

College of Human Environmental Sciences - FY 2008 Research Abstracts

Rise School of Stillwater

This preschool is named "Rise" and focuses on the needs of toddlers and preschoolers who have developmental disabilities. The Rise School implements an effective early childhood special education approach which integrates children who have developmental disabilities with typically developing peers. OSU received funding from the State Department of Education for school operation costs as well as initiating a longitudinal research study to explore the physical, cognitive, and socio-emotional development of the children attending Rise.

Sponsor: Oklahoma State Department of Education

PI/PD: Christine Johnson

Department of Design, Housing and Merchandising

Building a Sustainable Oklahoma

We developed, implemented, and evaluated a workshop "Building a Sustainable Oklahoma" to educate the public about sustainable development, environmental and health issues related to consumer products and building, and the "cradle to cradle" model. This project was conducted in three phases: 1) workshop instructional material development; 2) audience recruitment and workshop delivery; and 3) workshop evaluation, dissemination, and reporting.

Sponsor: U.S. Environmental Protection Agency

PI/PDs: Huantian Cao, Cheryl Farr, Mihyun Kang

Building the US Competitiveness of Natural-Fiber and Related Industry by Preparing College Students and Small Business Community

To increase our students' understanding of the worlds' two largest producers and consumers of apparel products (China and India), educational modules have been developed. The developed modules will be implemented into undergraduate and graduate courses and its effectiveness will be tested.

Sponsor: United States Department of Agriculture

PI/PDs: Byoungho Jin, Glenn Muske

Institute for Protective Apparel Research and Technology (IPART)

The Institute for Protective Apparel Research and Technology teams academic, industry, and government experts in applied research, design and testing of the next generation of multifunctional materials and technologies needed for body armor and other systems to create more effective body armor and other protective systems to save lives of soldiers and civilian workers. This project included the development of new armor materials.

PI/PDs: Donna Branson, Semra Peksoz, Huantian Cao, Adrianna Petrova, Diane Ricord

College of Arts and Sciences: Phil Choo

College of Engineering, Architecture and Technology: Hongbing Lu, Jan Hanan, James Smay

Next Generation Body Armor

Research continued on the development of various types of body armor for the military. This work was funded by and done in collaboration with FST Technology. Specifically, several new flame retardant ballistic vests and lower extremity protection systems were developed and tested.

Sponsor: FS Technology

PI/PDs: Donna Branson, Semra Peksoz, Huantian Cao

Smart Clothing for Firefighter Protection

A proof of concept study to develop sensors to detect and transmit physiological data to a centralized control location wirelessly in order to monitor the health and safety of firefighters continued. To assess the durability and reliability of wireless signals, the prototype sensors were embedded in firefighter's coats

and tested using a thermal manikin in hot and humid conditions. A series of testing is planned to determine the range of distance and time frame in which the sensors are reliable.

Sponsors: Oklahoma Center for the Advancement of Science and Technology, Fire-Dex®, LLC.

PI/PDs: Huantian Cao, Semra Peksoz, Donna Branson

College of Arts and Sciences: Andy Li

The Men's Jacket Design and Disassembly for Material Recovery

Many environmental problems related to apparel industry, such as toxicity in dyeing wastewater, could be minimized by apparel designers and manufacturers. Annually, 4.5 million tons of clothing and footwear are produced in the US and only 1.25 million tons of post-consumer textiles are recovered for next use. One of the obstacles for reusing and recycling materials from post-consumer clothing is that most of apparels are made from more than one material and constructed with many permanent junctions using stitches and adhesives. We conducted three phases of research in the 8-month project: 1) Implement C2CAD in man's jacket design and production and produce a man's jacket composing of natural and synthetic materials; and 2) Evaluate the quality, cost, ease of disassembly, and life cycle material management of this C2CAD man's jacket.

Sponsor: U.S. Environmental Protection Agency

PI/PDs: Huantian Cao, Cheryl Farr

Ultra-lightweight Modular Cooling System

A liquid-cooled prototype vest developed by OSU-DHM in a Memorial Institute for the Prevention of Terrorism funded project was interfaced with an advanced cooler unit developed by NanoPore. Four new cooling systems suitable to be used under two types of Hazmat suits were developed by Nanopore. A comparative study investigating the cooling effectiveness of these systems will be performed. A thermal manikin study and a human subject test were planned to be conducted in the third SBIR/HSARPA phase.

Sponsor: NanoPore, Inc.

PI/PDs: Semra Peksoz, Donna Branson

Department of Human Development and Family Science

2008 Behavioral Health Conference

This project involved assistance with the planning of the 2008 Behavioral Health Conference, a two-day conference for mental health professionals in the state.

Sponsor: United States Public Health Service, Indian Health Services

PI/PD: Tammy Henderson

Child Abuse Prevention Statewide Network Coordination

The purpose of this contract was to provide: 1) consultation and technical assistance for Child Abuse Prevention Task Forces and 2) Healthy Families America training for staff of Oklahoma community-based home visitation programs.

Sponsor: Oklahoma Department of Human Services, Family Support Services

PI/PD: Deborah Richardson

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

The goal of the study was to explore the physical, cognitive, and social-emotional development of children with and without disabilities attending the Rise School of Stillwater. Specific aims include examining the impact of Rise School attendance on children's development and examining the effects of Rise School attendance on family functioning. Through an initial pilot study and a more comprehensive, longitudinal study, much-needed research on the development of young children with and without disabilities and their families will be generated. Initial findings show developmental gains among children as well as high levels of parent satisfaction with the Rise School.

Sponsor: Oklahoma State Department of Education

PI/PDs: Amy Halliburton, Amanda Morris

Conflict Management and Positive Parenting Intervention Study

Because of the importance of effective parent-adolescent relations and family communication skills in promoting adjustment (e.g., parent mental health, adolescent reduced problem behavior and risk taking), educational programs hold outstanding potential to promote resilience. Thus, our project utilizes Shure and Israeloff's (2000) I Can Problem Solve (ICPS) program which focuses on children's problem-solving and conflict resolution skills. In a sample of sixty children (ages 8-12) and their parents, we are: 1) Evaluating relations between parenting, family conflict, and mental health before and after the conflict resolution intervention, and 2) Evaluating the efficacy of the intervention as indicated by positive changes in problem-solving skills and overall mental health. We are in the process of analyzing data from year 1, and data collection in year 2 is currently under way.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Amanda Morris, Carolyn Henry, Michael Merten, Matthew Brosi, Debbie Richardson

Early Childhood Education Masters Program

The Department of Human Development and Family Science and the Oklahoma Department of Human Services (DHS) Division of Child Care are cooperatively working to assure the state's child care licensing professionals are educated as to the best practices in early childhood. This education in turn positively impacts and guides the decisions made with Oklahoma children. The students in the program are DHS employees who work for the Division of Child Care licensing program that monitors the state's childcare facilities to facilitate learning and accommodate the needs of these full-time employees.

Sponsor: Oklahoma Department of Human Services, Division of Child Care

PI/PD: Sue Williams

Early Childhood Project with Stillwater Public Schools

A collaborative agreement between the Stillwater Public Schools and the Child Development Laboratory provides a model Early Childhood Education classroom for students to observe children's development and exemplary teaching practices. Twenty two students at the Pre-K and Kindergarten levels are enrolled in the classroom. Early Childhood Education majors completed lab hours in this classroom. Three student and faculty research projects were conducted with the participation of these children, parents, and teachers and two more projects are proposed for this year.

Sponsor: Stillwater Public Schools

PI/PD: Linda Sheeran

Early Settlement North - Conflict Settlement

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.

Sponsor: The Supreme Court of Oklahoma

PI/PD: Sue Williams

Emotion Regulation, Social Relationships, and Children's Adjustment to School

Using a multi-informant, multi-method approach to data collection, this project examined social and emotional factors that affect children's early school success and adjustment. Using a sample of over 150 Head Start and 150 Kindergarten children, we found that factors such as emotion regulation, peer relations, and the quality of the teacher-child relationship affect a host of adjustment variables such as school readiness, math, and language skills, and behavioral adjustment. Children with emotion regulation skills were more prepared for school and had fewer behavior problems, indicating that emotion regulation is an important component of school readiness.

Sponsor: National Institutes of Health
PI/PD: Amanda Morris

Empowering Older Oklahomans, their Families and Communities on Addressing Barriers to Positive Nutrition and Health

The purpose of this project is to evaluate individual, family and community barriers to positive nutrition and health among rural older Oklahomans. The findings from this study are being used to develop an Oklahoma Cooperative Extension Service curriculum "Empowering Older Oklahomans, their Families and Communities on Positive Nutrition and Health."

Sponsor: United States Department of Agriculture
PI/PDs: Whitney Brosi, Jan Johnston, Janice Hermann
Oklahoma State University Wellness Center: Linda Jaco

Evaluation of Adoptive Couples Marriage Enrichment Retreats

The purpose of the project is 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, Family Support Services, US Department of Health and Human Services
PI/PD: Christine Johnson

Evaluation of Special Needs Caregiver 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.

Sponsor: Oklahoma Department of Human Services, Family Support Services, US Department of Health and Human Services
PI/PD: Christine Johnson

Families and Schools for Health: One Year Follow Up

The long-term FiSH project objective is to develop effective interventions for overweight children. Over 1000 children are being followed from 1st-3rd grade to understand the causes/prevention of child obesity. In FY08, > 6,000 hours were spent collecting weight and psycho-social interview data from 871 2nd and 3rd graders in 29 rural schools. 158 of their teachers and 400 parents completed questionnaires. Physical fitness was assessed among 257 children; 45% did not meet national standards. Analysis of intervention data suggests the 1st grade interventions impacted parenting behavior and children's thinking about weight-related issues. Two manuscripts were published and a grant submitted.

Sponsor: Oklahoma Center for the Advancement of Science and Technology
PI/PDs: Amanda Harrist, Glade Topham, Laura Hubbs-Tait
Department of Nutritional Sciences: Lenka Shriver
College of Arts and Sciences: Melanie Page

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. The first wave of data collection begins in the 2008-2009 academic year and will involve self-report surveys completed by adolescents and father figures and census data about neighborhoods. Wave 2 of data collection with adolescents will be

conducted six months to a year later. Results will be used by professionals who seek to prevent delinquency and depression, while promoting educational success in Latino and African American male adolescents.

Sponsor: North Carolina State University, U.S. Department of Justice

PI/PD: Carolyn Henry

Geriatric Education Centers

The Geriatric Education Centers program, based at the University of Oklahoma's Health Science Center, develops collaborative relationships with university partners to educate the Oklahoma's about geriatrics and gerontology. Resource materials, such as grand rounds and tidbits, are available to students, health care professionals and other professionals working with aging adults.

Sponsor: University of Oklahoma Health Sciences Center, U.S. Department of Health and Human Services, Health Resources and Services Administration

PI/PD: Tammy Henderson

Healthy Aging in Rural Oklahoma: Resilience to Disparity among Old and very Old Survivors

The purpose of this investigation was to develop a comprehensive understanding of healthy rural aging. The investigation included a sample of 171 community-dwelling persons age 65 and older residing in rural Oklahoma. The following results emerged: old-old adults were less likely to engage in physical activity and are more vulnerable to functional health problems than younger comparison groups. As compared to older men, older women are most vulnerable to feeling anxious or emotionally unstable. Four key predictors of nutritional risk and health were identified: life event stress, economic security, physical activity, and fatigue. The study also found that social support, family closeness, and physical activity buffer nutritional risk and improve functional health among rural older adults. More specifically, a higher degree of social support, family closeness, and physical activity diminished the deleterious influence of nutritional risk on functional health status. A final goal of the study was to devise an adaptation model of nutritional risk and health. Individual personality appeared to create an indirect link between nutritional risk and perceived health. In particular, nutritional risk continued to diminish perceived health status in the presence of neurotic personality traits (e.g., anxiety, emotional insecurity). Thus, feeling anxious or emotionally insecure may only serve to increase the detrimental impact nutritional risk has on perceived health status.

Sponsor: Donna Cadwalader Research Grant, Oklahoma Home and Community Education, Inc.

PI/PDs: Alex Bishop

Department of Nutritional Sciences: Janice Hermann

National Endowment for Financial Education High School Financial Planning Program

The High School Financial Planning Program is a financial literacy curriculum and materials are available to high school students and teachers free of charge. The program assists educators with travel and materials as they assist teachers with program delivery or train other educators to provide the program. In 2007, Oklahoma schools increased their orders of these materials by 476%.

Sponsor: National Endowment for Financial Education

PI/PD: Sissy Osteen

National Science Foundation's Polar Program Research Travel

In an effort to develop a Native Alaskan grandparent research project, this National Science Foundation travel program was used to develop research collaborations in Alaska. We are exploring the roles, strengths, and needs of Alaskan Native grandparents residing in rural areas of Bristol Bay and non-rural areas of Anchorage. We expect to learn how contemporary grandparent roles, strengths, and needs have been shaped by larger factors, such as traditional practices, community changes, outmigration, subsistence living, and others issues defined by local community members. Additionally, the current project serves to enhance the professional development of undergraduate and graduate students, to mentor potential Arctic scientists, and to develop culturally appropriate and respectful researchers, which improves

inter-ethnic communication and native ways of knowing.
Sponsor: Board on Human Sciences, Research Committee
PI/PD: Tammy Henderson

Oklahoma Marriage Initiative – Analysis, Consulting, and Management

Oklahoma State University is engaged with the Oklahoma Marriage Initiative (OMI) to provide on-going statistical analysis of program data, consult on program evaluation design, data collection methods/tools, and provide leadership for the OMI's Research Advisory Group.

Sponsor: Oklahoma Department of Human Services
PI/PD: Christine Johnson

ParentChild Connections

This Cooperative Extension program provides in-home and group education and support for families who are expecting or have a new baby and continues until the child is six years old. Using research-based curricula, goals are to assess family's strengths and needs, enhance family functioning, and promote positive parent-child interaction and healthy childhood growth and development. Through four program sites serving seven counties in FY 2008, 211 families were provided 2,453 home visits, 564 child development screenings in addition to parent education, support group, and family activity sessions.

Sponsor: Oklahoma State Department of Health
PI/PD: Deborah Richardson

Positive Child/Youth Development Impact Program

Twenty county Cooperative Extension educators participated with the goal to prevent risk behaviors in Oklahoma children and youth by enhancing social competencies. The I Can Problem Solve (ICPS) curriculum was implemented with 370 children in 8 preschools, child care or Head Start centers, and kindergarten-2nd grade classes in 13 public elementary schools. Overall, 57 teachers, teacher aides, and school counselors learned and used ICPS. Initial evaluation results indicate that children in classrooms using the ICPS program had significant positive changes in their behavior when compared to peers in classrooms not receiving ICPS.

Sponsor: Oklahoma Cooperative Extension Team Initiative Program
PI/PD: Deborah Richardson

Research Statistics Training

Training in hierarchical linear modeling was provided to the research team of the Early Reading First Project (Deb Corey, PI, at the College of Continuing Education, University of Oklahoma). This type of analysis was essential for their project, because their intervention was at the classroom level, but the data involved students nested within those classrooms.

Sponsor: University of Oklahoma
PI/PD: Robert Larzelere

Researching Recruitment Challenges in Low Income Marriage Education Programs

This project uses a three-pronged approach to study recruitment challenges experienced by marriage education programs across the nation. Data collected from a national survey will be verified by observing couple interactions in a lab setting. Marriage education program providers will also be asked to describe lessons learned.

Sponsor: US Department of Health and Human Services
PI/PDs: Brandt Gardner, Kelly Roberts

School of Hotel and Restaurant Administration

Benchmark projects for Hospitality and Tourism Research: Economic Value of Oklahoma's State Park System

This study examined one aspect of the total economic picture: visitor spending. The study specifically addressed (1) visitor classification and spending patterns, (2) number, type and length of visits, and (3) the direct, indirect and induced economic impact of visitor spending. The results generated by the study on the economic impact of tourism are beneficial to several groups of people, including public officials, business managers, and tourism marketers. The most important beneficiaries, though, are residents of the communities directly affected by tourism activities. If results of the studies do not show tourism as having a positive effect on the community, citizen support for tourism ventures will be minimal.

Sponsor: Oklahoma Tourism and Recreation Department

PI/PDs: Hailin Qu, Bill Ryan, Murat Hancer, Heidi Hoart, Jerrold Leong

Benchmark projects for Hospitality and Tourism Research: The Profile of Oklahoma Gaming Industry and its Economic Impact

The first objective of this study was to develop a profile of characteristics and expenditures of Oklahoma casino and racino visitors, as well as examining visitors' attitude towards Oklahoma's Gaming industry. Oklahoma's resident visitors were compared to non-resident visitors in terms of their socio-demographic characteristics and the typical gaming-related expenditures incurred during a trip to a casino or racino in Oklahoma. The second objective was to profile the gaming industry in Oklahoma and provide an estimate of the economic impact of gaming to the tourism industry in the State of Oklahoma. The findings provide actual and projected statistics on the gaming industry in the State of Oklahoma for the years 2005 to 2013.

Sponsor: Oklahoma Tourism and Recreation Department

PI/PDs: Hailin Qu, Sheila Scott-Halsell, Radish Palakurthi
University of South Florida: Greg Dunn

Off Campus PhD Program for Universidad del Este in Puerto Rico

The off campus PhD program was started in January 2008 with six students. They are all university instructors in Puerto Rico. Four courses were offered during the first year of the contract. Students will come to OSU in summer 2009 to take 1-2 courses and organize their dissertation committees.

Sponsor: Universidad Del Este

PI/PD: Hailin Qu

Statewide Inventory and Potential Development of Agritourism in Oklahoma

An Oklahoma agritourism database with 310 businesses was established. Two focus groups were conducted and one survey questionnaire was implemented. The major barriers to developing agritourism businesses are lack of signage; difficulties of related entities not knowing how to work with agritourism; poor infrastructure; and restrictive Oklahoma law and regulations. The urgent needs related to developing agritourism businesses include the following: educational programs for agritourism business owners; better signage; increased networking among agritourism business owners; increased marketing of existing agritourism businesses; and education regarding agritourism for government agencies. The study findings provide a comprehensive picture of the current state of the agritourism industry in Oklahoma. The study also provides useful information for state policy makers regarding methods to promote and increase agritourism in Oklahoma. Study recommendations include: establishing regular communications between agritourism businesses and state organizations/agencies; providing resources for agritourism business owners to overcome the major barriers and obstacles; providing workshops and seminars for agritourism business owners to promote their businesses effectively; and marketing the Oklahoma agritourism industry to citizens and residents and neighboring states.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Hailin Qu, Radesh Palakurthi, Bill Ryan, and Renée Daugherty
Oklahoma Department of Agriculture Food and Forestry: Francie Tolle

Department of Nutritional Sciences

Alterations in Immune Function with Dietary Supplementation of Dried Plums: Implications in

Obesity and Type II Diabetes

The objective of this study is to determine the extent to which dried plum dose-dependently alters immune cell populations in the bone marrow and the activation of mononuclear cells from the spleen in a model of ovarian hormone deficiency. The outcome variables will include bone marrow myeloid (i.e. various stages of monocyte maturation and granulocytes) and lymphoid (i.e. B-cells and various T-cell) populations which are known to be altered in ovarian hormone deficiency and characterization of peripheral complete white cell counts and differentials (CBC) as well as T-cell populations.

Sponsor: California Dried Plum Board

PI/PD: Brenda Smith

Anti-inflammatory Properties of Compounds in Dried Plum

A growing body of scientific evidence indicates that cardiovascular disease and osteoporosis, once viewed as separate chronic conditions, are linked. Chronic elevation of inflammatory mediators is now considered a central player in the development of concurrent osteoporosis and atherosclerosis that occurs with aging. We have been evaluating the anti-inflammatory effects of polyphenolic compounds from dried plum and their potential to reverse inflammation-induced bone loss and vascular disease.

Sponsor: Oklahoma Center for the Advancement of Science and Technology

PI/PD: Brenda Smith

Assessing Determinants of Fruit and Vegetable Consumption in Low-Income, Minority Preschool Age Children in Urban Oklahoma

Children's fruit and vegetable (FV) intake is below the current recommendations. The purpose of this study was to determine parental factors that influence FV availability in low-income minority families with preschool children, utilizing the Transtheoretical Model and Stages of Change. Among 179 participants, 60.5% of Hispanic parents were in pre-action stages while 54% of African American parents were in action or maintenance stages. Negative aspects related to FV (i.e., cost; preparation time) weakened the intentions of Hispanic parents to serve more FV. African American parents in lower stages used behavioral processes less often than those in action/maintenance stages. Nutrition education programs aimed at increasing FV availability in low-income Hispanic and African American families with preschool children should target specific needs of each minority group to maximize the effectiveness of the interventions.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Lenka H. Shriver, Deana Hildebrand, and Nancy Betts

Childhood Obesity Prevention/Intervention

The objectives of this study are to examine the effectiveness of extension educator programming on knowledge and behaviors related to obesity among school children and to determine barriers to obesity prevention.

Sponsor: Oklahoma Cooperative Extension Service Team Initiative Project

PI/PDs: Nancy Betts, Janice Hermann

Chronic Effects of Freeze-Dried Whole Blueberry Drink Consumption on Biomarkers of Lipid Peroxidation and Inflammation in Subjects with Metabolic Syndrome

This research study will analyze the chronic effects of freeze-dried whole blueberry drink consumption on clinical features of Metabolic Syndrome (MeS) and biomarkers of oxidative stress and inflammation in subjects with MeS. Twenty-five subjects with MeS, will be recruited following an initial screening by telephone questionnaire. Blood draws and anthropometric measurements will take place at screening, 4, & 8 weeks of the study. We will also assess the effects of blueberry flavonoids on insulin resistance. Ongoing data analyses have shown blueberry consumption to decrease systolic blood pressure in these subjects with metabolic syndrome and a decreasing trend in oxidized lipids

Sponsor: US Highbush Blueberry Council

PI/PD: Arpita Basu

Evaluation of the Anti-inflammatory Properties of Juice from Grape Varieties Grown in Oklahoma

Grapes are a rich source of polyphenolic compounds with potent antioxidant and anti-inflammatory properties. To our knowledge, there are no studies investigating the extent to which different grape varieties grown in Oklahoma will exert health benefits. Studies have shown that phenolic content can be influenced by environmental factors, maturity, and the variety. This study is investigating the anti-inflammatory properties of grape varieties grown in Oklahoma. Thirty-three varieties of grapes grown in Oklahoma were analyzed for its total phenolic, flavonoid, and anthocyanin content as well as its ability to reduce nitric oxide, an inflammatory marker, using a cell culture system. Five varieties with the highest (Chardonnay, Cynthiana, Rubaiyat, Sunbelt, Zinfandel) and lowest (Cabernet Sauvignon, Pinot Gris, Sauvignon Blanc, Ruby Cabernet, Viognier) ability to lower nitric oxide were chosen to determine its effect on preventing early events in plaque formation. We are currently testing the effects of the extract of these grape varieties in preventing foam cell formation induced by oxidized lipoproteins. Our findings will help Oklahoma grape growers better market their product and will benefit consumers by promoting products that can potentially reduce or prevent inflammation-mediated disease such as heart disease.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PDs: Edralin Lucas, Barbara Brown, Stephany Parker

College of Agricultural Sciences and Natural Resources: Eric Stafne

Evaluation of the Coordinated School Health Program

An evaluation of Coordinated School Health (CSH) Programs in Oklahoma was conducted during the 2007-2008 school year. A case-control model was utilized with 4 control and 4 intervention elementary school sites. The aim of the study was to evaluate the effectiveness of CSH for the purpose of communicating research based evidence to state decision-makers regarding the efficacy of such initiatives for improving the health status and academic achievement of students. Methodology included administration of the School Health Index and a process evaluation consisting of personal interviews with school stakeholders at each site. The final report will be released winter 2008. The project is a cooperative effort of Oklahoma State Department of Health (OSDH), Schools for Healthy Lifestyles/University of Oklahoma Health Sciences Center, Tulsa City-County Health Department It's All About Kids and the Oklahoma State University Department of Nutritional Sciences.

Sponsor: Oklahoma State Department of Health, Family Health Services

PI/PDs: Deana Hildebrand, Nancy Betts

Farm to You Educational Exhibit

"Farm to You" is a traveling interactive adventure for elementary school children that shows food from the farm to the market and then through the body to explore the relationships between agriculture, food and health. Beginning September 2008, the exhibit is being used in school and community settings as part of OSU Oklahoma Cooperative Extension Service (OCES) and OSDH health education efforts. The project utilizes the Social Cognitive Theory to improve students' outcome expectancies for healthy behaviors. After touring, students receive an activity booklet to reinforce the exhibit's messages and parents receive a newsletter to promote healthy food practices in the home environment.

Sponsor: Oklahoma State Department of Health

PI/PD: Deana Hildebrand

Frame Obesity from the Perspectives of Native Americans living in Chickasaw Nation Boundaries

The long-term goal of this research is to positively influence the state of obesity among Native Americans living in Chickasaw Nation boundaries by better understanding cultural and economic aspects of obesity. The objectives of this study for attainment of our long-term goal are to: 1. Frame obesity from the perspectives of men, women and children who live in the Chickasaw Nation boundaries and 2. Develop a social marketing campaign to prevent overweight and obesity and improve overall well being.

Sponsor: Chickasaw Nation, Oklahoma Department of Human Services, US Department of Agriculture

PI/PD: Stephany Parker

Framing and Deliberation of Obesity among African American, White, Hispanic & Native American Limited Resource Women

The goal of this project was to positively influence the state of obesity in Oklahoma by better understanding cultural and economic aspects of body weight among diverse limited income women. A total of four focus groups were conducted with each racial/ethnic group. The results from the Hispanic group were not included in the conclusions because of insufficient and inconsistent data. The results from the remaining groups illustrated the significant contribution of cultural ties to obesity especially among African American and Native American limited resource women, as well as the roles of financial deficiency and a lack of social support in furthering obesity for all of the racial/ethnic groups. Cultural ties among African American and Native American women were somewhat similar in that overweight was commonly attributed to being the norm for the specific racial/ethnic group. Possible actions to address obesity include providing culturally and economic sensitive education and designing nutrition dissemination strategies using foods specific to cultural norms and preferences.

Sponsor: Oklahoma Agricultural Experimentation Station

PI/PDs: Stephany Parker, Janice Herman

Department of Human Development and Family Science: Sue Williams

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 bone metabolism following menopause. Current studies will provide insight into the compounds in dried plums that are responsible for these bone-protective effects.

Sponsor: United States Department of Agriculture

PI/PDs: Brenda Smith, Edralin Lucas

Mango Modulates Glucose and Lipid Parameters in High Fat Diet-Induced Obesity

Mango extracts and whole fruit preparations have antioxidants that appear to be useful for some types of cancer, but little has been done on cardiovascular health. Cardiovascular disease is the major killer of Americans and changes in diet to include more fruit and vegetables is now a widely recognized practice to help prevent or delay this disease. The objective of this project is to investigate the effect of freeze dried mango on glucose and lipid parameters in high fat diet-induced obesity.

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 3, 6, and 9 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 3 months old.

Sponsor: United States Department of Agriculture

PI/PDs: Tay Kennedy, Barbara Stoecker

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

College of Arts and Sciences: David Thomas

Modulation of Defensin Production by Mushroom Extracts in Human Cell Lines

The objectives of this project are to investigate: a) the effects of mushroom extracts on defensin production by human immune cell lines; b) the effects of mushrooms on arthritis development; and c) the effects of mushrooms on cancer progression. One unifying idea in these objectives is that inflammation plays a crucial role in the defense against infectious and non-infectious diseases and in the development of chronic diseases. Preliminary results suggest that mushrooms/mushroom extracts increase antimicrobial proteins – defensins and reduce the secretion of certain types of inflammatory cytokines and the growth of certain cancer lines.

Sponsor: United States Department of Agriculture

PI/PD: Solo Kuvibidila

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

Momordica charantia (MC) also known as bitter melon is a widely consumed vegetable in Asia. MC has been investigated for its role in lowering blood glucose and has recently been shown to reduce fat mass and improve lipid mostly in animal models. Despite these health benefits, the use of MC in the American diet is very limited. This project is investigating the role of MC in modulating glucose and lipid parameters in high fat diet-induced obesity. Our findings may provide knowledge related to the health benefits of MC that may, in turn, promote this vegetable in the US.

Sponsor: United States Department of Agriculture

PI/PDs: Edralin Lucas, Brenda Smith

Nutrient Bioavailability - Phytonutrients and Beyond

Effects on bone quality of nutrients, bioactive dietary components, and a toxic element were investigated using animal models. Calcium repletion markedly improved bone density and microarchitecture even when initiated in adult animals. Both dried plum and orange pulp increased bone volume fraction and decreased trabecular separation as measured by microcomputed tomography. Additional studies to determine specific mechanisms by which these nutrients and other beneficial dietary components affect bone are needed to determine their applicability for human studies. Current USDA recommendations for more servings of fruits and vegetables in the diet have the potential to increase consumption of bioactive dietary components and perhaps to benefit bone. On the other hand, an investigation of cadmium exposure via diet illustrated its detrimental effects on bone density, microarchitecture and strength. These results suggest that lifetime exposures to cadmium may be one factor contributing to the problem of osteoporosis. Because bone loss is a sensitive indicator of response to cadmium exposure, further animal studies would be useful to determine if there is a threshold below which risk is diminished.

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Barbara J. Stoecker

Oklahoma Nutrition Program - Food Stamp Nutrition Education Program

The purpose of this program is to empower families with the knowledge and skills needed to make healthy lifestyle choices by providing nutrition education, to promote appropriate nutrition education messages, and to refer families to agency nutrition programs. Pre/post evaluation records indicate 88.2% of the families/households graduating from the program exhibit a positive change in their diet at the time of exit from the program.

Sponsor: Oklahoma Department of Human Services, Food Stamp Program, U.S. Department of Agriculture

PI/PDs: Debra Greene-Garrard, Janice Hermann

The Protective Role of Soy Isoflavones Against Complications with Obesity and Chronic Inflammation

Obesity is undoubtedly one of the most significant public health concerns facing the U.S. Excess body fat increases the risk of cardiovascular disease, osteoporosis and certain cancers due in part to the chronic inflammatory state that ensues. Research screening plant-based foods for their anti-inflammatory properties has indicated that soy isoflavones may counter some of the deleterious effects of obesity. We are

investigating whether soy isoflavones will suppress the production of pro-inflammatory cytokines and enhance production of anti-inflammatory cytokines and immune mediators models of chronic inflammation.

Sponsor: South Dakota State University, United States Department of Agriculture

PI/PD: Brenda Smith

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

Zinc status of many children in Southern Ethiopia is low, and low zinc status has been associated with less focused attention and decreased motor function in children. We are measuring growth and testing cognition of infants and young children, as well as assessing dietary zinc intakes and nutritional status of their mothers. Total zinc absorption by women in late pregnancy is ~ 50% of the estimated physiologic requirement. Results from these trials in a zinc deficient population will provide guidance for establishing dietary recommendations for infants and for pregnancy in the United States.

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

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