Declines in physical and cognitive function are the main reasons for loss of independence of older adults. Yet, clinical trials testing treatments in persons with chronic disease rarely include physical and cognitive outcomes, and most trials have not included sufficient numbers of older adults to even address such outcomes. However, due to the long-term vision of faculty at the Sticht Center on Aging, both physical and cognitive function measures were added to the recently initiated Systolic Pressure Intervention Trial (SPRINT).

SPRINT is a large (n=9,250) clinical trial that will test the impact of a lower blood pressure treatment goal (120 versus 140 mmHg) on the primary outcome of cardiovascular disease. Approximately half of SPRINT participants will be over age 70 (and one third over age 75), allowing researchers to also test the effects of the intervention on the incidence of all-cause dementia, as well as decline in cognitive and physical function. All participants will be assessed for cognitive function every 24 months (coordinated through the WFU Roena Kulynych Center) and those over 75 will also undergo baseline and walking speed assessments every 24 months.

WFU Public Health Sciences is the coordinating center for the overall trial which is sponsored by the National Heart Lung and Blood Institute, with support from the National Institute on Aging and the National Institute on Diabetes and Digestive and Kidney Diseases. SPRINT will be conducted in more than 80 sites nationwide and will be a major opportunity to advance the conduct of clinical trials in aging populations, while including outcomes that are most important to the elderly and to an aging society.
Animated Mobility Assessment Tool Developed and Validated for iPad and PC

Older persons’ quality of life and independence are threatened by the onset of mobility difficulties. Mobility assessment methods that rely on respondents’ self-report lack sufficient specificity (e.g., How far is a block? What walking speed is expected?). The goal of this research was to develop a brief, standardized, psychometrically sound way to measure mobility using animated video clips. Animated video ensures easy control of gait speed, incline slope and other environmental challenges that have not been explored in existing mobility assessment tools.

The Mobility Assessment Tool (MAT), using a selection of items for a short-form (sf), allows older adults to use an iPad touch screen or a PC to indicate what they can and cannot do. This improves upon the prediction of performance-based measures of function compared to traditional assessment tools. The MAT-sf is psychometrically sound and enables researchers to capture the complexities of mobility in an innovative manner that is valuable to researchers in gerontology and geriatric medicine. The MAT-sf is currently being used in the multicenter LIFE study and will be utilized in a prospective cross-cultural study of disability in Canada, Brazil, and Columbia. It will soon be translated into three other languages.


Factors Influencing Aspiration During Swallowing in Healthy Older Adults

Few data exist on the effects of varying liquid types on the swallowing outcomes in healthy older adults. This study examined the effects of age, sex, liquid type (water, skim, 2%, or whole milk), delivery method (cup or straw), and volume (5, 10, 15, or 20 mL) on Penetration Aspiration Scale (PAS) scores during flexible endoscopic evaluation of swallowing in 76 healthy, older adults. PAS scores were significantly greater for milk versus water swallows, whole- versus skim-milk swallows, 10- and 20-mL versus 5-mL volumes, and straw versus cup delivery. The risk for aspiration increased by approximately 2-, 3-, and 7-fold with maximal increases in bolus volume, fat content of liquids, and age, respectively. This study concluded that occasional aspiration may be an underappreciated phenomenon during swallowing in healthy older adults. Accordingly, different liquid types, bolus volumes, and delivery methods should be used to ensure an accurate assessment of aspiration status.

Pericardial Fat Loss in Postmenopausal Women

This study analyzed whether combining caloric restriction with aerobic exercise for 20 weeks enhances pericardial fat loss compared to a caloric restriction only intervention in abdominally obese postmenopausal women. Volume of pericardial fat around the coronary arteries was measured by computed tomography before and after the interventions, which were designed to elicit equivalent reductions in body weight. Pericardial fat volume before weight loss was 79.1 ± 32.9 cm$^3$, with no difference between groups. Overall, pericardial fat decreased significantly by 17% in all women, again with no differences between groups. Furthermore, changes in pericardial fat volume were inversely correlated with changes in maximal aerobic fitness ($\text{VO}_2$ max), but not after adjusting for baseline $\text{VO}_2$ max, intervention group, and change in body weight. Thus, weight loss interventions of equal energy deficit have similar effects on pericardial fat in older women, regardless of whether the energy deficit is due to caloric restriction alone or caloric restriction plus aerobic exercise.

Brinkley TE, Ding J, Carr JJ, Nicklas BJ. Pericardial fat loss in postmenopausal women under conditions of equal energy deficit. Med Sci Sports Exerc. (Accepted for publication on September 7, 2010).

A Natural Lumbar Disc Degeneration Model in the Vervet Monkey

Nonhuman primate models that develop spontaneous disc degeneration may provide a better opportunity to study degenerative processes that occur in humans. This study, a collaboration between the WFU Primate Center and the Department of Orthopedic Surgery at Emory University, determined whether age and body mass are associated with higher rates of disc degeneration in the vervet monkey. The sample consisted of 37 female vervets with an average age of 10.8 years (3.5-25.6) and a body mass of 5.03 kg (3.71-7.99). Fifteen animals (40.5%) were considered middle aged or older. Of 37 animals, 23 (62.2%) exhibited some form of degeneration. The most common level involved was L6-7 in osteophyte, L2-3 in height loss, L1-2 in annular calcification and L5-6 in endplate irregularity.

Age was highly correlated with the degree of disc degeneration ($R^2=0.62$). Body mass was also significantly correlated with disc degeneration (albeit less strongly) ($R^2=0.18$). The relationship between age and degeneration in vervet monkeys is similar to that observed in humans. Other similarities include the variability of occurrence of degeneration between individuals and between discs within an individual.

NEWLY FUNDED RESEARCH

Cardiac Imaging of Thoracic Fat and Aortic Stiffness in Older High Risk Patients

Tina Ellis Brinkley, PhD, received a career development award that will provide five years of protected research time and mentored training in imaging, epidemiology, and vascular biology and mechanics. The K award, entitled “Cardiac Imaging of Thoracic Fat and Aortic Stiffness in Older High Risk Patients” was funded by the NIA in September 2010. This project is an ancillary study to the Vascular Stiffness and Pulmonary Congestion (PREDICT) study, a prospective study of men and women aged 55-85 years at high risk for flash pulmonary edema warranting hospitalization. The aims of Dr. Brinkley’s K Award are to: (1) quantify the relationship between pericardial and perivascular adipose tissue (PCAT, PVAT) and dobutamine stress-induced changes in aortic stiffness, and 2) determine if PCAT and PVAT predict cardiac events over a mean follow-up of 3.5 years. Potential mechanisms underlying the association between PCAT and PVAT and the outcomes will also be examined, including the possibility of a local paracrine effect of adipocyte-derived mediators (i.e. adipokines) on cardiovascular dysfunction and insulin resistance.

Pepper Center Funds Three Pilot Studies

The WFU Claude Pepper Older Americans Independence Center recently provided funding for three new pilot studies. The first one, titled “Use of a Soy-Based Meal Replacement Weight Loss Intervention to Impact Ectopic Fat and Associated Cardio-Metabolic Risk in Obese, Older Adults,” was awarded to Drs. Kristen Beavers and Mara Vitolins. The purpose will be to examine feasibility, and to collect preliminary data to test the hypothesis that adherence to a hypocaloric soy-based diet favorably affects body composition and associated cardio-metabolic risk factors in obese older adults.

In the second pilot, “Vitamin D and Vitamin K Status and Physical Function in Heart Failure,” Dr. Kyla Shea (PI) will examine the role of vitamins D and K in exercise capacity and disability in patients with heart failure with preserved ejection fraction (HFPEF). The study will measure vitamin D and vitamin K status in 160 patients with HFPEF and 60 age-matched healthy controls to test the hypothesis that vitamin D and K insufficiencies are common in HFPEF patients and are associated with reduced exercise capacity and quality of life.

The third pilot, “Dietary Vitamin K Deficiency and Osteoarthritis,” aims to explore the mechanisms underlying the observational data showing that vitamin K insufficiency is associated with greater risk for osteoarthritis (OA). Drs. Richard Loeser and Kyla Shea are the co-PIs. The study will determine the effect of dietary vitamin K deficiency on knee joint degradation and on the expression and function of vitamin K-dependent proteins found in knee cartilage of rats with surgically induced knee OA to test the hypothesis that dietary vitamin K deficiency is implicated in joint health and leads to more severe knee OA.
Two Faculty Members Receive Career Awards for Geriatrics Education

In September 2010, Drs. Kathryn Callahan and Franklin Watkins were awarded Geriatric Academic Career Awards (GACAs) to enhance interdisciplinary geriatrics education and to advance their academic careers over the next five years. Dr. Callahan’s award will focus on education in quality of care for older adults targeted to medical trainees and interdisciplinary teams, with a special emphasis on safe transitions of care through the creation of a new, community-based transitions of care team.

Dr. Watkins’ award will focus on educating interdisciplinary trainees in a medical home model for frail older adults, improving the hospital discharge process through feedback to trainees, and enhancing direct care for older adults by nurses and direct care workers. Both awardees will receive training in teaching methodology and medical education research methods.

Dr. William Hazzard, Professor Emeritus in the Division of Gerontology and Geriatric Medicine at the University of Washington School of Medicine, recently completed a 3-month visiting professorship as an adjunct faculty member in the Sticht Center on Aging. Dr. Hazzard, former Chair of Internal Medicine at WFUSM, is well-known in the field of geriatric medicine. During his visit, he attended and contributed his knowledge to aging center seminars, fellow conferences, and faculty meetings, as well as the annual Sticht Center on Aging retreat. Dr. Hazzard also met with research faculty and trainees to mentor and advise them on an individual basis. We look forward to recurring visits from Dr. Hazzard in the coming year.
Elder Law Clinic Presents Fraud Seminar

The WFU School of Law Elder Law Clinic invited the community to attend “Fighting Fraud: Tips from the Trenches. How to Arm Yourself Against Scams and Other Crimes.” The event, held in the Sticht Center Auditorium on November 11, 2010, was attended by about 40 people and featured in the Winston-Salem Journal. Speakers were geriatrician Hal Atkinson, Detective Scott Sluder of the Winston-Salem Police Department, Cathy Wilson, a social worker from WFUBMC, and Debbie Hall from Consumer Credit Counseling, and John Maron of the office of the N.C. Secretary of State.

Presentations at Salemtowne Retirement Community

Sticht Center on Aging Director Stephen Kritchevsky, PhD, spoke to a large group of Salemtowne Retirement Community residents on January 18, 2011. His message, “What is Research?,” educated the audience about the types of research studies and about the mission of the Sticht Center as it relates to aging research. He also discussed the potential for a mutually beneficial collaboration between the Sticht Center and Salemtowne. A question and answer session followed.

Denise Houston, PhD, RD, presented “Vitamin D: Maximizing Strength with Age” at Salemtowne on March 1, 2011. The event was publicized in the Winston-Salem Journal and was open to the community. A question and answer session followed Dr. Houston’s presentation, and attendees between the ages of 70-89 were given the opportunity to be screened for the Sticht Center’s ongoing vitamin D research study.

Connecting Senior Adults to Aging-related Research Studies

Sticht Center community outreach liaison, Debbie Barr, MA, RHEd, CHES, has begun meeting with senior adult church groups, retirement communities, and organizations to provide education about research and encourage participation in aging-related research studies. She recently presented “Research Opportunities” to residents of Bermuda Village, Homestead Hills, and Country Village Apartments, to members of the National Association of Active and Retired Federal Employees, and to a geriatrics class at Forsyth Technical Community College. Future presentations are planned at Calvary Baptist Church, St. Paul’s Episcopal Church, and Forest Heights Senior Living Community.
Denise K. Houston, PhD, RD, Assistant Professor of Gerontology, was an invited speaker at the American Society of Nutrition’s inaugural conference, “Advances and Controversies in Clinical Nutrition.” Her talk, titled “Dietary Recommendations and Age: At What Point Do You Stop Caring About Diet Composition - Two Points of View” focused on the importance of diet on health outcomes even at advanced age.

Laura H. Coker, PhD, Associate Professor, Department of Social Sciences and Health Policy, Division of Public Health Sciences, was named Chair of the Gerontological Society of America (GSA) Task Force on Women for a three-year term. The Task Force presented a policy event titled, “SPEAK OUT on Social Security and Women,” at the GSA meeting in New Orleans in November 2010. The event focused on the fact that women earn less lifetime income, but live longer and are more dependent on Social Security.

Susan G. Butler, PhD, Associate Professor of Otolaryngology, was elected to the Specialty Board on Swallowing and Swallowing Disorders.

Tina Ellis Brinkley, PhD, was promoted to Assistant Professor in the Section on Gerontology and Geriatric Medicine, Department of Internal Medicine.

Kate Mewhinney, Clinical Law Professor and Managing Attorney of the Elder Law Clinic, has been nominated to the federal CLASS Independence Advisory Council on behalf of the National Academy of Elder Law Attorneys. The council will advise on matters of general policy in the administration of the nation’s first national voluntary long-term care insurance program, a part of the Affordable Care Act. Professor Mewhinney also recently joined the National Center for Medical-Legal Partnership within the School of Medicine’s Department of Internal Medicine, Section on Geriatrics. On December 11, 2010 she presented “Medical-Legal Partnerships Serving the Elderly” at the National Aging and Law Conference in Alexandria, Virginia.
UPDATES

Announcing New Faculty to Aging Research

The Sticht Center on Aging is pleased to announce the hiring of two new faculty members.

**Dr. Kathryn Callahan**, a board-certified Geriatrician, completed her geriatric medicine fellowship at Mt. Sinai School of Medicine and joined the Section on Gerontology and Geriatric Medicine at WFUSM in August, 2010. Dr. Callahan specializes in primary care for older adults, with a focus on screening and preventive medicine. Her research interests combine medical education and quality of care for older adults.

**Pamela W. Duncan** PhD, FAHA, and FAPTA, a clinical epidemiologist and physical therapist, will join the faculty in July 2011. Her research expertise is in aging, neurology, and rehabilitation. She will work across three WFUBMC programs to support interdisciplinary collaboration, career development, and leverage resources for comparative effectiveness studies. She will be Professor of Neurology with joint appointments in Geriatrics and Gerontology, Public Health Sciences, and the Translational Science Institute. Dr. Duncan will also serve as the Director of Transitional Outcomes for the Health System to enhance functional outcomes of our patients and reduce rehospitalization.