

College of Human Sciences – FY2011 Research Abstracts

Military Academic Advancement Program

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

Sponsors: Kansas State University, United States Department of Agriculture

PI/PD: Shiretta Ownbey

DESIGN, HOUSING, AND MERCHANDISING

Adoption of Sustainable Lighting: CFL's and LED's

Consumer participants experienced three types of lighting: incandescent, compact fluorescent lights (CFLs), and light emitting diodes (LEDs) and evaluated costs, return on investment, light level, energy consumption, disposal methods, health concerns, color, and overall appearance. Researchers measured the light levels and recorded attributes of lights in actual residential settings. This field study utilized one hundred consumers, aged 20 to 83. Preliminary findings showed Baby-Boomers were more likely to be willing-to-pay more for compact fluorescent than for incandescent. The study also revealed that most consumers agreed with "Sustainability is important to me." Consumers of all ages were more likely to agree that LEDs were sustainable after they participated in this study.

Sponsor: United States Environmental Protection Agency

PI/PDs: Paulette Hebert, Celia Stall-Meadows

Department of Human Development and Family Science: Jan Johnston

Advantage Camo Glove Prototype Development and Production

A new glove design was developed as per the client specifications to address the needs of the military and also to be suitable for heavy work conditions. The fit of the glove was perfected for one size, prototype gloves produced and graded patterns for five more sizes were developed and presented to the client both in paper form and in electronic files.

Sponsor: Advantage Supplies Inc.

PI/PDs: Semra Peksoz, Adriana Petrova

An Evaluation of the Existing Interior Conditions of the Epworth Villa Facility

The project is a quantitative and qualitative study of the Epworth Villa facility consisting of existing lighting levels and a comparison of lighting industry recommendations to existing lighting levels. An evaluation of facility is in the process of being completed.

Sponsor: Epworth Villa

PI/PD: Paulette Hebert

Edmon Low Library Room Renovation and Illumination Study

This study focused on the use of a survey questionnaire to inform a sustainable lighting design for the modification of an existing library. A forty-item questionnaire sought to evaluate the effect of lighting design on end-user perceptions and opinions and to gather general opinions regarding sustainability. One hundred and eighty three respondents completed questionnaires. Results indicate that the respondents were dissatisfied with existing lighting; that they were aware of sustainability and sustainable lighting; and suggested that issues be addressed to reduce the library's environmental footprint. End-users influenced a design proposal which is anticipated to increase sustainability, meet new university guidelines, and reduce energy consumption.

Sponsor: Oklahoma State University Foundation
PI/PD: Paulette Hebert

FSTechnology Ballistic Shoot Pack

A set of ballistic fabric systems as per Naval Research Laboratories specifications were constructed for subsequent ballistic performance testing by aforementioned laboratories.

Sponsor: FSTechnology, Inc.
PI/PD: Semra Peksoz

Healthy Homes Project

The objective for the project is to continue to develop and improve our Healthy Homes curriculum and toolkits targeted toward specific audiences within communities across the state, to prepare manuscripts and conference proposals, and to present our materials at the 2011 Housing Education and Research Association (HERA) and the 2011 National Healthy Homes conferences.

Sponsors: Auburn University, United States Department of Agriculture
PI/PD: Gina Peek

Institute for Protective Apparel Research and Technology (IPART)

In accordance with IPART's mission "*To rapidly design, prototype and evaluate innovative, wearable protective apparel systems and related technologies, to facilitate technology transfer of newly developed products to industry, and to provide research and technology transfer learning experiences to students*", the team of scientists continued designing and testing advanced personal armor to save lives of soldiers and civilian workers. Through developing smart apparel systems and other protective clothing, the projects aimed to prevent injury, promote wellbeing and increase quality of life as well as improving IPART's capabilities in material development, modeling and human factors.

Sponsor: Office of Naval Research, Naval Research Laboratory
PI/PDs: Donna Branson, Semra Peksoz, Adrianna Petrova
College of Engineering, Architecture, and Technology: Hongbing Lu, Jan Hanan, James Smay

Measuring the Impacts of Existing Artificial Optical Radiation at 3 Sites: A Pilot Study of Military, Student, and Older Adult Housing Communities

This project studied lighting preferences and behaviors and 1) documented and evaluated existing lighting across three housing community types and compared these to recommended levels, 2) educated consumers about sustainable vs. unsustainable lighting, and 3) determined barriers to consumer adoption of sustainable lighting through surveys of college students, military families, and older-adults. Field studies revealed evidence of optical radiation across all housing types. Some light levels exceeded industry recommendations. Surveys found sustainability is most important to university students and military personnel.

Sponsor: United States Environmental Protection Agency
PI/PDs: Paulette Hebert, Gina Peek
University of Oklahoma: Abimbola Asojo

Second Facility Management Course

Facilities management centers on the triad of people, process, and place, but the element of *people* is incomplete without recognition and consideration of different generations in today's workforce and the differences between these groups. This pilot study surveyed 55 facility management professionals from the mid-western United States. Almost one quarter of the respondents to the survey did not agree that knowledge of generational differences was important, while about half of the respondents only somewhat agreed that it was important. However, a survey of relevant literature suggests that successful management of workplace generational differences can improve efficiency and enterprise viability.

Sponsor: International Facility Management Association -Oklahoma City and Tulsa Chapters
PI/PD: Paulette Hebert

Faculty and Student Team (FaST) Research Program at Argonne National Laboratory

The purpose of this sustainable lighting field study was to gather data about existing lighting conditions in four buildings on the Argonne National Laboratory site and to make recommendations for improvements in order to save the federal government energy and money. Tasks included examining and documenting lighting fixtures, lamp attributes and energy consumption. Light levels were measured in situ and compared to industry standards. Lighting levels in many areas were found to exceed industry standards. Occupancy sensors and de-lamping were recommended.

Sponsors: National Science Foundation, United States Department of Energy

PI/PD: Paulette Hebert

HUMAN DEVELOPMENT AND FAMILY SCIENCE

Analysis and Consultation Management for the Oklahoma Marriage Initiative

Oklahoma State University is engaged with the Oklahoma Marriage Initiative to provide on-going statistical analysis of program data as well as consultation on program evaluation design and data collection methods.

Sponsor: Oklahoma Department of Human Services

PI/PD: Christine Johnson

Center for Family Resilience

The Center for Family Resilience (CFR) focuses on scholarship emphasizing individual and family risk and resilience. Over time, individuals and families face risk associated with either developmental changes or chronic or unpredictable challenges. Yet, the potential exists to be resilient or engage in processes that facilitate the successful navigation of risk in ways that promote adaptation in individuals, families, and at the interface of families, communities, and policy. The CFR investigates and applies scholarship regarding the processes within and between individuals, families, communities, or broader social contexts and policies that foster resilience or the ability to successfully manage and overcome risk.

Sponsor: George Kaiser Family Foundation

PI/PD: Ron Cox

Child, Family, and School Influences on Developmental Outcomes of Children with and without Disabilities

The goal of this longitudinal study is to explore the physical, cognitive, and social-emotional development of children with and without developmental delays, who are attending the CDL-Rise Program at OSU, as well as the impact of attendance on family functioning. Research to date indicates that children attending the CDL-Rise program are showing gains in communication, interpersonal, motor, and daily living skills. Additionally, findings suggest reduced stress for parents of children with developmental delays. Parents have also indicated that CDL-Rise based therapies and educational experiences for their children have had a positive impact on their family as well as their child.

Sponsor: Oklahoma State Department of Education

PI/PD: Amy Halliburton

Consumer Debt among Older Adults in Rural Oklahoma

The purpose of the project was to assess the financial literacy of rural Oklahomans age 65 and older, their current use of and attitudes towards using credit cards and other types of consumer debt, and the consequences of increased debt for this population. Those surveyed exhibited very low credit card usage, responsible payment practices, and most never used them to pay medical expenses. They displayed a level of financial literacy similar to JumpStart's 2008 college sample and strong credit knowledge. While the financial situations and well-being for most was quite positive, those with financial pressures faced some negative outcomes.

Sponsor: Oklahoma Home and Community Education, Inc.

PI/PDs: Eileen St. Pierre, Karina Shreffler

Disability Status and Impact on Agricultural Life for Oklahoma Farming and Ranching Families

There is scant data available on current status/impact of disabilities on Oklahoma farm/ranch families. This study examines barriers including: lack of information for individuals with a variety of disability; isolation from rehabilitation technology; and travel to obtain adequate services. Early data will inform continuing education for rehabilitation professionals in developing agricultural treatment plans and provide research-based education for Oklahoma Cooperative Extension Service. Education will be used to inform, thus reduce the incident of injury; explain the normative and non-normative aging processes of this work force; and develop professional proficiency in rehabilitation professionals.

Sponsors: University of Texas, Health Science Center at Tyler, National Institute for Occupational Safety and Health

PI/PDs: Jan Johnston

Langston University: Lynn Jeffries

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. During FY 2011, the case load for ESN has continued to increase with 563 total cases resulting in 71-77% of the parties reaching total or partial agreement over the dispute. Mediations seek to resolve disputes over money, property, consumer dissatisfaction and/or relationships.

Sponsor: The Administrative Offices of the Courts

PI/PD: Sue Williams

Evaluation of Adoptive Couples Marriage Enrichment Retreats

The purpose of the project was to assess short-term and long-term benefits of marriage enrichment retreats sponsored annually by Oklahoma Department of Human Services and delivered to Oklahoma couples who have adopted a child. Findings from the study are being utilized by family support agencies to increase family stability and child well-being.

Sponsor: Oklahoma Department of Human Services, United States Department of Health and Human Services

PI/PD: Christine Johnson

Evaluation of Special Caregivers Retreats

The objectives of this project are to evaluate program outcomes/impacts and produce research briefs in relation to marriage education retreats that are sponsored annually by Oklahoma Department of Human Services. The retreats target married couples who are caregivers to special needs children, including parents of children with autism, grandparents raising grandchildren, foster parents, and children with developmental disabilities. Findings will be used to impact family policy and inform family service providers of the unique challenges faced by these couples.

Sponsors: Oklahoma Department of Human Services, United States Department of Health and Human Services

PI/PD: Christine Johnson

Father's Count Study

Fathers Count! is a three-state study of how African American and Latino adolescent males and their fathers or father figures perceptions of contextual factors (neighborhoods, schools, and parents) are associated with delinquent behavior, depression, and educational success. Data collection involved self-report surveys completed by adolescents and father figures and census data about neighborhoods. Results will be used by professionals who seek to prevent delinquency and depression, while promoting educational success in Latino and African American male adolescents.

Sponsors: North Carolina State University, United States Department of Justice

PI/PD: Carolyn Henry

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

The purpose of this exploratory study is focused on: 1) broadening our understanding of the meaning of grandparenting, 2) learning about the experiences of grandparents living in rural and urban areas, 3) learning what

events have and are changing grandparenting, and 4) to learn what grandparents do to care for their grandchildren, families, and communities. This multi-site project is gearing for data collection that engages community members and leaders following a multi-tier approach process. Memorandums of Understanding are being finalized with local tribal communities to move forward on data collection in two other regions.

Sponsor: National Science Foundation

PI/PDs: Tammy Henderson

University of Alaska-Fairbanks: Jim Allen

Alaska Community Services: Jennifer Bell

Investigating Attitudes Toward Age of First Marriage in Oklahoma

Focus group interviews were conducted in three differing high school communities across the state (NW, Central, and SE). Students were asked questions about their attitudes about marriage, when they believe they should get engaged or married, and other factors related to the decision to marry. Results were coded and integrated into a preliminary report to the agency.

Sponsor: Public Strategies, Inc.

PI/PD: Kelly Roberts

Latino 4-H Mentoring in Oklahoma Program

The purpose of this 2-year longitudinal study is to evaluate the effectiveness of a mentoring program and to increase our understanding of how mentoring and 4-H involvement affect school attrition rates and negative behavioral outcomes among Latino youth. We examine hypothesized contextual mechanisms responsible for program results, such as familial involvement, antisocial peer associations, emotion regulation, educational aspirations, institutional bonding, and antisocial behaviors. Additionally, we examine mentor characteristics and how these interact with youth characteristics to increase our ability to select and train mentors for Latino youth. Data collection has begun.

Sponsor: National 4-H Council

PI/PDs: Ron Cox

College of Agricultural Sciences and Natural Resources: Charles Cox

Moms and Tots Study

The study investigated specific details about how mothers handle problematic discipline episodes in toddlers. This second-year follow-up survey asked how children's behavior problems and effortful self-control have changed and how discipline strategies have changed since the original interview. We are particularly interested in identifying the effects of specific disciplinary processes thought to reflect authoritative, authoritarian, and permissive parenting styles, to help parents do a better job of implementing authoritative parenting, because of its long-term benefits to children.

Sponsor: Narramore Christian Foundation

PI/PD: Robert Larzelere

More Than a Read Aloud: Teaching Science Through Literacy While Meeting the Needs of Diverse Learners

Thirty pre-kindergarten through third grade teachers from northwest Oklahoma participated in a training, which illustrated ways to integrate science and language arts while providing support to children with developmental delays/disabilities and those who are still learning English. Sources of data include lesson plans and reflections that the participants are posting during the 2011-12 academic year on the community of learners site, teaching efficacy regarding English language learners as well as science, and attitudes about inclusion. The goal of the research is to assess the program effectiveness in supporting teachers' development of strategies for integrating subjects while accommodating for all learners.

Sponsors: Oklahoma State Regents for Higher Education, United States Department of Education

PI/PDs: Julia Atiles, Jennifer Jones

National Healthy Marriage Resource Center (NHMRC) Content Development Project

The National Healthy Marriage Resource Center (NHMRC) Resource Development Project is an ongoing research and summary service provided by a team of faculty and student assistants. Ongoing content development has

been generated for the Administration for Children and Families Healthy Marriage Initiative work for the NHMRC project. Included in this work have been content for the "Front Page Facts" section, research briefs over marriage related topics, and fact sheets over marriage related topics.

Sponsors: Public Strategies, Inc., United States Department of Health and Human Services

PI/PD: Kelly Roberts

NEFE High School Financial Planning Program

The program is a financial literacy curriculum and support materials for high school students, teachers, and parents. Materials are available for free of charge. The National Endowment for Financial Education provides a support website for students, teachers, and parents to assist with financial literacy education. The program assists with travel and materials to provide training and support with program planning or delivery on the local level.

Sponsor: National Endowment for Financial Education

PI/PD: Sissy Osteen

Oklahoma AgrAbility Project

This project has three priorities: education, networking and direct assistance to farmers, ranchers and their families impacted by disabilities and barriers to continued work in agriculture. Staff provides case management, helping clients receive assistive devices to insure safety and improve quality of life. The project also increases competencies of rural healthcare providers to provide rehabilitation to farmers and ranchers. To date, AgrAbility has served 250 clients and provided Continuing Education to over 350 healthcare professionals. The project is partnering with Oklahoma Assistive Technology Foundation and Oklahoma ABLE Tech.

Sponsor: United States Department of Agriculture

PI/PDs: Jan Johnston

Seretean Wellness Center: Linda Jaco

Langston University: Lynn Jeffries

Oklahoma Geriatrics 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: Oklahoma University Health Sciences Center, United States Department of Health and Human Services

PI/PD: Tammy Henderson

Pawnee Pakoo Early Learning Center Demonstration Project

The purpose of the project was to determine progress of children enrolled in the early learning center. From fall to spring children's performance on the following tests improved significantly: receptive vocabulary, letter-word identification, concepts, cognitive abilities, and applied mathematics problems. Children's classroom behavior also improved, particularly, hyperactivity. In addition, more than 45% of the children attained the national norm on the Peabody Picture Vocabulary Test, DIAL language, DIAL concepts, and the social competence subscales of the Social Skills Improvement System.

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

PI/PD: Laura Hubbs-Tait

Parent-Child Connection

This Oklahoma Cooperative Extension Service program provides in-home and group education and support for families expecting or who have a baby until the child is six years old. Using evidence-based curricula and program practices, goals are to assess family's strengths and needs, enhance family functioning, and promote positive parent-child interaction and healthy childhood growth and development. In FY 2011, 216 families were provided 2,748 home visits, 528 child development screenings, in addition to 61 parent education, support group, and family activity sessions.

Sponsor: Oklahoma State Department of Health

PI/PDs: Kathie Bergmann, Debbie Richardson

Parenting, Peer, and Behavioral Correlates of Emotion Regulation during Adolescence

This project examined correlates of adolescent emotion regulation (ER). Data have been collected from 206 adolescents (Ages 10-18 years, *M* age = 13.37; 51% female; 29.6% European American, 70.4% ethnic minorities) and their parents (*Median* yearly family income = \$40,000; 38.7% single parents). Coding of videotaped interaction tasks is ongoing. Preliminary results indicated that youth ER was related to antisocial behavior, depression, substance use, and grades. Moreover, parent-youth and peer-youth relationship quality were significantly linked to youth ER. Findings will be used to provide information to social workers, parent educators, and other service providers who work with high-risk families.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Michael Criss, Amanda Morris, Ron Cox

Rise Program

The Rise program focuses on developmental needs of young children living with developmental disabilities/delays ranging in age from one year old through Kindergarten. The Rise program is an inclusive program where children living with developmental disabilities/delays and typically developing children interact in a developmentally appropriate learning environment. Children in the Rise program receive needed therapies to meet the goals in their IEP's or IFSP's. These therapies include speech, occupation, physical, swim and music.

Sponsor: Oklahoma State Department of Education

PI/PD: Linda Sheeran

SPSS Hierarchical Linear Modeling Analyses

This project provided statistical consultation for an evaluation of an educational enhancement program called Great Expectations, implemented through the University of Oklahoma. The data were based on multiple tests in 1st, 3rd, and 5th graders in treatment and comparison group classrooms.

Sponsor: University of Oklahoma

PI/PD: Robert Larzelere

Tulsa Teen Pregnancy Prevention Coalition: Baseline Survey

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 proposed project explores how context (individual, familial, peers, and community) is associated with teen contraceptive and pregnancy ambivalence to better understand reasons for ambivalence and differences among subgroups to inform interventions that target these groups by reducing risks and promoting resilience. **Sponsor:** George Kaiser Family Foundation

PI/PDs: Ron Cox, Karina Shreffler

SCHOOL OF HOTEL AND RESTAURANT ADMINISTRATION

Center for Hospitality and Tourism Research

This project studied the travel market to or in Oklahoma and visitors' travel behaviors. The project identified and evaluated: 1) major feeder markets of Oklahoma, 2) visitors' travel characteristics, 3) visitors' demographic profiles, and 4) tourism information and services provided by Oklahoma Tourism and Recreation Department.

Sponsor: Oklahoma Department of Tourism and Recreation

PI/PDs: Hailin Qu, Sheila Scott-Halsell

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

The objective of the program is to strengthen the quality of entry-level managers available to the transatlantic hospitality industry by developing a specialized flexible pathway dual-degree undergraduate program that

creatively incorporates the best academic and experiential learning resources available at three premier universities on both sides of the Atlantic.

Sponsor: United States Department of Education

PI/PDs: Bill Ryan, Sheila Scott-Halsell

North American Mobility in Higher Education: Building Bridges through Culture, Cuisine, Agriculture and Tourism

The object of this project is to develop a cross-border curriculum model that will enhance the learning and experiences of post-secondary students. The movement of students within the North American corridor will occur in three forms, all lasting a semester or longer: language study and course work; language study with a combination of course work and practical work experience; and language study plus practical work experience.

Faculty from all campuses will work together to develop innovative, integrated curriculum for the project.

Sponsors: State University of New York College of Agriculture and Technology, United States Department of Education

PI/PDs: David Njite

Division of Agricultural Sciences and Natural Resources: Craig Edwards

Off Campus PhD Program

There is a need for advanced academic degree preparation in the area of higher education for Hospitality and Tourism Management in Jamaica and Puerto Rico. The lack of advanced educational degrees available for teaching and research in hospitality and tourism management in higher education in these areas provide an opportunity to partner with Oklahoma State University to offer the education and advanced preparation in hospitality management.

Sponsors: Universidad del Este, Puerto Rico, University of Technology, Jamaica

PI/PD: Hailin Qu

NUTRITIONAL SCIENCES

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

Berry anthocyanins have been shown to improve lipid profile in Chinese subjects with dyslipidemia while no such studies with whole strawberries have been reported in the US population. We propose to investigate the effects of low and high doses of freeze-dried strawberries on serum glucose, insulin, and lipid profile, biomarkers of oxidative stress and inflammation, in a 12-week randomized controlled trial. Subjects with abdominal adiposity and dyslipidemia (n=15/group) will be recruited at OUHSC and OSU, and randomly assigned to the low (25g/day) or high (50g/day) strawberry dose, or matched control (fiber and calories) group. The strawberry group will consume freeze-dried strawberry beverage (2 cups/day) and the controls will consume 2 cups beverage (fiber +calories) daily for 12 weeks. Blood draws, anthropometrics, blood pressure, and dietary data will be collected at screen, 6 and 12 weeks of the study to determine chronic and acute effects of strawberry intervention. Serum or plasma samples will be analyzed for fasting glucose, insulin, lipid profile including total cholesterol, LDL-, and HDL-cholesterol, triglycerides, lipid particle size, and levels of oxidative stress (malondialdehyde, oxidized LDL, myeloperoxidase), inflammation (high sensitivity C-reactive protein, adiponectin, interleukins) and adhesion molecules. Repeated measures ANOVA will be performed using a 5% significance level. We anticipate a dose response effect in decrease in lipids, oxidative stress or inflammation following strawberry intervention versus controls.

Sponsor: California Strawberry Commission

PI/PDs: Arpita Basu

University of Oklahoma Health Sciences Center: Timothy Lyons

Beneficial Effects of Dried Plum and Age-related Osteoporosis

Previous studies have demonstrated that dietary supplementation with dried plums reverses bone loss associated with estrogen deficiency, but no information is available with regard to age-related bone loss. This project is designed to determine whether consumption of dried plums can prevent age-related bone loss and restore bone

lost to aging in an animal model. Results from this study suggest that supplementing the diet of aged animals with dried plum can reverse bone loss due to aging over time and clinical studies to test the efficacy in humans are planned.

Sponsor: Northern California Institute for Research and Education, Inc.

PI/PD: Brenda Smith

Chickasaw Nation Social Marketing and Evaluation

The overall goal of the program is to promote the benefits of healthful eating within the constraints of a limited budget, time and family needs. The development of the program is a long-term commitment for which the return is prevention of diabetes among Native Americans living in the Chickasaw Nation boundaries through the establishment of healthy eating habits and a physically active lifestyle.

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

PI/PD: Stephany Parker

Chickasaw Nation: Tapping into the Power of Influence

The project evaluated the impact of influential interaction principles used by Chickasaw Nation WIC educators on: 1) the satisfaction WIC participants had related to their WIC experience, and 2) on parental/caregiver feeding practices related to breastfeeding, weaning toddlers from bottles, and introduction of solid foods. Significantly more parents in the intervention group reported enjoying their WIC visit compared to the control group. This finding was strongly correlated to parents' use of recommended feeding practices. There was a significant increase over baseline in breastfeeding rates among mothers in the treatment group compared to mothers in the control group.

Sponsor: Chickasaw Nation

PI/PD: Deana Hildebrand

Chromium and Antioxidant Intakes of Older Oklahomans with and without Metabolic Syndrome and Effects of Aspirin or Antacid on Chromium Absorption

Dietary chromium, antioxidants and macronutrient intakes of Oklahoma women over fifty years of age with and without metabolic syndrome were analyzed by duplicate plate and food records. Biomarkers including glucose, insulin, total cholesterol, triglycerides, uric acid, and fructosamine were significantly different in metabolic syndrome and control groups as were % body fat and distribution of body fat. Antioxidant status of the women is underway. Additionally, samples have been collected to analyze effects of two over-the-counter medications (aspirin or antacid) on chromium concentrations in serum and urine.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Barbara Stoecker, Janice Hermann

Common Mechanisms Controlling the Response to Iron and Oxygen Availability

The goal of the project is to advance understanding of iron metabolism, and how alterations in iron sensing contribute to the development of disease. Our primary objectives are to determine the extent to which iron status affects the coordination of oxygen signaling by modulating the expression of hypoxia factor 2-alpha (HIF2a) and to characterize the HIF2a transcriptional network sensitive to iron regulation. Our results indicate that HIF2a is a target of iron regulatory proteins (IRP) thereby further expanding our knowledge both of the pathways that are regulated by IRP and the potential roles of iron in health and disease.

Sponsor: United States Department of Agriculture

PI/PD: Stephen Clarke

Cranberry Flavonoid Consumption and Biomarkers of Lipid Peroxidation and Inflammation in Subjects with Metabolic Syndrome

Metabolic syndrome, a constellation of several risk factors including dyslipidemia, hypertension, central adiposity, and impaired fasting glucose, is also a condition associated with increased aging, inflammation and oxidative stress. Cranberry flavonoids are potent antioxidants and also anti-inflammatory agents. The main objective of this randomized controlled trial was to analyze any difference in glycosylated hemoglobin, glucose and lipid levels, and

biomarkers of oxidative stress and inflammation, in subjects following a 4-week intervention of cranberry flavonoids in comparison to placebo.

Sponsor: Cranberry Institute

PI/PD: Arpita Basu

Does Selenium Affect Inflammation and Bone Quality?

Effects of dietary selenium and chronic inflammation were investigated in second-generation selenium-deficient mice. Mice were fed 0.02 (deficient), 0.2 (adequate), 2 and 4 mg selenium/kg diet and implanted with a placebo or lipopolysaccharide (LPS) pellet. Neither dietary selenium nor inflammation produced by the LPS affected final body weight gain; however, bone mineral density of lumbar vertebra (L3-L4) was significantly reduced by LPS treatment as were bone volume/total volume, connectivity density and trabecular number. Trabecular separation was increased by LPS treatment. Chronic inflammation at a level that does not produce body weight loss still significantly impaired measures of bone microarchitecture.

Sponsor: Oklahoma Center for the Advancement of Science and Technology

PI/PD: Barbara Stoecker

Dried Plum's Mechanism of Action in the Prevention of Age-related Osteoporosis

This project is an extension of an ongoing project designed to study how dried plum is able to restore bone lost due to aging. The previous study demonstrated that dried plum's effect on bone cells in aging animals begins soon after supplementation is initiated. This study has been designed to examine the short-term response of these bone cells to dietary supplementation with dried plum. The outcomes of these studies will provide information as to how bone metabolism is altered so that the mechanism by which dried plum affects bone can be determined. This information may lead to new therapeutic targets or the development of products from dried plum that could be used in the treatment of osteoporosis.

Sponsor: California Dried Plum Board

PI/PD: Brenda Smith

Dysregulation of Bone Metabolism in Type 2 Diabetes

Oklahoma has one of the highest rates of type II diabetes in the nation. Although complications such as cardiovascular disease continue to present serious health issues for diabetics, evidence has recently emerged that the risk of osteoporotic fracture increases ~2-fold in diabetics 5-10 years after diagnosis. The growing number of new cases of type II 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, it is crucial that we begin to understand the pathophysiology of compromised skeletal health in type II diabetes. Therefore, this project is focused on the study of how type II diabetes negatively affects bone health and is designed to provide important insights into the alterations in bone metabolism occurring in the early and later stages of this disorder.

Sponsor: Oklahoma Center for the Advancement of Science and Technology

PI/PD: Brenda Smith

Effects of Mango on Bone Parameters in High Fat Diet-induced Obesity

Consumption of high fat diet and one of the commonly used pharmacological therapies for modulating blood glucose, rosiglitazone, is associated with negative effects on bone. This study examined the effects of the addition of freeze-dried mango pulp or rosiglitazone to a high fat (HF) diet on bone parameters in mice. Freeze-dried mango (particularly at the 1% dose), similar to rosiglitazone, improved glucose tolerance and insulin resistance. Both the HF and HF+rosiglitazone diets had negative effects on bone while the mango diets maintained bone parameters similar to the control diet. Consumption of mango may provide an alternative approach to modulating blood glucose and maintaining skeletal health, though human studies are needed to confirm these findings.

Sponsor: National Mango Board

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

Effect of Mushrooms on Endothelin-1 Secretion and Cancer

Cancer is the second leading cause of death in the United States, with cardiovascular disease taking first. Although the causes are multifactorial, diet low in anti-oxidants and rich in fat, which increases the risk of inflammation, is thought to play a crucial role. Mushrooms are a source of some micronutrients known to prevent inflammation and boost immunity. This study examined the effect of white button mushrooms, the most popular in the American diet, on endothelin-1 and other inflammatory proteins that usually increase tumor cell growth and spread to other organs. The preliminary data suggest that white button mushroom extracts block the synthesis of these proteins in cells grown in a test tube. The next phase of the study is to examine these proteins in mice with and without cancer. If data are confirmed, they will lead to human studies. Our study may increase mushroom consumption, help Oklahoma farmers and the food industry.

Sponsor: Oklahoma Center for Advancement of Science and Technology

PI/PDs: Solo Kuvibidila, Brenda Smith

Expanded Food and Nutrition Education Program

This program focuses on helping families and youth improve behaviors in the following areas: Dietary Intake as recommended by the Dietary Guidelines and MyPlate, Food Resource Management skills and practices, Nutrition Practices and Food Safety practices. Participants increase their ability to select and buy food that meets the nutritional needs of their families and gain new skills in food preparation, food storage, and food safety. They learn to better manage their food budgets – including the use of Electronic Benefits Transfer (EBT) and Food Instruments and Cash Value Vouchers. Pre/post evaluation records indicate families/households graduating from the program exhibit a positive change in their diet at the time of exit from the program.

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

PI/PD: Debra Garrard

Grown-ups Need Dairy Products Too!

The project was designed to increase dairy product consumption by adults and improve calcium intake. A curriculum was developed that consisted of six lessons which could be used as a series or stand alone by Cooperative Extension Service educators in Oklahoma, Texas and New Mexico. Each lesson included information on a topic which could be a barrier for dairy consumption and included education on nutrition, preparation and food safety and included a PowerPoint presentation, handout, tasting experience and at least one activity. Handouts included basic, economical recipes using a minimum of accessible ingredients. Recipes were tested for ease of preparation and acceptability prior to inclusion in the curriculum. Lessons were piloted by eight Oklahoma Community Nutrition Education Program (CNEP) nutrition education assistants as supplemental lessons to the existing CNEP curriculum. A comparison of 24-hour recall and post test results will be made between CNEP clientele who completed the “Adults Need Dairy Too!” lessons and CNEP clientele who completed only the existing CNEP curriculum. New Mexico Expanded Food and Nutrition Education (EFNEP/SNAP-Ed) faculty is translating handouts and other lesson materials into Spanish. Texas (SNAP-Ed /EFNEP) has developed a coordinated series of displays in English and Spanish to enable educators to use the materials to reach additional audiences.

Sponsor: Southwest Dairy Museum

PI/PDs: Debra Garrard, Barbara Brown

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

Overweight and obesity is a major health problem worldwide. Obesity is associated with elevated levels of inflammatory mediators and is a risk factor for variety of inflammatory induced chronic conditions such as diabetes and heart disease. The objective of this pilot study is to investigate the effects of a 3 month dietary supplementation of mango on reducing body fat and modulating inflammatory markers in overweight individuals.

Sponsor: National Mango Board

PI/PD: Edralin Lucas

How Does Dried Plum Reverse Bone Loss

Osteoporosis is a debilitating problem for postmenopausal women and one strategy for improving skeletal health is to utilize foods rich in bioactive compounds (e.g. dried plums) that can prevent and reverse bone loss.

Previously, we have shown that dried plum has potent effects on bone; however, our understanding as to how these effects are mediated has been limited. Results from these studies are providing evidence that supplementation with dried plums suppresses the rapid bone turnover associated with postmenopausal bone loss and efforts are underway to identify the bioactive components in dried plums.

Sponsor: United States Department of Agriculture

PI/PD: Brenda Smith

Integrating Primary-Care Practices and Community-based Programs to Manage Obesity

The purpose of this project is to link primary care practices (PCPs) throughout Oklahoma with county-based community nutrition education programs offered by the Oklahoma Cooperative Extension Service Family and Consumer Sciences (OCES-FCS) Division. This project is designed to improve recognition and referrals of overweight and obese patients and to help OCES-FCS learn to respond to physician referrals. We will track the success of referral initiation, patient enrollment in the nutrition programs, and patient, physician, and nutrition educator satisfaction using de-identified data already being collected through current enrollment and evaluation forms. Feedback to the practices will be tracked by review of medical records. Based upon lessons learned, we will develop an implementation guide. This guide will provide other PCPs and county extension offices with the tools needed to create similar linkages. The guide will be reviewed by Cooperative Extension Expanded Food and Nutrition Education Coordinators from other states to assure its feasibility in their states. We will then test the utility of the guide in additional practices in other Oklahoma counties. We believe that connections between PCPs and Cooperative Extension will be applicable throughout the United States and that studying the results of this implementation will yield knowledge that is generalizable to other geographic areas and settings.

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

PI/PDs: Debra Garrard, Josh Phelps, Deana Hildebrand

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

The study is investigating the effects of mango on bone mass, microarchitecture, strength, and markers of bone metabolism in a mouse model of postmenopausal osteoporosis. Positive results from the study may serve as a foundation for testing the efficacy of mango in preventing bone loss in postmenopausal women.

Sponsor: National Mango Board

PI/PD: Edralin Lucas

Mango Supplementation Will Improve Glucose Response and Clinical Parameters of Pre-diabetic Subjects

The prevalence of type 2 diabetes (T2D) is increasing in the United States and worldwide. This study is investigating the effects of three months of mango supplementation on improving blood glucose control and reducing body fat in pre-diabetics. This will allow us to examine the effectiveness of mango in reducing body fat, improving blood glucose and will provide pre-diabetics with a dietary option for delaying or even preventing the development of type 2 diabetes.

Sponsor: National Mango Board

PI/PD: Edralin Lucas

Maternal Dietary Nutrients and Neurotoxins in Infant Cognitive Development

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

Sponsor: United States Department of Agriculture

PI/PDs: Tay Kennedy

Department of Human Development and Family Science: Laura Hubbs-Tait

College of Arts and Sciences: David Thomas

Microarchitectural, Structural, and Cellular Alterations in Bone: Role of Iron in Maintaining Optimal Bone Health

Iron deficiency remains the most common nutrient deficiency in the U.S. Relatively little is known about how iron deficiency during adolescence affects the risk for developing osteoporosis later in life. Because nutritional status is a key determinant in the acquisition of bone mass, nutrition plays a critical role in an individual's lifetime risk for osteoporosis. Using an animal model, the project examined how iron deficiency negatively affects bone health. Lack of iron decreased structural properties of bone and was associated with alterations in bone formation. These results provide information that enhances our understanding of the long-term implications of iron deficiency.

Sponsor: Oklahoma Agricultural Experiment Station

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

Molecular Coordination of Iron Homeostasis by MicroRNAs

Understanding the molecular mechanisms that contribute to the regulation of cellular and systemic iron homeostasis increase our understanding of how iron status contributes to enhanced risk of disease. Little is known about how miRNA expression changes in response to alterations in nutrient status. The purpose of this project is to examine how iron status alters miRNA expression and impacts cellular metabolism. By taking an integrative approach, to date we have characterized the iron-deficient miRNA signature using a combination of next-gen sequencing and microarray strategies. 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

Momordica Charantia Modulates Glucose and Lipid Parameters in High Fat Diet-induced Obesity

High fat diet plays a significant role in the development of dyslipidemia, obesity, and diabetes. Dietary approaches that can reduce these conditions without side-effects are highly desirable. The purpose of this project is to investigate if dietary supplementation of Momordica Charantia (MC) will lower blood glucose and lipid parameters in an animal model of high fat diet-induced obesity. Our findings demonstrated that MC supplementation counteracted the negative effects of high fat diet. MC lowered blood glucose and lipid and reduced body fat due to consumption of high fat diet. The mechanisms by which MC exerts these positive effects are currently being investigated.

Sponsor: United States Department of Agriculture

PI/PDs: Edralin Lucas, Brenda Smith

Oklahoma Nutrition Education-Supplemental Nutrition Education Plan

This program is a behaviorally focused science-based nutrition education intervention project focused on improving dietary quality in low-income adults and youth. Participants increase their ability to select and buy food that meets the nutritional need of their families and gain skills in food preparation, food storage, and food safety. They learn to better manage their food budgets – including the use of Electronic Benefits Transfer (EBT) and Food Instruments and Cash Value Vouchers. Pre/post evaluation records indicate families/households graduating from the program exhibit a positive change in their diet at the time of exit from the program.

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

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

OrganWise Guys Comprehensive School Program

The OrganWise Guys is a nutrition education program designed to teach healthy eating habits to children and to engage in physical activity. The OrganWise Guys is a multi-media, dynamic, interactive, cross-curricular program that uses fun characters based on the organs of the body (such as Hardy Heart; Peri Stolic, the large intestine; and Sir Rebrum, the brain), coupled with high energy activities, to teach children how to make positive health, nutrition, and physical activity choices. Through the Oklahoma Cooperative Extension Service thirty-one schools implemented the program this past year in over 200+ classrooms reaching over 5,000+ youth.

Sponsor: Health Care Service Corporation

PI/PDs: Debra Garrard, Josh Phelps

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

This study aims to investigate the postprandial effects of cocoa supplementation on glucose and lipids, and surrogate markers of atherosclerosis in patients with T2DM. We aim to test the hypothesis that cocoa will lower high-fat mixed meal breakfast-induced postprandial rise of glucose, lipids and markers of atherosclerosis in patients with T2DM. Randomized cross-over controlled trial, in which participants will be assigned to the placebo or cocoa group with breakfast meal. Patients with T2DM (n=25) will qualify for the study. The participants will be asked to consume 2 cups cocoa or placebo beverage on 2 separate postprandial study days. Both groups will receive high-fat mixed meal breakfast on each day. Blood draws and blood pressure (including HDI) measurements will be conducted at fasting, 30 min, 1, 2, 4 & 6 hours postprandial each day for 2 days. Principal outcome variables are glucose and lipids, blood pressure, CRP, IL-6, oxidized LDL. While antioxidant-containing food groups, such as, fruits and vegetables, cocoa, and tea have been implicated in reducing CVD risks, few studies have been reported on the postprandial effects of these foods in DM. Consumption of high-fat foods and beverages is common to dietary habits in Oklahoma, and consequently exacerbated postprandial glycemia or lipemia contributes to the existing cardiovascular pathology associated with DM. Our expected results from this study will show the effects of consuming an antioxidant-rich cocoa beverage on postprandial metabolism of a high-fat diet versus placebo.

Sponsor: The Hershey Company

PI/PDs: Arpita Basu

University of Oklahoma Health Sciences Center: Timothy Lyons

Strong and Healthy Oklahoma Initiative

The Community Service Council and OSU Cooperative Extension combined efforts to offer nutrition education programs to WIC eligible low-income mothers in Tulsa. The goal of the program was to increase nutrition knowledge, increase consumption of fruits, vegetables and whole grains. Participants were involved in classroom instruction, cooking demonstrations and meal sharing with their young children. Pre and post measurements were taken for weight, blood pressure, cholesterol and glucose levels. Food recalls and behavior checklists were taken at the beginning of the program as well as a follow-up after 3 months.

Sponsor: Community Service and Council of Greater Tulsa, Inc.

PI/PD: Debra Garrard

The Role of Exercise in the Prevention of Bone Metabolic Changes Associated with Diet-induced Obesity

Nationwide, the prevalence of obesity is on the rise and Oklahoma is no exception. Approximately 31% of the state's population is obese and the prevalence of overweight in children is growing at alarming rates. Obesity is known to predispose adults and children to the early onset of chronic diseases, including cardiovascular disease, certain types of cancer and type 2 diabetes mellitus. In terms of skeletal health, obesity has been traditionally associated with decreased risk of osteoporotic fracture; however, recent evidence has suggested otherwise. This project is to begin to understand how exercise alters the bone metabolism in a model of diet-induced obesity and the implications of these changes on bone density, microstructure and strength. Understanding how obesity affects bone metabolism in the context of the growing animal is important for the development of appropriate prevention and treatment strategies for humans.

Sponsor: Oklahoma Agricultural Experiment Station

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

Oklahoma Medical Research Foundation: Tim Griffin

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. Grants were awarded July 2011 to 15 consortiums/coalitions representing 21 counties. 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 and Fitness Initiative Evaluation

PI/PDs: Deana Hildebrand, Nancy Betts

Using Positive Deviance Principles to Identify Best Practices of Choice Architecture and Build Research Capacity with School Food Authorities

The goal was to develop relationships among interdisciplinary researchers and the School Nutrition Association of Oklahoma (SNAO) for the purpose of identifying and expanding the use of affordable choice architecture strategies to increase fruit and vegetable consumption among middle school age students. An inventory of strategies was developed and found it to be acceptable with SNAO. Implementation of selected strategies in middle school settings increased students' selections of fruits and vegetables by 26%. A plate waste study found that students making selections from a free fruit/vegetable bar discarded less than 1% of fruits/vegetables taken and increased consumption by 2/3 cup.

Sponsor: United States Department of Agriculture

PI/PDs: Deana Hildebrand

Department of Hotel and Restaurant Administration: Sheila Scott-Halsell

College of Agricultural Sciences and Natural Resources: Kathleen Kelsey

Spears School of Business: Josh Wiener

Zinc and Maternal-Infant Brain Function in Southern Ethiopia: Randomized Controlled Trials

Nutritional status and cognitive performance of 105 five year-old children from rural communities in southern Ethiopia were assessed using selected scales from Kaufman Assessment Battery for Children (KABC-II). Demographics and anthropometrics were collected. Child height-for-age (HAZ) revealed 29% to be stunted and 12% underweight (WAZ). HAZ and WAZ were correlated with scores for short-term memory and visual processing indices ($p < 0.001$). Performance on memory and visual processing tasks was significantly lower in children with growth deficits suggesting that efficient and cost effective methods to alleviate malnutrition and food insecurity would impact not only child health but also cognitive function.

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

PI/PDs: Barbara Stoecker, Tay Kennedy

Department of Human Development and Family Science: Laura Hubbs-Tait

College of Arts and Sciences: David Thomas