

FISCAL YEAR  
2016



RESEARCH  
ABSTRACTS

COLLEGE OF HUMAN  
SCIENCES

—

FY2016 RESEARCH ABSTRACTS

## ACADEMIC PROGRAMS AND SERVICES

### **Great Plains Interactive Distance Education Alliance**

Oklahoma State University is a member institution in the Great Plains Interactive Distance Education Alliance, a partnership of public universities providing access to education by collaboratively delivering high-quality, online academic programs. Member universities recruit, admit and graduate students, deliver instruction, and contribute to alliance leadership and maintenance. Alliance membership is a selective process that engages institutional leadership at all levels. The College of Human Sciences participates in these academic programs: 1) Family Financial Planning master's program, 2) Gerontology master's program, 3) Dietetics master's program, 4) Family and Community Services master's program, and 5) Retail Merchandising Leadership master's program.

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

**PI/PD:** Shiretta Ownbey

## DESIGN, HOUSING AND MERCHANDISING

### **Animal Production Systems: Synthesis of Methods to Determine Sustainability**

Food demand, specifically the demand for animal protein is expected to increase. However, the quantity and quality of available land, fresh water, and energy resources are declining. More and more consumers increasingly want to know how their food is produced. Consumer preferences create demand for different production practices with respect to food safety, nutrition, animal welfare, environmental protection, and retail practices. The goals of this project are to engage collaborators from a broad range of disciplines, including facility management and design; facilitate organization, synthesis, and integration of systems research; and interpret the impacts to animal-production systems.

**Sponsor:** Oklahoma Agricultural Experiment Station

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

### **Augmented Reality Based Object Locating and Information System Mobile Application for Individuals Suffering from Disabilities**

The main objective of this project was to develop a mobile application for an Augmented Reality object location and information system for use on mobile devices. The application assists older adults with physical disabilities and mild memory loss due to strokes with locating objects in their home environments. This application combines technology, knowledge on special populations, and spatial design principles to assist older adults to better cope with disabilities and memory loss, thereby enabling them to live independently. The application was developed and user-tested by the target population.

**Sponsor:** Bartlett Family Grant for Promoting Independent Living

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

### **Empathic and Co-Design: Redesign of Duty Belts for Police Officers**

A holistic approach is needed to address the issue of lower back pain in police officers. The duty belt and prolonged sitting are identified as the primary contributors to lower back pain in

officers. The scope of this study was limited to the duty belt. The outcome of the study will be the development, testing, and evaluation of an innovative design for a duty belt through empathetic co-design. Data is being analyzed, and it is hypothesized that the innovative design will result in reduced discomfort in police officers, and thereby have a positive impact on the health and well-being of police officers.

**Sponsors:** University of Texas Health Science Center, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention

**PI/PD:** Aditya Jayadas

### **Healthy Homes Partnership - National Leadership**

The long-term goal of the project is to provide education and resource information that will reduce housing deficiencies and risks associated with childhood diseases and injuries. As the electronic delivery system for the Healthy Homes Solutions Toolkit, the focus of this project is to provide information that can help educators and consumers address housing deficiencies and risks. The objective is to add value to the Healthy Homes Solutions Toolkit curriculum.

**Sponsors:** University of Missouri, United States Department of Agriculture - National Institute of Food and Agriculture

**PI/PD:** Gina Peek

### **Improving Safety and Health of Wildland Firefighters Through Personal Protective Clothing**

Fit and comfort concerns related to protective clothing of female wildland firefighters will be communicated to apparel manufacturers and federal government agencies. This initial dialog will be the first step in making necessary changes in styles to improve personal protective clothing for female wildland firefighters with enhanced functionality via enhancements in protective, physiological, and aesthetic attributes.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PDs:** Adriana Petrova, Semra Peksoz

### **Influence of Variable Effect Radio-controlled LED Lighting Systems on Consumer Meat Display Perceptions from Display, Packaging, Labeling, and Lighting Interactions**

There is a critical need to understand the potential effects of evolving lighting systems on consumers' food attributions, packaging perceptions, and purchase intentions. New-to-the market and previously un-researched LED lighting systems use radio controls and modifiable bulbs which may offer differential advantage for rural Oklahoma grocery retailers selling locally produced meat. The goal of this project was to evaluate how new LED light sources, which are controlled for Kelvin color temperature and color rendering index (CRI), may impact consumer decision making. Significant differences were found for brightness, usefulness, appeal, information importance, and need for information among label variants. Between subject effects were also found among lighting conditions (white, red, and blue). Use of blue display lighting may influence consumer perceptions of labels and may be useful for differentiating products to shoppers. Packaging and label modifications under these new LED light sources may also provide differential advantage for Oklahoma retailers by favorably influencing perceptions of product appearance.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Greg Clare

### **Personal Protective Technologies for Current and Emerging Occupational Hazards**

This project highlights the importance of improving personal protective equipment for first responders and first receivers. The project addresses the needs of these groups by evaluating the following: (1) Alleviating back pain problems of patrol officers due to wearing a duty belt. Suggestions for improving car space for easy access to instrumentation and an improved gear configuration were developed; (2) A prototype garment integrated with wireless sensors that records vital signs to provide biometric signals that meet the standards required by medical professionals to diagnose cardiovascular irregularities was constructed and wear tested; and (3) To inform new design parameters, multiple focus group studies were conducted among elderly women regarding their behaviors and attitudes related to falling and wearing hip protectors.

**Sponsor:** Oklahoma Agricultural Experiment Station

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

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

The goal of this project is to develop a wearable garment integrated with microelectromechanical system 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

## **HOTEL AND RESTAURANT ADMINISTRATION**

### **El Faro Beach Hotel and Hostel Needs Assessment Study**

A study was conducted of El Faro Beach Hotel and Hostel to assess the operational efficiencies of this business. Specifically, the study focused on the overall property operations, customer service, management and staff training and development, marketing and sales, and financial accountability.

**Sponsor:** El Faro Beach Hotel and Hostel

**PI/PDs:** David Davis, Dar Yasseri

### **Food Safety Practices in Oklahoma Households: Knowledge, Attitudes, and Behaviors to Reduce Foodborne Illnesses**

This study examined Oklahomans' knowledge of food safety principles and practices used in preparing foods. Results of the study indicated that consumers respect foods by keeping them from deterioration, have current food safety information and teach other family members, are satisfied with their level of food safety knowledge, and feel confident when preparing foods.

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

**PI/PDs:** Jerrold Leong, Murat Hancer

Nutritional Sciences: Barbara Brown

### **Travelers' Profile**

The aim of this project is to assess the profile of individuals who visit Guthrie, Oklahoma. The researchers will seek to understand the perceptions of the city of Guthrie as a travel destination.

**Sponsor:** City of Guthrie

**PI/PD:** Li Miao

## **HUMAN DEVELOPMENT AND FAMILY SCIENCE**

### **A Community Approach to Care Education: Empowering Rural Hospitals and Caregivers to Engage in Exceptional Care of Rural Elders**

This health education project is aimed at improving health literacy among Family and Consumer Science Educators, rural hospital discharge planners, and family caregivers.

**Sponsor:** United States Department of Agriculture

**PI/PDs:** Whitney Bailey

Design, Housing and Merchandising: Emily Roberts

College of Education: Sara Gordon

### **Career Advance Outcomes Study, Community Action Project of Tulsa County**

This project is designed to study the effects of Career Advance, an adult workforce development program run by the Community Action Project of Tulsa County (CAP), on parents and families. Career Advance 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 Career Advance and to compare

educational and social outcomes of Career Advance parents compared to non-Career Advance parents.

**Sponsors:** Northwestern University, United States Department of Health and Human Services

**PI/PD:** Amanda Morris

### **Center on Child Abuse and Neglect**

The Center on Child Abuse and Neglect offers assessment and treatment for children who have been abused or neglected, adolescent sex offenders, and women and the children of women who used inappropriate substances during pregnancy. This project supports two OSU students who provide oversight of qualitative data, core check qualitative data, and enter data for analyses.

**Sponsor:** University of Oklahoma

**PI/PD:** Lana Beasley

### **Children, Youth, and Families At-Risk: The North Carolina State University and Oklahoma State University Together for a Better Education Program**

The purpose of this five-year project is to implement and evaluate the JUNTOS project designed to increase academic performance and reduce dropout among Latino youth. Objectives are to 1) empower Latino parents to become more involved in and supportive of the educational goals of their children, 2) link youth with existing community resources designed to enhance their academic performance, and 3) provide youth with opportunities to develop positive peer affiliations and life skills.

**Sponsor:** North Carolina State University, United States Department of Agriculture - National Institute of Food and Agriculture

**PI/PD:** Ron Cox

### **Community Action Project of Tulsa Family Life Study Extension: Evaluation of a Model Dual-Generation Program**

This research project is designed to study the expansion of Career Advance, an adult workforce development program run by the Community Action Project of Tulsa County (CAP). This project includes longitudinal data collection on the impact of a workforce development program for parents of children attending Head Start. It will examine the effects of the program on children's social and emotional development. Initial results indicate gains in education among parents as well as gains in self-esteem and motivation.

**Sponsors:** Northwestern University, Foundation of Child Development

**PI/PD:** Amanda Morris

### **Community Assessment and Education to Promote Behavioral Health Planning and Evaluation – Phase II**

The CAPE 2 project was initiated in the Tulsa metropolitan area in May 2015 as an Index Light Community. The 30 community leaders who participated in this project represent a diversity of occupational fields. The top five reported behavioral health concerns for the community were stress, tobacco/nicotine use, adult depression, anxiety, and non-medical prescription drug use.

Participation in the CAPE 2 project has allowed community agency folks to meet one another and discuss possible ways to collaborate on issues that will benefit behavioral health in Tulsa.

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

**PI/PDs:** Michael Merten

Florida State University: Joseph Grzywacz

### **Community Based Services for Problematic Sexual Behavior**

This project provided a graduate student with the opportunity to learn how to design and conduct interviews and focus groups that, in turn, assisted researchers at the University of Oklahoma Health Sciences Center who were studying community-based services for youth with problematic sexual behaviors. The graduate student was a co-facilitator for the focus groups and was responsible for data coding.

**Sponsors:** University of Oklahoma Health Sciences Center, Office of Juvenile Justice and Delinquency Prevention

**PI/PD:** Lana Beasley

### **Daily Peer Interactions and Enduring Relationship Attributes as Predictors of Adolescent Sleep**

Given the critical role that sleep plays in the prediction of physical and mental health (e.g., depression, obesity), the current study examines whether parent-child relationships, peer relationships, and electronic communication (e.g., texting) and media use are related to adolescent sleeping quality. Preliminary findings indicate that adolescents slept on average 7.89 hours per night which is less than the 9-10 hours recommended by experts. Results also show that both texting and electronic media use (e.g., video games, TV) are related to later bedtimes and lower levels of sleep, especially during weekends.

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

**PI/PD:** Michael Criss

### **Early Childhood Partnership Project**

The project is designed to facilitate the enrollment of four and five-year old children residing within the Stillwater Public School District into an inclusive pre-kindergarten and kindergarten educational program. This project implements Oklahoma State Department of Education's and Stillwater Public School's educational criteria including, but not limited to, family activities and involvement, literacy concepts/skills, mathematical concepts/skills, science concepts/skills, and social development and growth.

**Sponsor:** Independent School District Number 16 of Payne County, Oklahoma

**PI/PD:** Dianna Ross

### **Evaluation of "Talking is Teaching" Tulsa Campaign**

This evaluation is designed to examine the effectiveness of the "Talking Is Teaching" campaign activities and will examine usage of literacy toolkits and engagement in activities being promoted through the campaign.

**Sponsor:** The Opportunity Institute

**PI/PD:** Amanda Morris

### **Expanding the Cycle of Opportunity: Simultaneously Educating Parents and Children in Head Start**

The purpose of this project is to conduct a randomized trial on the impact of a dual-generation education program, Education Pathways Program, for parents and their children in the Community Action Project's Head Start programs. An implementation study will be conducted on the key strengths and challenges of intervention and how the program can better serve Head Start families. Findings will have implications for how dual-generation approaches affect family processes and well-being and how best to integrate this approach into Head Start programming.

**Sponsors:** Northwestern University, United States Department of Health and Human Services - Administration for Children and Families

**PI/PD:** Amanda Morris

### **Exploring Adverse Birth Outcomes in Rural Oklahoma**

Infant mortality, very low birth weight (birth weight < 1500 grams), and pre-term birth occur most frequently among births to rural mothers. Rural Oklahoma is one of the areas in the U.S. with the highest infant mortality rates. Infants born at low birthweight or pre-term are at heightened risk for short- and long-term health problems and developmental delay. This project determined factors that increased risk for or protected against adverse birth outcomes in rural Oklahoma. Approximately 160 women across 38 counties in Oklahoma who were pregnant with their first child were interviewed before and after they gave birth. Data are currently being analyzed for submission to a conference on "Inequalities in Reproduction" and will serve as pilot data.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Karina Shreffler

### **Fostering Resilience in Parents and Children that Experience Divorce**

This project contributes to the Oklahoma Cooperative Extension Service's Family Resiliency Initiative which teaches divorcing parents throughout the state how to engage in effective parenting and family interaction. This project centers on 1) the evaluation of the existing program, and 2) further development of a parent education program which will focus on building resilience in families by decreasing parental conflict, increasing the level of positive parenting, and increasing parental involvement.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PDs:** Matt Brosi and Ron Cox

### **High School Financial Planning Program**

This program provided training to county Extension educators and high school teachers. It showed them how to implement the National Endowment for Financial Education's High School Financial Planning Program into Oklahoma high schools. It will benefit our state by making teachers and administrators aware of this valuable, no-cost resource for delivering financial literacy education.

**Sponsor:** National Endowment for Financial Education

**PI/PD:** Sissy Osteen

### **Implementation Study and Evaluation**

The purpose of the project is to conduct two formal evaluations to support the Teen Pregnancy Prevention scale-up project in Tulsa County: 1) Implementation Study and 2) Outcomes Evaluation. The implementation study will consist of evaluation activities that target project delivery, community mobilization, and teen-friendly clinic linkages. The outcomes evaluation will compare local birth rates to a comparison community to measure community level impact of the project. Survey development and data management to measure community mobilization, clinic linkages, and participant level attitudinal changes are underway, and the evaluation plan for the implementation study has been finalized.

**Sponsor:** Tulsa Campaign to Prevent Teen Pregnancy

**PI/PD:** Michael Merten

### **Independent Evaluation of the Maternal, Infant and Early Childhood Home Visitation Evidence-Based Program in Oklahoma**

For this project two graduate students will assist Dr. Lana Beasley with evaluating the Maternal, Infant and Early Childhood Home Visitation evidence-based program in Oklahoma. The graduate students will co-facilitate focus groups, including recording and taking notes, coding transcripts for themes, and other needed tasks. They will also conduct individual interviews and assist with data coding and interpretation. Other activities include performing literature reviews, disseminating results, and participating in child abuse prevention committee meetings. The graduate students will assume the responsibilities of leading the project and serving as members of the administrative team.

**Sponsors:** University of Oklahoma Health Sciences Center, Oklahoma State Department of Health

**PI/PD:** Lana Beasley

### **Juntos: Together for a Better Education and Success for At-Risk Youth in Iowa Communities**

The project will provide program evaluation expertise to Iowa State University. OSU will coordinate data collection protocols, instrumentation, data management, and data analyses for the project.

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

**PI/PD:** Ron Cox

### **Launch - Infant and Early Childhood Mental Health**

The project implemented a workforce development plan which included a master's level course on infant and early childhood mental health assessment and diagnosis.

**Sponsors:** Oklahoma State Department of Health, Department of Health and Human Services

**PI/PD:** Amy Williamson

### **Legacy for Children Evaluation**

This project involves data collection for the evaluation of the Centers for Disease Control and Prevention's Legacy for Children project which is being implemented in Tulsa, Oklahoma.

Specifically, funds will be used to support project personnel who will collect comparison data and code observational data of parent-infant interactions. Legacy for Children is a parenting program for low income mothers. Mothers join the group soon after birth and can be part of the group for up to five years. Tulsa is the first site in the country to implement Legacy in Spanish.

**Sponsors:** University of Oklahoma Health Sciences Center, Association of University Centers on Disabilities

**PI/PDs:** Lana Beasley, Amanda Morris

### **Legacy Parenting Initiative**

The purpose of this project is to provide a highly unique and integrated set of proven interventions to maximize the health and development of families enrolled in Tulsa Educare, Inc. Parenting programs and staff development are provided at three Tulsa Educare sites which support low-income families and young children.

**Sponsors:** George Kaiser Family Foundation, Tulsa Educare, Inc.

**PI/PDs:** Amanda Morris, Jennifer Hays-Grudo

### **Meta-Analysis of Child Obesity Prevention Programs and Identification of Moderators of Program Effectiveness**

The purpose of this project is to apply traditional methods of meta-analysis to analyze child obesity prevention and intervention trials in order to identify effective components of those interventions, determine subpopulations of children for whom intervention components are most successful, and identify parenting variables that increase obesity trial success. Objectives include: 1) conducting a systematic review of the child obesity prevention research focusing on parenting to identify obesity prevention outcomes and potential statistical moderators, and 2) conducting a meta-analysis of the identified childhood prevention/intervention studies to identify significant prevention programs and significant moderators of program effectiveness.

**Sponsor:** Oklahoma Agricultural Experiment Station

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

### **Minding the Gap in Early Childhood Education: A Lay Advisor Approach**

The purpose of the project was to: a) identify and train community lay advisors to deliver one of two home-based parent involvement curricula as a means of fostering healthy early childhood development among families living in poverty; and b) evaluate program outcomes among children, families, and lay advisors. Findings indicate that developmental progress was made by

children in both treatment groups; families reported significant increases in parenting efficacy and empowerment; lay advisors connected families with community resources that families likely would have gone without; and lay advisors demonstrated substantial professional development.

**Sponsor:** George Kaiser Family Foundation

**PI/PDs:** Amy Tate, Mike Merten

Florida State University: Joseph Grzywacz

### **National Arthritis Foundation Land Based Exercise**

The project certified Oklahoma Cooperative Extension Service personnel to provide the National Arthritis Foundation's (NAF) land-based exercise program to increase physical activity, self-manage with education, receive group support, and empower individuals to manage arthritis while remaining productive at work.

**Sponsor:** Family and Consumer Sciences Ambassadors' Endowments

**PI/PD:** Jan Johnston

### **National Core Indicators Adult Consumer Survey - Oklahoma**

The purpose of this research is to inform policy and practice within state developmental disabilities service systems using the National Core Indicators Adult Consumer Survey. Face-to-face surveys were conducted with 1,053 adults with intellectual disabilities regarding where individuals live and work, participation in community activities, relationships with friends and family, and health and well-being. Research findings improve state practice and policy and add knowledge to the field regarding the quality of life of individuals with intellectual disabilities. Data also informs Oklahoma's transition plan to meet new Centers for Medicare and Medicaid Services rules for home and community based services.

**Sponsor:** Oklahoma Department of Human Services

**PI/PDs:** Jennifer Jones, Kami Gallus

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

This project accomplished three primary aims: 1) delineate differences in physical health and emotional well-being among children at 30 months of age living in poverty whose mothers had a nonstandard schedule job during the first year relative to those whose mothers had a standard work schedule; 2) quantify the degree to which variation in parenting practices and maternal well-being explain differences in the physical health and emotional well-being of children living in poverty by maternal work schedules; and 3) identify individual, familial, and social factors that serve as protective factors for children living in poverty.

**Sponsor:** National Institutes of Health

**PI/PDs:** Michael Merten

Florida State University: Joseph Grzywacz

University of North Carolina at Greensboro: Esther Leerkes

Wake Forest University Health Sciences: Beth Reboussin and Stephanie Daniel

### **Oklahoma Good Behavior Game Implementation and Evaluation**

The Center for Family Resilience (CFR) has been supporting the implementation of PAX Good Behavior Game (PAX GBG) for approximately one year. The CFR's support has been primarily in the areas of technical assistance, quality improvement activities, and evaluation of PAX GBG implementation at John Glenn Elementary in Oklahoma City, Oklahoma. Broadly, the support system provided by the CFR, with program oversight provided by the Oklahoma Department of Mental Health and Substance Abuse Services, serves as a meaningful tool for building and promoting mental health in Oklahoma. CFR staff attended a national PAX partner training session that will enable the CFR team to provide quality support to elementary school teachers.

**Sponsor:** Oklahoma Department of Mental Health and Substance Abuse Services

**PI/PDs:** Michael Merten, Ron Cox

### **Oklahoma State Department of Health - Pilot Home Visiting Project**

This project provides support for one student's practicum training in the section of Developmental and Behavioral Pediatrics. Over the course of 10 hours per week, the student will have clinical, research, and training experience; supervision; and didactic learning experiences.

**Sponsors:** University of Oklahoma Health Sciences Center, Oklahoma Department of Human Services

**PI/PD:** Lana Beasley

### **Parent Child Center of Tulsa**

The Parent Child Center of Tulsa study is an ongoing prospective, mixed-methods study designed to evaluate the efficacy of delivering literacy toolkits and literacy education to women giving birth at local hospitals. Initial results indicate some improvement in literacy building skills; also, the program may be particularly beneficial for families with low levels of education.

**Sponsor:** George Kaiser Family Foundation

**PI/PD:** Amanda Morris

### **Parental Practices Supporting Positive Eating Behaviors during Independent Eating Occasions Among Early Adolescent Children**

Parental practices influence early adolescents' eating behaviors and therefore play an essential role in preventing obesity. However, little is known about how various parental practices influence intake when parents are not with the child and are not supervising the eating occasion. A better understanding of the extent to which parental practices influence food choice and eating behaviors of early adolescents at independent eating occasions is necessary to inform the development of interventions to promote positive parental practices that may assist in weight management.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Glade Topham

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

The purposes of this multi-state research project are 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 perspectives of nutrition, physical activity, and developmental sciences, 2) arriving at a consensus about the primary correlates of childhood obesity that can be addressed by parent, family, or community obesity prevention programs, and 3) translating and disseminating agreed-upon best practices into messages or webinars for Extension.

**Sponsor:** Oklahoma Agricultural Experiment Station

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

### **Power of Families Project**

The Center for Family Resilience has partnered with the Power of Families Project to conduct project evaluation. The Center for Family Resilience assisted with learning sessions for educators and administrators on how to better engage Hispanic families to improve learning and developmental outcomes. In June 2016, more than 80 people attended, representing organizations and schools that spanned from early childhood to higher education. As a result of participating in the Power of Families Project, families show increased knowledge and understanding of resources and develop a dense social network within their school and community that supports them in their care giving and advocacy for their child.

**Sponsor:** Community Service Council

**PI/PD:** Michael Merten

### **Practicum for Process and Implementation Evaluation of Community Based Services for Problematic Sexual Behavior of Youths**

This project provides oversight for the qualitative aspects of a study examining community-based services for youth who have exhibited problematic sexual behaviors, including conducting individual interviews by telephone, conducting focus groups, organizing transcription data, analyzing data, and blending qualitative data with quantitative data.

**Sponsors:** University of Oklahoma Health Sciences Center, Office of Juvenile Justice and Delinquency Prevention

**PI/PD:** Lana Beasley

### **Promoting Employment: Building Resources for Employing Older Oklahomans:**

This project determined: 1) the needs and concerns of older Oklahomans related to employment and employability, and 2) current availability of public educational resources for older Oklahomans and those who serve them. Initial findings will be used to develop resources for employing older Oklahomans through county level educational initiatives to address the needs that are identified.

**Sponsor:** Family and Consumer Sciences Ambassadors' Endowments

**PI/PD:** Sissy Osteen

**RISE Program**

The purpose of this project is to develop a program for the developmental needs of young children living with developmental disabilities and delays ranging in age from one-year-old through kindergarten. The RISE Program is an inclusive program where children living with developmental disabilities and delays interact with typically developing children in a developmentally appropriate learning environment within OSU's Child Development Laboratory. The RISE Program also provides families and professionals access to appropriate and evidenced-based information.

**Sponsor:** Oklahoma State Department of Education

**PI/PD:** Dianna Ross

**Robert M. Greer Direct Care Staff In-Service Training**

The project provided a 90-minute in-service training session to direct care staff regarding new guidelines for exhibiting positive verbal interactions with clients and developing awareness options for resiliency on the job leading to consistent, respectful care for individuals with intellectual and developmental disabilities and mental illness under their supervision. Triggers which cause acute frustration and ideas for developing coping strategies to manage work stress were generated by attendees and shared during each session.

**Sponsor:** Liberty of Oklahoma Corporation

**PI/PD:** Gretchen Cole-Lade

**Tulsa Campaign to Prevent Teen Pregnancy**

The objectives of this project are to provide evaluation support for district wide implementation of Teen Pregnancy Prevention programming in Tulsa Public Schools; assess local efforts to increase clinic capacity; improve teen friendly practices at health clinics; and promote youth leadership in local teen pregnancy prevention initiatives. Data management, analysis, and reporting on participant level data regarding school based programming is ongoing. Additionally, the Center for Family Resilience developed a Youth Leadership Council Survey and continued supplemental work on the Cold Call Project and Teen Clinic Survey which assess teen friendly practices and ease of access for teen clients at local clinics.

**Sponsor:** Tulsa Campaign to Prevent Teen Pregnancy

**PI/PDs:** Michael Merten

Florida State University: Joseph Grzywacz

### **Understanding the Psycho-Physiological Dynamics of Well-Being and Health in Old-Old Age.**

The purpose of this study is to determine how very old people remain healthy given age-associated decline and impairment. To date, a total of 154 participants 70 years of age and older have been evaluated. One goal of this study is to examine the influence of experiential and evaluative components of well-being on health outcomes among long-lived adults. Preliminary results indicate that cognitive task performance improves immune functioning. These results further support evidence of a link between human cognition and health in old age. Further analyses are planned to determine whether this may differ by age, gender, and residential context.

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

**PI/PD:** Alex Bishop

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

The focus of this research was to examine how relationships with parents and peers can support emotion regulation and reduce risk among teenage girls living in high-risk settings. Adolescents participated in this study over a four-week period. Teens participated in observational tasks with a parent and a friend, and for two weeks they reported their emotions and behaviors multiple times a day through telephone interviews. Findings indicate that emotion regulation is an important predictor of adolescent mental health, and both parents and peers play a major role in the development of emotion regulation.

**Sponsor:** National Institutes of Health

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

### **Wings of Hope Family Crisis Services Graduate Research Assistantship**

To enhance student learning in marriage and family therapy, this grant establishes the Wings of Hope graduate research assistantship. The graduate student in this position will work 10 hours per week in family crisis services at Wings of Hope as part of the assistantship/externship.

**Sponsor:** Wings of Hope Family Crisis Services

**PI/PD:** Matt Brosi

## **NUTRITIONAL SCIENCES**

### **$\beta$ , $\beta$ -carotene 9',10'-oxygenase 2 (BCO2) in Influenza Virus Pneumonia**

The purpose of this study was to dissect the role of BCO2 in influenza infection so that evidence-based approaches can be developed for treating influenza virus infection. The project utilized functional biochemistry and next generation RNA sequencing to approach the underlying mechanism by which BCO2 regulates mitochondrial structure and function and the consequences in response to flu virus infection and pneumonia.

**Sponsors:** Oklahoma Center for Respiratory and Infectious Diseases, National Institutes of Health

**PI/PD:** Dingbo Lin

### **$\beta,\beta$ -carotene 9',10'-oxygenase 2 in Hepatic Mitochondrial Function and Obesity**

The purpose of this study was to dissect the role of BCO2 in mitochondrial integrity and the consequence in the development of obesity in mice. The project utilized functional biochemistry and omics approaches to assess the underlying mechanism by which BCO2 regulates mitochondrial structure and function (mitochondrial respiration) in the wild type and BCO2 knockout mice.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Dingbo Lin

### **Chickasaw Nation Social Marketing, Evaluation, and Tribal Support**

The development and implementation of the Get Fresh! Social Marketing campaign is a long term commitment for which the return is prevention of obesity and type 2 diabetes among Native Americans living in the Chickasaw Nation boundaries through the establishment of healthy eating habits and a physically active lifestyle. "Stories of Health" from Native Americans living in the Chickasaw Nation boundaries are being developed and tailored for Native American families focusing on promoting physical activity, increasing fruit and vegetable intake, and being healthy together. Indigenous formative assessment on acceptance and comprehension of the "Stories of Health" will also be conducted.

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

**PI/PDs:** Stephany Parker, Janice Hermann

### **Chickasaw Nation Systems and Environmental Change, Social Marketing, Evaluation and Tribal Partnership**

The OSU Solution-based Health Innovations and Nutrition Excellence (SHINE) team provides evaluation, programming and communications expertise to support the development and implementation of SNAP-Ed programs implemented by the Chickasaw Nation Get Fresh! program. The grant supports mixed method approaches to document knowledge, attitude, and behavior changes that occur as a result of the Diabetes is not our Destiny Campaign, Eagle Adventure Program, and related programs.

**Sponsor:** Chickasaw Nation

**PI/PDs:** Stephany Parker, Janice Hermann

### **Chickasaw Nation WIC Hot Button Evaluation**

This study aims to determine whether participants who experience the Heart Buttons strategy are more likely to engage in positive breast- and/or bottle-feeding practices and the introduction of solid foods. The research design to explore these effects was quasi-experimental and analysis is being done.

**Sponsors:** Chickasaw Nation, United States Department of Agriculture

**PI/PDs:** Stephany Parker, Janice Hermann

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

Lactating Ethiopian mothers and their newborns were enrolled in a randomized trial testing efficacy of iodized salt and of maternal iodine capsules in supplying adequate iodine to infants via breast milk. Effects of the treatments on VIP of their 6 month-old infants were assessed. Effectiveness of Ethiopia's new salt iodization program was evaluated by testing iodine in salt at the household and by measuring urinary iodine concentration (UIC) of participants. Overall, iodine deficiency is decreasing; however, UICs and salt measurements suggest that salt is not homogeneously iodized. A strong monitoring strategy from production to the household level must be implemented.

**Sponsor:** Nestle Foundation

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

### **Cooking for Kids: Culinary Training for School Nutrition Professionals**

The purpose of this project is to develop and conduct a comprehensive training program to provide the knowledge, skills, and resources needed to support Oklahoma's school food authorities. The project will offer the help needed to effectively implement the revised United States Department of Agriculture's meal pattern requirements called for by the Healthy and Hunger Free Kids Act of 2010.

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

**PI/PD:** Deana Hildebrand

### **Eagle Adventure Program**

The Eagle Adventure Program is a collaboration between the Chickasaw Nation Nutrition Services' Get Fresh! program and Nutritional Sciences. The program received funding to support Eagle Adventure programming, evaluation, and additional work with tribal partners throughout Oklahoma.

**Sponsor:** Blue Cross and Blue Shield of Oklahoma

**PI/PD:** Stephany Parker

### **Effects of Maternal Vitamin D Supplementation on Markers of Vitamin D Status and Related Infant and Maternal Health Outcomes in Southern Ethiopia**

Biomarkers of vitamin D status of lactating women and their infants in Ethiopia are being assessed in a randomized placebo-controlled trial. A weekly oral supplement of 15,000 IU was administered to the treatment group for one year. Quantitative estimates of skin color and ultraviolet light exposure were collected to evaluate their effects on vitamin D status. Samples of breast milk were collected and are being analyzed to assess the need for interventions to prevent rickets and meet the vitamin D needs of the growing infant.

**Sponsor:** Nutricia Research Foundation

**PI/PDs:** Barbara Stoecker, Meron Wondimagegnhu

### **Effects of Strawberries on LDL**

In this study we investigated the effects of two dietary achievable doses of strawberries on serum LDL-C, LDL-C particles, glucose (fasting and postprandial) and HbA1c in participants with the metabolic syndrome in a randomized crossover study.

**Sponsor:** California Strawberry Commission

**PI/PD:** Arpita Basu

### **Effect of Wheat Germ Oil (WGO) from Oklahoma Red Winter Wheat on Inflammation, Gut Integrity, and Microbial Population in Obese Mice**

Changes in gut microbial population can compromise gut integrity and lead to chronic inflammation, a common underlying mechanism implicated in the pathogenesis of many chronic conditions such as type 2 diabetes and cardiovascular disease. One natural product that can be tapped for its health benefits is wheat and its by-products. Oklahoma is one of the largest wheat growing states in the country. Wheat germ (WG) is an understudied portion of the wheat grain and contains several bioactive compounds, including large amounts of vitamins and anti-oxidants. The goal of the project is to study the effects of WG from Oklahoma red winter wheat on gut integrity and bacterial population and examine its relationship with inflammation and body weight and composition in obese mice.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Edralin Lucas

### **Egg Lutein Prevents Inflammation through Activating Adenosine Monophosphate-Activated Protein Kinase (AMPK) in Hepatic Mitochondria**

The purpose of this study is to employ cellular and molecular approaches to investigate whether the egg lutein is primarily accumulated in hepatic mitochondria, which in turn activates AMPK. We will also determine how activated AMPK regulates expression of genes involved in anti-inflammation using mouse models of the wild type C57BL/6J, knockout of AMPK, and/or knockout of lutein metabolic gene  $\beta$ ,  $\beta$ -carotene 9, 10 oxygenase 2 (BCO2).

**Sponsor:** American Egg Board

**PI/PD:** Dingbo Lin

### **Egg Xanthophylls Prevent Chronic Inflammation in Type 2 Diabetes**

Inflammation is one of the causative factors mediating the pathogenesis of diabetes. Xanthophylls, the oxygenated carotenoids, alleviate inflammation in both humans and rodents. Egg is a common but unique food containing highly bioavailable xanthophylls. The project employed structural, chemical, and functional approaches to investigate the molecular targets of egg and its xanthophylls on prevention of chronic inflammation in type 2 diabetes.

**Sponsor:** United States Department of Agriculture

**PI/PD:** Dingbo Lin

Center for Veterinary Health Sciences: Ranjith Ramanathan

### **Evaluation of Regional Food Bank and Low-Income Health Center's Fresh Rx Program**

The purpose of this project is to evaluate the Fresh Rx Program's effect on clients' food insecurity and health, the amount of nutritious food supplied, and satisfaction with the program.

**Sponsor:** Regional Food Bank of Oklahoma

**PI/PD:** Gail Gates

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

The Expanded Food and Nutrition Education Program (EFNEP) focuses on helping low-income families and youth improve healthy eating behaviors and stretch food dollars. During the past year, EFNEP reached 1,233 adults and 22,050 youth directly and nearly 4,672 family members indirectly. Based on pre/post evaluations, adult participants reported improvements in healthy nutrition practices (89%), food resource management (83%), food safety (59%), and physical activity (35%). Additionally, EFNEP paraprofessionals use evidence-based curriculum with 1<sup>st</sup>-4<sup>th</sup> graders in schools and after-school settings. Overall, youth reported increasing their ability to choose healthy foods (78%), physical activity (27%), and practice safe food handling and preparation (41%).

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

**PI/PDs:** Debra Garrard, Nancy Betts

### **Expanded Food and Nutrition Education Program Research, Program Evaluation, and Outreach**

The Expanded Food and Nutrition Education Program (EFNEP) assists low-income families gain the knowledge, skills, attitudes, and behaviors necessary for nutritionally sound diets. Currently, we are testing new evaluation methods to determine changes in food behaviors brought about by the program. This will provide us with a way to evaluate whether the program promotes positive changes in dietary intake and related behaviors. To date, we have found differences in behaviors among younger and older age groups and between racial/ethnic groups that will change how we focus education for these groups and increase its effectiveness.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Nancy Betts

### **Fitness Testing of Oklahoma Elementary School Children: Training and Evaluation**

The project partnered with the Oklahoma State Department of Health to provide training to school physical education teachers, conduct fitness assessments of elementary school age students, and analyze data to assess fitness levels of school age children in Oklahoma.

**Sponsors:** Oklahoma Department of Health, Tobacco Settlement Endowment Trust

**PI/PD:** Deana Hildebrand

### **Food-Derived Bioactive Components and the Gut as a Therapeutic Target for Osteoporosis**

In the U.S., postmenopausal bone loss is a major health concern for women that results in more than 1 million fractures annually. This project aims to 1) determine the extent to which the bioactive components in dried plum alter gut mucosal immunity over time using in vitro and in vivo experiments and 2) to determine how the gut mucosal immunological changes induced by

dried plum and its bioactive components correspond with alterations in bone. The results of this project will allow investigators to determine if the gut could actually serve as a target for the treatment of osteoporosis.

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

**PI/PDs:** Brenda Smith

Division of Agriculture and Natural Resources: Udaya DeSilva

College of Arts and Sciences: Mark Payton

### **Food Systems, Health, and Well-being: Understanding Complex Relationships and Dynamics of Change**

This collaboration aims to improve food systems as well as changing mindsets and behaviors of individuals within the food system. The multi-state team investigates complex relationships involving key stakeholders in analyzing and addressing problems and solutions. Our goals are to increase understanding of food and nutrition practices and systems and to facilitate food-related institutional, community, family, and individual behavioral changes that can improve health and well-being.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Stephany Parker

### **Gut Immunomodulating Properties of Phenolic Compounds in Oklahoma Grown Pecans: Potential Health and Long-term Economic Impacts**

Oklahomans continue to face an alarming trend with respect to chronic disease. Undoubtedly, genetics and health behaviors contribute to this public health dilemma, but closer examination of the underlying etiology reveals that each of these chronic diseases shares a central element in its pathology—low grade, chronic inflammation. At any given time, ~70% of the body's immune cells reside within the gut. This project was developed to investigate the use of pecan phenolic compounds on the gut immune system. Preliminary results show that phenolic compounds from pecans will down-regulate inflammatory processes and suggest the gut may be an important target for intervention. Currently, Oklahoma ranks second in the nation for commercial pecan production and the economic impact of pecans is approximately \$14 million annually. Although the specific aims of this project do not focus on the economic impact, baseline data is available and could be utilized for future impact studies if understanding the health benefits associated with phenolics on gut mucosal immunity leads to an increase in demand and enhance the marketing potential for pecan growers in our state.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Brenda Smith

### **Hawassa University Research Leave Grant**

The purpose of this project is to support the research of a visiting scholar, Dr. Andargachew Gedebo, from Ethiopia. He is collaborating on development of a multi-disciplinary proposal on risks of aflatoxin contamination of cereals in Ethiopia and on subsequent risk for human exposure. He also will be developing manuscripts and proposals related to food security issues in Ethiopia and will seek to develop further collaborative projects with OSU.

**Sponsor:** Hawassa University

**PI/PDs:** Barbara Stoecker

Hawassa University: Andargachew Gedebo

### **'HoneySweet' Plum Safety Study**

The plum pox virus is a devastating disease that can wipe out complete orchards. Currently, there are no effective ways of eradicating the virus once an orchard is infected. This study is designed to investigate the safety of a genetically modified cultivar of plum, 'HoneySweet', that has been developed to be resistant to the plum pox virus. This multi-disciplinary research effort includes investigators at the USDA-ARS Appalachian Fruit Research Station, Clemson University, and Oklahoma State University. Researchers at OSU are investigating the safety of routine consumption of the 'HoneySweet' plum on clinical indicators.

**Sponsor:** Clemson University

**PI/PD:** Brenda Smith

### **Implication of Caring Practice and Household Food Insecurity on the Nutritional Status, Growth, and Development of Infants in Nutritional Sensitive Intervention Areas in South West Ethiopia**

In Ethiopia, childhood malnutrition is both prevalent and serious, and improper feeding and caring practices remain a common problem. Interventions such as Empowering New Generations to Improve Nutrition and Economic opportunities (ENGINE) are being implemented in agriculturally productive areas to improve service delivery and utilization of services through training and strengthening of healthcare workers. Implementation of ENGINE provides a unique opportunity to evaluate the effectiveness of such approaches and strategies. Therefore, this study assesses implications of caring practice and household food insecurity on the nutritional status, growth, and development of infants in nutrition sensitive intervention areas in South West Ethiopia.

**Sponsor:** University of California, International Maize and Wheat Improvement Center, United States Agency for International Development

**PI/PDs:** Barbara Stoecker

Jimma University: Debebe Moges Moshago

### **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 investigated 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. Our findings show that chronic consumption of the mango fruit has a modest effects on body

composition and blood glucose in this population. However, contrary to popular belief, chronic mango consumption did not cause hyperglycemia in individuals with moderately elevated blood glucose.

**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

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

This multi-state project addresses the roles of nutrients and phytochemicals and their interactions in reducing the risk of chronic disease. Current work has quantified mRNA abundance for zinc transporters in response to zinc supplementation. Another study focused on measurement of markers for bone formation and resorption in response to vitamin D supplements. Understanding factors that determine nutrient bioavailability and targets of action assists in making recommendations to specific stakeholders and ultimately affecting the health of Oklahomans and our nation. The opportunity to share knowledge, techniques, and resources is central to advancing our understanding in a timely, resource-efficient, and strategic manner.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PDs:** Barbara Stoecker, Edralin Lucas

### **Oklahoma Nutrition Education**

This SNAP-Ed program is a behaviorally focused science-based nutrition education intervention focused on improving dietary quality in low-income adults and youth to reduce obesity. During the past year, the program reached 2,109 adults and 21,140 youth directly and 6,226 family members indirectly. Based on evaluations, adult participants reported improvements in healthy eating (87%), food resource management (83%), food safety (56%), and physical activity (36%). Additionally, educators use evidence-based curriculum in elementary schools and after-school settings. Youth reported increasing their ability to choose healthy foods (74%), frequency of fruit consumption (26%), practice safe food handling and preparation (37%), and improving physical activity (25%).

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

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

### **Oklahoma Tobacco Settlement Endowment Trust's Healthy Living Program**

The Oklahoma Tobacco Settlement Endowment Trust (TSET) developed a strategic plan to advance nutrition and fitness environments in Oklahoma communities to address the prevalence of obesity. This project evaluated the progress of the grant projects in 1) implementing the Healthy Living Evaluation protocol including: policy and environmental practice reviews; organizational readiness; intervention dose analyses; and food availability and marketing survey; 2) training grantees to conduct needs assessments; 3) participating in work teams to develop implementation resources; 4) reporting of findings to major stakeholders; and

5) attending and contributing to TSET grantee meetings and trainings, professional conferences, and seminars.

**Sponsors:** University of Oklahoma Health Sciences Center, Tobacco Settlement Endowment Trust Nutrition

**PI/PD:** Deana Hildebrand

### **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 *Prunes 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 its bioactive components can be characterized.

**Sponsors:** 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 Tart Cherries Phase II: Mechanisms of Action**

The pursuit of alternative approaches for reducing the incidence of osteoporosis has included the investigation of a number of promising plant-based foods. Our laboratory has previously shown that Montmorency tart cherries, which are rich in certain phenolic compounds, have osteoprotective effects. The project is providing intriguing results demonstrating that supplementation with tart cherries has anabolic effects on bone in a model of age-related bone loss and that these effects appear to be mediated by an increase in bone mineralization. This study is providing further insight as to how tart cherry induces these skeletal responses.

**Sponsor:** Cherry Marketing Institute

**PI/PD:** Brenda Smith

### **Physical Education Program Grant-FitnessGram Student Outcomes Evaluation**

The purpose of this program is to evaluate Putnam City Public School District's ability to meet the United States Department of Education's Physical Education Program Grant. At the end of year 2 of the 3-year project, 57 percent of the randomly selected 4<sup>th</sup> and 5<sup>th</sup> grade students (n=422) met physical fitness criteria; 60 percent were within a healthy weight range; 34 percent reported meeting fruit consumption recommendations; and 25 percent reported meeting vegetable consumption recommendations.

**Sponsor:** Putnam City Public Schools

**PI/PD:** Deana Hildebrand

### **Raspberries, Postprandial Metabolism, and Type 2 Diabetes Mellitus**

This project assessed the effects of raspberries in postprandial glycaemia and lipemia following a high fat fast-food style meal challenge versus control group. The project assessed the effects

of raspberries on the postprandial rise of glucose, lipids, and inflammatory biomarkers in adults with type 2 diabetes along with a high fat breakfast meal.

**Sponsors:** National Processed Raspberry Council, United States Department of Agriculture

**PI/PD:** Arpita Basu

### **Research Leave and Sabbatical Grant Fund**

This project supported the research and sabbatical leaves of three visiting scholars from Ethiopia, funded by the Norwegian Agency for Development Cooperation. Professor Yosef Mamo investigated conservation of mountain nyala (*Tragelaphus buxtoni*) subpopulations. Professor Fikre Desalegn and Dr. Andargachew Gedebo wrote research manuscripts and developed collaborative proposals among the College of Human Sciences at OSU, the Division of Agriculture and Natural Resources at OSU, and the College of Agriculture at Hawassa University in Ethiopia.

**Sponsor:** Hawassa University

**PI/PDs:** Barbara Stoecker

Hawassa University: Yosef Mamo, Fikre Desalegn and Andargachew Gedebo

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

Objectives were to better understand vulnerability and enhance resilience of beef-grazing systems and safeguard and strengthen production and ecosystem services while mitigating greenhouse gas emissions in the Southern Great Plains. A consumer curriculum, "Does Climate Change Your Plate?" was developed and piloted and focused on the contributions of beef cattle to greenhouse gases, contributions of beef to the diet, options for adapting to increasing prices, and actions to reduce food waste, another contributor to greenhouse gases. Analysis of curriculum evaluations is underway. County Extension Educators/Agents in Oklahoma and Kansas were trained.

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

**PI/PD:** Barbara Brown

### **Role of Garlic in Decreasing Cardiovascular Disease Risk by Promoting Reverse-Cholesterol Transport**

Lifestyle and dietary changes in the last half-century have given rise to a series of nutrient-based metabolic disorders including cardiovascular disease (CVD), metabolic syndrome, obesity, and diabetes. An alternative to pharmacological therapy is to obtain naturally occurring anti-hyperlipidemic compounds present in foods. Thus, it is important to examine foods and their bioactive components that show promise for mitigating the negative effects of high-calorie/high-fat (especially saturated fat) diets on CVD risk. Among such foods, garlic (*Allium sativum*) has received particular attention due to its anti-hyperlipidemic and anti-cancer properties. The purpose of this project is to examine the extent to which bioactive components present in garlic exhibit their cardioprotective properties through an increase in cholesterol efflux and reduction in cholesterol synthesis in macrophages. Understanding the potential

mechanisms through which bioactive components of garlic reduce risk of disease will provide insight into the reduction of developing chronic diseases.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Stephen Clarke

### **SNAP and EFNEP Nutrition Education and Obesity Prevention Center of Excellence: Creating Healthy Local Places**

OSU investigators are participating as part of the SNAP and EFNEP Nutrition Education and Obesity Prevention Center of Excellence (NEOPCE) to focus on the use of public health principles and Policy/Systems/Environmental (PSE) interventions to promote healthy eating and prevent obesity in low income populations. Our long-term goal is to reduce the incidence of obesity among low-income families and children through the use of SNAP-Ed and EFNEP PSE approaches that complement and are integrated with direct nutrition education strategies.

**Sponsor:** University of Tennessee, United States Department of Agriculture

**PI/PDs:** Stephany Parker

Center for Sovereign Nations: Elizabeth Payne

### **Student Outcome Evaluation**

This student outcome evaluation for Schools for Healthy Lifestyles 3rd and 5th grades was conducted to examine 1) progress in student fitness levels by grade as measured by FitnessGram; 2) associations between student fitness levels and academic performance; and 3) changes in students' health knowledge as measured by Schools for Healthy Lifestyles' Health Survey.

**Sponsors:** Schools for Healthy Lifestyles, United States Department of Education

**PI/PD:** Deana Hildebrand

### **Understanding How Mango Affects Glucose Homeostasis in Type 2 Diabetes**

This study investigated the effects of 12-week freeze-dried mango pulp supplementation on the gut microbiota and its impact on body composition, glucose homeostasis, and inflammatory markers in mice fed a high fat diet. High fat feeding resulted in a significant loss of Bifidobacteria and Akkermansia, while mango supplementation prevented the loss of these beneficial bacteria. Mango supplementation did not reduce body weight or fasting blood glucose but lowered blood lipid. These results demonstrate that mango supplementation in high fat feeding modulated some of the adverse effects that accompany high fat diet-induced obesity.

**Sponsor:** National Mango Board

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

College of Arts and Sciences: Mark Payton

Division of Agricultural Sciences and Natural Resources: Udaya DeSilva

University of Oklahoma Health Sciences Center: Stanley Lightfoot

North Carolina State University: Penelope Perkins-Veazie

### **Work Performance in Men with Trans-Femoral Amputation**

Patients who undergo trans-femoral amputation experience many challenges in returning to activities of daily living and one of the major complications is their increased risk for fracture. To address this risk, more effective rehabilitation strategies are needed. This study, involving investigators from Oklahoma State University and the University of Oklahoma Health Sciences Center, is studying the effects of inflammation on bone biomarkers in a population of patients who have undergone trans-femoral amputation and rehabilitation.

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

**PI/PD:** Brenda Smith

### **Work-Related Performance Characteristics in Men with TTAT at Risk for Residuum Injury**

Traumatic injury that necessitates trans-tibial amputation can have a significant impact on an individual's ability to return to routine activities of daily living. These patients face challenges from post-surgical recovery through the transition to long-term use of a prosthetic limb that can have implications on skeletal health. This project is an extension of the work by a team of investigators from OSU and the OUHSC. Investigators at OSU are evaluating the alterations in inflammatory indicators and bone biomarkers in this patient population that will be used along with performance indicators to develop more effective and comprehensive rehabilitation strategies.

**Sponsors:** University of Oklahoma Health Sciences Center, Presbyterian Health Foundation

**PI/PD:** Brenda Smith