

FISCAL YEAR
2014



RESEARCH
ABSTRACTS

COLLEGE OF HUMAN
SCIENCES

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FY2014 RESEARCH ABSTRACTS

Great Plains Interactive Distance Education Alliance (GPIDEA)

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

Low Income Housing Tax Study

The purpose of this project was to conduct a study on Low Income Housing Tax Credits (LIHTC) in Oklahoma. This study helped establish the state need for LIHTC in terms of affordable housing needs and likely population targets. The study also reviewed the performance of the federal LIHTC in Oklahoma and offered a concluding summary about the potential of a State LIHTC in Oklahoma.

Sponsor: Oklahoma State Home Builders Association

PI/PDs: Jorge Atilas

Human Development and Family Science: Sissy Osteen

Design, Housing and Merchandising: Gina Peek

Division of Agricultural Sciences and Natural Resources: Dave Shideler, Brian Whitacre

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

Effects of Quantity and Quality of Light on Circadian Rhythm

The purpose of this project is to determine the quantity and quality of light at a continuing care retirement center and investigate how it affects the circadian rhythm of employees. This study will also include a review of lighting design proposals for renovations at the facility.

Sponsor: Epworth Villa

PI/PDs: Paulette Hebert, Greg Clare

Environmental Design for Hospice Care at Home

The purpose of this project is to investigate four questions regarding the environment at home for hospice care: 1) If given the opportunity, will patients, their families, or caregivers, engage in a mindful design of the home environment in which the care is to be given?, 2) What are the design characteristics they will choose to focus?, 3) What are the barriers to implementation?, and 4) What was the effect of these choices on the quality of life during hospice care?

Sponsor: University of Oklahoma Foundation

PI/PDs: Melinda Lyon

University of Oklahoma Health Sciences Center: Jerry Vannatta

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

Lead-Free Oklahoma

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

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

PI/PD: Gina Peek

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

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

Sponsors: Auburn University, United States Department of Agriculture

PI/PDs: Gina Peek

Division of Agricultural Sciences and Natural Resources: Tom Royer

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

A three-year project is underway to accelerate integration of climate change concepts and other environmental issues into fiber, textile, and clothing (FTC) curricula via professional development programs. 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. The multiple perspectives of the roundtable participants resulted in significant outcomes including the development of a comprehensive set of environmental science competencies and professional development program areas that can be used to advance 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

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

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

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

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

PI/PD: Paulette Hebert

Smart Garment Development for at Home Measures of Health

The goal of this project is to develop a 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

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

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

Sponsor: Bartlett Family Grant for Promoting Independent Living

PI/PDs: Paulette Hebert, Mihyun Kang, Hyun-Joo Lee
School of Hotel and Restaurant Administration: Lisa Slevitch, Yeasun Chung

HUMAN DEVELOPMENT AND FAMILY SCIENCE

ADvantage Waiver Program Evaluation

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

Sponsor: Oklahoma Department of Human Services

PI/PDs: Alex Bishop, Whitney Bailey

CareerAdvance Outcomes Study, Community Action Project of Tulsa County

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

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

PI/PD: Amanda Morris

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

This project is designed to study the expansion of CareerAdvance, an adult workforce development program run by the Community Action Project of Tulsa County (CAP).

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

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

PI/PD: Amanda Morris

CareerAdvance: Outcomes Study, Health Profession Opportunity Grants University Partnership– Child Assessment

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.

Sponsors: Northwestern University, Institute of Policy Research, and Department of Health and Human Services

PI/PD: Amanda Morris

Center for Family Resilience

The Center for Family Resilience (CFR) focuses on translational science designed to understand and foster family resilience. The CFR accomplishes its work through three integrated programs: research, education and translation, and community engagement. The CFR's fundamental strategy is to create and nurture partnerships among community members, leaders of human and social service agencies, and academic researchers to construct a "real world" understanding of what family resilience is, as well as programmatic and policy strategies that promote family resilience.

Sponsor: George Kaiser Family Foundation

PI/PD: Joseph Grzywacz

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/PDs: Ron Cox

Division of Agricultural Sciences and Natural Resources: Charles Cox

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

Early Childhood Partnership Project

This project is to facilitate the enrollment of three through five year old children residing within the Morrison and Pawnee Public School Districts into an inclusive Preschool through Kindergarten educational program. The program implements the Oklahoma State Department of Education criteria in all subject and therapeutic services, which includes, but is not limited to social-emotional, mathematics, social studies, science, literacy, physical therapy services, occupational therapy services, and speech and language.

Sponsors: Morrison and Pawnee School Districts

PI/PD: Dianna Ross

Early Childhood Partnership Project Agreement

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. The program implements Oklahoma State Department of Education and Stillwater Public School's educational criteria including, but not limited to, family literacy activities.

Sponsor: Independent School District Number 16 of Payne County

PI/PD: Dianna Ross

Early Settlement North

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

Sponsor: Administrative Office of the Courts

PI/PD: Matt Brosi

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 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, Institute for Policy Research, 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

From Their Perspective: Alaskan Grandparents' Roles, Strengths, and Needs

The purpose of the study was to broaden our understanding of multiple dimensions of grandparents rearing grandchildren in Alaska. We are learning about the experiences of grandparents living in arctic regions, focusing on their strengths, wants, and needs and discovering what and who influenced their lives. From our summary findings, circumstances in the lives of parents, culture, and tradition explained why grandparents were rearing their grandchildren in Interior Alaska. Culture, traditions, and values likewise explained why grandparents living in rural Alaska served as the primary caregiver of their grandchildren. Additional findings are forthcoming.

Sponsor: National Science Foundation

PI/PDs: Tammy Henderson

University of Alaska-Fairbanks: Bert Boyer

Alaska Community Services: Alexandra Appel

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

The primary aim of this project is to improve the ecology of aging in rural Oklahoma. The purpose of this study was to identify home safety hazards, individual use and beliefs involving technology, and personal health and well-being attributes of aging-in-place among rural Oklahomans. A total of 33 persons distributed across 23 homes and residing in Beaver, Kay, Major, Noble, or Woods counties participated. Preliminary results indicate that participants report higher than average home repair needs and home exposure to weather-related hazards, yet lower than average use of medical devices in the home and overall satisfaction with the home environment.

Sponsor: Bartlett Family Grant for Promoting Independent Living

PI/PDs: Alex Bishop

Design, Housing and Merchandising: Gina Peek

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-The Southwest Center for Agricultural Health, Injury Prevention, and Education, National Institute for Occupational Safety and Health

PI/PD: Michael Merten

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 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 energy balance and parenting to identify obesity prevention outcomes and potential statistical moderators, and 2) conduct a meta-analysis of the identified childhood prevention/intervention studies to identify significant prevention programs and significant moderators of program effectiveness.

Sponsor: Oklahoma Agriculture Experiment Station

PI/PD: Laura Hubbs-Tait

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

The purpose of this project is to improve academic success 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

National Core Indicators Adult Consumer Survey – Oklahoma

The purpose of the National Core Indicators (NCI) project is to identify and measure core indicators related to quality of life (e.g., safety, health and wellness, protection of individual rights) for adults with intellectual and developmental disabilities receiving state funded services. From October 2013-June 2014, the NCI team of OSU undergraduate and graduate students conducted face-to-face interviews with 986 adults with intellectual and developmental disabilities and their family members or staff. NCI gathers a standard set of performance and

outcome measures that tracks performance throughout the developmental disabilities service system to compare results across states and to establish national benchmarks.

Sponsors: Oklahoma State Department of Health, Developmental Disabilities Services Division

PI/PDs: Jennifer Jones, Kami Gallus

Nonstandard Maternal Work Schedules and Child Health in Impoverished Families

The project studies the threat of nonstandard maternal work schedules to poor children's physical and emotional well-being as precursors to school readiness. The project aims are to: 1) delineate differences in physical health and emotional well-being at 30 months among children by mothers' exposure to a nonstandard job schedule during the child's first year, 2) quantify how much parenting practices and maternal well-being explain differences in the physical health and emotional well-being of children by maternal work schedules, and 3) identify individual, familial, and social factors that serve as protective factors for children whose mothers have a nonstandard work schedule.

Sponsor: National Institutes of Health

PI/PDs: Joseph Grzywacz

University of North Carolina at Greensboro: Stephanie Daniel

Wake Forest University Health Sciences: Beth Reboussin

Oklahoma AgrAbility Project

This project provides education, networking and direct assistance to farmers, ranchers and their families impacted by disabilities and barriers to continued work in agriculture. Staff members provide case management in helping clients receive assistive devices to insure safety and improve quality of life. The project also increases competencies of rural healthcare providers to provide rehabilitation to farmers and ranchers. The project lead is 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

The purpose of this funding was to facilitate the Linking Gerontology and Geriatrics evidence-based conference, "A Sign of the Times: Health Trends and Ethics". The conference included sessions on: (a) musculoskeletal disorders in the aging workforce; (b) health disparities; (c) ethics; (d) healthcare policy; and (e) arthritis. Dr. Caban-Martinez, DO, PhD, MPH, CPH from Harvard University delivered the keynote address, Evidence-based Prevention of Musculoskeletal Disorders in the Aging Workforce. Other speakers were: Ms. Linda Thomas, MS, Oklahoma State Department of Health; Jean Root, DO, actively engaged, "retired" geriatrician; Ms. Ross-White, MSW, Community Service Council of Tulsa; and Dr. Schnitz, MD, private practice rheumatologist.

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

PI/PD: Tammy Henderson

Parent-Child Communication Regarding Autism Spectrum Disorders

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

Sponsors: AutismOklahoma.org, Oklahoma Family Center for Autism

PI/PD: Jennifer Jones

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

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

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Laura Hubbs-Tait

Promoting Employment: Building Resources for Employing Older Oklahomans

Individuals are working beyond traditional retirement years. Job-focused initiatives for employing older Americans are not keeping pace. This project will determine: 1) the needs of older Oklahomans related to employment and employability, and 2) current availability of public educational resources for older Oklahomans and those who serve them. In subsequent years, this initial groundwork in building resources for employing older Oklahomans would be devoted to establishing district level employment initiatives for older Oklahomans.

Sponsor: Family and Consumer Sciences Ambassadors Endowments

PI/PD: Sissy Osteen

Psychosocial Contributors to Health and Illness: The MIDUS Refresher Cohort

The primary goal of this project is to create a refresher cohort for the Midlife in the United States (MIDUS) baseline probability sample (N=3,487) interviewed in 1995. The key rationale for refreshing the MIDUS longitudinal cohort are to: 1) assess period effects in psychosocial and health factors among vulnerable subgroups (defined by age of educational status), 2) advance the larger MIDUS agenda to understand unfolding health trajectories as the product of the interplay between psychological, social, and biological factors, and 3) establish a baseline for future tracking of a parallel longitudinal sample.

Sponsors: University of Wisconsin, National Institutes of Health

PI/PD: 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

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

Sponsor: Oklahoma Center for the Advancement of Science and Technology

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

Tulsa 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/PD: Jennifer Hays-Grudo

Tulsa Teen Pregnancy Prevention Coalition: Baseline Survey

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

Sponsor: George Kaiser Family Foundation

PI/PDs: Ron Cox, Katrina Shreffler

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

The focus of this research is to examine how relationships with parents and peers can support emotion regulation and reduce risk among teenage girls living in high-risk settings. Adolescents

participate in this study over a four-week period. Teens participate in observational tasks with a parent and a friend, and for two weeks they report on their emotions and behaviors multiple times a day through telephone interviews. Data has been collected from over 80 parent-teen dyads thus far. Findings will be used to create intervention programs aimed at strengthening relationships among high-risk girls in order to improve socio-emotional adjustment.

Sponsor: National Institutes of Health

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

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 impairment. To date, data have been collected from N = 50 participants over 70 years of age. Data is currently being coded and cleaned for analysis. 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 and nursing homes. A central focus of this goal is to examine how personal experience and life appraisal operate in tandem relative to individual well-being and health in very old age.

Sponsor: Oklahoma Center for the Advancement of Science and Technology

PI/PDs: Alex Bishop, Brandt Gardner
Department of Nutritional Sciences: Brenda Smith
University of Oklahoma Health Sciences Center: Bruce Carnes
Bradley University: Kevin Randall

Warren Alexander Group Graduate Assistantship at Oklahoma State University

The purpose of this project is to enhance student learning in Marriage and Family Therapy by establishing the Warren Alexander Group Graduate Assistantship in the Department of Human Development and Family Science. Dr. Glade Topham serves as the faculty advisor for HDFFS Marriage and Family Therapy student externships.

Sponsor: Warren Alexander Group

PI/PD: Glade Topham

SCHOOL OF HOTEL AND RESTAURANT ADMINISTRATION

Cushing Pipeline Interpretive Center Feasibility Study

The main objectives of this project are to explore the level of interests and potential impact of establishing the Cushing Pipeline Interpretive Center (Center) in both the energy and non-energy communities; identify the expected features, activities, services, and programs that should be provided in the Center; and estimate Strengths, Weaknesses, Opportunities, and Threats (SWOT) which can be used as a part of the strategic planning process for developing the Center in a later phase(s) of the project.

Sponsor: Cushing Chamber of Commerce

PI/PDs: Jing Yang, Hailin Qu, Bill Ryan

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

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

Sponsor: United States Department of Education

PI/PDs: Bill Ryan, Sheila Scott-Halsell

NUTRITIONAL SCIENCES

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

American Indian Diabetes Prevention Center: Impacting Health Disparity in Youth

Pregnancies complicated by diabetes confer various health risks to both mother and the child. The focus of this project is to provide supervision and assistance on dietary data collection for an observational study examining the dietary intakes and serum biomarkers of oxidative stress and inflammation in pregnant women with impaired glucose levels. Specifically, we will train staff members on interview protocols, monitor interviewing procedures, conduct quality checks to ensure proper data entry, and consult on analyses of dietary and serum biomarkers. Currently, the study is in the recruitment phase.

Sponsors: University of Oklahoma Health Sciences Center, National Institutes of Health

PI/PD: Arpita Basu

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

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

Sponsor: Oklahoma Agricultural Experiment Station

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

Division of Agricultural Sciences and Natural Resources: Nurham Dunford

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

The purpose of this project was to examine the effects of micronutrient status on health, physical condition, and thyroid metabolism of under five year old children from rural areas of Ethiopia. Serum selenium concentrations were below 70 ug/L for 58.9% of the 54-60 month old children measured. Prevalence of selenium deficiency in the six administrative zones ranged from none in South Wollo to 97.8% in West Gojjam. In addition to iodine, selenium could be important to the thyroid metabolism of children in the Amhara region of Ethiopia.

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

PI/PDs: Barbara Stoecker

Addis Ababa University: Dawd Adem

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

The purpose of the project was to 1) broaden the use of choice architecture strategies in middle-school nutrition settings and study the impact on students' fruit and vegetable choices, and 2) better understand school nutrition employees' attitudes toward use of the strategies. Twenty-six schools participated. Within those schools the extent to which strategies were used increased, driven by increasing convenience of fruits and vegetables. Students voluntarily selected almost twice the amount of fruits and vegetables offered (1¼ cups total) compared to minimum required amount (1/2 cup). Of the managers choosing not to participate, time and resources were cited as barriers.

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

PI/PDs: Deana Hildebrand, Tay Kennedy

Spears School of Business: Josh Weiner

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

Low back pain is one of the most common chronic health complaint reported by Americans. Lumbar disc disease (LDD) is the most frequently documented etiology associated with chronic back pain. The purpose of this research is to examine alterations in lumbar disc of patients with LDD using MRI techniques and to correlate these changes with genetic profiling, bone and collagen metabolic indicators, and inflammatory biomarkers. Understanding how genetic, metabolic and inflammatory factors that contribute to LDD will lay the groundwork for developing effective prevention and treatment approaches.

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

PI/PD: Brenda Smith

Chickasaw Nation Social Marketing, Evaluation, and Tribal Support

The overall goal of this project is to develop participant-centered and culturally relevant programs to promote benefits of healthful eating and physical activity within the constraints of a limited budget, time and family needs. To date, the Eagle Adventure school-based program for youth and their families and the Diabetes is Not Our Destiny intergenerational campaign has been developed in coordination with Chickasaw Nation Get Fresh! partners to convey a vision of hope that type 2 diabetes can be prevented. The collaborative effort is a continuation of a long-term partnership for which the return is prevention of diabetes among Native American families living in Oklahoma.

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

PI/PD: Stephany Parker

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

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.

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, the prevalence of obesity is on the rise, and Oklahoma is no exception. Excess adipose tissue is not only a risk factor for cardiovascular diseases, but also increases the risk of skeletal fracture. The mechanism through which obesity alters bone is considered a cytokine-driven process. Recent reports have suggested a role for the gut mucosal immune system in the pathogenesis of obesity and bone loss. This project is investigating how various dietary factors alter the gut immune response and ultimately impact distal organ system such as the bone.

Sponsor: Oklahoma Agricultural Experiment Station
PI/PD: Brenda Smith

Dysregulation of Bone Metabolism in Type 2 Diabetes

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

Sponsor: Oklahoma Center for Advancement of Science and Technology
PI/PDs: Brenda Smith, Stephen Clarke, Edralin Lucas

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. The project is currently underway with pre-and post-evaluation results forthcoming.

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: Maha Elturki, Barbara Stoecker

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

EFNEP Related Research, Program Evaluation and Outreach

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

Sponsor: Oklahoma Agriculture Experiment Station

PI/PD: Nancy Betts

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 β , β -carotene 9, 10 oxygenase 2 (BCO2).

Sponsor: American Egg Board

PI/PDs: Daniel Lin

Kansas State University: Weixin Yao

Expanded Food and Nutrition Education Program

The EFNEP program focuses on helping families and youth improve behaviors in the following areas: dietary intake, food resource management, physical activity and food safety practices. Based on pre/post evaluations, 1,412 adult participants reported improvements in behaviors relating to healthy eating (71%), budgeting and food resource management (81%), food safety (56%), and physical activity (34%). These improved behaviors help families eat healthier and stretch their food dollars. Additionally, EFNEP paraprofessional educators use evidence-based curriculum with third and fourth graders in schools and after-school settings. Overall, 21,826 youth reported learning to develop healthy eating habits, choose healthy snacks, be more active, and practice safe food handling.

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

PI/PD: Debra Garrard

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

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 to determine the implications for conservation of mountain nyala (*Tragelaphus buxtoni*) subpopulations. Non-invasive methods of research will be used for microsatellite analysis.

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 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

The increased prevalence of metabolic disorders (e.g., cardiovascular disease, diabetes) is generally attributed to epidemic levels of overweight and obesity affecting our society. Investigation into the prevention and treatment of these disorders has provided insight into other factors, including disturbances of circadian rhythm (CR), which may further modify disease risk. Circadian rhythm refers to the adaptive phenomena developed by virtually all known species to anticipate daily events. The circadian clock is programmed to "keep time" based on light and dark signals (i.e., day and night), as well as cues from the timing of eating and sleeping. Disruption of CR is implicated in altering glucose and lipid homeostasis, thereby contributing to the risk of developing metabolic diseases including obesity, diabetes, and cardiovascular disease. Despite an understanding of the interactions between circadian regulation and metabolism, the response of the circadian clock to nutrient signals has yet to be clearly elucidated.

Sponsor: Oklahoma Agriculture 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
University of Oklahoma Health Sciences 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 is investigating the effects of daily supplementation of freeze-dried mango (10 g/day) for three months in improving blood glucose control and reducing body fat in pre-diabetic individuals. The findings of this research, if positive, will provide pre-diabetics with a dietary option for delaying or even preventing the development of type 2 diabetes.

Sponsors: 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

Molecular Coordination of Iron Homeostasis by MicroRNAs

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

Sponsor: National Institutes of Health

PI/PD: Stephen Clarke

Nutrient Bioavailability - Phytonutrients and Beyond

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

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Barbara Stoecker, Edralin Lucas

Oklahoma Nutrition Education

This program is a behaviorally focused science-based nutrition education intervention project focused on improving dietary quality in low-income adults and youth. Participants increase their ability to select and buy food that meets the nutritional need of their families and gain skills in food preparation, food storage, food safety, and food budget management. 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 healthy eating (43%), budgeting and food resource management (79%), food safety (56%), and physical activity (32%).

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

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

Osteoprotective Activity of a Dried Plum Extract

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

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 Dietary Supplementation with Tart Cherries

Osteoporosis continues to be a major public health problem in the United States. The pursuit of alternative approaches for preventing bone loss has included the investigation of a number of plant-based foods rich in certain types of polyphenolic compounds that have the capacity to prevent. This study has shown that dietary supplementation with tart cherries prevents age-related bone loss, and further studies are underway to understand the mechanism by which these effects are mediated.

Sponsor: Cherry Marketing Institute

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

University of Oklahoma Health Sciences Center: Stanley Lightfoot

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 plums and tart cherries, which are rich in certain phenolic compounds, have osteoprotective effects. The purpose of this project is to determine how dietary supplementation with tart cherry alters bone metabolism (i.e., osteoclast and osteoblast differentiation and activity) and the extent to which these effects are mediated via the gut mucosal immune response.

Sponsor: Cherry Marketing Institute

PI/PD: Brenda Smith

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 (WM), 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

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

Dietary cocoa powder containing the highest amount of polyphenols has been shown to be beneficial in type 2 diabetes and hypertension. This study aims to test the hypothesis that cocoa powder will lower high-fat, fast-food style, breakfast-induced postprandial rise of glucose, lipids and markers of atherosclerosis in patients with type 2 diabetes. Our results show cocoa powder intake was associated with a lower magnitude of decrease in after meal high density lipoprotein (HDL)-cholesterol levels, when compared to the placebo (no cocoa) group. Keeping in view the role of HDL in reducing risks of heart disease, these findings may have implications in the nutritional management of diabetes.

Sponsor: The Hershey Company

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 purpose of this project was to study focus group opinion based on factors consumers considered when they made beef purchase decisions, if environmental impacts of cattle production were involved, and if industry efforts to reduce environmental impacts would change perception of beef and/or anticipated purchase practices. Price, taste, marbling, freshness, intended use, number served, leanness and production practices were considered during beef purchases. Beef was the overwhelming protein choice yet many had switched to other sources because of cost and use of growth promoters. Most didn't think reducing environmental impacts of production would change perception or purchase practices but, cost increases due to production changes would reduce consumption.

Sponsors: United States Department of Agriculture, National Institute of Food and Agriculture

PI/PDs: Barbara Brown

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

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

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

Sponsors: National Institute of Food and Agriculture, United States Department of Agriculture

PI/PD: Elizabeth Rendina

Tobacco Settlement Endowment Trust Nutrition and Fitness Initiative Evaluation

The Oklahoma Tobacco Settlement Endowment Trust awarded grants in July 2011 to 15 consortiums/coalitions representing 21 counties to advocate for nutrition and physical activity policies in schools, worksites and communities. OSU's Department of Nutritional Sciences evaluated the progress of the grant projects. Baseline assessments were conducted finding 77% of schools had policies, 3% of businesses had policies, and 25% of communities had ordinances. Of the policies in place all were considered weak when compared to recommended best-practices to reduce the prevalence of obesity. Mid-project assessments are being conducted in 2014 to measure progress.

Sponsor: Tobacco Settlement Endowment Trust

PI/PDs: Deana Hildebrand, Nancy Betts

Understanding how Mango Affects Glucose Homeostasis in Type 2 Diabetes

The objective of this study is to investigate the effects of dietary supplementation of mango on gut-mediated immunity and microbiome and the corresponding changes in glucose homeostasis and body composition in an animal model of diet-induced obesity. The hypothesis to be tested is that diets containing mango will prevent the negative effects of a high fat diet and obesity by preventing the deleterious effects on the gut microbiome. Scientific data that support the health benefits of mango may increase public awareness and consumption of this fruit, therefore increasing the marketing potential for mangos worldwide.

Sponsor: National Mango Board

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

Division of Agricultural Sciences and Natural Resources: Udaya DeSilva

College of Arts and Sciences: Mark Payton

University of Oklahoma Health Sciences Center: Stanley Lightfoot

North Carolina State University: Penelope Perkins-Veazie

Work Task Performance Measures in Amputees with Trans-Tibial Amputation due to a Traumatic Event

Lower limb amputation is a permanent, life-changing, musculoskeletal condition. Over the past 8 year period, 15,000 Americans have undergone lower limb amputation due to a traumatic event. Although efforts are made to prepare amputees to return to work through

rehabilitation, those with lower limb amputation are disproportionately overrepresented among the unemployed. Chief among reasons for unemployment are residual limb pain and musculoskeletal injuries suffered during work-related activity. This project is designed to determine the extent to which the mechanisms underlying these injuries occurring during work-related activities are preventable.

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

PI/PD: Brenda Smith