

And in the end, it's not the years in your life that count. It's the life in your years.

—Abraham Lincoln

aging news

NEWSLETTER FROM THE INSTITUTE ON AGING | UNIVERSITY OF WISCONSIN-MADISON



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Nadine Marks—Recent Honors & Scientific Advancements

Nadine Marks (Professor, UW Dept. of Human Development & Family studies, has been elected a **Fellow of the Gerontological Society of America (GSA)**. GSA is the nation's oldest and largest interdisciplinary organization devoted to research, education, and practice in the field of aging. GSA Fellows are peer nominated for the outstanding contributions of their lifetime of work. Prof. Marks has contributed to our understanding of how psychosocial factors, such as socioeconomic status, social relationships, caregiving, and family structure, influence adult mental health and development, as well as how these influences vary by age and gender.

Prof. Marks has also received a two year **Vilas Associate Award** from the UW-Madison Graduate School. The award supports a MIDUS investigation of how health related biomarkers (such as blood pressure and cholesterol levels) are associated with subjects' reports of positive and negative dimensions of marital quality, caregiving roles, problems in their adult children's lives, and psychological and/or physical violence experienced in childhood.

Findings from this project are being presented at the November 2008 annual GSA meeting. The first, a paper entitled *Marriage and Biological Health Risk Factors*

(Marks, N. F., Song, J., & Grzywacz, J. G.), suggests that men who remain single over a period of 9-10 years exhibit more biological health risks than do women. However, among those who are continuously married, women with problematic marital quality exhibit more health risks than men. A second study, entitled *Problems in Children's Lives and Biological Health Risks of Parents* (Song, J., & Marks, N. F.), suggests that fathers exhibit greater biological risks than mothers when their adult children experi-



Prof. Nadine Marks

ence problems (such as chronic illness, problems finding a job, and marital difficulties) and further that different types of problems are associated with distinct types of risk. The third study, *Caregiving for a Parent and Health-Related Biomarkers* (Kang, S., & Marks, N. F.), supplies evidence that providing personal care for a parent is associated with some health-related biological risks. Specifically, women are at increased risk for immune dysfunction and men for metabolic system dysfunction.

These research projects complement ongoing work that Dr. Marks is doing as Principal Investigator for a National Institute on Aging project on *Social Inequalities, Psychosocial Factors, and Health*, and as a co-investigator for the MIDUS II project.

affiliate news

For more information on the work of IOA Affiliated Faculty and Researchers at the UW-Madison, see: www.aging.wisc.edu/research/affilindex.php

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Aging News is the bi-annual newsletter of the UW-Madison Institute on Aging, where we are jointly focused on research addressing the problems and enhancing the potential of aging.

Subscriptions are free. Join our mailing list & view our back issues at: aging.wisc.edu/publications/newsletter.php

Submissions of related news are welcome and can be sent to: berrie@wisc.edu

Minorities in Science Program Receives Grant

Molly Carnes (MD, Professor, Depts. of Medicine, Psychiatry & Industrial Engineering; Director, Center for Women's Health Research) was awarded a grant by the National Institute for General Medical Science. It will fund the Training and Education to Advance Minorities in Science (TEAM-Science), a UW-Madison program intended to increase the number of under-represented minority students in biomedical and behavioral research who finish their PhDs. TEAM-Science will bridge three academic programs, the Graduate Engineering Research Scholars Program, the Center for Women's Health Research, and the Endocrinology-Reproductive Physiology graduate program. The multi-disciplinary group of training faculty for this grant are linked through research tied to improving women's health. TEAM-Science will support up to ten graduate students per year. For more information, contact Sharon Topp, Training Programs Coordinator, (608) 263-9774, stopp@cwahr.wisc.edu.

Strength Training Reduces Pain in Older Adults

Kelli Koltyn, Assoc. Professor, and Aaron Stegner, Assistant Scientist (Dept. of Kinesiology) are investigating the feasibility of a strength training program to reduce pain in older women residing in assisted living. Currently, strategies for pain management are mostly limited to the use of pain reducing drugs. However, older adults are often sensitive to the side effects of these medications. Additionally,

those with chronic pain tend to be inactive, leading to further muscle weakness and even less tolerance for activity. Little is currently known about whether strength training exacerbates pain or helps older adults manage it better. A pilot study of ten women examined the effects of an eight week, progressive strength training program using hand and ankle weights. Results indicated significant reductions in upper and lower body pain, as well as a decrease in the number of painful sites. There were also improvements in physical functioning, and moderate to large decreases in pain associated with activities of daily living, such as climbing stairs and lifting objects. These positive results point to the need for further studies with expanded samples. *Koltyn, K.F., & Stegner, A.J. (2008). Feasibility of a strength training program to reduce pain in older women in assisted living. Clinical Journal of Pain, 24(4), 369-370.*

Wisconsin Programs Prevent Falls

Jane Mahoney (Assoc. Professor, Geriatrics Sect., Dept. of Medicine) was featured in a September, 2008 webcast discussion on the novel ways that Wisconsin is addressing the prevention of falls among older adults. Accidental falls sometimes result in physical disability, loss of independence, and even death. Fall prevention can be increased through education, strength and balance exercises, vision and home safety evaluations, and assessments of whether medications are affecting gait.

The webcast was sponsored by the Center for Disease Control and Prevention and featured two successful evidence-based fall prevention programs in Madison and Kenosha.





“Sure Step” interventions include one-on-one, in-home evaluations. “Stepping On” is a group program of prevention classes that can be led by and for older adults. View the webcast at: www.publihealthgrandrounds.unc.edu

Eye Study Funded for 20 Year Follow-Up

The Beaver Dam Eye Study has received a five year grant from the National Eye Institute to perform a 20 year follow-up on its participants. Principal Investigators for the study are **Profs. Ronald and Barbara Klein** (Dept. of Ophthalmology & Visual Sciences). This population-based study began in 1987 with almost 5,000 people, aged 43 through 84, from the area of Beaver Dam, WI, and has included five year, 10 year, and 15 year follow-ups. The purpose of the study is to collect information on eye diseases that are common in the aging population, including macular degeneration, cataracts, and glaucoma, which are leading causes of blindness in the United States. Because medical treatments for these conditions are costly, inconvenient, and sometimes of limited benefit, the aim of the study is to determine what factors are associated with the risk of these conditions in order to determine if preventive measures can be taken.

One important finding from the study thus far has been the strong association between cigarette smoking and both



cataracts and age-related macular degeneration. This association has also been found by researchers who have used protocols based on the Beaver Dam study to measure eye disease in Australia, Rotterdam, and Los Angeles. The Beaver Dam data has also been used to estimate the prevalence of eye disease in the general population and to estimate its associated health care needs and costs. To date, over 250 publications have been generated from the study. For more information, see: www.epi.opth.wisc.edu/bdes.aspx



How old would you be if you didn't know how old you was?

—Satchel Paige

awards

Sterling C. Johnson (Assoc. Professor, Geriatrics Sect., Dept. of Medicine) is one of the 2008 winners of the **Tomorrow's Leaders in Alzheimer's Disease Research** award. The \$100,000 award is given to outstanding investigators early in their careers to encourage them to stay in the field of Alzheimer's research. Prof. Johnson's work uses brain imaging in conjunction with neuropsychological measurement to study cognitive disorders of memory and self-awareness. See more details at: www.alz.org/professionals_and_researchers_tomorrows_leader.asp

Betty Kramer (Professor of Social Work & member of the Comprehensive Cancer Center) was selected to receive the **National Hospice and Palliative Care Organization 2008 Distinguished Researcher Award**. This award recognizes an individual who has made substantial and sustained contributions to the enhancement of hospice care. Prof. Kramer's accomplishments include spearheading an initiative to set forth a national agenda for social work research in end of life care. Her research has focused on the distinctive nature of caregiving at the end of life, innovations in care for low-income elders with advanced chronic disease, family conflict at the end of life, and the role of social workers in palliative care. For more information, see: www.nhpco.org/i4a/pages/index.cfm?pageid=3360&openpage=3360



new findings from MIDUS

The IOA is leading this major national study of Americans with the central objectives of studying human aging as a long-term journey with important influences beginning in early adulthood, and integrating psychological, social & biological factors that contribute to successful aging. MIDUS began in 1995 with over 7000 participants. Longitudinal follow-up interviews, as well as new biological and neurological assessments, began in 2004. Thus far, over 200 publications have utilized MIDUS data and most are archived at: www.midus.wisc.edu/findings

Exercise Has Psychological Benefits

Although the physical benefits of exercise are apparent, the existence of psychological benefits has been harder to show, partly because of the difficulty of establishing appropriate control groups. In this study, a sample of identical twins from MIDUS helped to overcome this problem. Because of the twins' shared background, it is likely that any differences in their psychological measures could be attributed to the amount of exercise they get, rather than genetic or environmental factors.

Sixty three twin pairs were included in the research, with one exercising at most three times a month and the other exercising at least three times a week. Results showed that those who got more exercise had substantially greater overall well-being, as reflected in mood, optimism, control over life, and interpersonal aspects of personality. This is important because such psychological benefits may affect adherence to exercise regimes and there is growing evidence that among the elderly, links among cognitive decline, depression, and deteriorating physical health may be reversed or slowed down by physical exercise. Further, as much as 70% of the US population does not engage in regular vigorous exercise, and attrition rates in

exercise programs are high. *Johnson, W., & Krueger, R.F. (2007). The psychological benefits of vigorous exercise: A study of discordant MZ twin pairs. Twin Research and Human Genetics, 10(2), 275-283.*

Older Adults More Realistic About Life Satisfaction

Even in difficult times, feeling satisfied with one's life may be attainable. Life satisfaction is determined not only by one's current situation, but also by how the present stacks up, relative to the past and to one's expectations for the future. The authors of this study examined whether satisfaction with life varies by age, if it changes over time, and whether those who thought things would improve in the future were currently better off than those who expected things to remain the same.

This was addressed with MIDUS questions about actual and perceived changes in life satisfaction on two occasions nine years apart. Results showed that life satisfaction was generally high among respondents of all ages (in the 7.5 to 8.5 range on a 10 point scale), with no significant change in overall average satisfaction over the nine year period. The oldest age groups had the highest levels of present satisfaction, and showed no significant decrease over time, even in the face of some physical, social, and cognitive losses. Nevertheless, when perceptions of the present relative to the past and future were examined, younger adults expected things would keep getting better, but older adults anticipated decline. Older adults seemed more content with their situation, as long as they could maintain the status quo while preparing for future losses. Younger adults, who are more focused on growth and improvement, expected things to keep getting better, and may be motivated by their optimism.

The authors also found that older adults were more in tune with reality (i.e., they accurately recalled how satisfied they were in the past and they accurately predicted how satisfied they would be in the future). For all age groups,



being realistic in perceptions of the past and future was associated with more adaptive current functioning across a broad array of variables including good health, a well-adjusted personality, supportive social relationships, high well-being and perceived control, and the absence of depression. *Lachman, M.E., Roche, C., Rosnick, C., & Ryff, C.D. (2008). Realism and illusion in Americans' temporal views of their life satisfaction: Age differences in reconstructing the past and anticipating the future. Psychological Science, 19(9), 889-897.*

Social Trust Linked to Lower Depression

A growing number of studies suggest a link between mental health and community social capital, showing that individuals who are socially isolated or lacking in network ties are at an increased risk for depression. Unlike previous studies, two types of social capital were included in this research, *cognitive social capital*, which involves perceptions of trust, mutual aid and belonging, and *structural social capital*,

which involves actual behaviors, such as volunteer activities and community participation. Results showed that those who exhibited a high level of social trust (one aspect of cognitive social capital indicating whether members of a community trust each other) were less likely to develop major depression (MD). The authors theorize that living in a neighborhood with high social trust may be beneficial for depressed people because of having better access to affective support.

Through the use of MIDUS data, this was the first study to show the association between social capital and MD using a nationally represented sample and a prospective longitudinal design. Another notable finding of the study was that structural social capital was not associated with MD, emphasizing the importance of including the different dimensions of social capital in further studies. *Fujiwara, T., & Kawachi, I. (2008). A prospective study of individual-level social capital and major depression in the United States. Journal of Epidemiology and Community Health, 62(7), 627-633.*

I have enjoyed greatly the second blooming that comes when you finish the life of the emotions & of personal relations; & suddenly find...

...a whole new life has opened before you, filled with things you can think about, study, or read about...

It is as if a fresh sap of ideas & thoughts was rising in you.

—Agatha Christie



MIDJA- Midlife in Japan

An international team of investigators is carrying out a parallel of the MIDUS study in Japan—known as MIDJA (Midlife in Japan). Two important MIDJA events occurred in the Spring of 2008. First, a full day research seminar was held at the University of Tokyo. It provided an opportunity to inform Japanese researchers about MIDJA, as well as learn about related ongoing studies in Japan. Approximately 40 professors, researchers, and graduate students participated. In addition to presentations by the MIDJA research team, talks were given by scientists from several Japanese

universities. The first two sessions focused on psychosocial factors and health, with a strong emphasis on cultural orientations toward independence (more typical in the US) and interdependence (more typical in Japan). The second session focused on life course changes in well-being in the US, as well as the effects of occupational stress, work engagement, and retirement transitions in Japan. The final session focused more explicitly on psychosocial factors and biology, as well as the potential influences of cultural differences and genetic factors. The day also included time for a traditional Japanese lunch under the magnificent cherry blossoms.

A second event, also held at the University of Tokyo, involved a Public Symposium including people of all ages from the Tokyo area, as well as journalists and others from the academic and medical communities. Presentations were given by both US and Japanese scientists, and were built around the themes of culture and well-being in both countries.

Along with these two events, both intended to strengthen collaborative ties between Japanese and US researchers, MIDJA investigators launched new data collection in the city of Tokyo. To date, survey data collection is nearly complete and biological assessments are soon to begin.



Attendees by a MIDJA sign, from left to right, Hazel Markus (Stanford), Burt Singer, Carol Ryff, Gayle Love (all UW), Mayumi Karasawa (Tokyo Woman's Christian University), Chris Coe (UW). Photo by Bill Love.



Meet Our Trainees

The IOA administers the **Biology of Aging and Age-Related Diseases Training Grant**, which has been funded by the National Institute on Aging since 1990. Its main goal is to train individuals from diverse backgrounds to conduct research in the basic biology of aging and age-related diseases. For more information, see: www.biologyofaging.wisc.edu

Pre-Doctoral Trainees

Jamie Elliott, a trainee in Jerry Yin's genetics laboratory, joined us in October 2007. Her AB degree is from Ripon College. She works on the relationship between sleep and Alzheimer's disease (AD), which can be modeled in the fruit fly. She has discovered that the earliest identified phenotype in these AD model flies is a sleep impairment, suggesting that poor sleep may contribute to the progression of AD. Ms. Elliott has successfully treated this sleep phenotype in fruit flies and is now analyzing the ability of sleep inducing drugs to influence the progression of AD. If the progression can be slowed through the use of sleep-inducing agents, this therapy may prove useful for treating Alzheimer's patients and for preventing Alzheimer's development in the large segment of the population that suffers from chronic sleep disorders.

Antonio Hernández, a trainee in Darryl Thelen's laboratory in Mechanical Engineering, joined us in January 2006. He earned his BS from the Massachusetts Institute of Technology and his Master's degree from UC Berkley. Mr. Hernández's research goal is to determine how the electrical stimulation of two different lower limb muscles can alter normal healthy walking. The muscles span two joints, allowing them to display behaviors opposite to their anatomical classification, and their activity is

often altered by stroke. Manipulating the activity levels of these muscles during walking allows us to suggest what these muscles' respective contributions are to healthy and pathological gait. This information can be used by clinicians to select treatment options to improve the mobility of stroke survivors.

Donald McLaren, a trainee in Sterling Johnson's neuroscience laboratory, joined us in September 2007. He earned his BS from the University of Chicago and is researching Alzheimer's Disease (AD). His goal is to understand the biology underlying the neurological aspects of memory impairment in AD, which likely begin years, if not decades, before the behavioral manifestations. Mr. McLaren plans to study the process of human memory formation in adults and individuals with mild cognitive impairment (MCI) using functional magnetic resonance imaging. While most imaging studies focus on activity patterns, he will be looking at how brain regions are connected and how they communicate to form, or in the case of MCI, not form, a memory.

Anne Schmitz, a trainee in Darryl Thelen's laboratory in Mechanical Engineering, joined us in July 2008. She also earned her BS and MS degrees in Mechanical Engineering at UW-Madison. Her research is in computational biomechanics, with applications in the planning of orthopedic surgical procedures and the designing of rehabilitation programs. Her current focus is on developing a computer program to simulate knee surgeries and investigating the long term effects of different surgical techniques. By specifically defining the stresses placed on the knee joint and adjacent tissues, treatment strategies could be developed that minimize these forces and improve current surgical options. Ms. Schmitz's ultimate goal is to help decrease the long-term effects of degenerative joint diseases like gonarthrosis and osteoarthritis.

Post-Doctoral Trainees

Emily Thiel Farrell, a postdoc in Richard Eisenstein's laboratory in Nutritional Sciences, joined us in January 2008. She received her BS in Kinesiology and her MS and PhD in Physiology at the UW-Madison. Her research focus is on sarcopenia, or age-induced muscle atrophy, the cause of which is poorly understood. One of the hallmarks of aging muscle is the loss of function in muscle mitochondria, the powerhouse of the cell. Dr. Farrell's research is aimed at investigating the interrelationship between this

UPCOMING EVENTS IN MADISON, WI

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UW Emeritus Faculty Lectures
Sundays through April 26, 2009
(608) 262-3733

Wisconsin Symposium on Emotion
April 23-24, 2009

Wisconsin Osteoporosis Symposium
June 19, 2009
(608) 240-2141

Current Concepts in Nutrition and Aging Conference
September 17, 2009
(888) 391-4255

Institute on Aging 21st Annual Colloquium
October 1, 2009
(608) 262-1818

For more information, see aging.wisc.edu



(FROM LEFT TO RIGHT) Andrew Wiemer, Thomas Tubon Jr., Daniel Miller, Jamie Elliott, Anne Schmitz, Donald McLaren, Antonio Hernández

The MIDUS Touch: a Successful 20th Annual IOA Colloquium

Registration was full (at over 350) for our free public Colloquium on Aging held in September, 2008 in Madison, WI. To celebrate our 20th anniversary, this year's event showcased the IOA administered MIDUS study with five speakers from universities around the country sharing their research findings.

SPEAKERS

David Almeida: *Does Daily Living Wear You Out?*

Margie Lachman: *Can Cognitive & Physical Decline with Aging Be Prevented or Delayed?*

Daniel Mroczek: *Does Being Neurotic Affect How Long You Live?*

Joseph Grzywacz: *Does Achieving Work-Family Balance Contribute to Better Health?*

Carol Ryff: *Healthy Aging—Why Do We Need an Integrative Approach?*

PDFs of speaker presentations can be viewed at:

www.aging.wisc.edu/outreach/colloquium.php

IOA 2008 NEW INVESTIGATORS IN AGING AWARD RECIPIENTS

(middle photo, left to right)

Psychosocial Aspects: **SunWoo Kang**

Biomedical Aspects: **Thomas Tubon, Jr.**

Clinical/Applied Aspects: **Judith Dewane**

Health Screenings & Local Aging

Resources were available at

our Health Fair



You're Invited! Join us on Oct. 1, 2009 at Monona Terrace

loss of muscle mitochondria and the ability of muscle to properly control iron metabolism. She hypothesizes that loss of mitochondrial function in sarcopenia contributes to dysregulation of iron metabolism and muscle iron overload. This accumulation of iron may promote oxidative stress, which further exacerbates the loss of mitochondrial function in the muscle. She therefore plans to test the concept that dysregulation of tissue iron metabolism has a unique and unanticipated role in the development of sarcopenia.

Daniel Miller, a postdoc in Barry Ganetzky's genetics laboratory, joined the training grant in October 2008. He earned his BS at Michigan Technological University and his PhD at Princeton. His work has implications for understanding neurodegenerative disorders that affect neurons in the brain and spinal cord, such as Alzheimer's, Parkinson's, and Huntington's disease. Dr. Miller studies the molecular and functional characterization of genes that are required for normal neuronal aging in fruit flies. Thus far, he has identified over 20 new mutations that cause severe age-dependent neurodegeneration. Identifying the underlying molecular defects, analyzing ways in which the affected gene products function, and determining how these genes and pathways contribute to neuronal maintenance will advance our understanding of the basic mechanisms that ensure neuronal survival as an organism ages.

Thomas Tubon, Jr. joined the training grant in July 2007 as a postdoc in Jerry Yin's lab in Genetics. He earned his BS at San Diego State and his PhD at SUNY at Stony Brook, NY. His work focuses on the changes in mitochondrial functioning known to accompany the normal aging process. Mitochondria are the structures within cells that produce energy for cellular functions. Their accelerated decline has been linked to the progression of many neurodegenerative diseases including Alzheimer's and Parkinson's. Dr. Tubon's current research emphasizes how factors in nuclear transcription (the process whereby DNA synthesizes RNA) can alter aging and disease. He is focusing on Cyclic AMP Response Element Binding protein (CREB), a transcription factor which can affect long-term memory, adversely alter lifespan, and lead to characteristics reminiscent of many neurodegenerative diseases.

Andrew Wiemer started in October of 2008 as a postdoc in Anna Huttenlocher's lab in Medical Microbiology and Immunology. He earned his BS from Notre Dame, his MS at Colorado State, and his PhD at the University of Iowa. His research is focused on immune cell migration in inflammatory diseases such as arthritis. Dr. Wiemer is using mouse models of rheumatoid arthritis to pursue his goals, which are to identify potential therapeutic targets and to develop methodologies for screening chemical libraries, and to identify novel migration-targeted compounds. The ultimate goal of his research is to translate these novel compounds into clinical trials for arthritis.

IOA website... *New & Improved!*

The Institute on Aging website has had a well-deserved makeover. It is now even more visually exciting and has even more dynamically rich content:

IMPROVED NAVIGATIONAL FLOW: We now present visitors with key main topics of interest, including

- Research (Affiliate bios, MIDUS information, etc.),
- Education (our Gerontology certificate, PhD focus on aging, & training grant),
- Outreach (events), and
- Opportunities (job openings, educational opportunities, etc.)

A "WHAT'S NEW" SECTION: has been added to our home page.

It informs visitors of upcoming lectures or special events, and includes listings of recent research findings from poster presentations and publications from many of our Affiliates.

UP-TO-DATE RESEARCH: As new articles are published by our affiliated faculty and researchers, they are also added to our searchable database (under Research). This dynamic tool allows us to provide visitors with the most up-to-date research findings possible.

BROCHURES, NEWSLETTERS & PRESENTATIONS: We now also have available electronic versions of this newsletter (under About Us), aging related brochures, and multimedia PowerPoint presentations from various IOA sponsored events and presentations.



www.aging.wisc.edu

Remember to visit often, as we hope to continue offering exciting new findings and information for those interested in aging research on the UW-Madison campus.

institute on **aging**

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*"Beautiful young people
are accidents of nature,
but beautiful old people
are works of art."*

—Eleanor Roosevelt

