

FISCAL YEAR  
2015



RESEARCH  
ABSTRACTS

COLLEGE OF HUMAN  
SCIENCES

—

FY2015 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 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

## **CENTER FOR FAMILY RESILIENCE**

### **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.

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

**PI/PD:** Joseph Grzywacz

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

The purpose of this project is to foster optimal development among children of impoverished families who prefer to keep their children out of early childhood education programs. This will be achieved by accomplishing three aims: 1) identify and train a cadre of White, African American, and Latino lay advisors in a culturally- and contextually appropriate curriculum of parent involvement in early childhood education, 2) evaluate the effectiveness of the Minding the Gap program in improving impoverished children's kindergarten readiness, and 3) document barriers and enablers to sustainability of the Minding the Gap program.

**Sponsor:** George Kaiser Family Foundation

**PI/PDs:** Joseph Grzywacz, Amy Tate

### **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

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

The aims of this project are to recruit a new national probability sample of 2,100 respondents, to recruit a new sample of 500 African American respondents, and to carry out a 3rd wave of survey assessments on the existing MIDUS sample.

**Sponsors:** University of Wisconsin-Madison, United States Department of Health and Human Services

**PI/PD:** Joseph Grzywacz

### **The Community Assessment and Education to Promote Behavioral Health Planning and Evaluation Phase II (CAPE 2) project**

The purpose of this project is to fund Land Grant Universities and their partners to recruit a panel of thirty knowledgeable local individuals who will be compensated to participate in a nationally designed monthly community behavioral health survey. The panelists will complete an initial intake survey and then be compensated for completing a short regular online survey every month over the course of a year for a total time commitment of about two years.

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

**PI/PD:** Joseph Grzywacz

### **Tulsa Campaign to Prevent Teen Pregnancy**

The focus of this project is to assist the Tulsa Campaign to Prevent Teen Pregnancy in collecting and analyzing health clinic data surrounding their use of best practices for reproductive health care to teens (e.g., consent and confidentiality statements, how policies are conveyed to teen patients, availability of interpreters).

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

**PI/PD:** Joseph Grzywacz

## **DESIGN, HOUSING AND MERCHANDISING**

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

Food demand and 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. Furthermore, 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, in 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 and enable them to live independently. The application has been developed and is currently being user-tested by the target population.

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

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

### **Fit Mapping Project: Phase 1**

This is a research effort for optimizing a product for mass production for human use. It will enable the product developer to: 1) identify optimized product dimensions for mass production, 2) recommend different offering sizes for each target market, 3) discover potential stress points or injury risks for users and 4) analyze product comfort and usability over long periods. Phase I will determine if one size of the first prototype product will be sufficient to accommodate a target market and if design changes could improve the fit, function, and performance.

**Sponsor:** Private

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

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

The goal of the app is to serve as a tool to reduce housing deficiencies and risks associated with childhood diseases and injuries. As the electronic vehicle for Healthy Homes Solutions Toolkit, the purpose of the app 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:** The Curators of the University of Missouri, United States Department of Agriculture, National Institute of Food and Agriculture

**PI/PDs:** Gina Peek

Seretean Wellness Center: Linda Jaco

### **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 to making necessary changes in styles to personal protective clothing for

female wildland firefighters with enhanced functionality via improvements in protective, physiological, and aesthetic attributes.

**Sponsor:** Oklahoma Agricultural Experiment Station

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

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

A three-year project to accelerate integration of climate change concepts and other environmental issues into fiber, textile, and clothing (FTC) curricula via professional development programs has concluded. In 2014, a roundtable gathering of nineteen industry, environmental science, and FTC education professionals was conducted to assist in creating the professional development program scope and content. A comprehensive set of environmental science competencies have been identified and the professional development program materials are currently being finalized to facilitate teaching and learning in sustainability.

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

**PI/PDs:** Cosette Armstrong

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

### **Fabrication of Pressure Sensor Glove**

Maverick Technologies has developed an existing pattern of prototyping a pressure sensor glove and is requesting assistance in fabricating a prototype to help further development of the product. The goals of this project are to modify provided pattern to match existing sample, manufacture one prototype glove, and provide constructive feedback on pattern and fit for future pattern making.

**Sponsor:** Maverick Technologies, L.L.C.

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

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

Current events from hurricanes to sabotage of transportation systems highlight the importance of improving personal protective equipment for “first responders” and “first receivers” as well as members of the agricultural community. The project addresses the needs of all three groups and facilitates transfer of best practices among them.

**Sponsor:** Oklahoma Agricultural Experiment Station

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

### **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**

The purpose of this project is to conduct a study of El Faro Beach Hotel and Hostel to assess the operational efficiencies of this business. Specifically, the study will focus 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

### **SpringLoaded Brewery Feasibility Study**

The purpose of this project was to conduct a market feasibility study for SpringLoaded Brewery to be built in a historic power plant in Sand Springs, Oklahoma. Specifically, the study focused on: (1) demand analysis for a full service restaurant/brewpub, a packaging microbrewery, a market, and an event center in a historic power plant building in Sand Springs, OK; and (2) competitive analysis for the product/service offerings. The expected outcomes of the study were reported to the sponsor along with recommendations for the development.

**Sponsor:** SpringLoaded Brewery

**PI/PDs:** Lisa Slevitch, Yeasun Chung, Jing Yang

## **HUMAN DEVELOPMENT AND FAMILY SCIENCE**

### **Building Resources for Employing Older Oklahomans**

Individuals, including older Oklahomans, are working beyond traditional retirement years and returning to work after retirement. This project will determine: 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

### **CareerAdvance: A Dual-Generation Programs Effects on Families and Children**

This research 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 supports the career development of low-income parents with children enrolled in CAP's early learning centers. This project includes longitudinal data collection on the impact of a workforce development program on children attending Head Start.

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

**PI/PD:** Amanda Morris

### **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, United States Department of Health and Human Services

**PI/PD:** Amanda Morris

### **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 include 1) to empower Latino parents to become more involved in and supportive of the educational goals of their children, 2) to link youth with existing community resources designed to enhance their academic performance, and 3) to provide youth with opportunities to develop positive peer affiliations and life skills.

**Sponsors:** 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 CareerAdvance, an adult workforce development program run by the Community Action project of Tulsa County. 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.

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

**PI/PD:** Amanda Morris

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

Given critical role that peer relationships play in the prediction of physical and mental health (e.g., obesity, depression) during adolescence, the current pilot study will explore links between peer relationships and adolescent chronic sleep deficiency. The first aim of this study will be to delineate variation in amount of adolescent sleep by daily peer electronic communication (e.g., texting). Second, we will identify enduring negative peer relationship attributes (e.g., victimization, conflict) that predict variation in amount of adolescent sleep.

**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 that implements Oklahoma State Department of Education and SPS's educational criteria including, but not limited to, family literacy activities.

**Sponsors:** Independent School District Number 16 of Payne County, United States Department of Education

**PI/PD:** Dianna Ross

### **Expanding the Cycle: 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 on the key strengths and challenges of intervention, and how it can better serve Head Start families will be conducted. 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

### **Family Immigration Status and Latino Youth Substance Use**

The purpose of this project is to conduct mixed-methods research examining the effects of family immigration status on acculturation processes and the risk for drug use among United States-born children of Mexican immigrants.

**Sponsor:** National Institutes of Health

**PI/PD:** Martha Zapata Roblyer

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

This project contributes to the Oklahoma Cooperative Extension Service's Family Resiliency Initiative by assisting divorcing parents throughout the state in effective parenting and family interaction. This project centers on the evaluation and further development of a parent education program which focuses on building resilience in families by decreasing parental conflict, increasing the level of positive parenting, and increasing parental involvement. To date, 1,788 parents have completed the co-parenting program as well as initial surveys, and 343 control group parents who have not taken a co-parenting class have completed initial surveys. Future analyses will center on group comparisons to determine program effectiveness.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PDs:** Matt Brosi

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

This program will provide training to extensions educators and high school teachers to implement the National Endowment for Financial Education High School Financial Planning

Program into Oklahoma high schools and to make teachers and administrators aware of this valuable and no-cost resource for delivering financial literacy.

**Sponsor:** National Endowment for Financial Education

**PI/PD:** Sissy Osteen

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

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

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

**PI/PD:** Ron Cox

### **Latino Youth Development in an Agricultural Context**

This study builds on 10 years of Latino farmworker research focused on a variety of health topics ranging from alcohol use and mental health to pesticide exposure among farmworkers and their children. The current project builds on this foundation by shifting attention from Latino farmworkers to the adolescent-aged (13-17 years) children of those farmworkers. The first component is a survey of 180 Latino adolescents, stratified by three different geographic locations in Oklahoma. The second component is nested biomarker study wherein we will collect first-morning void urine specimens from a targeted subsample of 60 youth.

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

**PI/PDs:** Michael Merten, Joseph Grzywacz

### **Legacy Parenting Initiative**

Legacy for Children is an evidence-based parenting program focused on strengthening the parent-child relationship and promoting children's health and socio-emotional development. The program is targeted for low-income mothers, and supports positive parenting by promoting responsive mother-child interactions, enhancing mother's parenting efficacy, and facilitating a sense of belonging to a community. OSU will work in collaboration with Educare and the Centers for Disease Control to evaluate the implementation and effectiveness of the Legacy program.

**Sponsor:** George Kaiser Family Foundation

**PI/PD:** Amanda Morris

### **Meta-Analysis of Child Obesity Prevention Programs**

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

### **Tulsa Educare Project**

The purpose of this project is to help motivate low-income Tulsa Educare parents to achieve family self-sufficiency through increased workplace income, benefits and career growth opportunities.

**Sponsor:** Tulsa Educare, Inc.

**PI/PD:** Jennifer Hays-Grudo

### **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 Nation Core Indicators Adult Consumer Survey. In FY15, face-to-face surveys were conducted with 1,123 adults with intellectual disabilities regarding where individuals live and work, participation in community activities, relationships with friends and family, health and well-being. Research findings improve State practice and policy and add knowledge to the field regarding quality of life of individuals with intellectual disabilities. Data also informs the State 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

### **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. The project increases competencies of Oklahoma Cooperative Extension's Family and Consumer Sciences educators as well as rural healthcare providers to provide services to producers and their families. The project lead is Oklahoma State University's Cooperative Extension Service in partnership with Oklahoma Assistive Technology Foundation/OK 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 Geriatric Education Center ¶**This project seeks to address the needs of rural health care and other professionals working with older adults. OSU held an evidence-based conference and conducted an initial professional practice gaps assessment. The goals of the conference, Linking Gerontology and Geriatrics: Focusing on Rural Communities, were to: 1) identify the links between Gerontology and Geriatrics, and 2) apply evidence-based information to enhance the best practices or meet practice gaps. The conference topics included: 1) Grandparents Rearing Grandchildren, 2) Special Populations of Older Adults in Oklahoma, and 3) Health and Wellness.

**Sponsors:** University of Oklahoma Health Sciences Center, United States Department of Health and Human Services, Health Resources and Services Administration

**PI/PD:** Tammy Henderson

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

Parental practices influence early adolescent's 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 purpose of this multi-state project is to identify successful childhood obesity prevention and intervention strategies that include parenting and to translate those strategies for implementation by community and public health professionals. Goals include (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

### **Pesticide Exposure Biomonitoring Using Sweat Patches: A Pilot Study**

Chronic low dose exposure to agricultural pesticides is widely accepted as a fundamental health threat to farmworkers, the vast majority of whom are immigrants from Mexico. Unfortunately, finding both the sources of variation in pesticide exposure among farmworkers and its long-term consequences are hampered by measurement challenges, particularly the absence of an easy strategy for pesticide biomonitoring. Sweat patches offer an alternative for assessing exposure to pesticides in field studies. The goal of this study is to determine the feasibility of using sweat patches for biomonitoring pesticide exposure among immigrant Latino farmworkers.

**Sponsors:** University of Texas Health Sciences Center, Centers for Disease Control and Prevention

**PI/PDs:** Joseph Grzywacz, Michael Merten

College of Arts and Sciences: Jason Belden

University of Oklahoma Health Sciences Center: Kent Teague

### **Power of Families Project**

This study will conduct in-depth interviews with families, school staff, community partners, etc. along with pre and post surveys to assess the power of families.

**Sponsors:** Community Service Council, Kellogg Foundation

**PI/PDs:** Joseph Grzywacz

### **Rise Program**

The purpose of this project is to develop an inclusive learning environment and programs for 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 and typically developing children interact in a developmentally appropriate learning environment. The Rise Program will also provide access to appropriate and evidenced-based information to families, professionals, and community.

**Sponsor:** Oklahoma State Department of Education

**PI/PD:** Dianna Ross

### **Safe and Sound: Assessing and Educating Rural Older Oklahomans Toward Safe Living and Well Being**

The purpose of this project was to expand upon previous findings from the Hazard-Free Living for Older Rural Oklahomans: The Safe Aging in Familiar Environments (SAFE) Pilot Study funded by the Bartlett Family Grant. The project constituted a research and development project based upon identified needs of Oklahoma individuals and families. Results consisted of educational programming for extension and outreach in the area of safe housing as well as fact sheets detailing Falls Safety and Medication Safety for aging-in-place.

**Sponsor:** Oklahoma Home & Community Education Incorporated

**PI/PDs:** Alex Bishop, Gina Peek

### **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. Pilot data on neurological processes involved in processing emotions and social relationship are being collected using functional magnetic imaging in collaboration with Laureate Institute for Brain Research.

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

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

### **Tulsa Children's Project**

The purpose of this project is to provide a highly unique and integrated set of proven interventions to maximize the health and development of the families enrolled in Tulsa Educare, Inc.

**Sponsor:** George Kaiser Family Foundation

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

### **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. 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

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

The purpose of this study is to determine how older adults remain healthy given age-associated impairment. To date, data have been collected from N = 120 participants over 70 years of age. Data is currently being processed for preliminary analyses. A primary goal of this application is to improve assessment of emotional and life appraisal attributes in physiological functioning among older adults residing in private/independent community-dwellings versus those living in care facilities. A central focus is to examine how personal experience and life appraisal operate in tandem relative to diminish or improve individual well-being and health in very old age.

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

**PI/PD:** Alex Bishop

## **NUTRITIONAL SCIENCES**

### **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. A manuscript has been published reporting the outcome that preschool age children were able to distinguish between healthy and unhealthy foods after participation in the All 4-Kids program.

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

**PI/PD:** Deana Hildebrand

### **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 wheat germ oil (WGO) prepared using different extraction methods. Our findings suggest that WGOs affect both pro- and anti-inflammatory cytokines involved in

the development of many chronic diseases and that the method of extraction influences its anti-inflammatory properties.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PDs:** Edralin Lucas

Division of Agricultural Sciences and Natural Resources: Nurham Dunford

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

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, or ovx-control with alendronate injection (100 ug/kg body weight). Our 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

University of Oklahoma Health Sciences Center: Stanley Lightfoot

### **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 WIC Hot Button Evaluation**

The Chickasaw Nation Nutrition Services (CNNS) has an established history of research collaborations with faculty in the Department of Nutritional Sciences at Oklahoma State University. Through these contracts, CNNS has been able to improve the visibility of the Women, Infants and Children (WIC) program at the national level by reporting science-based outcomes and dissemination of these outcomes in peer-reviewed publications. The research and survey evaluation expertise provided by the current contract with OSU will benefit the CNNS WIC program by ensuring the development of evidence- and practice-based outcomes evaluation techniques.

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

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

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

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 was evaluated by testing iodine concentration of salt at all levels of production and consumption and by measuring urine iodine concentration (UIC) and salt from a random sample of community members. Overall, iodine deficiency is decreasing; however, UICs now suggest some excessive iodine intakes. Salt may not be homogeneously iodized. Hence a strong monitoring strategy from production to the household level is critical.

**Sponsor:** Nestlé 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 implement a culinary training program for school nutrition staff to assist in meeting the updated USDA school meal pattern requirements. A multi-disciplinary team of certified chefs, Human Sciences faculty, communication specialists and school foodservice directors has been convened. Baseline assessment of students' meal consumption patterns and readiness of staff to make changes as well as six pilot trainings were conducted in Spring and Summer 2014. The findings were used to develop skill development training curriculum and chef consultation protocols, with implementation beginning in 2015.

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

**PI/PD:** Deana Hildebrand

### **Do Gut-Mediated Benefits of Fruits and Vegetables Prevent Obesity and its Effects on Bone**

Nationwide, obesity is a significant public health issue. Excess adipose tissue is not only a risk factor for cardiovascular diseases, but also increases the risk of skeletal fracture. Recent reports have suggested a role for the gut mucosal immune system in the pathogenesis of obesity and bone loss. This project is the first to examine how incorporating fruits and vegetables into the diet counters obesity's detrimental effects on bone. Results of this study are advancing our understanding of the gut-bone connection and how the diet can be used to exploit this relationship and improve health outcomes.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Brenda Smith

### **Eagle Adventure After School: A Culturally Relevant Primary Prevention Program for Type 2 Diabetes and Obesity in Indian Country and Beyond**

The purpose of this project is to evaluate and expand the Chickasaw Nation's Eagle Adventure program to include an afterschool program. The project is one of nine projects identified for funding in the inaugural class of Promising Programs, Notah Begay III Foundation. The program will utilize traditional Native storytelling, language, interactive lessons, and physical activity to prevent type 2 diabetes and childhood obesity for the Native youth of Chickasaw Nation and beyond. The project evaluation results were promising and we are working to extend the program to interested tribal partners.

**Sponsors:** Chickasaw Nation, Notah Begay III Foundation

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

### **Eagle Adventure Program**

The Eagle Adventure Program is a collaboration between the Chickasaw Nation Nutrition Services' Get Fresh! program and Nutritional 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 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 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 sugar-sweetened beverages is a common dietary habit in Oklahoma, and consequently exacerbated postprandial glycaemia or lipemia has been shown to contribute to the existing cardiovascular pathology associated with diabetes. Our preliminary results show that dried cranberries may reduce the after meal rise of glucose when compared to the control group.

**Sponsor:** Cranberry Institute

**PI/PDs:** Arpita Basu

University of Oklahoma Health Sciences Center: Timothy Lyons

### **Effects of Heavy Metal Exposure on Tissue Minerals and Bone Microarchitecture**

The purpose of this project is to study the effects of heavy metal exposure on tissue minerals and bone microarchitecture in mice. Samples from the Tar Creek area are being compared to samples from two areas which are not known to be contaminated.

**Sponsor:** Canadian Bureau for International Education

**PI/PDs:** Barbara Stoecker, Maha Elturki

### **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 is being administered to the treatment group. Quantitative estimates of skin color and ultraviolet light exposure are being collected because they have the potential to affect vitamin D status. Samples of breast milk being collected will allow assessment of the possible need for interventions that meet the vitamin D needs of the growing infant and prevent rickets.

**Sponsor:** Nutricia Research Foundation

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

### **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/PDs:** Daniel Lin

Kansas State University: Weixin Yao

### **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. In this proposal, we will employ electron microscopy, immunoblotting and immunohistochemistry, ELISA, real-time PCR and Western blot, and HPLC 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/PDs:** Daniel Lin

College of Arts and Sciences: Ranjith Ramanathan

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

The Expanded Food and Nutrition Education Program (EFNEP) 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, 1,432 adult participants reported improvements in healthy eating (88%), budgeting and food resource management (82%), food safety (58%), and physical activity (27%). These improved behaviors help families eat healthier and stretch their food dollars. Additionally, EFNEP paraprofessional educators use evidence-based curriculum with first through fourth graders in schools and after-school settings. Overall 14,891 youth reported increasing their ability to choose healthy foods, physical activity, and practice safe food handling and food preparation.

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

**PI/PD:** Debra Garrard Foster

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

The Expanded Food and Nutrition Education Program (EFNEP) was established by Congress in 1968 to assist low-income families gain the knowledge, skills, attitudes, and changed behaviors necessary for nutritionally sound diets. Today the most common nutritional concerns have dramatically changed to obesity and related chronic disease prevention. It has been hypothesized that the types of foods most affordable and most readily available on a limited income are energy dense with higher quantities of fats and added sugars. The aim of this

research is developing new dietary assessment methods that provide valid information relevant to today's food intake practices.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Nancy Betts

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

The purpose of this project is to partner with the Oklahoma State Department of Health to provide training to school physical education to 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 Compounds and the Gut as a Therapeutic Target for Osteoporosis**

Bone loss is a major public health concern. Previous studies have shown that dietary supplementation with dried plum can prevent bone loss and alter the gut microbiome and mucosal immunity. This project is in the early stages of determining: 1) the extent to which the bioactive components in dried plum alter gut mucosal immunity via the TGF- $\beta$  pathway, and 2) how the gut mucosal immunological changes, especially among certain T cell subsets, induced by dried plum and its bioactive components correspond with alterations in bone.

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

**PI/PDs:** Brenda Smith

College of Arts and Sciences: Mark Payton

Division of Agricultural Sciences and Natural Resources: Udaya DeSilva

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

While the importance of food to health and well-being is clear, the specific ways in which food systems contribute to individual and community health are not well understood. This is a complex issue, which requires improving food systems as well as changing mindsets and behaviors of individuals within the food system. The purpose of this project is to investigate these complex relationships, involving key stakeholders in analyzing and addressing problems and solutions. Our goal is 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

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

The purpose of this project is to support the research and sabbatical leaves of three visiting scholars from Ethiopia, funded by the Norwegian Agency for Development Cooperation. Dr. Yosef Mamo will be investigating conservation of mountain nyala (*Tragelaphus buxtoni*) subpopulations. Non-invasive methods of research will be used for microsatellite analysis. Dr. Fikre Desalegn and Dr. Andargachew Gedebo will be writing research manuscripts and

developing collaborative proposals between the College of Human Sciences and 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 Dubale, Andargachew Gedebo

### **Hawassa University-Norwegian Agency for Development Cooperation Research Leave Grant**

The purpose of this project is to support the research of a visiting scholar, Dr. Andargachew Gedebo, from Ethiopia, funded by the Norwegian Agency for Development Cooperation. He 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: Yosef Mamo Dubale, Andargachew Gedebo

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

This pilot study examined the effects of freeze-dried mango (*Mangifera indica* L.) supplementation on anthropometrics, body composition, and biochemical parameters in obese individuals. Twenty obese adults (11 males and 9 females) received 10 grams per day of ground freeze-dried mango pulp for 12 weeks. Mango supplementation for 12 weeks significantly reduced blood glucose in both male and female participants, but there were no significant changes in body weight or composition in either gender. Inflammatory and oxidative stress markers are currently being assessed.

**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

### **Impact of Iron Status on Circadian Rhythm and Obesity**

Metabolic disorders (MD) such as diabetes are due in part to obesity. Recent evidence highlights the role of circadian clock (CC) in MD by altering nutrient metabolism. The CC is programmed to "keep time" based on light/dark signals as well as food intake. Regulation of the CC may be influenced by iron status indicating that micronutrients also play a role in control of the CC. This project examines iron-dependent mechanisms resulting CC disruption. Our results indicate that iron deficiency contributes to the dysregulation of the clock and may explain high plasma glucose and lipids observed in iron deficient individuals.

**Sponsor:** Oklahoma Agricultural Experiment Station

**PI/PD:** Stephen Clarke

### **Mango Improves Bone Parameters in Ovariectomized Mice, a Model of Osteoporosis in Postmenopausal Women**

Women are at an increased risk for developing osteoporosis particularly when they reach menopause. Because of the side effects and cost of drugs for osteoporosis, dietary options that can delay the development of osteoporosis are being explored. This study investigated the effects of freeze-dried mango on bone mass, microarchitecture, strength, and markers of bone metabolism in a mouse model of postmenopausal osteoporosis. As expected, estrogen deficiency negatively affected bone parameters. The higher dose of mango and both doses of polyphenol slightly improved lumbar trabecular. Our results suggest that mango supplementation has modest effects on bone.

**Sponsor:** National Mango Board

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

North Carolina State University: Penelope Perkins-Veazie

Veteran Affairs Medical Center: Stanley Lightfoot

### **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 individuals with moderately elevated blood glucose. Chronic mango consumption by individuals at risk for diabetes has no negative effects on blood glucose and body composition.

**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**

The Oklahoma Nutrition Education/SNAP-Ed program is a behaviorally focused nutrition education obesity prevention project for low-income adults and youth. Participants increased their ability to select and buy nutritious foods, gain skills in food preparation, food storage, food safety, and food budgeting in order to extend food dollars. Pre and post evaluation records

indicate adults and youth graduating from the program exhibit a positive change in their diet at the time of exit from the program. The majority of adult participants reported improvement in behaviors related to improving nutrition practices (88%), food resource management (84%), food safety (58%), and increasing physical activity (31%).

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

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

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

Despite recent advances in osteoporosis 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 plums are a rich source of phenolic compounds which have unique properties, in that they can restore bone in animal models of postmenopausal and age-related bone loss. This project is providing new insights into the specific types of phenolic compounds within dried plums that are responsible for these bone protective effects and their mechanisms of action

**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.

Further research is needed to determine how tart cherry is inducing 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.

**Sponsors:** Putnam City Public Schools, United States Department of Education

**PI/PD:** Deana Hildebrand

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

This project will assess the effects of raspberries in postprandial glycemia and lipemia following a high-fat fast-food style meal challenge versus control group. We are assessing 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. The study is currently in the recruitment phase.

**Sponsors:** National Processed Raspberry Council, United States Department of Agriculture  
**PI/PDs:** Arpita Basu  
University of Oklahoma Health Sciences Center: Timothy Lyons

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

The project purpose is to incorporate focus group results learned earlier in the project in development of curricula for adult consumers. Factors included are those participants indicated they considered when making beef purchase and consumption decisions including taste, price, health factors, preparation time and occasion. Environmental factors impacting beef production are included even though they were not considered at time of purchase or consumption. Curriculum includes training materials (PowerPoint presentations, demonstration options, print materials, train-the-trainer guides) for three “Does Climate Change Your Plate” lessons. An evaluation tool is under development.

**Sponsors:** Kansas State University, United States Department of Agriculture, National Institute of Food and Agriculture  
**PI/PD:** Barbara Brown

### **Student Outcome Evaluation**

Oklahoma State University Department of Nutritional Sciences will conduct student outcome evaluation for Schools for Healthy Lifestyles 3rd and 5th grades 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 Health Lifestyles' Health Survey.

**Sponsors:** Schools for Health Lifestyles, United States Department of Education  
**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 to address the prevalence of obesity. Under contractual agreement with TSET, OSU 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 social norm changes around healthful eating and active living.

**Sponsor:** Tobacco Settlement Endowment Trust Nutrition  
**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 accompanies high fat diet-induced obesity.

**Sponsor:** National Mango Board

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

College of Arts & 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