

FISCAL YEAR  
2013



RESEARCH  
ABSTRACTS

COLLEGE OF HUMAN  
SCIENCES

—

FY2013 RESEARCH ABSTRACTS

### **Great Plains Interactive Distance Education Alliance (GPIDEA)**

Oklahoma State University is a member institution in the Great Plains Interactive Distance Education Alliance (IDEA), a partnership of 20 public university members providing access to educational opportunities by collaboratively developing and delivering high-quality, online academic programs. Member universities recruit, admit and graduate students, teach in academic programs and contribute to the leadership and maintenance of the alliance. Alliance membership is a selective process that engages institutional leadership at all levels. The College of Human Sciences participates in these academic programs delivered through the alliance: 1) Family Financial Planning master's program, 2) Gerontology master's program and 3) Dietetics master's program.

**Sponsors:** Great Plains Interactive Distance Education Alliance - partner universities

**PI/PD:** Shiretta Ownbey

### **Military Academic Advancement Program**

Oklahoma State University, a member institution in the Great Plains Interactive Distance Education Alliance and partner in the Military Academic Advancement Program (MAAP), is participating in the development, implementation and expansion of online academic programs. New online programs in Early Childhood Education and Family and Community Services and expansion of an existing Family Financial Planning program will provide educational opportunities to military personnel, dependents and civilians who provide support to military families. OSU faculty participated in professional development at the U.S. Army installation in Ft. Leavenworth, KS. In follow-up meetings, faculty have developed curriculum for each new program.

**Sponsors:** Kansas State University, United States Department of Agriculture

**PI/PD:** Shiretta Ownbey

## **DESIGN, HOUSING, AND MERCHANDISING**

### **Enhancing Facility Management and Design Research and Education**

The purpose of this project was to develop a proposal for facility management and design research and education. The proposal entitled "Energy Efficient Facility Management and Design Forum" was developed and submitted for internal university support. Although the proposal was not funded, the International Facility Management Association emerging leaders were invited to DHM 3823 (Professional Practice for Interior Designers) for interactions with students. Ideas, energy and enthusiasm for the facility management profession were shared during this social and networking opportunity.

**Sponsors:** International Facility Management Association, Tulsa Chapter

**PI/PDs:** Mihyun Kang, Paulette Hebert

### **Environmental Design for Hospice Care at Home**

The purpose of this project is to investigate four questions regarding the environment at home for hospice care: 1) If given the opportunity, will patients, their families, or care givers, engage in a mindful design of the home environment in which the care is to be given? 2) What are the

design characteristics they will choose to focus? 3) What are the barriers to implementation? and 4) What was the effect of these choices on the quality of life during hospice care?

**Sponsors:** University of Oklahoma Foundation

**PI/PDs:** Melinda Lyon

University of Oklahoma Health Sciences Center: Jerry Vannatta

### **Keeping "Miss Ruth" Safe: Fall Prevention in the Home**

The aim of the project is to help Oklahomans reduce risks that could harm their health, well-being, and safety in their homes and communities. The objective is to examine the perception of elders toward falling, assess reactions to a garment with embedded fall-detecting sensors, and assess home environments for fall hazards.

**Sponsor:** Donna Cadwalader Research and Development Grant

**PI/PDs:** Mary Ruppert-Stroescu, Gina Peek

### **Lead-Free Oklahoma**

The purpose of the project is to use a XRF, a portable X-ray fluorescence analyzer, to teach county Extension educators and subsequent consumers to evaluate hidden heavy metals dangers and address deficiencies through best practices. Program evaluation will take place using criteria developed by the Oklahoma Cooperative Extension Service Safety Issue Team.

**Sponsors:** Ambassadors, Cooperative Extension - Family and Consumer Sciences, Dorothy Blackwell Legacy Award

**PI/PD:** Gina Peek

### **The Little Itch that Won't Go Away: Bed Bugs in Oklahoma Publicly Funded Housing**

The goal of this project is to help Oklahomans implement best practices for bed bug management and reduce risks that could harm their health, wellbeing, and safety in their homes and communities. The investigators will identify 12 counties for Extension education and program implementation. Each county Extension educator will receive a bed bugs kit, intense training in conjunction with housing authority personnel, and evaluation materials. Participants from the selected counties will form a "Bed Bugs Advisory Board," serving as a resource to other counties.

**Sponsors:** Auburn University, United States Department of Agriculture

**PI/PD:** Gina Peek

### **Making Climate Change a Functioning Thread in the Baccalaureate Curriculum: Transforming Fiber, Textiles and Clothing Education**

A three-year project is underway to accelerate integration of climate change concepts and other environmental issues into fiber, textile, and clothing (FTC) curricula via professional development programs. A best practice assessment of sustainability science undergraduate programs in the United States was conducted to identify key skill competencies and core content grounding sustainability science programs and the best teaching practices associated with them. Methodology included analysis of secondary data sources associated with top-ranked sustainability degree programs in the U.S. and two field visits to top-ranked schools to interview faculty and students.

**Sponsors:** Kansas State University, United States Department of Agriculture, National Institute of Food and Agriculture

**PI/PD:** Cosette Armstrong

Division of Agricultural Sciences and Natural Resources: Douglas Hamilton, Jason Warren

### **Oklahoma Healthy Homes and Lead Poisoning Prevention**

The purpose of the project was to teach a series of National Center for Healthy Housing training courses. The Healthy Homes courses were provided in partnership with the Oklahoma State Department of Health and funded by the US Centers for Disease Control and Prevention. The Healthy Homes training courses are designed to help practitioners understand the connection between health and housing and how to take a holistic approach to identify and resolve problems that threaten the health and well-being of residents and clients.

**Sponsors:** Oklahoma State Department of Health, Centers for Disease Control and Prevention

**PI/PD:** Gina Peek

### **Perception Study of Lighting Effects and Lighting Design Assistance for New Facilities**

Researchers explored interior design interventions aimed at increasing appetite in older adults. A content analysis of various commercially available tabletop alternatives with associated reflectance values, materials and costs were examined. One focus of the study was to determine the effect of emerging light sources on older adult consumers' perceptions of food color and food safety and their willingness to purchase and consume beef products.

Researchers utilized three lighting treatments, warm and cool color light emitting diodes (LED) and compact fluorescent sources, in an experimental design sited at an older adult retirement community with random assignments of participants to lighting treatments. Participants completed pre- and post-surveys. Older adult responses differed from those previously collected from university students in a similar study. Results are anticipated to inform lighting designs for renovations and new resident facilities for older adults.

**Sponsor:** Epworth Villa

**PI/PDs:** Paulette Hebert, Mihyun Kang

### **Querying Facility Managers: Document Preservation and Debris Removal for Cultural Collections**

The purpose of this project is to determine and document existing facility management practices regarding disaster planning and recovery efforts for selected cultural facilities affected by Hurricane Sandy as related to preserving or removing and disposing of vital, cultural and historic records in order to identify key areas for improvements. On-site, audio-recorded interviews and photo-documentation of libraries, an art gallery and a museum in Washington DC were completed and analyzed. Participating facilities varied in the extent to which their properties and records were damaged and whether or not they followed their disaster plans.

**Sponsors:** Natural Hazards Center, University of Colorado, National Science Foundation

**PI/PD:** Paulette Hebert

### **Smart Garment Development for at Home Measures of Health**

The goal of this project is to develop a garment integrated with wireless sensor technology that will continuously and noninvasively acquire hemodynamic signals to track cardiorespiratory dynamics and quantitatively assess health status for short- and long-term prognoses. The proposed device will aid in the diagnosis and treatment of human disease and provide a new innovative method to lower the cost of health care for all citizens in Oklahoma.

**Sponsor:** Oklahoma Center for the Advancement of Science and Technology

**PI/PDs:** Mary Ruppert-Stroescu, Semra Peksoz

Center for Health Sciences: Bruce Benjamin

College of Engineering, Architecture and Technology: Satish Bukkapatnam

### **Summer Challenge Camp for the Design of Assistive Devices to Improve Independent Living for Travel and Tourism – A Pilot Program**

The purpose of this project is to explore and support the needs of individuals with physical challenges in tourism related endeavors. Participating youth promoted independent living through the development of assistive devices. Via experiential on-campus activities, university faculty members, university staff and community members engaged youth as they explored interdisciplinary disability issues. Youth developed written journals, sketches and appearance prototypes which were exhibited. Analysis of focus group interviews regarding outcomes are in-process.

**Sponsors:** Bartlett Family Grant for Promoting Independent Living, Oklahoma State University Foundation

**PI/PDs:** Paulette Hebert, Mihyun Kang, Hyun-Joo Lee

School of Hotel and Restaurant Administration: Lisa Slevitch, Yeasun Chung

## **HUMAN DEVELOPMENT AND FAMILY SCIENCE**

### **ADvantage Waiver Program Evaluation**

The purpose of this project is to conduct a statewide evaluation of Oklahoma's ADvantage Waiver program. This program serves more than 20,000 Oklahoma citizens who receive Medicaid supported in-home care. This evaluation aims to examine several dimensions of the ADvantage program, including: 1) member satisfaction, 2) empowerment processes among members and staff, 3) remaining service needs, 4) program operations and processes, and 5) program implementation variations throughout the state.

**Sponsor:** Oklahoma Department of Human Services

**PI/PD:** Whitney Bailey

### **CareerAdvance Outcomes Study, Community Action Project of Tulsa County**

This project is designed to study the effects of CareerAdvance, an adult workforce development program run by the Community Action Project of Tulsa County (CAP), on parents and families. CareerAdvance supports the career development of low-income parents with children enrolled in CAP's early learning centers. The focus of this piece of the project is to examine parents'

perceptions of their involvement in CareerAdvance and to compare educational and social outcomes of CareerAdvance parents compared to non-CareerAdvance parents.

**Sponsors:** Northwestern University, Institute for Policy Research, United States Department of Health and Human Services

**PI/PD:** Amanda Morris

### **CareerAdvance: A Dual-Generation Program's Effects on Families and Children**

This project is designed to study the expansion of CareerAdvance, an adult workforce development program run by the Community Action Project of Tulsa County (CAP). CareerAdvance serves the parents of children enrolled in CAP's early learning centers. The focus of our piece of this project is to assess the effects of the program on children's development (e.g., school readiness and socio-emotional development). Data is being collected on children after they leave CAP's early learning centers, during Kindergarten and first grade through home visits. This study will help us better understand the impact of workforce development programs on children and families.

**Sponsors:** Northwestern University, W.K. Kellogg Foundation, U.S. Department of Health and Human Services

**PI/PD:** Amanda Morris

### **Child Development Laboratory - Rise Program**

The Rise program within the OSU Child Development Laboratory focuses on developmental needs of young children living with developmental disabilities/delays ranging in age from one year old through Kindergarten. The Rise program is an inclusive program where children living with developmental disabilities/delays and typically developing children interact in a developmentally appropriate learning environment. Children in the Rise program receive needed therapies to meet the goals in their Individualized Educational Programs (IEP's) or Individual Family Service Plans (IFSP's). These therapies include speech, occupational, physical, swim, and music.

**Sponsor:** Oklahoma State Department of Education

**PI/PD:** Sue Williams

### **Center for Family Resilience**

The Center for Family Resilience (CFR) focuses on scholarship emphasizing individual and family risk and resilience. The CFR works as an interface between community and government social service organizations and the resources of the university to create and disseminate scientific knowledge that contributes to programmatic and policy strategies that promote individual and family resilience.

**Sponsor:** George Kaiser Family Foundation

**PI/PD:** Ron Cox, Joseph Grzywacz

### **Dietary and Physical Activity Patterns of Latino Farmworker Children**

The goal of this research project is to strengthen the empirical foundation upon which to build diet and physical activity intervention programs to address overweight and obesity among young children in Latino farmworker families. The aims are to: 1) document the dietary and

physical activity patterns of young (3 year-old) children of farmworker families; 2) determine the child, familial, community, and cultural factors that contribute to obesigenic dietary and physical activity behavior; and 3) identify culturally and contextually appropriate strategies for improving dietary and physical activity patterns of Latino farmworker children.

**Sponsor:** Wake Forrest University Health Sciences, National Institutes of Health

**PI/PD:** Joseph Grzywacz

### **Early Childhood Partnership Project Agreement**

The project is designed to facilitate the enrollment of four and five year old children residing within the boundaries of Stillwater schools into a public pre-Kindergarten program and the implementation of family literacy activities.

**Sponsor:** Stillwater Public Schools

**PI/PD:** Sue Williams

### **Early Settlement North**

The Early Settlement North (ESN) Conflict Resolution Program is part of a statewide mediation network guided by state legislation and funded by the Alternative Dispute Resolution System of the Oklahoma Supreme Court. ESN is committed to consistently providing high quality, effective, inexpensive, and expeditious conflict resolution. Mediations seek to resolve disputes over money, property, consumer dissatisfaction and/or relationships.

**Sponsor:** The Administrative Offices of the Courts

**PI/PD:** Matthew Brosi

### **From Their Perspective: Alaska Native Grandparents' Roles, Strengths, and Needs**

The purpose of the study was to broaden our understanding of the meaning of grandparenting among the current indigenous group. We are learning about the experiences of grandparents living in arctic regions, focusing on their strengths, wants, and needs and discovering what and who influenced their lives. The team interviewed 57 study participants, presented summary findings and translational documents to rural communities, and obtained approval of the findings by three tribal councils and two corporations. The research team is currently conducting data analysis with scholarly manuscript submissions forthcoming.

**Sponsor:** National Science Foundation

**PI/PDs:** Tammy Henderson

University of Alaska-Fairbanks: Bert Boyer

Alaska Community Services: Alexandra Appel

### **Geriatrics Education Center**

Oklahoma State University developed and dispensed an in-service training kit on disaster preparedness and assessed professional practice gaps of health care and other professionals working with older adults in rural Oklahoma. The in-service training kit includes the Checklist for Disaster Preparedness. Over 100 copies of training kits were mailed to Louisiana Councils on Aging and two district offices of the Oklahoma County Extension Service. Also, Mary Ellen Mayer with the National Disaster Recovery Support Cadre is including copies of the checklist on the Oklahoma Resource Guide DVD.

**Sponsors:** University of Oklahoma Health Sciences Center, U.S. Department of Health and Human Services

**PI/PD:** Tammy Henderson

**Hazard-Free Living for Older Rural Oklahomans: The Safe Aging in Familiar Environments (SAFE) Pilot Study**

The primary aim of this project is to improve the ecology of aging in rural Oklahoma. As an increasing number of persons with chronic conditions continue to live longer, individual capacity to age successfully, as well as live independently and safely at home, will require greater personal, socio-economic, and technological resources. This study will be used to understand how home safety hazards, individual use and beliefs about technology, and personal health and well-being contribute to aging-in-place among rural older adults. To date, 28 persons have been interviewed from Kay, Major and Woods counties in Oklahoma.

**Sponsors:** Bartlett Family Grant for Promoting Independent Living, Oklahoma State University Foundation

**PI/PDs:** Alex Bishop

Design, Housing and Merchandising: Gina Peek

**Moms and Tots Study**

This study is investigating details about how mothers handle discipline episodes in toddlers. Researchers are looking for specific disciplinary processes that differentiate authoritative parenting from authoritarian and permissive parenting, because of the documented long-term benefits of authoritative parenting for children. Our first publication shows how interpersonal traumatic experiences make mothers more at risk for expressing verbal hostility toward toddlers, which causes increases in toddler symptoms related to problematic childhood diagnoses, such as Oppositional Defiant Disorder.

**Sponsor:** Narramore Christian Foundation

**PI/PD:** Robert Larzelere

**National Endowment for Financial Education - High School Financial Planning Program**

This program provides a financial literacy curriculum and support materials for high school students, teachers, and parents. Materials are available free of charge to all participants. The National Endowment for Financial Education provides a support website for students, teachers, and parents to assist with financial literacy education. The program assists with travel, conference registration, exhibit costs, and materials, and it provides training and support for program planning/ delivery aimed at extending materials and education to county Extension educators, teachers, and students.

**Sponsor:** National Endowment for Financial Education

**PI/PD:** Sissy Osteen

**Nonstandard Maternal Work Schedules and Child Health in Impoverished Families**

The project studies the threat of nonstandard maternal work schedules to poor children's physical and emotional well-being as precursors to school readiness. The project aims are to: 1) delineate differences in physical health and emotional well-being at 30 months among children

by mothers' exposure to a nonstandard job schedule during the child's first year; 2) quantify how much parenting practices and maternal well-being explain differences in the physical health and emotional well-being of children by maternal work schedules; and 3) identify individual, familial, and social factors that serve as protective factors for children whose mothers have a nonstandard work schedule.

**Sponsor:** National Institutes of Health

**PI/PDs:** Joseph Grzywacz

University of North Carolina at Greensboro: Stephanie Daniel

Wake Forest University Health Sciences: Beth Reboussin

### **Oklahoma AgrAbility Project**

This project provides education, networking and direct assistance to farmers, ranchers and their families impacted by disabilities and barriers to continued work in agriculture. Staff members provide case management, helping clients receive assistive devices to insure safety and improve quality of life. The project also increases competencies of rural healthcare providers to provide rehabilitation to farmers and ranchers. The project lead is OSU/Oklahoma Cooperative Extension Service in partnership with Oklahoma Assistive Technology Foundation/Oklahoma ABLE Tech and Langston University's School of Physical Therapy.

**Sponsor:** United States Department of Agriculture

**PI/PDs:** Jan Johnston

Seretean Wellness Center: Linda Jaco

### **Oklahoma Youth Families with Promise, 4-H Military Youth Program**

This project uses the Youth Families with Promise program which combines 4-H activities, family life skills training, and youth mentoring to reduce and prevent negative outcomes and build positive skills and resiliency in military children and their families. As a result of the unique stressors placed on military families due to their service in the armed forces, military youth are at increased risk for numerous behavior problems. The project joins Oklahoma county 4-H educators with the Latino Community Development Agency and the Hispanic Heritage Committee at Tinker Air Force Base to work with 120 youth and their families.

**Sponsors:** National 4-H Council, Office of Juvenile Justice and Delinquency Prevention

**PI/PDs:** Ron Cox

Division of Agricultural Sciences and Natural Resources: Charles Cox

Latino Community Development Agency: Patty DeMoraes-Huffine

### **Pakoo Early Learning Center Demonstration Project**

The Pakoo program is for 3 and 4-year-old Native American children preparing for Kindergarten. The purpose of this project was to determine enrolled children's progress. Utilizing a pre- and post-test design, children's scores on vocabulary and language assessments indicated that the preschool exceeded its stated goal of having at least 45% of the children achieve minimum expected gains; 57.9% of children attained this criterion on the vocabulary and language tests. An additional measure of learning assessing concepts areas showed that 63.16% of children attained this criterion. On measures of social skills and social development, 84.21% of children attained this criterion.

**Sponsors:** Pawnee Nation of Oklahoma, United States Department of Education, Office of Indian Education

**PI/PD:** Laura Hubbs-Tait

### **Parent-Child Communication Regarding Autism Spectrum Disorders (ASDs)**

The purpose of this study was to expand understanding of parent-child communication regarding Autism Spectrum Disorders (ASDs) and adolescents' knowledge and identification with ASD labels. Data collection included in-depth interviews with adolescents with ASD resulting in the following themes: It's who I am; It's not a secret to me; I need accommodations; I like me; I'm different; and I don't have a disability. Two themes from mothers' reports included: My child knows he or she is different; and We talk about the difference, not the disability or diagnosis. Findings indicate the need for proactive communication and consistent terminology among persons with ASD, parents, and professionals.

**Sponsor:** AutismOklahoma.org

**PI/PD:** Jennifer Jones

### **Parenting, Energy Dynamics and Lifestyle Determinants of Childhood Obesity: New Directions in Prevention**

The purpose of this multi-state research project is to identify successful childhood obesity prevention strategies that include parenting and to translate those strategies for implementation by community and public health professionals. The goals included (1) reviewing the pertinent literature regarding parent, family, or community obesity-prevention research from the perspective of nutrition, physical activity, and developmental sciences and (2) arriving at a consensus about the primary correlates of childhood obesity that can be addressed by parent, family, or community obesity prevention programs.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Laura Hubbs-Tait

### **Psychosocial Contributors to Health and Illness: The MIDUS Refresher Cohort**

The primary goal of this project is to create a refresher cohort for the Midlife in the United States (MIDUS) I baseline probability sample (N=3,487) interviewed in 1995. The key rationale for refreshing the MIDUS longitudinal cohort are to: (a) assess period effects in psychosocial and health factors among vulnerable subgroups (defined by age of educational status); (b) advance the larger MIDUS agenda to understand unfolding health trajectories as the product of the interplay between psychological, social, and biological factors; and (c) establish a baseline for future tracking of a parallel longitudinal sample.

**Sponsor:** University of Wisconsin-Madison, U.S. Department of Health and Human Services

**PI/PD:** Joseph Grzywacz

### **The Role of Emotions and Relationships in Promoting Mental Health among High Risk Girls**

The objective of the project is to determine biological protective and risk factors that reduce depressive symptoms and risky behavior among females ages 12 to 16. Genetic and stress-related hormonal data are collected from teens, their parents, and peers in order to better understand the role of biological systems in the development of psychopathology. Data has

been collected on 40 parent-teen dyads. Pilot data on neurological processes involved in processing emotions and social relationship are being collected using functional magnetic imaging (fMRI) in collaboration with the Laureate Institute for Brain Research. These data will be used for federal grant applications.

**Sponsor:** Oklahoma Center for the Advancement of Science and Technology

**PI/PDs** Amanda Morris, Michael Criss, Karina Shreffler

### **Tulsa Teen Pregnancy Prevention Coalition: Baseline Survey**

Although national trends in teen pregnancy have declined, rates in Oklahoma have remained stable over the past several years. Research investigating contraceptive use and attitudes towards teen pregnancy has found high levels of ambivalence, particularly among low-income, racial/ethnic minority groups. This study builds upon that research, developing a better understanding of contextual factors that produce ambivalence and the mechanisms through which it negatively affects goals and related behaviors. The project involves approximately 700 youth and their parents and includes interventions designed to reduce risks and promote resilience among teens and their families in the Tulsa area.

**Sponsor:** George Kaiser Family Foundation

**PI/PDs:** Ron Cox, Karina Shreffler

### **Understanding Resilience in Adolescent Girls: Parent, Peer, and Emotion Dynamics**

The focus of this research is to examine how relationships with parents and peers can support emotion regulation and reduce risk among teenage girls living in high-risk settings. Adolescents participate in this study over a four-week period. Teens participate in observational tasks with a parent and a friend, and for two weeks they report on their emotions and behaviors multiple times a day through telephone interviews. Data has been collected from over 80 parent-teen dyads thus far. Findings will be used to create intervention programs aimed at strengthening relationships among high-risk girls in order to improve socio-emotional adjustment.

**Sponsor:** National Institutes of Health

**PI/PDs:** Amanda Morris, Michael Criss  
University of Pittsburgh: Jennifer Silk

## **SCHOOL OF HOTEL AND RESTAURANT ADMINISTRATION**

### **The H.O.T.E.L Atlantis Program - Higher Opportunities for Training, Education, and Language**

The objective of the program is to strengthen the quality of entry-level managers available to the transatlantic hospitality industry by developing a specialized, yet flexible, dual-degree undergraduate program that creatively incorporates the best academic and experiential learning resources available at three premier universities on both sides of the Atlantic. The European partner universities are Robert Gordon University in Aberdeen, Scotland and Turku University of Applied Sciences in Turku, Finland.

**Sponsor:** United States Department of Education

**PI/PDs:** Bill Ryan, Sheila Scott-Halsell

## NUTRITIONAL SCIENCES

### **Acute and Chronic Effects of Freeze-Dried Strawberry Beverage on Cardiovascular Risk Factors in Subjects with Abdominal Adiposity and Dyslipidemia**

The research team investigated the effects of low and high doses of freeze-dried strawberries on serum glucose, insulin, and lipid profile, biomarkers of oxidative stress and inflammation in a 12-week randomized controlled trial. Subjects with abdominal adiposity and dyslipidemia (n=15/group) were recruited and randomly assigned to the low (25g/day) or high (50g/day) strawberry dose or matched control (fiber and calories) group. The strawberry group consumed the freeze-dried strawberry beverage (2 cups/day) and the control group consumed 2 cups of beverage (fiber +calories) daily for 12 weeks. We anticipate a dose response effect in decrease in lipids, oxidative stress and inflammation following strawberry intervention versus controls.

**Sponsor:** California Strawberry Commission

**PI/PDs:** Arpita Basu

University of Oklahoma Health Sciences Center: Timothy Lyons

### **All 4-Kids: Resilience in Any Obesogenic Environment**

This project is part of a collaborative, multi-state pilot test of the All 4 Kids Curriculum developed by University of Nevada Cooperative Extension. The Oklahoma pilot was conducted during fall 2011 in two classrooms with a maximum of 40 children ages 3 to 5 years. The project was awarded the Jeanne M. Priester Award in the state/multi-state category in recognition of outstanding Cooperative Extension health programming.

**Sponsors:** University of Nevada-Reno, United States Department of Agriculture

**PI/PD:** Deana Hildebrand

### **American Indian Diabetes Prevention Center: Impacting Health Disparity in Youth**

The focus of this contract is to provide supervision and assistance on dietary data collection for a larger study. Specifically, we will train staff members on interview protocols, monitor interviewing procedures, conduct quality checks to ensure proper data entry, and consult on statistical analyses.

**Sponsor:** University of Oklahoma Health Sciences Center, National Institutes of Health

**PI/PD:** Arpita Basu

### **Anti-Inflammatory Properties of Wheat Germ Oil (WGO) Formulations Developed at Oklahoma State University**

Chronic inflammation is associated with many chronic conditions including cardiovascular disease, obesity, and diabetes. The purpose of this research study is to investigate the anti-inflammatory properties of natural wheat germ oil (WGO) which has been purified and characterized at Oklahoma State University. The research team expects that because of the synergistic effects of the bioactive components, WGO will have more potent anti-inflammatory effects than the purified compounds under both normal and inflammatory conditions. We also expect that WGO will alter the expression of key genes involved in the inflammatory response.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PDs:** Edralin Lucas, Brenda Smith, Stephen Clarke

Division of Agricultural Sciences and Natural Resources: Nurham Dunford

**Association between Micronutrient (Iron, Iodine, Selenium) Status to Health & Thyroid Metabolism of Under Five Children from the Amhara Region, Ethiopia**

Effects of iodine supplementation to lactating mothers on visual information processing of their 6 month-old infants were tested in iodine-deficient populations in Ethiopia. Also, effectiveness of Ethiopia's new salt iodization program in delivering adequately iodized salt is being evaluated by testing iodine concentration of salt at all levels of production and consumption and by measuring urine iodine concentration from a random sample of community members.

**Sponsor:** Nestle Foundation

**PI/PDs:** Barbara Stoecker, Tafere Belay

**Board for International Food and Agricultural Development (BIFAD) - Collaborative Research Support Program (CRSP) Model Evaluation**

This study reviewed the objectives and performance of the Collaborative Research Support Program (CRSP) model used by the US Agency for International Development (USAID) to fund research related to international agriculture development and food security at US universities. Other potential models for university collaboration with USAID were evaluated in terms of research advances, capacity building and impacts; strengths, weaknesses, opportunities and threats for the CRSP model were identified. Findings were compiled in a report which has been submitted to the Board for International Food and Agricultural Development (BIFAD) for review and transmittal to USAID.

**Sponsor:** United States Department of Agriculture

**PI/PD:** Barbara Stoecker

**Broadening Use of Choice Architecture Strategies in Middle-School Nutrition Settings and Understanding the Extent to Which Use of Strategies Impact Middle-School Students Selections of Fruits and Vegetables**

The purpose of the project is to broaden the use of choice architecture strategies in middle-school nutrition settings and study the impact on students' fruit and vegetable choices. A second outcome is a better understanding of school nutrition employees' attitudes toward use of the strategies. The project utilizes the Cooperative Extension infrastructure to train county educators who in turn work with local school districts. To date, 28 middle schools are participating. These efforts support the Healthy and Hunger Free Kids Act, 2010.

**Sponsors:** Cornell University Behavioral Economics in Child Nutrition Center, United States Department of Agriculture

**PI/PDs:** Deana Hildebrand, Tay Kennedy

Spears School of Business: Josh Weiner

**Characteristics of Lumbar Disc Disease: Profile of Patients who Centralize Symptoms**

Low back pain is one of the most common chronic health complaint reported by Americans. The purpose of this research is to examine alterations in lumbar disc of patients with lumbar

disc disease using MRI techniques and to correlate these changes with genetic profiling, bone and collagen metabolic indicators, and inflammatory biomarkers.

**Sponsors:** University of Oklahoma Health Sciences Center, International Mechanical Diagnosis and Therapy Research Foundation

**PI/PD:** Brenda Smith

### **Chickasaw Nation Social Marketing and Evaluation**

The overall goal is to develop participant-centered and culturally relevant programs that promote benefits of healthful eating within the constraints of a limited budget, time and family needs. The collaborative effort is a continuation of a long-term partnership for which the return is prevention of diabetes among Native American families living in Oklahoma.

**Sponsors:** Chickasaw Nation, Oklahoma Department of Human Services, United States Department of Agriculture

**PI/PD:** Stephany Parker

### **Community Iodized Salt Distribution and Visual Information Processing of Infants at 6 Months of Age**

The purpose of this project is to examine the effect of micronutrient status on health, physical condition, cognitive status, and thyroid metabolism of under five year old children from rural areas of Ethiopia.

**Sponsor:** Leadership Enhancement in Agriculture Program, University of California, Davis, United States Agency for International Development

**PI/PD:** Barbara Stoecker

Addis Ababa University: Dawd Adem

### **Dysregulation of Bone Metabolism in Type 2 Diabetes**

Recently it has been shown that type 2 diabetics experience an approximately 2-fold increase in fracture risk, 5-10 years after diagnosis. The growing number of new cases of type 2 diabetes diagnosed each year suggests that the incidence of osteoporotic fracture will increase dramatically over the next two decades. In order to develop effective prevention and treatment strategies to reduce the incidence of these costly and debilitating fractures, the pathogenesis of compromised skeletal health needs to be understood. Therefore, this research is focused on the study of how type 2 diabetes negatively affects bone strength, mass and metabolism.

**Sponsor:** Oklahoma Center for the Advancement of Science and Technology

**PI/PDs:** Brenda Smith, Stephen Clarke, Edralin Lucas

### **Eagle Adventure Program**

The Eagle Adventure Program is a collaboration between the Chickasaw Nation Nutrition Services' Get Fresh! program and Oklahoma State University's Department of Nutritional Sciences in the College of Human Sciences. The program was named the recipient of the 2012 Dr. Rodney Huey Memorial Champion of Oklahoma Health award, the highest honor of the Champions of Health awards. As part of the award, the program received

a \$15,000 donation to support Eagle Adventure programming, evaluation, and additional work with tribal partners throughout Oklahoma.

**Sponsor:** Blue Cross and Blue Shield of Oklahoma, Oklahoma State University Foundation

**PI/PD:** Stephany Parker

### **Effects of Cranberries on Postprandial Metabolism in Obese Patients with Type 2 Diabetes Mellitus**

The purpose of this research is to investigate the postprandial effects of cranberries consumed with a fast-food style high-fat breakfast in the postprandial rise of glucose, lipids, and biomarkers of lipid oxidation and inflammation in obese patients with Type 2 diabetes.

Consumption of high-fat foods and beverages is common to dietary habits in Oklahoma, and consequently exacerbated postprandial glycaemia or lipemia contributes to the existing cardiovascular pathology associated with diabetes. Our expected results from this study will show the effects of consuming antioxidant-rich cranberries on postprandial metabolism versus placebo.

**Sponsor:** Cranberry Institute

**PI/PDs:** Arpita Basu

University of Oklahoma Health Sciences Center: Timothy Lyons

### **EFNEP Related Research, Program Evaluation, and Outreach**

In 1968, Congress established the Expanded Food and Nutrition Education Program (EFNEP) to provide low-income families with education for obtaining nutritionally sound diets. At the time, the nutritional problems were deficiencies in calories and nutrients. Now they are obesity-related diseases. However, EFNEP methods for gathering dietary information so that effective education can be provided have not changed. This makes it difficult to determine the most effective ways to address today's problems. One goal of this multi-state research project is to develop new dietary assessment and food behavior measures so that more effective nutrition education can be provided, which, in turn, will promote obesity prevention.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Nancy Betts

### **Expanded Food and Nutrition Education Program**

The EFNEP program focuses on helping families and youth improve behaviors in the following areas: dietary intake, food resource management, physical activity and food safety practices. Based on pre/post evaluations, 1,041 adult participants reported improvements in behaviors relating to healthy eating food resource management, food safety, and physical activity. These improved behaviors help families eat healthier and stretch their food dollars. Additionally, EFNEP paraprofessional educators use evidence-based curriculum with third and fourth graders in schools and after-school settings. Overall, 14,724 youth reported learning to develop healthy eating habits, choose healthy snacks, be more active, and practice safe food handling.

**Sponsors:** United States Department of Agriculture, Oklahoma Cooperative Extension Service

**PI/PD:** Debra Garrard

### **eXtension Families, Food & Fitness Community of Practice**

The purpose of the project is for the researcher to serve as a member of the Executive Committee for the Families, Food, and Fitness Community of Practice (CoP) for eXtension.org. The activities of this committee will include editing content submitted by faculty from land-grant institutions across the country and creating content for the CoP website.

**Sponsor:** Mississippi State University, United States Department of Agriculture, National Institute of Food and Agriculture

**PI/PD:** Deana Hildebrand

### **Fulbright Scholar – Managing Climate Change Impacts on Biodiversity of Enset (*Ensete ventricosum*) and Traditional Wild Edible Plants in Enset Growing Homegardens of Southern Ethiopia**

The visiting scholar from Ethiopia is supported by this project for his work on enset and other traditionally consumed wild edible plants.

**Sponsor:** Hawassa University

**PI/PDs:** Barbara Stoecker

Hawassa University: Admasu Tsegaye Agidew

### **Health Benefits of Mango Supplementation as it relates to Weight Loss, Body Composition, and Inflammation: A Pilot Study**

Overweight and obesity are major health problems worldwide. Obesity is associated with elevated levels of inflammatory mediators and is a risk factor for a variety of inflammatory-induced chronic conditions such as diabetes and heart disease. The objective of this pilot study is to investigate the effects of a 3 month dietary supplementation of freeze-dried mango (10 g/day) on reducing body fat and modulating inflammatory markers in obese individuals. Preliminary findings indicate that regular consumption of freeze-dried mango by obese individuals does not negatively impact body weight but provides a positive effect on blood glucose level.

**Sponsor:** National Mango Board

**PI/PDs:** Edralin Lucas, Brenda Smith, Stephen Clarke

Seretean Wellness Center: Sam Earnest, Robin Purdie

College of Arts and Sciences: Mark Payton

North Carolina State University: Penelope Perkins-Veazie

### **Integrating Primary-Care Practices and Community-Based Programs to Manage Obesity**

The purpose of this project is to link 20+ primary care practices throughout Oklahoma with county-based community nutrition education programs offered by the Oklahoma Cooperative Extension Service - Family and Consumer Sciences (OCES-FCS) Division. This project is designed to improve recognition and referrals of overweight and obese patients and to help OCES-FCS learn to respond to physician referrals. The team will continue to track the success of referral initiation, patient enrollment in the nutrition programs, and patient, physician, and nutrition educator satisfaction using de-identified data already being collected through current enrollment and evaluation forms.

**Sponsors:** University of Oklahoma Health Sciences Center, Agency for Healthcare Research and Quality

**PI/PDs:** Debra Garrard, Deana Hildebrand

### **Mango Supplementation Will Improve Glucose Response and Clinical Parameters of Pre-Diabetic Subjects**

Type 2 diabetes is a common chronic disease in the United States and worldwide. This study is investigating the effects of daily supplementation of freeze-dried mango (10 g/day) for three months in improving blood glucose control and reducing body fat in pre-diabetic individuals. The findings of this research, if positive, will provide pre-diabetics with a dietary option for delaying or even preventing the development of type 2 diabetes.

**Sponsor:** National Mango Board

**PI/PDs:** Edralin Lucas, Brenda Smith, Stephen Clarke

Seretean Wellness Center: Sam Earnest, Robin Purdie

College of Arts and Sciences: Mark Payton

North Carolina State University: Penelope Perkins-Veazie

### **Maternal Dietary Nutrients and Neurotoxins in Infant Cognitive Development**

Nutritional research into infant cognitive development has focused on single nutrients and examined individual components of cognition. In this project, we take the approach of examining multiple cognitive processes and nutrition factors when infants are three, six, and nine months old to develop a model of the effects of nutrition on infant development. The team will test the hypothesis that significant variation in infant cognitive development assessed at these three ages will be accounted for by variation in the zinc, iron, lead, and cadmium content of maternal milk and blood sampled from mothers of breastfed infants when they are three months old.

**Sponsor:** United States Department of Agriculture

**PI/PDs:** Tay Kennedy

Human Development and Family Science: Laura Hubbs-Tait

College of Arts and Sciences: David Thomas

### **Molecular Coordination of Iron Homeostasis by MicroRNAs**

Understanding the molecular mechanisms that contribute to the regulation of iron homeostasis increase our understanding of how iron status contributes to enhanced risk of disease. Little is known about miRNA expression change that occurs in response to alterations in dietary iron intake. The purpose of this research is to examine how iron status alters miRNA expression and cellular metabolism. By characterizing the iron-deficient miRNA signature using high-throughput sequencing and microarray strategies, we have identified differentially expressed miRNA and validated novel miRNA targets. The results provide insight into the coordination of iron homeostasis through multiple levels of cellular regulation.

**Sponsor:** National Institutes of Health

**PI/PD:** Stephen Clarke

### **Nutrient Bioavailability - Phytonutrients and Beyond**

Body fat distribution, dietary and serum antioxidants, and insulin resistance were assessed in older Oklahoma women with and without metabolic syndrome (MetS). Participants with MetS were insulin resistant and had higher serum leptin and lower adiponectin than controls. The higher android to gynoid fat ratio in MetS was positively associated with insulin resistance and serum leptin but negatively associated with adiponectin. Dietary total antioxidant capacity of all participants was low which supported national survey data showing that Oklahomans have the lowest consumption of fruit and vegetable in the US.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Barbara Stoecker

### **Oklahoma Nutrition Education-Supplemental Nutrition Education Plan**

This program is a behaviorally focused, science-based nutrition education intervention project focused on improving dietary quality in low-income adults and youth. Participants increase their ability to select and buy food that meets the nutritional need of their families and gain skills in food preparation, food storage, and food safety. They learn to better manage their food budgets including the use of Electronic Benefits Transfer. Pre/post evaluation indicate the majority of 2,368 adults and 7,859 youth participants graduating from the program exhibit a positive change in healthy eating, food safety, and physical activity at the time of exit from the program.

**Sponsors:** Oklahoma Department of Human Services, United States Department of Agriculture

**PI/PDs:** Debra Garrard, Janice Hermann, Deana Hildebrand, Barbara Brown

### **Osteoprotective Activity of a Dried Plum Extract**

Current estimates indicate that 44 million Americans over the age of 50 years have osteoporosis or osteopenia. Despite recent advances in treatment options, the search continues for more effective, low-cost therapies with fewer side-effects. This search has resulted in the investigation of alternative sources of natural products, including the dried fruit of *Prunus domestica* L. Dried plum has unique properties in that it restores bone in animal models of postmenopausal and age-related bone loss. This project is investigating how different components of a dried plum extract affect bone metabolism so that the bioactive components can be characterized.

**Sponsor:** National Institutes of Health, National Center for Complementary and Alternative Medicine

**PI/PDs:** Brenda Smith, Edralin Lucas

University of Oklahoma: Robert Cichewicz

### **Osteoprotective Effects of Dietary Supplementation with Tart Cherries**

Osteoporosis continues to be a major public health problem in the U.S. The pursuit of alternative approaches for preventing bone loss has included the investigation of a number of plant-based foods rich in certain types of polyphenolic compounds that have the capacity to prevent postmenopausal and age-related bone loss. The purpose of this study is to determine the extent to which dietary consumption of tart cherries, a rich source of these polyphenolic

compounds, prevents bone loss and to understand the mechanism by which these effects are mediated.

**Sponsor:** Cherry Marketing Institute

**PI/PDs:** Brenda Smith, Edralin Lucas, Stephen Clarke

Veteran Affairs Medical Center and University of Oklahoma Health Sciences Center: Stanley Lightfoot

### **A Pilot Test of Watermelon to Prevent Bone Loss in Ovariectomized Mice, a Model of Osteoporosis in Postmenopausal Women**

Consumption of fruits and vegetables is known to help promote skeletal health. The purpose of this study was to investigate the dose-dependent effects of freeze-dried watermelon in the prevention of bone loss in ovariectomized (ovx) mice, a model of postmenopausal osteoporosis. Three month old C57BL/6 female mice were sham-operated or ovx and randomly assigned to six treatment groups for 12 weeks: sham-control, ovx-control, ovx + 1%, 10% or 25% (w/w) freeze-dried watermelon (WM), or ovx-control with alendronate injection (100 ug/kg body weight). Our preliminary data indicates that watermelon has a modest effect on bone in ovarian hormone deficiency.

**Sponsor:** National Watermelon Promotion Board

**PI/PDs:** Edralin Lucas, Brenda Smith, Stephen Clarke

North Carolina State University: Penelope Perkins-Veazie

Veterans Affairs Medical Center and University of Oklahoma Health Sciences Center: Stanley Lightfoot

### **Postprandial Effects of Polyphenol-Rich Cocoa Beverage on Glucose, Insulin, Lipids, Oxidative Stress and Inflammation in Type 2 Diabetic Patients**

This study aims to test the hypothesis that cocoa will lower high-fat, mixed meal, breakfast-induced postprandial rise of glucose, lipids and markers of atherosclerosis in patients with type 2 diabetes mellitus. Consumption of high-fat foods and beverages is common to dietary habits in Oklahoma, and consequently exacerbated postprandial glycaemia or lipemia contributes to the existing cardiovascular pathology associated with diabetes mellitus. Our expected results from this study will show the effects of consuming an antioxidant-rich cocoa beverage on postprandial metabolism of a high-fat diet versus placebo.

**Sponsor:** The Hershey Company

**PI/PDs:** Arpita Basu

University of Oklahoma Health Sciences Center: Timothy Lyons

### **Residual Limb Measures during Biomechanical Work-Related Activities in Adult Oklahomans with Trans-Tibial Amputation due to a Traumatic Event**

Trans-tibial amputation (TTA) is the most frequent type of lower limb amputation surgery due to a traumatic event. Despite advances in rehabilitation and prosthetic technology, Oklahomans with TTA struggle with job re-entry and retention. Often, workers with TTA sustain painful injury while using the prosthetic limb and performing work-related activities. This project uses a translational, contextual approach to understand why these injuries occur by

studying mechanical loading, muscle activity, alterations in inflammatory mediators, and the bone metabolic response in an amputee population.

**Sponsors:** Oklahoma University Health Sciences Center, Oklahoma Center for the Advancement of Science and Technology

**PI/PD:** Brenda Smith

### **Resilience and Vulnerability of Beef Cattle Production in the Southern Great Plains under Changing Climate, Land Use and Markets**

The purpose of this multi-state project is to better understand vulnerability and enhance resilience of beef-grazing systems in a world of increased climate variability, dynamic land-use, and fluctuating markets through introduction of diversified forages, improved forage and grazing management, multiple marketing options, strategic drought planning, and improved decision support systems for evaluation of alternative options; and to safeguard and strengthen production and ecosystem services while mitigating greenhouse gas emissions in the Southern Great Plains. The College of Human Sciences will conduct a series of focus groups to examine consumer perceptions of environmental impact of beef production and how they affect beef choices.

**Sponsor:** United States Department of Agriculture, National Institute of Food and Agriculture

**PI/PDs:** Barbara Brown

Division of Agricultural Sciences and Natural Resources: Dave Lalman, Albert Sutherland, Dave Engle, Daren Redfearn, Jeffrey Edward, Brian Arnall, Tyson Oscher

### **The Role of Autophagy in Bone Metabolism: Implications for Skeletal Health in Childhood Obesity**

Alterations in insulin sensitivity are expected to have a profound impact on obese children and are likely to contribute to the dysregulation of bone metabolism. Autophagy is a cellular preservation process which is regulated by the insulin signaling pathway and is hypothesized to alter bone cell activity and function in obese children. The purpose of this project is to determine the role of autophagy in bone cells due to impaired insulin signaling and altered glucose availability. The data from this project will aid in developing novel strategies to prevent obesity-related fracture in children and improve skeletal health in adults.

**Sponsor:** National Institute of Food and Agriculture, United States Department of Agriculture

**PI/PD:** Elizabeth Rendina

### **School Meal Pattern Training**

The purpose of this project was to provide training on the United States Department of Agriculture's newly revised school meals standards to Oklahoma school district participants. Technical training was provided to a team of Family and Consumer Science Extension Educators who subsequently conducted 28 regional workshops reaching approximately 1,100 school nutrition professionals representing all 558 Oklahoma school districts.

**Sponsors:** Oklahoma State Department of Education, United States Department of Agriculture

**PI/PD:** Deana Hildebrand

**Tobacco Settlement Endowment Trust Nutrition and Fitness Initiative Evaluation**

The Oklahoma Tobacco Settlement Endowment Trust (TSET) developed a strategic plan to advance nutrition and fitness environments in Oklahoma communities in order to address the prevalence of obesity. Grants were awarded to 15 consortiums/coalitions representing 21 counties. Under contractual agreement with TSET, OSU's Department of Nutritional Sciences is evaluating the progress of the grant projects in 1) developing social capital assets to support healthful environments, 2) passing policies aimed at improving access to healthful foods and opportunities of physical activity in schools, workplaces and neighborhoods, and 3) tracking environmental and social norm changes around healthful eating and active living.

**Sponsor:** Tobacco Settlement Endowment Trust Nutrition and Fitness Initiative Evaluation

**PI/PDs:** Deana Hildebrand, Nancy Betts