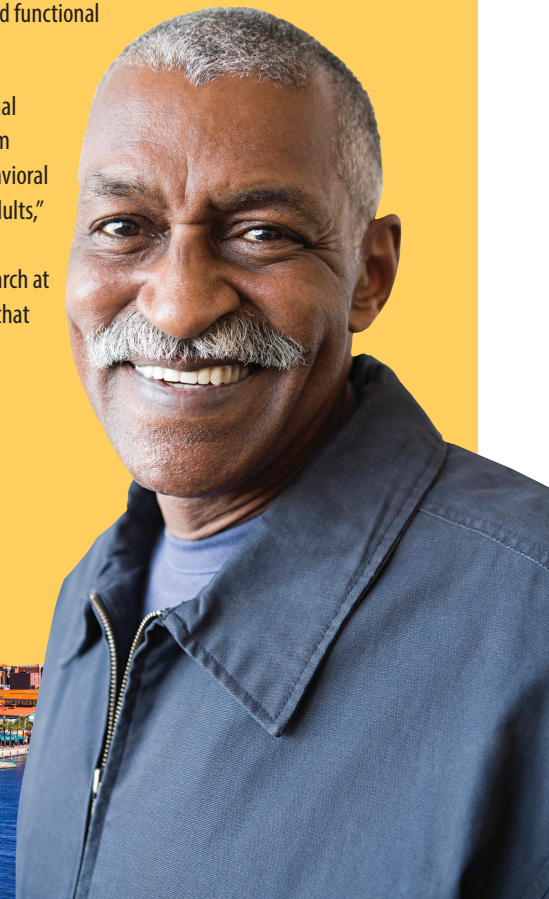
The **Jacksonville Aging Studies Center** serves as a hub for behavioral, nutritional and pharmacological clinical trials targeting older adults, particularly racial minorities and people of low socioeconomic status.

Opening on the campus of UF Health Jacksonville in 2018, the effort is a close collaboration with the UF Institute on Aging and the Claude D. Pepper Older Americans Independence Center.

Representing racial minorities and people of low economic status has always proven a challenge in geriatric research at UF Health in Gainesville with the area's limited population. In 2017, the University of Florida took its first steps to open aging research to the 1.8 million people living in greater Jacksonville.

In fact, researchers at the center, known as JAX-ASCENT, are expected to study social determinants of health that contribute to chronic diseases and functional decline within those demographic groups.

"JAX-ASCENT will create an integrative physical and intellectual environment in which trainees at all levels, and scientists from diverse disciplines, can interact and conduct clinical and behavioral translational research on aging and independence of older adults," said Marco Pahor, M.D., director of the Institute on Aging and founding chair of the department of aging and geriatric research at the UF College of Medicine. "This is a wonderful opportunity that brings together research and the community."



IMPROVING HEALTH OUTCOMES

The UF College of Medicine’s department of aging and geriatric research launched an Acute Care for the Elderly program in the fall to improve health outcomes, shorten hospital stays and lower health care costs for elderly patients at UF Health Shands Hospital.

A team trained in elder care focuses on patients at least 70 years old in a unit on the seventh floor of the hospital, communicating with hospital staffers on the floor and making recommendations regarding their care. The goal is to eventually expand ACE to other areas of the hospital.

Research at other medical centers has shown that ACE units can lead to dramatic cost reductions while improving patients’ functional abilities; reducing reliance on drugs, particularly antipsychotic medications; shortening the length of hospitalization; and reducing adverse events and unnecessary medical tests.

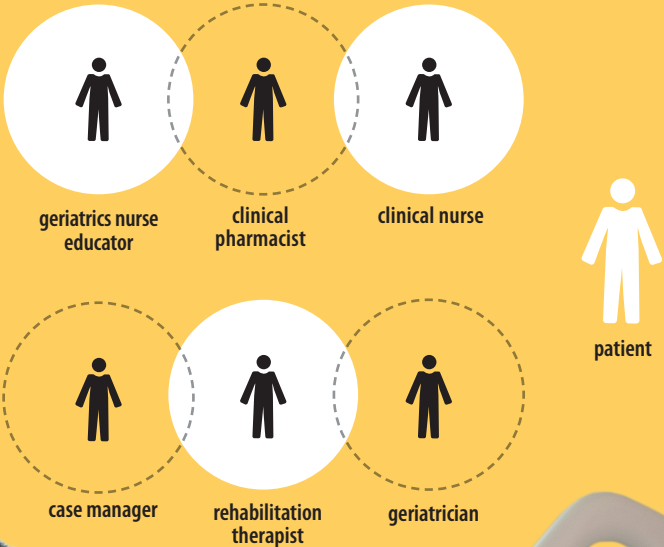
The team is composed of a geriatrician, a geriatrics nurse educator, a clinical nurse, a clinical pharmacist, a rehabilitation therapist for physical and occupational therapies, and a case manager.

“The medical care of hospital elders is very complicated,” said Laurence M. Solberg, M.D., chief of the geriatric medicine division and a member of the UF Institute on Aging. “They usually have multiple comorbidities and sometimes not everything gets addressed in the hospital because the medical focus is on the immediate reason for which they are hospitalized.

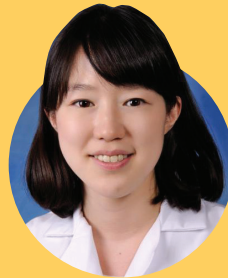
“If they have pneumonia, their primary hospitalist team will focus on that,” he said. “Are we treating it? Yes. We’re doing a great job. But maybe the patient hasn’t been out of bed in three days and now they’re weaker and can’t get home. That’s what we want to avoid.”

The team expects to reduce medical costs by up to \$1 million annually.

“This is a big step for our operation, for geriatric health care in Gainesville and for our community,” said Marco Pahor, M.D., director of the UF Institute on Aging and founding chair of the department of aging and geriatric research.



AN EYE TO WOUND CARE



So dam Kim, M.D.

For any mobility-impaired patient, a seemingly minor skin infection can grow into a conflagration, like a spark igniting a house fire.

In the battle against dangerous skin wounds, the UF College of Medicine's department of aging and geriatric research is using the medical equivalent of a firefighter.

In 2017, the department appointed a physician to spearhead a new wound care program at two UF-affiliated facilities offering skilled nursing care, Park Meadows Health and Rehabilitation Center and Oak Hammock at the University of Florida.

The program dedicates a physician to make weekly rounds at the Gainesville facilities and, in consultation with patients' primary care providers, to quickly spot, monitor and more aggressively treat skin infections before they turn into life-threatening wounds.

Filling that post is geriatrician So dam Kim, M.D., an assistant professor in the department of aging and geriatric research and faculty member at the UF Institute on Aging. In addition to a geriatric medicine fellowship, Kim has completed a wound care fellowship at the Baylor College of Medicine.

Kim views her role as helping educate staff and highlighting the importance of proper wound care, in addition to using her own clinical skills to identify and treat wounds.

"By my being there, I try to make sure everyone recognizes that, if there is a wound, it's something we immediately act upon," said Kim. "It's not something that can wait."

Communication with a patient's other caregivers is emphasized, something that could be challenging when these duties were previously outsourced to private contractors who used nurse practitioners rather than physicians in this role.

"I round once a week and I make all recommendations on how to proceed with the wound care and any underlying concerns and communicate with the primary care provider," said Kim. "And the next week I make sure it got done. It's a gatekeeper kind of thing."

The number of patients with wounds requiring treatment has fallen since the program's launch.

"People are healing faster," Kim said. "These types of interventions benefit patients by avoiding readmissions to the hospital, and improving quality of life."

INAUGURAL GRADUATES

Spring 2017 offered a special graduation day for a group of pioneering students in the University of Florida's College of Medicine.

In April, the first three students comprising the inaugural class of the department of aging and geriatric research's master's degree program received their degrees in medical sciences with a concentration in gerontology.

The online program, launched in 2015, is designed to be especially appealing to working professionals who need a flexible study schedule.

The broad-based curriculum is meant to benefit those who work with or on behalf of the elderly, including mediators, attorneys, accountants, nurses, nursing home administrators and government officials.

"The one core value is that every student cares about the quality of life among older people, and that's why they're taking the program," said Christy Carter, Ph.D., a former assistant professor and director of educational programs in the department of aging and geriatric research. Carter now works at the University of Alabama at Birmingham.



BEING A GERONTOLOGIST WILL REALLY HELP ME EVALUATE AND ASCERTAIN THE NEEDS OF THE ELDERLY AND BE ABLE TO RESOLVE HIGH-LEVEL CONFLICTS THAT ARISE AROUND THEIR CARE.

— Maria Schlafke

Maria Schlafke, an elder care mediator and elder-caring coordinator in probate and guardianship cases, was the first student enrolled in the program, saying she wanted to use the master's degree to make a difference in the lives of the elderly.

"Being a gerontologist will really help me evaluate and ascertain the needs of the elderly and be able to resolve high-level conflicts that arise about their care," she said.

There are only a handful of programs like this in the country, Carter said, and it's one of the few that is housed within a medical school. "This is a broad-based program that gives students a sense of gerontology's larger role in medicine," said Carter.

50 RESEARCH PROJECTS

11 AFFILIATED UF COLLEGES

- Agricultural and Life Sciences
- Dentistry
- Education
- Engineering
- Health and Human Performance
- Liberal Arts and Sciences
- Medicine
- Nursing
- Pharmacy
- Public Health and Health Professions
- Veterinary Medicine

1,378 RESEARCH STUDY PARTICIPANTS

292 PUBLICATIONS

222 TRAINEES

- 2 graduate students
- 60 volunteers
- 3 postdoctoral associates
- 2 visiting fellows
- 112 clerkship students
- 6 student assistants
- 26 master's students
- 11 certificate students

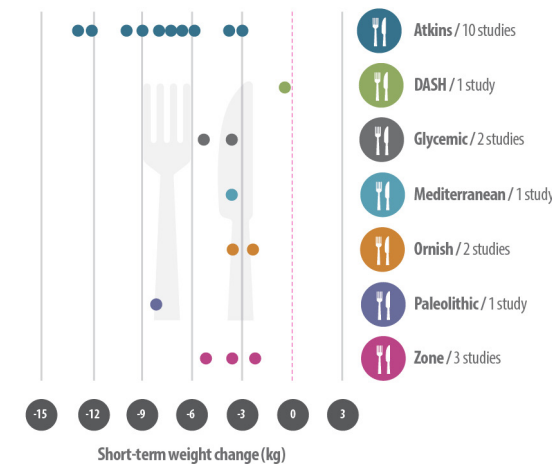
2017 YEAR IN REVIEW | UF CLAUDE D. PEPPER OLDER AMERICANS INDEPENDENCE CENTER: RESEARCH AREAS AND KEY FINDINGS

Paucity of evidence to back many popular diets

What evidence supports many popular diets? Our review examined diets listed in the 2016 U.S. News & World Report’s ranking of “Best Weight-Loss Diets,” and looked at short-term and long-term weight loss in overweight and obese adults. Only diets without specific calorie counts and/or recommendations of vigorous exercise were included, leaving 20 diets out of 38 on the list. Our study identified clinical trials for these diets and found only seven diets supported by clinical trials. The Atkins diet showed the most evidence of short-term and long-term weight loss. Other diets may be more effective than Atkins, but this is unknown because of a paucity of studies.

★ Anton SD, Hida A, Heekin K, Sowalsky K, Karabetian C, Mutchie H, ★ Leeuwenburgh C, ★ Manini TM, Barnett TE.

Nutrients. 2017 Jul 31;9(8). pii: E822. doi: 10.3390/nu9080822.



Assessing stroke damage

Few techniques are available for measuring the brain’s control of walking during the actual act of walking. Our research tested a new approach using surface electromyography, or EMG. EMG noninvasively records the electrical signals from the nervous system that instruct a muscle to contract. Our research examined electrical signals in the 30-60 hertz range, given prior evidence this frequency may convey the brain’s

contribution to muscle activation. We found a pattern of electrical signals supporting the possible usefulness of 30-60 hertz EMG to assess brain control of walking in clinical and research settings. This approach could be valuable for comparing the effectiveness of different rehabilitation interventions.

Lodha N, Chen YT, McGuirk TE, Fox EJ, Kautz SA, Christou EA, ★ Clark DJ.

J Electromyogr Kinesiol. 2017 Dec;37:35-40. doi: 10.1016/j.jelekin.2017.08.007.

Saliva can do job of blood when measuring markers of inflammation

Can a sample of saliva substitute for blood when scientists want to measure the inflammation response to pain by someone’s immune system? This question is critical in chronic pain research, especially when using a needle to draw blood is impractical or could lead to complications in susceptible populations, such as the elderly. A major finding of our study is the reliable detection of four commonly measured inflammatory and anti-inflammatory immune-system biomarkers, called cytokines, after laboratory-induced pain using a simple, inexpensive collection system. Our results provide the first evidence that acute experimental pain in humans can activate an immune response that can be measured in saliva.

★ Cruz-Almeida Y, Aguirre M, Sorenson H, Tighe P, Wallet SM, Riley JL III.

J Pain Res. 2017 Oct 3;10:2365-2372. doi: 10.2147/JPR.S138460.

Measuring exercise in the elderly

Exercise is known to improve health and reduce the risk of cardiovascular disease. But little data exists regarding the value of measuring physical activity in older adults, particularly those with mobility disability, using devices that track motion, such as accelerometers. Using accelerometers during a 24-month study period, our research shows increased physical activity in participants is significantly associated with lower adverse cardiovascular risk. The findings suggest accelerometry measures could serve as an objective,

noninvasive risk-monitoring tool for older adults. This is especially important because cardiovascular disease is the leading cause of death worldwide, and people over 65 years of age account for 80 percent of those deaths.

★ Cochrane SK, Chen SH, Fitzgerald JD, Dodson JA, Fielding RA, King AC, McDermott MM, ★ Manini TM, Marsh AP, Newman AB, ★ Pahor M, Tudor-Locke C, Ambrosius, WT, Buford TW.

LIFE Study Research Group. Association of Accelerometry-Measured Physical Activity and Cardiovascular Events in Mobility-Limited Older Adults: The LIFE (Lifestyle Interventions and Independence for Elders) Study. J Am Heart Assoc. 2017 Dec 2;6(12). pii: e007215. doi: 10.1161/JAHA.117.007215.

The brain’s role in mobility

Up to 70 percent of community-dwelling older adults suffer from chronic pain, limiting physical function, activities and reducing quality of life. One way pain may affect mobility could be through its negative impact on the brain. Our study, using data from 212 individuals, examined whether the structural integrity of the brain’s gray and white matter affected the relationship between pain and mobility in community-dwelling adults. We found neuroimaging evidence that musculoskeletal pain had detrimental effects on the brain’s white matter and that this reduced mobility. Our study is the first implicating pain as a central nervous system contributor to mobility impairment.

★ Cruz-Almeida Y, Rosso A, Marcum Z, Harris T, Newman AB, Nevitt M, Satterfield S, Yaffe K, Rosano C.

J Gerontol A Biol Sci Med Sci. 2017 Sep 1;72(9):1270-1276. doi: 10.1093/gerona/glx084.

Abnormal blood glucose in normal-weight adults

Strategies for the detection of abnormal glucose, a precursor of Type 2 diabetes, tend to focus on individuals who are overweight or obese. In fact, among healthy weight individuals age 45 and older in the U.S., the prevalence of prediabetes was 33 percent in 2012. This is a population previously believed to be at low risk of glucose abnormalities. Our study, using data from the 2014 Health Survey for England, examined the relationship between low physical activity levels and risk of abnormal blood glucose in healthy weight people. Results showed low physical activity levels in this population are significantly associated with abnormal glucose. This suggests that a sedentary lifestyle can adversely affect glucose levels, even in healthy weight individuals.

Mainous AG III, Tanner RJ, ★ Anton SD, Jo A, Luetke MC.

Am J Prev Med. 2017 Jul;53(1):42-47. doi: 10.1016/j.amepre.2016.11.027.

Good cholesterol and sepsis

Previous research shows that the proper functioning of high-density lipoprotein, or HDL (also known as good cholesterol), which has anti-inflammatory properties, is necessary for protection against sepsis. In our study, we have demonstrated that blood HDL from older septic patients exhibits impaired cholesterol efflux. This is a metabolic process that is a measure of how well a patient’s HDL removes cholesterol from a type of white blood cell that accumulates in arterial plaque. To our knowledge, this is the first study to clearly show that specific functions performed by HDL are impaired in older, acutely

septic patients. Future, larger studies are needed. Study patients were enrolled in Jacksonville and Gainesville, and subsequent analyses completed in Gainesville and UCLA.

Guirgis FW, ★ Leeuwenburgh C, Grijalva V, Bowman J, Kalynych C, Moldawer L, Moore FA, Reddy ST.

Shock. 2017 Oct 18. doi: 10.1097/SHK.0000000000001030.

Keep on dancing

Telomeres, found in all cells, are essentially protective caps at the end of a strand of DNA that protect our chromosomes like the plastic tip on a shoelace. They help prevent chromosomes from deteriorating or sticking together. Deterioration of the DNA would damage genetic information as the cell reproduces itself. Shortened leukocyte (white blood cell) telomere length, or LTL, is associated with death and illness and is a purported marker of biological aging. Our study found that older women participating in leisure activities such as bowling, slow dancing and golf, in addition to more moderate-to-vigorous exercise, had longer LTL. This research suggests the most physically active women were five years younger biologically than the least active.

Shadyab AH, LaMonte MJ, Kooperberg C, Reiner AP, Carty CL, ★ Manini TM, Hou L, Di C, Macera CA, Gallo LC, Shaffer RA, Jain S, LaCroix AZ.

Exp Gerontol. 2017 Sep;95:141-147. doi: 10.1016/j.exger.2017.05.019.

12,450 PATIENT CARE VISITS

- 1,751 UF Health Senior Care at Oak Hammock
- 2,965 UF Health Senior Care
- 3,648 UF Health Shands Hospital
- 13 UF Health Heart & Vascular and Neuromedicine Hospitals
- 2,421 Skilled nursing facility at Oak Hammock
- 87 Skilled nursing facility at Palm Garden Health and Rehab Center
- 743 Skilled nursing facility at Park Meadows Health and Rehab Center
- 822 Skilled nursing facility at Signature HealthCARE of Gainesville

The cumulative burden of chronic pain

Older adults often suffer from chronic pain, a stressor that can promote an adaptive biological response. When stress becomes chronic without adequate recovery, the human body experiences wear and tear like any machine. This is known as “allostatic load,” or AL, which accumulates to the detriment of good health. Greater AL is associated with higher mortality and risk of illness. We examined four means of formulating AL, using common biomarkers such as blood pressure, cholesterol and waist/hip ratio. We found that severe pain was associated with greater AL as defined in all four measures. This study is an important step in understanding the relationship between pain severity and physiological problems in aging and identifies a potentially useful tool for clinicians and researchers.

★ Sibille KT, McBeth J, Smith D, Wilkie R.

Exp Gerontol. 2017 Feb;88:51-58. doi: 10.1016/j.exger.2016.12.013

Testosterone increases hemoglobin

About 10 percent of older adults have anemia, and in a third of older men with anemia, no known cause can be found. No treatment has been shown to improve this unexplained anemia. In research that is part of the Testosterone Trials, a group of seven studies assessing the effects of testosterone on men ages 65 and older, we found that testosterone treatment significantly increased hemoglobin levels in those with unexplained anemia and those with anemia of known causes after one year of treatment. But additional research in the Testosterone Trials also shows testosterone increases coronary artery plaque. The anemia findings may be of clinical value, but the overall benefits remain to be established.

Mohler ER 3rd, Ellenberg SS, Lewis CE, Wenger NK, Budoff MJ, Lewis MR, Barrett-Connor E, Swerdloff RS, Stephens-Shields A, Bhasin S, Cauley JA, Crandall JP, Cunningham GR, Ensrud KE, Gill TM, Matsumoto AM, Molitch ME, ★ Pahor M, Preston PE, Hou X, Cifelli D, Snyder PJ.

J Clin Endocrinol Metab. 2018 Feb 1;103(2):681-688. doi: 10.1210/jc.2017-02243.



THE EXERCISE CONUNDRUM



It looks like it might be tougher than anyone thought to lure older adults away from binge-watching TV shows and other sedentary activities.

Increasing moderate-intensity exercise in older adults led to little reduction in the overall time they spent in potentially unhealthy sedentary activity, according to a study led by University of Florida Health aging researchers and published in the July 2017 issue of the Journal of the American Medical Association.

The findings are a surprise to researchers who thought that increasing exercise would lead to overall lifestyle changes that would cut back on time spent sitting or being inactive.

“A lot of practitioners have finally accepted the fact that exercise has all these health benefits,” said the study’s senior author Todd Manini, Ph.D., an IOA faculty member.

“Their message is to get out more and move more. And that’s a good message. We’re not saying you shouldn’t do that,” Manini said. “But we have to recognize that going out and exercising doesn’t necessarily budge the amount of time people are going to be sedentary in the entire day. You are not necessarily taking away from the sedentary bucket and putting it into the exercise bucket.”

Manini said the study may point to a need for strategies beyond exercise for doctors and practitioners trying to motivate patients into more active and healthier lives. Those strategies may include persuading patients to cut back on their television time and, for younger people, getting them to get up from their desk regularly rather than sit in front of a computer all day.

Amal Wanigatunga, Ph.D., the study’s lead author who conducted the research while a doctoral candidate in the UF College of Public Health and Health Professions and the College of Medicine, said the conveniences of modern life are a resilient foe in the battle to stay healthy.

“Advances in technology that have increased automation, convenience, communication and travel promote sedentary lifestyles and have practically erased the need to engage in physical activity on a daily basis,” said Wanigatunga, who is now a postdoctoral fellow at The Johns Hopkins University.

★ Wanigatunga AA, Ambrosius WT, Rejeski WJ, Gill TM, Glynn NW, Tudor-Locke C, ★ Manini TM. Journal of the American Medical Association. 2017 Jul 18;318(3):297-299. doi: 10.1001/jama.2017.7203.

PEPPER CENTER RENEWED

In 2017, funding totaling \$5.1 million for the Claude D. Pepper Older Americans Independence Center was renewed by the National Institutes of Health through 2022. This was the third renewal in a row granted by the NIH on the first submission by UF Health, demonstrating the continued high productivity of the center, the UF Institute on Aging and the UF College of Medicine's department of aging and geriatric research. The mission of the center is to assess the risk factors of physical disability in older adults, develop and test effective prevention therapies and train new investigators in research on aging and disability, while developing their leadership qualities. The center's research theme is "sarcopenia and prevention of disability." Sarcopenia is the loss of muscle tissue through aging.

EXAMINING INTERMITTENT FASTING



Intermittent fasting is a diet that is literally feast or famine. The more common of these fasting diets involves calorie restriction on one day, followed by a second where a dieter can eat anything at all. But research led by UF Institute on Aging faculty member Stephen Anton, Ph.D., shows it can be a reliable means of weight loss and might optimize physiological functioning, enhance performance and slow the aging and disease process. This is based on a comprehensive review of the scientific literature on intermittent fasting. Anton warns dieters to seek a doctor's advice before beginning any new diet, as fasting might not be right for everyone.

WELCOME, NEW FACULTY

Marcela V. Avila, M.D., an assistant professor in the UF College of Medicine's department of aging and geriatric research, earned her medical degree from the Universidad Nacional de Tucumán in Tucumán, Argentina, before completing a residency in pulmonary disease and critical care medicine at the Angel C. Padilla Hospital, also in Tucumán. Avila completed a second residency in family medicine in Puerto Rico before joining UF Health to complete a one-year geriatric medicine fellowship. She is board-certified in family and geriatric medicine.



Marcela V. Avila, M.D.

Anna Gardner, Ph.D., an assistant scientist in the UF College of Medicine's department of surgery and the UF Sepsis and Critical Illness Research Center, focuses her research on the long-term health outcomes among sepsis survivors. She also is interested in developing targeted exercise interventions to minimize muscle atrophy and frailty among sepsis patients, in addition to investigating caregiver burden within the intensive care unit. Gardner completed her Ph.D. in health education and behavior at UF.



Anna Gardner, Ph.D.

So dam Kim, M.D., is an assistant professor in the UF College of Medicine's department of aging and geriatric research and associate medical director of the Palm Garden Health and Rehabilitation Center. Her clinical interests include fall, frailty, wound care and preventive medicine. She is board-certified in internal medicine, geriatrics and medical quality. Kim completed an internal medicine residency at the University of Pittsburgh and a fellowship in geriatric medicine and wound care at the Baylor College of Medicine in Houston.



So dam Kim, M.D.

WELCOME, NEW FACULTY

Robert T. Mankowski, Ph.D., is an assistant professor in the UF College of Medicine’s department of aging and geriatric research. His research interests include cardiovascular dysfunction in aging and disease. Mankowski completed his Ph.D. in exercise physiology in the Netherlands before coming to UF Health as a postdoctoral associate.



Robert T. Mankowski, Ph.D.

Susan G. Schneider, M.D., is an assistant professor in the UF College of Medicine’s department of aging and geriatric research and practices as a geriatrician at UF Health Senior Care. She specializes in memory care, syndromes of aging and healthy living and is board-certified in family medicine, geriatrics and hospital and palliative care. Schneider has held various positions, including serving as medical director at family practices, clinics and skilled nursing facilities. She earned her medical degree from the University of Missouri-Kansas City.



Susan G. Schneider, M.D.

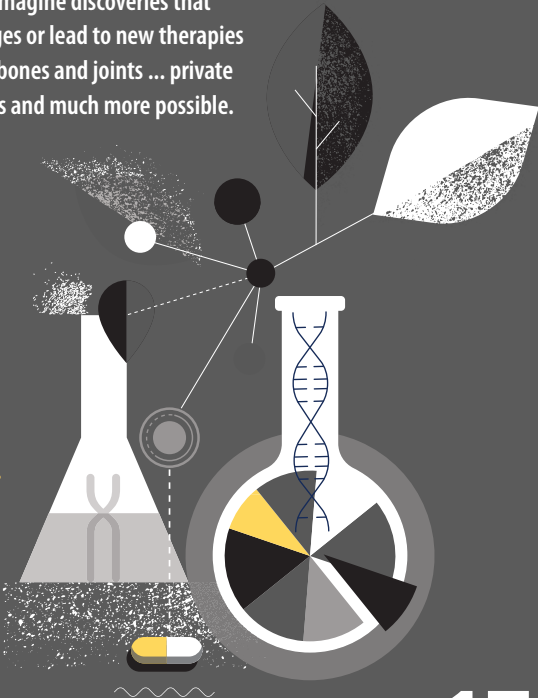
WHY EVERY DOLLAR COUNTS

Unlocking life’s mysteries — particularly the secrets of how long and how well we live — is the distinct focus of the UF Institute on Aging.

Our scientists and physicians are dedicated to achieving a better understanding of the biological mechanisms of aging and of how we can enhance our physical independence and cognitive abilities.

Your gift can make the critical difference in funding new scientific endeavors. Imagine discoveries that fuel positive cellular changes or lead to new therapies to help rehabilitate aging bones and joints ... private philanthropy makes all this and much more possible.

To learn more about how you can invest in a healthier and more independent tomorrow for us all, please contact Mary Ann Kiely at 352-273-9620 or mkiely@ufl.edu.



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PROGRES

2014
2015
2016
2017 ◀ Annual Report
2018