

AGING Notes

UNIVERSITY OF WISCONSIN INSTITUTE ON AGING

SUMMER 2006



Advances in Aging Health

Sleeping Well and Having Good Friends May Lower Risk of Disease

Elliot Friedman

Robert Wood Johnson Health & Society Scholar

UW Department of Population Health Sciences

Interleukin-6 (IL-6) is a protein that typically accumulates in the blood with age, and higher levels of IL-6 in the blood predict a range of age-related illnesses, including heart disease, cancer, and diabetes. While some of this increase may be due to natural changes in the body that happen slowly over time, IL-6 levels are also very sensitive to many kinds of external influences, including mood, stress, and how much people sleep. Typically, scientists examine how each of these influences affects IL-6 individually.

But that's not how people function – stress can alter sleep. So can mood. In other words, levels of IL-6 are typically determined by multiple influences. We were interested in assessing how these multiple influences might interact in predicting IL-6 levels in the blood.



To address this question we measured IL-6 in the blood of approximately 100 older women, aged 60-90. We also

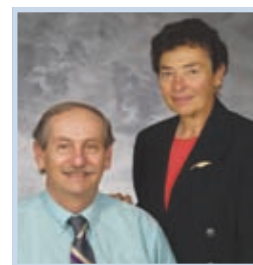
asked them a lot of questions about their lives, including the strength of their social relationships, how often they experienced positive and negative emotions, and how well they typically slept. We also asked them to wear a special device that measured their sleep for four nights in their homes. Our results showed that women with strong social ties had lower levels of IL-6. Those that slept better (fewer awakenings during the night) also had lower IL-6 levels. What was particularly interesting, though, was that sleep and social relationships seemed to compensate for one another. That is, even if some of the women slept poorly, if they had strong social relationships, their levels of IL-6 were just as low as women who slept well. The same was true for women who were more lonely: if they slept well, their IL-6 levels remained low. Only those women who had weak social ties and slept poorly had

high levels of IL-6. These results were published in the journal, *Proceedings of the National Academy of Sciences* in December, 2005.

This study showed the importance of considering the ways in which multiple aspects of peoples' lives interact to influence their biology. They also highlight the existence of protective factors that might help people to reach their later years in good health.

Intraocular Pressure, Glaucoma and Ocular Refraction Can be Hereditary

Open angle glaucoma causes loss of vision, especially side or peripheral vision in



older adults. The Beaver Dam Eye Study currently being conducted by Drs. Barbara and Ronald Klein, UW Department of Ophthalmology, has confirmed that a combination of genetic and environmental interactions can increase a person's chance of developing intraocular pressure, the most important risk factor for the development of open angle glaucoma. Dr. Klein stated that refractive errors are common, often requiring glasses, contact lenses or surgical correction and may be associated with vision complications. The familial

In this Issue

Sleeping Well, Friends.....	1
Intraocular Pressure, Glaucoma, Occular Refraction.....	1
Alzheimer's Disease & Aging ...	2
MIDUS Report.....	3
Balanced Approach to Falls.....	4
Physical Activity & Cancer.....	4
Aging Research Participation...	5
Trainees Supported by Grant...	6
18th Annual Colloquium	7
Calendar of Events	8

continued page 2

Advances in Aging Health (continued from page 1)

Intraocular Pressure, Glaucoma and Ocular Refraction Can be Hereditary

aggregation of refractive errors has been demonstrated in many populations through studies of varying designs. These studies have found additional areas in the

genome that appear to be linked to refractive error. The Drs. Klein will continue to focus their research on the genetic components that may contribute to glaucoma and

refractive errors. This research will be conducted in conjunction with investigators at the National Human Genome Research Institute, and the Bloomberg School of Public Health at Johns Hopkins University.

Alzheimer's Disease and Aging: Can We Prevent It?

Aging is recognized as the single most important risk-factor for Alzheimer's disease. In fact, the incidence of this form of dementia increases rapidly during aging and the prevalence doubles with every decade of life after the age of 50. Almost 45% of the individuals age 85 or older have signs of Alzheimer's disease.

The molecular explanation for this strong connection between aging and Alzheimer's disease has managed to elude us so far. In a new paper distributed by the European Molecular Biology Organization (EMBO J 2006; 25: 1997-2006), a team of investigators from the University of Wisconsin-Madison and the University of Virginia, led by Luigi Puglielli (Department of Medicine), has now identified the first possible cause of this relationship. Surprisingly, the connection involves the same genetic pathway (the insulin-like growth factor 1

receptor) that seems to regulate lifespan in all organisms. During aging there is a naturally occurring increase in the expression of the

*"The risk of
dementia doubles
every decade of life
after age 50."*

Luigi Puglielli
Assistant Professor
Department of Medicine
(Geriatrics)

insulin-like growth factor 1 receptor that leads to changes in the expression levels of neurotrophin receptors in the brain. Ultimately, this event leads to increased production of amyloid beta-peptide, which is responsible for the development of Alzheimer's disease.

The study employed a complex array of biochemical, cellular, and genetic approaches, coupled with the analysis of a murine model of premature aging.

The "chase" for the link started almost three years ago when the group of UW investigators discovered that a lipid (ceramide) found increased in the brain of patients affected by Alzheimer's disease could stimulate the production of amyloid beta-peptide in cellular systems.

These findings are very important because they finally provide a target that can be used for the development of therapeutic approaches for the prevention of Alzheimer's disease. There are currently 4.5 million individuals affected by this disorder but the number is expected to increase to approximately 16 million by 2050, becoming major health and economic issues for our society.

Volunteer Opportunity

The Wisconsin Alzheimer's Institute is looking for study participants, who are between the ages of 40 - 65, with a mother who survived to 75 or greater and a father who survived to 70 or greater, without evidence of dementia or Alzheimer's disease. For more information, please contact Janet Rowley at 608-829-3306, 1-800-417-4169, or jsrowley@wisc.edu.

MIDUS

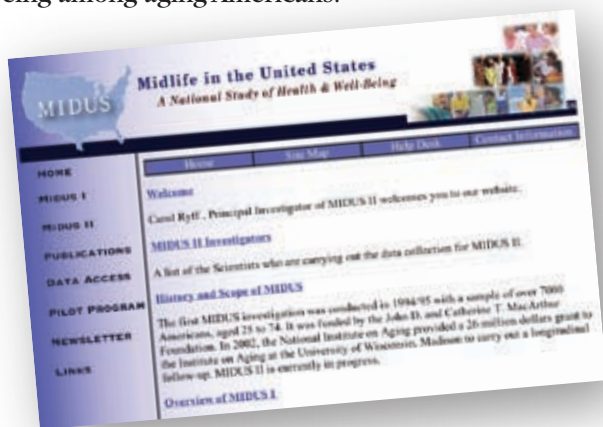
Midlife in the United States

A National Study of Health & Well-Being

Sponsored by the National Institute on Aging

MIDUS II Progress Report:

A major milestone has passed in our national study of Americans! This past spring we completed phone interviews with nearly 5,000 adults (aged 32-84) from all over the U.S. Thanks to the excellent work of the University of Wisconsin Survey Center, we were successful in bringing over 75% of the original sample, all of whom were first interviewed in 1994/95, back into the study. These generous individuals also completed lengthy questionnaires about their health and well-being, work and family life. Nearly all of them also participated in a second phone call devoted to cognitive assessments related to aging changes in memory and problem solving. A further stride forward has been the recruitment of a new sample of African Americans from Milwaukee. We had hoped to bring 400 minority respondents from Milwaukee into the study, but ended up with a sample of nearly 600 individuals! Their presence in MIDUS will help us evaluate how race and ethnicity influence later life health. Building on these successes of Project 1, we now have four remaining MIDUS Projects in the field - these bring new information about daily stress, cognitive function, biology, and neuroscience to the scientific agenda. In short, MIDUS II is well on its way in conducting a major multidisciplinary long-term study of health and well-being among aging Americans.



Visit our website at www.midus.wisc.edu, which now includes over 180 publications from the original study!

New Findings From MIDUS I:

While we are busy collecting new longitudinal data from MIDUS respondents, many scientists around the country are continuing to publish scientific results from the first round of data collection. Here are some recent examples:

- ◆ **Depression and Allergy** – People in the study who are depressed are at increased risk for allergy, although this effect is particularly strong for women (even after adjusting for demographic characteristics and general levels of neuroticism). Although major depression and allergy were not linked for men, their levels of neuroticism were associated with self-reported allergy. [Goodwin *et al.*, 2006, *Psychosomatic Medicine*, Vol. 68, pp.94-98]
- ◆ **Adult Children's Problems and Parents' Well-Being** This study used the MIDUS twin sample and first found that people's perceptions of their financial status were largely independent of their actual wealth. Single parents reporting more child problems had lower positive affect than comparable married parents, but married parents reporting more child problems also reported poorer parent-child relationships. [Greenfield & Marks, 2006, *Journal of Marriage and the Family*, Vol. 68, pp.442-454]
- ◆ **How Money Buys Happiness** – This study used the MIDUS twin sample and first found that people's perceptions of the financial status were largely independent of their actual wealth. They then found that the link between actual wealth and life satisfaction was fully explained by people's perceptions of their financial status and their sense of control over life. [Johnson & Krueger, 2006, *Journal of Personality and Social Psychology*, Vol. 90, pp.680-691]

A Balanced Approach to Falls Prevention

Jane Mahoney, M.D., Associate Professor, Department of Medicine (Geriatrics)

Falling has always been, and continues to be, a large concern for the elderly population. Wisconsin has the second highest rate of death from falls in the United States. In Wisconsin, among persons 65 and older, 67.2% of unintentional injury deaths are fall-related compared to 32.7% for the general population. Falls also account for more than half of all Wisconsin's injury-related hospital admissions and greatly increase an older person's risk of nursing home placement.

*Wisconsin has the
2nd highest rate
of death from falls
in the US.*

As these figures continue to grow, the need for intervention becomes more apparent. Fortunately, current research in Kenosha County on falls prevention has yielded promising results through the use of an intervention program called Sure Step. This individualized, multi-factorial falls intervention developed by Jane Mahoney, M.D. of the UW-Madison School of Medicine and Public Health, and Terry Shea, PT of the University of Wisconsin Hospitals and

Clinics, uses an in-home, multi-factorial algorithm to assess and recommend appropriate interventions to individuals at high risk of falling. The algorithm triggers referrals to physical therapy, occupational therapy, and other providers, and leads to recommendations to the primary physician regarding medication changes or a need for further evaluation. Sure Step includes two in-home visits by a trained therapist or nurse, followed by eleven monthly phone calls to problem-solve and assist with implementation of referrals and other recommended changes.

Dr. Mahoney tested Sure Step in a one-year, randomized, controlled trial. Participants were 349 adults in Kenosha County, Wisconsin aged 65 and over, with risk factors for falls. In this trial, 174 participants received the multi-factorial intervention (Sure Step) and 175 participants formed the control group. The control group received 1 home safety visit only, and the number of falls, nursing home admissions and days, and hospital admissions and days were evaluated over a one-year period.

Overall, results showed that the Sure Step intervention significantly decreased nursing home use by 10 days per year, from 20.5 days in the control group to 10.3 days in the intervention group. Although the overall results yielded no significant decrease in number of falls, there was a 45% decrease in falls for participants who had possible cognitive impairments. The results were most striking for the subgroup of people with possible cognitive impairment who lived with a caregiver. For those with possible cognitive impairment who lived with a caregiver, the Sure Step intervention resulted in a 55% reduction in the rate of falls, a 56% reduction in hospitalizations, a decrease in nursing home admissions by 85%, and a decrease in nursing home days from 58 to 7.5 days per year.

These results indicate a possible solution to this serious threat to the well-being of the elderly population in Wisconsin. Through a grant from the Wisconsin Community-Academic Partnership Fund to the Kenosha County Division of Aging, Dr. Mahoney and the Kenosha County partners will provide a series of three-day Sure Step trainings. The goal of these sessions is to train health professionals throughout Wisconsin to provide the falls prevention program to cognitively-impaired older persons who are at a high risk of falling.

continued page 6

Physical Activity: A Cancer Preventative?



Lisa Colbert, Ph.D., M.P.H., is an Assistant Professor in the UW Department of Kinesiology and affiliate of

the Institute on Aging. Dr. Colbert is studying the effect of physical activity in the prevention of cancer; benefits of an active lifestyle for cancer survivors, and mechanisms of cancer risk reduction. Other research interests include how physical activity in the elderly affects various outcomes and physiological markers including physical function, lean mass, body fat, inflammation, and insulin-like growth factor-1. In a recently-initiated study, she is surveying Wisconsin colorectal cancer survivors over the age of 65 about their physical activity, pain, and physical function. A subset of Dane County participants will be invited to the UW Hospital & Clinics to have their physical function, body composition, and markers of inflammation directly measured.

Dr. Colbert received her Ph.D. and M.P.H. degrees from the University of South Carolina. Her Ph.D. dissertation title was "Exercise Effects on Mouse Models of Cancer and the Expression of Inflammatory Cytokines." Previously, she was a Senior Research Fellow in the Laboratory of Epidemiology, Demography, and Biometry at the NIH National Institute on Aging and a Cancer Prevention Fellow for the NIH Division of Cancer Prevention at the National Cancer Institute. She is a member of the American Society of Preventive Oncology, American College of Sports Medicine, and the American Association for Cancer Research. She is also an affiliate of the Department of Population Health Sciences and The Comprehensive Cancer Center.

How Can I Become a Participant in Aging Research?

Registry offers opportunity to participate in aging research.

The Institute on Aging (IOA) is comprised of faculty affiliates, who are conducting diverse research studies related to aging. These researchers are from 45 different departments across campus. The studies use a variety of resources, including human volunteers. In an effort to assist with and encourage studies involving human volunteers, the IOA developed a "Volunteer Registry" in 1994. The registry was modeled after a program designed and implemented by the University of Michigan to partner individuals interested in participating in research projects with investigators who direct the projects.

Over the past 12 years, IOA faculty affiliates have used the Registry to conduct research in areas such

as nutrition, memory/Alzheimer's disease, eye disease, osteoporosis and cancer. These studies may involve questionnaires, phone interviews, blood tests, and testing of new medications. Recruitment for these studies can be a challenge due to limited resources and the ability to identify individuals interested in participating. The Registry is a database that includes basic contact information, including the type of studies in which an individual is willing to participate.

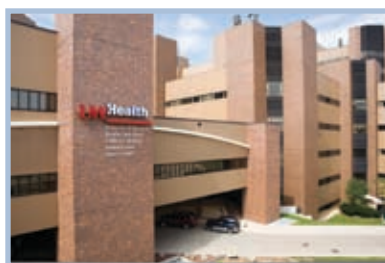
It also includes a brief medical history to help researchers identify eligible participants. Volunteers are not obligated to participate in studies, and inclusion in the Registry simply grants permission for a limited number of faculty members officially affiliated with the Institute on Aging to send information about the research. For example,

if participants are needed for a vitamin D study, a database search is performed to select individuals who have indicated that they might be interested in this area of research. Information about the study is mailed, and interested individuals may call the researcher for more information or to discuss potential participation.

The Registry includes thousands of names, and information is sent out on approximately five studies

per year. Past study participants have stated that the research experience was educational and rewarding in that they feel they have contributed to the advancement of scientific knowledge.

If you are interested in more information regarding the Volunteer Registry, please contact the Institute on Aging at 608-262-1818, and you will be mailed material describing this project.



Auerbachs Preparing a Treatise on the Evolution of Endothelium Cell Science

Robert Auerbach, Senior Scientist at the Institute on Aging and Emeritus Professor of Zoology, received a two-year grant from the National Library of Medicine at NIH to write a book titled "Endothelial Cell Heterogeneity: Earliest Findings to Present-Day Understanding."

In their treatise, Robert and Wanda Auerbach, Senior Editor at the Institute on Aging, intend to review the evolution of current thinking about the endothelium, a tissue, which is comprised of the cells that line the blood and lymphatic vessels. Although historically considered to be passive and uniform in nature, modern technologies demonstrate that the endothelial cells are more diverse and active than had been previously believed. The Auerbachs will use information provided from the most recent technological developments to interpret historical findings about endothelial cells. This integrative approach will examine the connections between past and present research and their influence on the current recognition of endothelial cell diversity.

Trainees Supported by NIA Grant

The Biology of Aging and Age-Related Diseases Training Grant, funded by the National Institute on Aging, is a multidisciplinary program that provides annual support for four predoctoral students and four postdoctoral fellows. Following are profiles of two trainees.



Joseph Dobosy joined the IOA training grant as a postdoctoral fellow in April 2004, after completing his Ph.D. degree in Biology at the University of Oregon-Eugene. He is currently working in the laboratory of Dr. David Jarrard, researching the effects of oxidative stress

and aging on epigenetic changes in prostate cancer (alterations to proteins of DNA that do not alter the DNA sequence). Dr. Dobosy noted that prostate cancer is one of the most common cancers found in men, and it is more prevalent in older age groups. His research has found that epigenetic changes can affect the development of cancer as much as changes in the DNA itself. Dr. Dobosy feels that understanding pre-cancerous and cancerous stages can lead to better diagnoses and treatments.

"Participation on the NIH training grant has increased my knowledge and understanding of both aging and prostate cancer and has given me the opportunity to learn many techniques associated with cancer research," said Dr. Dobosy. He also indicated that the bi-monthly training grant meetings have given him the opportunity to exchange information with a diverse group of researchers, both faculty and students, who are doing research in the field of aging.

Dr. Dobosy indicated that he plans to continue his research on prostate cancer after leaving the grant, and stated that, "As I move forward in my career, I will always be grateful for the opportunities afforded to me by this terrific training grant."



Philipp Raess joined the training grant as a predoctoral fellow in February 2005, and he is working toward his Ph.D. in Biochemistry as part of the UW-Madison Medical Scientist Training Program (MD/PHD.)

Mr. Raess developed an early interest in science

during a high school summer science program. As an undergraduate at Indiana University, he joined an electroanalytical chemistry research lab where he studied specific techniques in analytical chemistry. After joining the UW-Madison MD/PHD program, he became interested in clinically applied research and began working in Dr. Alan Attie's laboratory researching molecular and genetic factors that determine susceptibility to type 2 diabetes. His research has been focused on the susceptibility of obese mice to type 2 diabetes in the hopes that his studies can identify factors which may predispose or protect people from developing type 2 diabetes.

Bi-monthly training grant meetings have given Mr. Raess the opportunity to collaborate with faculty and students on campus who are taking different and complementary approaches to research in the field of aging. The grant also provided an opportunity for him to present his own research findings at an international meeting and to learn about new advances in diabetes research. Mr. Raess feels that the training he has received from this experience will allow him to pursue his goal of performing cutting-edge biomedical research in addition to seeing patients in a clinical setting.

A Balanced Approach to Falls Prevention (continued from page 4)

While the Sure Step program may provide the promise of decreasing falls and reducing institutionalization for high risk older adults, Dr. Mahoney hypothesizes that building the program on a bedrock of enhanced education in falls prevention for primary physicians and physical therapists will increase the program's success. She is currently conducting a five-year randomized trial in Dane County and surrounding areas to

investigate this possibility. The Dane County SAFE Study, funded by the Centers for Disease Control and Prevention, will evaluate whether a program of education for primary care physicians and physical therapists will enhance the effectiveness of the

Sure Step multi-factorial intervention to decrease falls. Results of this study should be available in late 2006. To find out more information about Sure Step, call Sandy Cech at (262) 605-6646 or e-mail scech@co.kenosha.wi.us.

WANT TO LEARN MORE ABOUT LONG-TERM CARE FINANCING?
The Henry J. Kaiser Family Foundation Commission on Medicaid and the Uninsured offers a tutorial on their web site at
<http://www.kaiseredu.org/tutorials/longtermcare/lontermcare.html>

18th Annual Colloquium on Aging

October 18 • Monona Terrace Convention Center

KEYNOTE ADDRESS

"Visions for Aging: Gerontopia or An Ageless Society?"

Ronald Manheimer, Ph.D.



Executive Director; North Carolina Center for Creative Retirement; Research Professor of Philosophy at the University of North Carolina at Asheville; Fellow of the University of North

Carolina Institute on Aging, and past director of Older Adult Education for The National Council on the Aging in Washington, D.C. He is trained in philosophy with a Ph.D. from the Board of Studies in History of Consciousness, University of California, Santa Cruz.

Dr. Manheimer has combined scholarly and practical interests through developing educational programs for retirement-aged people in colleges, universities, libraries, senior centers, nursing homes and retirement communities. His book, *Kierkegaard As Educator*, explores the Danish philosopher and theologian's stages of human development, and he has published numerous studies investigating philosophical issues of later life and human development. He currently publishes in the *Where to Retire* magazine and the *Wall Street Journal* and has been a contributing editor to the *Creative Retirement* magazine. Dr. Manheimer is also a consultant to organizations seeking to start or expand lifelong learning programs and to communities seeking to attract retirees as a dimension of economic development.

* UW Extension Continuing Education Units (0.5) will be offered for full participation.

*** PRE-REGISTRATION IS REQUIRED.**

A brochure with registration information will be mailed in September. If you are not already on the IOA mailing list and would like to receive information about the Colloquium, please call Marty Quimby at (608) 261-1493. Registration will also be available online at www.aging.wisc.edu.

"Facing the Inevitable?: How Older Adults Prepare for End-of-Life Health Care Concerns"

Deborah Carr, Ph.D.

Associate Professor; UW Department of Sociology and Rutgers University

The Terri Schiavo controversy in 2005 raised Americans' awareness of the importance of end-of-life planning. However, we know very little about how Americans plan for the end of life. Who has a living will? Who do older adults appoint to make health care decisions for them? And why? This presentation will document the ways that older Wisconsin residents think about and make plans for their health care needs at the end of life. Among the most important influences on such plans are one's values, their family relations, and their encounters with the deaths of loved ones. The implications for policy and practice will be discussed.

"Immunization: Taking A Shot At Protection Across the Lifespan"

Mary Hayney, Pharm. D.

*Associate Professor
UW School of Pharmacy*

Immunization is not just for kids. Influenza and pneumonia are among the top ten causes of mortality in this country. Approximately 90% of those deaths are in individuals over age 65 years. Broader immunization coverage promises to make a large dent in that statistic. Immunization of older adults presents some biological challenges though. New vaccines, new vaccine recommendations and recent research developments in immunization will be presented.



"The Creation of Health: 5 Foundations That Allow the Body to Self-Heal"

David Rakel, M.D.

Assistant Professor; UW Family Medicine and Integrative Medicine

Creating health is a dynamic process that involves genetics, nutrition, environment, emotions and spirituality. We will review how our personal choices can create an environment that can facilitate health by setting in motion those factors that result in our genes' ability to express healthy proteins. We will explore 5 key ingredients that will stack the deck in favor of the body's ability to self-heal.

Health Fair

- ♦ Alzheimer's Disease ♦ Immunizations
- ♦ Alternative Medicine ♦ Osteoporosis
- ♦ Swallowing Disorders ♦ Memory Disorders ♦ Stroke Prevention
- ♦ Volunteer Opportunities ♦ Falls Prevention ♦ Housing Options

Screening Assessments

- ♦ Bone Density ♦ Blood Pressure

Poster Session

UW researchers are invited to showcase information about their research in aging.

Award Presentations

The Institute on Aging makes two awards each year to recognize outstanding achievement in the areas of biomedical and psychosocial research in aging or life course studies by new investigators, while they are students or advanced trainees at the UW-Madison. A new award will be given this year for clinical/applied research in the field of aging.

Emily Greenfield,
2005 recipient of the psychosocial research in aging award, presented by Carol Ryff, director of the Institute on Aging

Calendar of Events

April 26-27, 2007

Emotion Symposium
608-263-6161

September 28, 2006

Current Concepts in Nutrition and Aging
608-265-9101

October 18, 2006

18th Annual Colloquium on Aging
608-261-1493

Institute on Aging

Director

Carol D. Ryff, Ph.D.
Professor of Psychology

Associate Director

Neil Binkley, M.D.
Associate Professor of
Medicine (Geriatrics)

Editorial Team

Marty Quimby
Kay Smith

Technical Assistance

Jim Porter

If you wish to submit an article or other information for this newsletter, please contact Marty Quimby at (608) 261-1493 or aging@ssc.wisc.edu

For more information on IOA
www.aging.wisc.edu

Graphic Design:
Media Solutions
<http://media.med.wisc.edu>