

AGING EXCHANGE

Tracking the Way We Age

1965 1975 1985 1995 2005 2015 2025 2035 2045
1970 1980 1990 2000 2010 2020 2030 2040
CALC
Center on Aging and the Life Course
Optimal Aging - For Life

Summer 2013

Interior Design for Optimal Aging

The study of aging can be approached by many different disciplines, and this intellectual diversity grew when a Hyun Joo Kwon, Ph.D. became a Faculty Associate of the Center on Aging and the Life Course.

Kwon is Assistant Professor in the Interior Design program for the Patti and Rusty Rueff School of Visual and Performing Arts as well as a CALC Faculty Associate.

As an undergraduate, Kwon double majored in Interior Design and Architecture. After graduation, she had the opportunity to work at an interior design firm for two years, specializing in residential, public spaces, and office designs. The design firm had a research center, and she was soon given the opportunity to help design a large condominium complex.

As Kwon explains, “I was very impressed with the way professional researchers were planning a study and analyzing data to understand

residents’ lifestyle, needs, and behavior in a built environment. Results from the research were definitely helpful for designers.” She

family and friends.” She honors these preferences and designs living environments that meet the evolving needs of older adults.

“I study the relationships between individuals and environments, which are directly related to quality of daily life.” A focus on Kwon’s recent research is multifamily housing (apartments or condominiums) as a viable option for later life. She believes there are many benefits for older adults dwelling in this type of housing, including security, sense of community, and amenities.

Interior design addresses both

functional and aesthetic elements. People may think that interior design is choosing beautiful materials or decorating a space. For optimal aging, however, interior designers study human behavior and create spaces that embody five principles: *safe, accessible, adaptable, attractive, and affordable.*



Dr. Hyun Joo Kwon in Pao Hall, home to the Patti and Rusty Rueff School of Visual and Performing Arts.

photo credit: Jane Hahn

decided to go to graduate school—at Virginia Tech—to do an in-depth study about residential environments that help people with special needs.

Kwon is especially interested in aging-in-place: “People experience many changes as they get older—and most people want to remain in their homes, or at least in the community where they have their

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Older adults tend to spend more time in their home than younger people. They may also experience some types of functional limitation. "I want to support their quality of life with good design," says Kwon. "As we know well, the aging population is growing in many countries. Improving older adults' quality of housing is beneficial not only for older adults but also for their families and society as a whole."

One of professor Kwon's recent designs, shown below, is a 3-bedroom floor plan. Several features of this plan are ideal for older adults.

First, the great-room concept provides plenty of open space and natural light.

Second, mobility is more manageable because there are no stairs to navigate; the living space is all on one floor. In addition, no threshold in the unit exceeds 1/2." Hard surfaces aid mobility, especially if a cane or walker is needed.

Third, notice the color contrast within the images at right. Visual contrast aids perception and spatial orientation.

Other features that may not be as apparent include: lever handles, which are easier to grasp; door openings of at least 32" (36" if wheelchair use is anticipated); under-cabinet lighting; knee space under countertops; and raised toilet.

M. Powell Lawton was a pioneering gerontologist studying the fit between older persons and their environments. With Lucille Nahemow, he developed the model of *environmental press*. The model specifies that all people need some level of environmental challenge to maintain their functional ability. Stairs are a challenge for many older people, but they work muscles and require motor function that can be good over the long term.

For Lawton and Nahemow, the key to optimal aging is to match the environmental challenge to the functional ability of the older person. When the environmental press (or challenge) exceeds the functional ability of the older person, maladaptive behavior is likely. Thus, interior designers seek to create environments that appropriately balance demands and functional ability (competence).

Kwon derives satisfaction from designing an environment that enables a person to maintain his or her independence.

After she came to Purdue, she was looking for people in other disciplines whose studies include older adults. "I was very excited when I found CALC from the Purdue website and surprised by how many researchers are studying the aging population from different disciplines," says Kwon. After a meeting with Ken Ferraro, CALC Director, she became a Faculty Associate. Now she adds to CALC's intellectual breadth by studying how interior design can aid optimal aging. "I am learning so much from CALC seminars and workshops. I hope to have a chance to share my research with people in CALC."

JMH & KFF

We shape our buildings; thereafter they shape us.

Winston Churchill

Below: 3 Bedroom Floor Plan for Multifamily Housing



Building Relationships with *University Place*—

A Continuing Care Retirement Community

Mary Marshall and Brittney Muir

The University Place Intervention Research Initiative began in July 2009. The goal of this initiative was for faculty and graduate students to give back to the residential community that participates in Purdue research, University Place. This reciprocal relationship has been quite successful with numerous research projects, a repeating classroom experience, and a new technology assistance program.

To date, five research projects have been conducted through the CALC offices at University Place, including:

- Heart Health (Drs. Kimberly Plake, Karen Yehle, and Aleda Chen)
- Hearing and Cognition (Dr. Alex Francis)
- Balance and Mobility (Dr. Jeffrey Haddad, Dr. Shirley Rietdyk, and Brittney Muir)
- The Effects of Aging on Linguistic Speech Prosody (Dr. Jessica Huber and Daniel Barnes)



Fred Fredricks (right) training on the Biodex balance system, supervised by Emily Meyer (left).

- Protein Requirements in Octogenarian Women (Dr. Wayne Campbell and Minghua Tang).

These research projects, past and present, have been very successful and would not have been possible without this relationship between Purdue University and University Place.

In addition to conducting these research

projects, a balance and mobility class conducted by Dr. Shirley Rietdyk and Dr. Jeffrey Haddad along with graduate students Brittney Muir and Tiphonie Raffegau, has emerged. In this class, undergraduate students many of whom have aspired to be physical or occupational therapists, participate in two lectures a week where recent studies on aging and balance and mobility interventions are discussed. Once a week the students go to University Place and work directly with residents, applying their newfound knowledge, to help the residents and a few community members with their balance, mobility, and fitness goals.

To date, the research and balance class has engaged over 120 residents of University Place and several community members, 5 graduate students, and over 100 undergraduate students. The balance and mobility project has also been featured in the health section of the *Lafayette Journal and Courier*. More generally, the five projects have already led to 8

(continued)



Motor function in older adults class does zumba gold. Left to right Emily Meyer, Erika Lewis, Sandra Weinhart, and Mandy Lira.



Stephen Armet (left) and Nina Kirkpatrick (right) taking a peaceful stretch after a workout.

articles, 6 awards, and 3 research grants with 2 more proposals pending. Overall this initiative has been successful for all involved.

Tech Night

The newest addition to the Purdue University - University Place Initiative has been the CALC technology tutoring program. Students from multiple departments attended the first meet-and-greet session for the technology assistance program in March. The motivation for the program was to help residents with various devices such as iPads, iPhones, printers, and setting up contact lists within emails.

Erica Hegland, a dual-title PhD student in Audiology and Gerontology, has been working with a resident for the past few weeks on a photograph project, "I have had the great pleasure of working with one of the residents on a memory book. I initially went there to help with the technical side - getting the scanner working and figuring out the best way to crop photos, etc. Now I go to hear about her memories of life on the farm and to help her create a memory book that her family will cherish. I look forward to our visits together."

The residents appreciate the assistance, with many inviting students to dinner to thank them for their help, and the students enjoy meeting and working with the residents. A reciprocal relationship was formed as we went to help the residents with their technology issues, but we ended up learning just as much from them as they did from us. Both students and residents look forward to continuing with this technical assistance program next semester.



Above: Students introduce themselves at the CALC technology tutoring program

Below: Ken Ferraro, director of CALC, talks with University Place residents



Above and left: Students discuss technology issues with University Place residents

photo credits: Lawrence Marshall

Sarah Mustillo: Running Well

Sarah Mustillo joined Purdue University as Associate Professor of Sociology and a Faculty Associate of the Center on Aging and the Life Course in 2007. By all accounts, she has been running well ever since as a professor and a marathoner.

After earning the PhD in sociology from Duke University in 2001, she joined the Department of Psychiatry and Behavioral Sciences at the Duke School of Medicine. At Purdue, she has mostly taught statistics courses. Her research interests center on mental health, statistical methods, children and youth, and the intergenerational family relations.

In 2013 she was named a University Faculty Scholar and won a fellowship from the Center for Undergraduate Instructional Excellence for the project entitled: *Revealing the Power of Data*.

Graduate students rave about her courses, especially because of the clarity of her presentations. As one CALC student remarked, "I took a research methodology course with Dr. Mustillo and I was amazed at her ability to make the material interesting by using creative examples. For example, she baked homemade cinnamon bread and brought it to illustrate a type of methodology with the swirls of cinnamon."

According to Lindsay Wilkinson, a PhD candidate in sociology and gerontology, "Professor Mustillo is incredibly knowledgeable about statistics, and what's great about her as an instructor is that she doesn't simply give graduate students an abbreviated version of material. She instead gathers all of the important details about a particular method and translates it in a way that is easy to understand and apply. She introduces graduate students to the latest and greatest methods."



Professor Sarah Mustillo (second from left) shares a moment with fellow distance runners at the 2013 Boston Marathon.

As a scholar, she has authored over 30 articles in some of the most coveted social science journals, including *American Journal of Sociology*, *American Journal of Public Health*, *Journal of Health and Social Behavior*, and *Sociological Methods and Research*.

Professor Mustillo has received numerous grants in the past 5 years (from Purdue, Department of Defense, and National Institute on Aging). One of her articles won the 2012 Outstanding Publication Award from the American Sociological Association's Section on Aging and the Life Course. According to Web of Science, there are over 1,300 citations to her articles.

Winning awards for research and teaching is very meaningful, but she is also proud to have completed three marathons in the past three years, including this year's Boston Marathon. As a child, gymnastics was her chosen sport (she did not run track or cross-country in high school). Rather, she began

serious running in her mid-30s. Beyond the physical benefits, she finds that distance running provides some quiet time for reflection and to ponder her intellectual work.

It is intriguing that this social scientist also expressed pleasure in the social side of running. As she began running in West Lafayette, other runners invited her to join their treks, including the prospect of completing a marathon. She has developed a special bond with those (pictured above) who regularly pound the pavement each week for miles of training.

Thus when she learned of the of the bomb explosion at this year's Boston Marathon, she was concerned for her fellow runners.

The Boston Marathon on April 15 was her third race of 26.2 miles, and she completed it in three hours and 15 minutes—less than an hour before the bomb wreaked havoc at the finish line.

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Mustillo finished the 2013 Boston Marathon in 3 hours and 15 minutes.

Her husband Tom, a Purdue Political Science professor, greeted her at the finish line, and they had planned to welcome fellow West Lafayette runners across the threshold of victory.

She felt exhausted, however, and they headed back to the hotel to refresh. Remarkably, they were unaware of the horror on Boylston Street until they received text messages about the terrorist attack and turned on the TV in their hotel room.

Her first thoughts were for her fellow runners who were expected to finish the race after her. There were some tense moments for her and Tom, but they soon found out that their running friends were not harmed—and returned home early the next morning.

When asked if she would run again in Boston, she quickly replied “yes.” Many runners have expressed solidarity about honoring the victims of Boston by running again.

After recovering from a stress fracture, Mustillo is back on her running regimen, modeling discipline and fitness to her three children and securing valuable time for reflection. She admits that she never experienced the mental health boost from shorter runs. Once she started longer runs for marathon training, however, she found the boost in mood (i.e., “runner’s high” from the release of endorphins associated with strenuous exercise). Beyond that transitory pleasure, she also remarked that marathons truly challenge her: “It is the hardest I’ve ever worked in my life.”

What’s up next? A half marathon this fall will provide plenty of reflection time for her intellectual work on the life course—and to ponder new ways to help students appropriate advanced statistical methods in their research.

KFF

Upcoming Events, 2013

Date	Location	Speakers	Presentation(s)
August 30 (12:30-1:30)	Stone B2	Sharon Christ , Human Development and Family Studies	<i>Longitudinal Relationships among Visual Acuity, Functioning, and Mortality in a Community Sample of Older Adults</i>
September 20 (1:00-5:30)	Morgan 121 (note new location)	Deborah Carr , Karen Hooker , and Alex Zautra	<i>Social Influences on Health Lifestyle Choices in Later Life</i>
October 18 (12:30-1:30)	Mann 203	Kathleen Abrahamson , Nursing	<i>Evaluating a State Sponsored Approach to Improving Nursing Home Quality</i>
November 1 (12:30-1:30)	Stone B2	Bradley Duerstock , Biomedical and Industrial Engineering; Sara McComb , Nursing and Industrial Engineering; Eric Nauman , Biomedical and Mechanical Engineering	<i>Gero-engineering for an Aging Society</i>
November 20-24	New Orleans	Gerontological Society of America, Annual Meeting	<i>Optimal Aging Through Research</i>

The grand aim of all science is to cover the greatest number of empirical facts by logical deduction from the smallest number of hypotheses or axioms.

Albert Einstein

Advice and Aging– Creating a Relationship between Sociology and the Arts

Recent Purdue graduate, Jane Hahn was featured in the senior photography exhibit, *the thirteen* in Rueff Galleries at Pao Hall. Her photography work, *advice and aging* brings awareness to the connection between the arts and sociology. Hahn graduated in May 2013 with a bachelor degree in both Sociology and Photography and Related Media.

She began by asking older adult family members to write life advice in a journal; her project then grew as she asked other older adults to share their life advice as well. During the gallery reception and visits she invited other people to take part in writing in her journal, as well as interact with the installation.

Her work portrayed 9 images in a grid like pattern along with a table and chairs to encourage interaction among gallery guests. At the table, life advice was exchanged via the idea—take some advice, leave some advice—on small cards, which were then put in a ceramic dish on the table.



Jane in front of the galleries in Pao Hall

photo credit Jenna Brown

All types of advice were given through this project, from “never stop moving” to “don’t get caught in the oughts and should” to “find something you are truly passionate about”. Two of Hahn’s favorite pieces of advice were “learn to live, love, and be happy—God wants that for everyone” and “try not to be fearful and opt for being risky.” One of the more humorous pieces of advice was “life is like a slot machine— don’t be afraid to take a chance.”

Her artist statement below explains the concept of her work.

“We all grow older and we all have a journey. Life has its ups and downs, its laughs and tears, but most of all it has a story. It’s what we do along the way and how we handle life’s finest moments and the bumps in the road that define who we are.”

She hopes to expand and continue this project in the future.

...

Jane designed and co-edited this edition of the *Aging Exchange*. After graduation, Jane is using her skills as the Marketing and Administrative Director of the Tippecanoe Arts Federation, Lafayette, IN.

Creativity and genius do not know anything of age.

Miles Davis



Four of Jane’s images from her exhibit, *advice and aging*

Make a Difference in Students’ Lives

Your contribution to the Center on Aging and the Life Course aids the professional development of our graduate students through scholarships and travel to professional meetings.

To contribute, visit www.purdue.edu/aging and click on About Us (Donate). *Thank you.*

Wilkinson First Recipient of Eichhorn Fellowship

Lindsay R. Wilkinson, a dual-title PhD candidate in sociology and gerontology, is the inaugural recipient of the Robert L. Eichhorn Fellowship in Medical Sociology at Purdue University. Lindsay received the award on April 17, 2013, at a gathering of the Sociology Department and some of its alumni.

The fellowship honors and commemorates Robert L. Eichhorn, Professor Emeritus of Sociology, as an accomplished educator, researcher, and mentor during his 35-year career as a member of the sociology faculty at Purdue University. This award comes from an endowment made possible by Dr. Eichhorn's graduate students and post-doctoral fellows, many of whom went on to hold professorships at some of the world's finest universities, including several who have held endowed chairs, served as senior administrators at the nation's most visible health-related agencies, and founded and/or edited top journals related to health services research.

Lindsay's scholarly interests focus on stratification and health over the life course, studying topics such as financial stress and health, the health consequences of occupational mobility, and how health problems raise the risk of poverty. She is the author of articles in top journals including the *Journal of Health and Social Behavior*, *Social Forces*, *Journal of Gerontology: Social Sciences*, and *Journal of Aging and Health*. Lindsay graduated *maxima cum laude* from Loras College in Dubuque, Iowa, and entered the Purdue sociology graduate program in 2008. She is on schedule to graduate in 2014.

Among those mentored by Professor Eichhorn and attending on April 17 were Ronald M. Andersen, the Wasserman Professor Emeritus of Health Services and Professor Emeritus of Sociology at University of California at Los Angeles, and R. Paul Duncan, Malcom and Christine Randall Professor and Chair of the Department of Health Services Research, Management and Policy at the University of Florida.



Top: Lindsay Wilkinson with Dr. Robert Eichhorn

Bottom: Lindsay and her award with Dr. Bert Useem, Head of the Sociology Department, and Dr. Ken Ferraro, distinguished professor of sociology and director of CALC

photo credit: Jane Hahn

Congratulations for May 2013 Graduates

Megan McPherson, PhD, dual-title in Speech Language, and Hearing Sciences and Gerontology

Tiphannie Raffegeau, M.S. in Health and Kinesiology

Purdue Distinction

Wayne Campbell was appointed to the 2015 Dietary Guidelines Advisory Committee by Health and Human Services (HHS) Secretary Kathleen Sebelius and U.S. Department of Agriculture (USDA) Secretary Tom Vilsack.

April Stull was selected to participate in the Dannon Institute's 2013 Nutrition Leadership Institute. April graduated from Purdue University in 2007 with a PhD in Foods and Nutrition and a minor in Gerontology.

Nicholas Turiano won the 2012 J. S. Tanaka Personality Dissertation Award from Association for Research in Personality.

Scholars in the Spotlight Symposium

Faculty and students gathered for the *Scholars in the Spotlight* Symposium on March 29, 2013. Seven students gave brief presentations regarding the research they have been conducting. Started in 2012, the symposium features graduate student research. Professor Jeffrey Haddad, Faculty Associate from Health and Kinesiology, pioneered the symposium in 2012 and moderated the 2013 event.

The intellectual diversity of these emerging scholars is apparent in the titles of the presentations, including:

- *Dynamic Stability during Adaptive Locomotion*, Brittney Muir, Health and Kinesiology
- *“Get me back on my feet”- Does Adoption of Assistive Devices Help Older Adults Maintain Social Ties?*, Karis Pressler, Sociology
- *Alcohol’s Big Impact in Tiny Embryos Via Minuscule Molecules*, Christine Keller, Interdepartmental Nutrition Program
- *Development and Validation of a Tool to Identify Older Adults with Unmet Need for ADL Help*, Hui Wang, Statistics

One project linking social and biological factors was presented by Seoyoun Kim: *Do Productive Activities Reduce Inflammation in Later Life? Multiple Roles, Frequency of Activities, and C-Reactive Protein*.

Productive activities refer to paid and unpaid actions that make a constructive contribution to a larger community. As a viable option for older adults to stay actively engaged in later life, productive activities are widely extolled as salutary. Accordingly, a theory of successful aging pioneered by Rowe and Kahn recognizes productive activities as a significant element

of maintaining health and functioning in later life. Health is inherently multifaceted encompassing biological, psychological, and social aspects. Consequently, the most effective study of health requires an interdisciplinary approach. Her research builds upon existing literature on productive activities but also makes

significant contributions to the knowledge of how these activities “get under the skin.”

Research in epidemiology, public health, and neuroimmunology demonstrates that circulating levels of inflammatory protein, typically measured by C-reactive protein (CRP) are influenced by psychosocial

factors such as marital relations, loneliness, and caregiving. Thus, her research examines the effects of multiple roles and frequency of engagement for each role in lowering inflammation. If these types of social relations are related to CRP, productive activities may be a palpable way to *prevent* the onset and development of chronic diseases before they manifest as enduring and costly health problems.

Results show that the number of productive activities in which older people engage is associated with lower levels of inflammation net of chronic conditions, lifestyle factors, and socioeconomic resources. When specific types of activities were examined, volunteering manifested the strongest effects in lowering inflammation, particularly in the older age group (70-85). In addition, there was no evidence that sustained volunteering was associated with higher levels of inflammation. Productive activities, and frequent volunteering in particular, may protect middle-aged and older adults from inflammation that is associated with increased risks of cardiovascular diseases. (cont.)



Seoyoun Kim presenting her research at the Scholars in the Spotlight Symposium in March.

Kim remarked that “regular engagement in volunteer activities may help adults maintain what appears to be a younger biological profile for inflammation.”

Lindsay Wilkinson gave a presentation entitled *Women’s Health and Poverty Risk over the Life Course: Role of Family Lineage?* The purpose of her research was to examine whether women’s health limitations lead to poverty. Using a long-term longitudinal study, she combined extensive data on two generations of women as well as socioeconomic information on a third generation. This enabled her to examine women’s poverty over two decades and investigate the intergenerational risk of poverty.

Results indicate that women’s health limitations increase the odds of initial poverty by as much as 45 percent, even after accounting for husband’s health limitations and changes in employment and marital status—important triggers of entry into poverty. This is consistent with previous research on the greater effect of women’s health relative to their partners. In addition, the parent and grandparent’s higher socioeconomic status reduced women’s likelihood of poverty, but not after adjusting for additional covariates such as race. Wilkinson’s findings emphasize the importance of health problems in triggering women’s entry into poverty, an area that is often overlooked in studies on poverty.

Megan Gilligan presented research on *Changes in Intergenerational Estrangement Across Time: Transitions in and Out of Being Black Sheep in the*

Family. Research shows substantial stability in patterns of mother-adult child relations in the later years; however, little is known regarding whether this is the case for dyads in which mothers and adult children are estranged.

Gilligan used quantitative and qualitative data from 317 mother-adult child dyads in which mothers reported being estranged from one of their adult children, (i.e., the black sheep). These data, which were collected over seven years, enable her to identify risk factors for estrangement.

Drawing from life course perspectives in parent-child relations and recent empirical evidence on estrangement, she compared the effects of two potential triggers: (a) violation of serious societal norms such as substance abuse or problems with the law and (b) violations of mothers’ behavioral and value expectations such as not doing something when the mother expected the child to do so (e.g. complete schooling, employment).

Findings from both quantitative and qualitative analyses revealed that the latter violations were more predictive of estrangement. Most mothers expressed sympathy for adult children who had engaged in serious societal norm violations and felt that it was important to remain in contact with these children and provide support. By contrast, Gilligan felt that recurrent violation of mothers’ expectations took a toll on relationships with adult children because the problems were viewed primarily as the result of not following the mother’s expectations.



Above Left: Brittney Muir presents her findings at the Scholars in the Spotlight Symposium in March.



Above Right: Karis Pressler conveys the results of her study examining the use of mobility assistive devices by older adults.

photo credits Jane Hahn

Biology of Aging Teaches Students about the Need for Interdisciplinary Research

Patricia Morton and Abigail Howard

A unique feature of CALC is the exposure faculty and students receive to interdisciplinary research. The course *Biology of Aging*, taught by Dr. David Waters, is a great example of how the curriculum enables students to look beyond their disciplinary background to understand the aging process.

According to CALC Director, Ken Ferraro, it also helps that Professor Waters demonstrates “intellectual hospitality” in how he teaches the course.

For instance, many sociology students, with modest biological training, gain a greater understanding both of their own research and the field of aging as a whole by taking this course. This is important because, as researchers, we must not limit ourselves by focusing on aging from only one perspective. Otherwise, we may miss important mechanisms that lead to exceptional longevity and optimal aging.

There are multiple influences, both biological and sociological for example, that affect the aging process and these often interact with each other. Focusing only on the biological side might lead to neglecting social structural influences such as race, occupation, education and income. However, neglecting the biological components of aging limits our ability to identify biologically

disadvantaged populations in need of required interventions for increased life and health span.

For example, women generally live longer than men. Social gerontologists have identified numerous social structural explanations for this, such as occupational status or marital status; whereas, biological gerontologists have identified numerous biological mechanisms that give women a longevity advantage. Indeed, some female ovarian systems and the production of estrogen have been found to increase longevity in animal models and humans. Without both perspectives, we cannot intervene in the life course in order to give people their best chance to age successful because we will always be missing important pieces to the aging puzzle.

Biology of Aging teaches students the “tools” they need to understand crucial biological processes of aging and incorporate biological perspectives into their own research. These interdisciplinary courses are crucial if we wish to increase our understanding of the aging process.



Professor Waters is shown with one of his *canine centenarians*. Waters leads a study of exceptional longevity among Rottweilers and recently returned from his second Old Grey Muzzle Tour. The 40-day trek enabled him to visit a dozen of the oldest-living dogs in their homes. Rottweilers reach the age-equivalent to 100-year old humans at 13 years.

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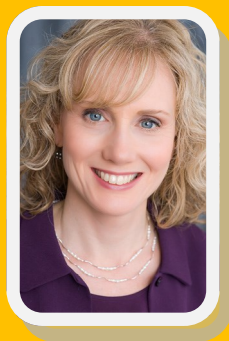
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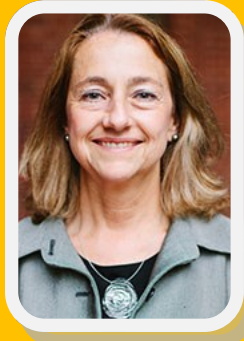
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Social Influences on Health Lifestyle Choices in Later Life

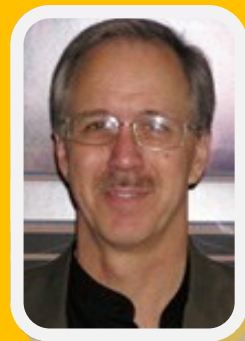
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Deborah Carr
Rutgers University



Karen Hooker
Oregon State University



Alex Zautra
Arizona State University

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