

Project Objectives:

Objective 1: Conduct an expert field review of key behavioral measures purported to contribute to excessive weight gain in children aged 4-10 years old.

Objective 2: Identify anthropometric and physiological measures that could be used to differentiate families within the target population in the community settings.

Objective 3: To assess parent-child interactions in the target population as they relate to key behaviors identified as being associated with resilience to overweight

Objective 4: Determine appropriate tools to effectively measure salient behavioral differences between low-income families in the parent-child relationships identified in Objective 3 for the community setting

Objective 5: Design a framework for prevention strategies targeting the development of resilience behaviors.

Outcomes:

Objective 1:

*An expert field review conducted with Cooperative Extension nutrition educators revealed that current educational strategies and practices used with low-income families are designed to promote healthy lifestyles and address perceived barriers families face in adopting healthy food and activity practices. However, current educational strategies and practices only partially align with national recommendations. Outcomes of objective 1 position Cooperative Extension to adjust educational strategies to better meet national recommendations and program participant needs through

*Documentation of childhood obesity prevention practices used by nutrition educators for comparison to recommended targets for childhood obesity prevention among low-income families;

*Identification of successful, effective practice strategies to increase healthy eating and physical activity used by nutrition educators with families and children; and

*Identification of tactics used by supervisors to support educators in working with low-income families.

Objective 2:

*Identified evidence-based field methods for anthropometric, fitness, physical activity and metabolic parameters that could be used to measure changes in risk factors for obesity and chronic disease in children and families in school and community settings.

*Appointed to the American College of Sports Medicine Community Health Committee in an effort to increase the awareness of nutrition within professional organizations focused on nutrition (Manore, Hongu, Lindsay, Houtkooper).

Objective 3:

*Programs: **All 4 Kids**[®] Program – Madeleine Sigman-Grant and collaborators: significant improvement in preschoolers participating in the **All 4 Kids**[®] Program in physical movement skills, ability to distinguish healthy from unhealthy foods, and preference for healthy foods when compared with non-participants – receiving Multiple National Awards

*Webinars: Fisher, J. O., & Hubbs-Tait, L. (October 20, 2010). Early parenting and feeding practices. Webinar presented for Families, Food and Fitness Community of Practice. This webinar continues in 2012 to be available to the public on the eXtension

website (<http://www.extension.org/pages/30547/early-parenting-and-feeding-practices>) and is also available through various other websites: <http://ebookbrowse.com/part-i-and-ii-early-parenting-and-feeding-10-20-10-pdf-d36365708>

*Suggestions for nutrition educators: National presentations in 2012 outlined the position that nutrition educators must include parenting styles in educational curricula to prevent child obesity

Objective 4:

*Tools to measure feeding practices, parenting styles, and feeding styles were identified during the attainment of objective 3: 1. Parenting styles: *Parenting Behavior Questionnaire – Head Start*; 2. Feeding styles: *Caregiver’s Feeding Styles Questionnaire*; and 3. Feeding practices: *Healthy Children Healthy Families Behavior Checklist, Parental Dietary Modeling Scale, Overt and Covert Control*

Objective 5:

Initial efforts identified this objective as requiring efforts beyond the scope of W1005. It has been revised and is objective 1 of W2005.

Indicators:

Objective 1:

*Characterized low-income families’ personal, social, community, and organizational barriers to healthy food and activity practices as perceived by nutrition educators.

*Identified educators’ perceptions of low-income families’ behaviors that contribute to childhood obesity.

*Described educational strategies and practices currently employed by educators in working with EFNEP and SNAP-Ed participants.

*Suggested additions to and changes in nutrition education programming that will increase the likelihood of participants adopting nutrition and activity practices consistent with obesity prevention.

Objective 3:

*Designed and implemented a multistate qualitative investigation to determine the disconnect between intent and interpretation of common child obesity prevention messages by low-income families

*Designed and implemented multistate empirical investigation of mothers and children (ages 3 to 10) to identify maternal and child behaviors and characteristics as well as maternal attitudes, perceptions, and beliefs which are linked to child BMI z-scores, overweight, and obesity.

*Identified and reported statistical interactions between parenting styles and feeding practices and interactions between feeding styles and feeding practices that are associated with resilience to child overweight and obesity. These statistical interactions serve as indicators for entry points for future interventions for obesity prevention

Outputs:

Journal publications:

Objective 1

1. Armstrong Shultz, J. Wood, D.K., Rexford, R., Manenica, K., and Barale, K. 2012. Extension educators’ perspectives on promoting children’s healthy eating

as obesity prevention through SNAP-Ed and EFNEP. Family and Community Health (under review).

2. Lindsay AR, Hongu N, Spears K, Idris R, Dyrek A, Manore MM. Field Assessments for obesity prevention in children and adults: Physical activity, fitness, and body composition. *J Nutrition Education and Behavior* (in press).

Objective 2

1. Lindsay A, Hongu N, Idris R, Spears K, Dyrek A, Manore MM. Field assessment for obesity prevention in children and adults: Physical activity, fitness, and body composition. *Journal of Nutrition Education and Behavior* (revised and submitted).
2. Teran, B.M. & Hongu, N. (2012). Successful statewide walking program websites. *J Extension*, 50(1). Available Online: http://www.joe.org/joe/2012february/pdf/JOE_v50_1tt9.pdf
3. Hongu, N., Wisneski, K.D., Orr, B.J. (2012). Bringing university innovation to the retirement community: An outdoor walking program for older adults. *The Forum for Family and Consumer Issues*, 17 (1). Available Online: <http://ncsu.edu/ffci/publications/2012/v17-n1-2012-spring/hongu-wisneski-orr.php>
4. Byington, T., Lindsay, A., & Sigman-Grant, M. (accepted 2012). Healthy, Happy, Active, Fit Preschoolers. *Young Children, The Journal of the National Association for the Education of Young Children* (in press).
5. Sweat W, Manore MM. Too Good to Be True? Eating More and Losing Weight with a Low Energy-Dense Diet. *ACSM's Health and Fitness Journal*. 2012;16(4-July/Aug):22-28.
6. Manore MM. Dietary supplements for improving body composition and reducing body weight: Where is the evidence? *International Journal of Sport Nutrition & Exercise Metabolism*. 2012; 22:139-154.

Objective 3:

1. Byington, T., Lindsay, A., & Sigman-Grant, M. (in press -- for publication 2013). Healthy, Happy, Active, Fit Preschoolers, *Young Children: The Journal of the National Association for the Education of Young Children*.
2. Sigman-Grant M, Byington T, Lindsay A, Lu M, Mobley AR, Fitzgerald N, & Hildebrand D. (manuscript submitted). Preschoolers can distinguish between healthy and unhealthy snack: the **All 4 Kids**® Study
3. Sigman-Grant M, Strom H, Stanek Krogstrand K, Olson BH, Wengreen H, Mobley AR. [Qualitative Evidence of the Disconnect Between Intent and Interpretation of Common Child Obesity Prevention Messages](#). *Forum for Family and Consumer Issues (e-journal)*. December 2010, Vol. 15 No. 3 ISSN 1540 5273. Available online: <http://ncsu.edu/ffci/publications/>
4. Byington, T., Lindsay, A., Loesch-Griffin, D., Brumett, S., & Sigman-Grant, M. (in press -- for publication 2013). Head Start Families' Thoughts and Beliefs about Health, Nutrition, and Physical Activity. *National Head Start Dialog: A Research-to-Practice Journal for the Early Childhood Field*.

5. Dickin KL, Seim, G. Adapting the Trials of Improved Practices approach to explore the acceptability and feasibility of nutrition and parenting recommendations: What works for low-income families? Under review: *Maternal and Child Nutrition*.
6. Hubbs-Tait L, Dickin KL, Sigman-Grant M, Jahns L, Mobley AR. Relation of parenting styles, feeding styles and feeding practices to child overweight and obesity: Direct and moderated effects. Under review: *Appetite*.

National Meetings Organized:

Objective 2

1. "Energy Balance at a Crossroads: Translating Science into Action". *A partnership among the American College of Sports Medicine (ACSM), the Academy of Nutrition and Dietetics (Academy), and the United States Department of Agriculture (USDA)*. October 2012, Washington DC - a formal meetings with government agencies and professional organizations to discuss how energy balance can become more integrated into government programs for childhood obesity (SNAP-Ed, EFNEP, WIC, schools) (Manore, Houtkooper).

Presentations:

1. Invited presentations at national nutrition meetings:

Objective 2

- a. Lindsay, A., Oehlke, S. & Brinkman, P. (2012, July). *Building Healthy Families and Preschoolers: A Systems Approach for Lifelong Health*. Society for Nutrition Education & Behavior, Washington, D.C.
- b. Sigman-Grant, M., Lindsay, A., Byington, T., Gabor, V. & Cates, S. (2012, July). *Contrasting Designs of a SNAP-Ed Evaluation: Lessons Learned from the All 4 Kids Program*. Society for Nutrition Education & Behavior, Washington, D.C.
- c. Lindsay, A. (2012, April) *Why Weight? Preventing Childhood Obesity Begins in Your Classroom* Nevada Association for the Education of Young Children, Las Vegas, NV.
- d. Manore MM. Academy of Nutrition and Dietetics Annual Food and Nutrition Exposition (FNCE). Oct 2012, Philadelphia, PA. Invited Speaker: Energy Balance: Where Nutrition and Exercise Meet. Supplements for Weight Loss – Where is the Evidence?
- e. Manore, MM. 3rd Physical Activity and Health Virtual Symposium sponsored by Grupo Sobre Entrenamiento, October, 2011. Invited Speaker: Strategies and Recommendations for losing weight and maintaining weight loss. In English and Spanish.
- f. Manore MM. American Dietetic Association Annual Meeting, Sept 2011, San Diego, CA. Workshop Organizer: Exercise is Medicine (EIM) Rd's Toolkit: Rational and Resources for Promoting Physical Activity. Invited Speaker: Physical Activity Guidelines and Exercise is Medicine: The Dietitians Role in a Global Initiative. Co-Sponsored by ADA (SCAN and Weight Management DPGs) and ACSM/EIM.

- g. Manore MM. American College of Sports Medicine Annual Meeting and EIM World Congress. Symposium titled: *Energy Balance: Where Nutrition meets Exercise is Medicine (EIM)*, June 2011, Denver, CO. Session Chair and Moderator and Invited Speaker: Supplements for Weight Loss: Besides the cost, what is the risk of using over-the-counter weight loss supplements and are there any benefits?
- h. Manore MM. American College of Sports Medicine (ACSM) Annual Health and Fitness Summit, April 2011, Anaheim, CA. Invited Speaker: Belly Fat 101: Do diet and supplements work?
- i. Manore MM. University of Arizona, 2010 Sports Nutrition Conference: Fueling Fitness and Performance, October 2010, Tucson, AZ. Invited Speaker: Hot Topics in Research: Weight control and Dietary Supplements.
- j. Manore MM. American Dietetic Association Annual Meeting, FNCE Pre-Conference titled: Exercise is Medicine: What is the Dietitian's Role in Promoting Physical Activity? Denver, CO, Oct 2009. Co-Presiding Officer and Moderator and Contributor to the "Exercise is Medicine: Toolkit for Nutrition Professions".

2. Research presentations at national meetings

Objective 1

- a. Idris, R. Stephenson, K. (2011, April) *Extension Supervisors and their Frontline Staffs Observations Acceptance of Nutrition Education Messages to Prevent Childhood Obesity in Low Income Families of South Carolina*. ARD Biennial Research Symposium, Jacksonville, FL.

Objective 2

- b. Hongu, N., Huang, S., Block, L.M., Martinez, C.L., Orr, B.J., Hoelscher Day, S. Knutson, N.B., Torrey, Y.T., Harris, R.B. (2012) Community Walking Program Promotes Physical Activity in Adults and Youth for 10 years. *American College of Sports Medicine*, Annual Meeting, San Francisco, CA.
- c. Dyrek, A., Lindsay, A., Byington, T., Sigman-Grant, M., Lu, Minggen, & Campbell, B. (2012, June). Improved Movement Skill Competency in a Preschooler Physical Activity Intervention. *Medicine & Science in Sports & Exercise*, 44(5), S331
- d. Lindsay, A., Hite, A., Byington, T., Lu, M. & Sigman-Grant, M. (2012, April). *Incongruence Between Mother Perceptions and Preschoolers' Actual Weight Status Using BMI Categories*. Experimental Biology, San Diego, CA
- e. Sweat WM, Pilolla KD, Princehouse MK, Manore MM. Predictors of weight and waist circumference changes in abdominally obese women: Exercise or diet factors? American College of Sports Medicine (ACSM) Annual Meeting, June 2012, San Francisco, CA.
- f. Pilolla KD, WM Sweat, GF Maddalozzo, MM Manore. Impact of dietary protein (PRO) intake and high-intensity interval exercise on abdominal obesity

- (AbOb) and metabolic syndrome (MetS) risk in premenopausal women. Experimental Biology Annual Meeting, April, 2012, San Diego, CA.
- g. Farm KR, Normandin JS, Pilolla KD*, Sweat WM, Maddalozzo GF, Manore MM. High intensity interval training: impact on fitness and body composition in sedentary, overweight, premenopausal women. Northwest ACSM Annual Meeting, April 2011, Eugene, OR.
 - h. Pilolla KD, Sweat WM, Maddalozzo G, Princehouse M, Manore MM. LITEN UP! Reducing Metabolic Syndrome (MetS) Risk in Premenopausal Women. American College of Sports Medicine (ACSM) Annual Meeting, May 2011, Denver, CO.
 - i. KD Pilolla, TK Bryant, MM Manore, RJ Donatelle, JM Jabson, AJ Walker, VE Ourada. A Pilot Study: Impact of a non-weight loss intervention, focused on changing diet and physical activity (PA) behaviors, in midlife women at risk for metabolic syndrome (MetS). *The FASEB J* 2008;22:677.20. Experimental Biology Annual Meeting, April, 2008, San Diego.

Objective 3: ** indicates student author

- j. Dickin KL, Hubbs-Tait L, Sigman-Grant M, Jahns L, Mobley A. Feeding practices correlated with authoritative parenting style and responsive feeding style scores. Poster presented at the annual meeting of the Federated Associated Societies of Experimental Biology, San Diego, CA. Abstract published in *FASEB J.* 2012;26:1011.14.
- k. Dickin, KL, Hubbs-Tait, L., Jahns, L., Mobley, A., Willits-Smith, A.**, & Sigman-Grant, M. What can child silhouette data tell us? Exploring links to parenting, food and activity behaviors, BMI, and maternal concerns. Poster presented at the annual meeting of International Society for Behavioral Nutrition & Physical Activity, Austin, TX.
- l. Dickin KL and Willits-Smith A. ** Letting children decide how much to eat: Comparing qualitative and quantitative measures of low-income parents' practices. *Measuring Parenting* conference, Houston TX, May 2012.
- m. Dyrek A**, Lindsay A, Byington T, Sigman-Grant M, Lu M & Campbell B. (2012, June). Improved movement skill competency in a preschooler physical activity intervention. *Medicine & Science in Sports & Exercise*, 44(5), S331.
- n. Idris, R. Stephenson, K. (2011, April) *Perception and Implementation of Family Meal Messages by Low Income Families in South Carolina*. ARD Biennial Research Symposium, Jacksonville, FL.
- o. Lindsay A, Hite A, Byington T, Lu M, Sigman-Grant M. (2012, March). Incongruence between mother perceptions and preschooler's actual weight status using BMI categories. Abstract published in *FASEB J.* 2012;26:1011.12.
- p. Mobley A.R., Vollmer R.L.**, Sigman-Grant M. Relationship of parental dyad feeding styles on children's weight status and related obesogenic behaviors, *FASEB J.* March 29, 2012 26:1011.6

- q. Vollmer R.L.** , Sigman-Grant M., Mobley A.R. Don't forget about dad: Exploring paternal influences on children's weight status and eating behaviors, *FASEB J.* March 29, 2012 26:1011.7.
- r. Sigman-Grant M, Lindsay A, Byington T, and VanBrackle A. (2012, July). *All 4 Kids*®: Resiliency in an Obesogenic Environment. *Society for Nutrition Education and Behavior.* Washington D.C.
- s. Byington, T., Lindsay, A., Sigman-Grant, M & Wozniak, A. (2012, November). Going online for *All 4 Kids*®: An evidence-based curriculum targeting childhood obesity. National Association for the Education of Young Children, Atlanta GA.
- t. Sigman-Grant M, Lindsay A, Byington T, Gabor V & Cates S. (2012, July). Contrasting designs of a SNAP-Ed evaluation: lessons learned from the *All 4 Kids*® Program. Washington DC
- u. Byington T, Lindsay A, Sigman-Grant M. '*All 4 Kids*®: Evaluation Study'. (2011) SNAP-Ed Wave 1 Demonstration Project Meeting, Alexandria VA
- v. Dickin KL & Willits-Smith A.** Longitudinal in-home trials of recommended healthy eating and parenting practices: What works for low-income families? *International Society for Behavioral Nutrition and Physical Activity conference*, Melbourne, Australia, June 2011.
- w. Rogers R.L.** , Sigman-Grant M., Mobley A.R. Differences in feeding practices and perceptions of childhood obesity messages among low-income mothers of young children. *J Am Diet Assoc* 2011 :111(9):A-13
- x. Hubbs-Tait, L., Baker, E. R.** , Henry, N.** , Kennedy, T. S., Topham, G. L., Larzelere, R. E. (2011, April). *Effect modifiers of relations between preschool obesity and parenting styles or feeding practices.* Paper presented in *Preventing Childhood Obesity* session at the annual meeting of the Federated Associated Societies of Experimental Biology in Washington, D.C. Abstract published in *FASEB J.* 2011;25:99.4.
- y. Okwonga AB**, Hubbs-Tait L, Henry N**, Kennedy TS, Richardson D, Baker ER** (2011, April). *Teacher ratings of behavior problems and preschool child odds of obesity.* Poster presented at the annual meeting of the Federated Associated Societies of Experimental Biology in Washington, D.C. (Nominated for Nutrition Education Research Interest Section best presentation). Abstract published in *FASEB J.* 2011;25:99.4.
- z. Willits-Smith A** & Dickin KL. Factors that influence low-income families' use of recommended nutrition and parenting practices to prevent unhealthy weight gain in children: An exploratory study. *Experimental Biology 2011*, Washington DC, April 2011.
- aa. *All 4 Kids*®: Healthy, Happy, Active, Fit: Lessons you can use to deliver a preschool nutrition and activity program. (2010) Annual CACFP Roundtable, San Francisco, CA
- bb. Okwonga, A. B.** , Henry, N**., Kennedy, T. S., Richardson, D., & Hubbs-Tait, L. (2010, March). *Teachers' ratings of behaviors of overweight preschool children.* Paper presented at the Biennial Meeting of the Society for Research in Human Development, San Antonio, TX.

- cc. Rogers R.L. *, Sigman-Grant M., Mobley A.R. Low-income mothers' perceptions and implementation of family meal messages. *J Nutr Educ Behav* 2010; 42(4S):S92.
- dd. Sigman-Grant M, Dickin K, Dollahite J, Strom H, Olson B, Wengreen H, Mobley A, Krogstrand KS. Qualitative evidence of the disconnect between intent and interpretation of common child obesity prevention messages. *Experimental Biology 2010*, Anaheim CA, April 2010.
- ee. Sigman-Grant M, Byington T, Lindsay A, Spann T. (2010). Strategies for childhood obesity prevention programs directed at preschoolers. Society for Nutrition Education, Reno, NV
- ff. Sigman-Grant M, Dickin K, Dollahite J, Strom H, Olson B, Wengreen H, Mobley A, Stanek Krogstrand K. Qualitative evidence of the disconnect between intent and interpretation of common child obesity prevention messages. (2010) *Experimental Biology*, Washington DC
- gg. Sigman-Grant M, Dickin K, Dollahite J, Mobley A, Olson B, Krogstrand KS, Strom H, Wengreen H. Low-income mothers' inputs about prominent child overweight prevention messages. *Journal of Nutrition Education and Behavior* 2008; 40: S65-S66.

3. Presentations at state meetings

Objective 1:

- a. Armstrong Shultz, J. (2011, October) *Energizing our education-based efforts in obesity prevention for children and families*. CAHNRS (College of Agriculture Human and Natural Resource Sciences) and All Faculty Extension Conference, "Global to Local: A University Engaged. Pullman, WA
- b. Armstrong Shultz, J. (2012, May) *Extension educators' views about promoting children's healthy eating: W1005 Multistate Project research*. EFNEP Conference, Spokane, WA.
- c. Rexford, R., Wood, D.K., Armstrong Shultz, J (2011, October) *Extension Nutrition Educators' Views About Promoting Children's Healthy Eating*. Washington State Joint Conference on Health, Vancouver, WA.

4. Curriculum Developed:

Objective 2

Langelotto GA, Tobey L, Fitch J, Hoisington A, Joyce A, Brody B, Baxter D, Quinn MT, Hunt S, Manore MM. *Growing Healthy Kids*, 2nd Edition. Second Edition. Copyright ©2012 by Oregon State University Extension. [Integrated nutrition, gardening and physical activity curriculum for elementary school children.]

Students Mentored:

Objective 1

- a. A. McClain, doctoral student, Cornell University
- b. P. Mahajan, masters student University of Kentucky
- c. R Rexford, dietetics student, Washington State University

- d. K Stephenson, South Carolina State University
- e. O. Tkachenko, masters student, Cornell University
- f. E. Vlock, University of Nebraska

Objective 3 &4

- g. A Willits-Smith, masters student, Cornell University (master's thesis)
- h. R Taam, undergraduate research assistants
- i. F Larios, undergraduate research assistant, Cornell University
- j. J Hayes Dewar, masters student University of Nevada
- k. Rachel Rogers Vollmer, masters student, Purdue University, PhD student, University of Connecticut
- l. A Beatrice Okwonga, PhD student, Oklahoma State University
- m. Nicole Dominique-Makell, masters research assistant, Oklahoma State University
- n. Ashley Kimble, masters research assistant, Oklahoma State University

Activities:

Objective 1

*Conducted one-time semi-structured interviews (total n=91) with EFNEP and SNAP-Ed paraprofessional educators (n=50) and nutrition supervisors (n=41) in 7 states to understand staff perceptions of low-income families barriers to healthy eating and physical activity, families contributing behaviors, and educational strategies and practices employed by educators.

*National dataset was analyzed by content categories and open coding to develop emergent themes.

*Some state datasets were analyzed within state as well as a part of the national dataset with state analyses used for validation.

Objective 2

*Conducted an extensive literature review on evidence-based field methods for anthropometric, fitness, physical activity and metabolic parameters that could be used to measure changes in risk factors for obesity and chronic disease in children and families in school and community settings to determine those that could be used in the field for project and/or research evaluations and assessments. The target populations were children, especially young children between the ages of 4-11y, and their parents or guardians (adults). This work is supportive of the other objectives within W1005.

Objective 3

*Conducted empirical studies of the relation of mothers' parenting styles and feeding practices, styles, and concerns to children's BMI or to mother's ratings of children's silhouettes. Participants were children under the age of 6 or children over the age of 6. Instruments that would inform objective 4 were used.

*Conducted a pilot study of 44 low-income mothers of children aged 4-10 years from six states to explore their understanding of selected obesity prevention messages.

Objective 4:

*Instruments appropriate for assessing parents and children living in low-income circumstances were identified.

Objective 5:

*Is ongoing – included within Objective 1 of W2005, 2012 – 2017.

Inputs: All members provided time devoted to literature review, data collection, compilation and management, data analysis, developing presentations, and writing manuscripts.

Object 1 members: Jill Armstrong Shultz (Washington), Jamie Dollahite (New York), Betty Greer (Tennessee), Rafida Idris (South Carolina), Janet Kurzynske (Kentucky), Naima Moustaid-Moussa (Tennessee), Madeleine Sigman-Grant (Nevada), Kaye Stanek Krogstrand (Nebraska, now retired). Funding for analysis of national dataset: \$15,000 (Cornell University Agricultural Experiment Station); \$1,500 (University of Kentucky), \$1,000 (Mississippi State Agricultural Experiment Station); Total \$15,500 dollars.

Objective 2 members. Nobuko (Kay) Hongu (Arizona), Rafida Idris (South Carolina), Karen Spears (Nevada, Reno), Anne Lindsay (University of Nevada Cooperative Extension), Melinda Manore (Oregon).

Objective 3 &4 members. Katherine Dickin (New York), Laura Hubbs-Tait (Oklahoma), Rafida Idris (South Carolina), Lisa Jahns (North Dakota), Amy Mobley (Indiana, Connecticut), Beth Olson (Michigan), Madeleine Sigman-Grant (Nevada), Nahid Sistani (Alabama), Kaye Stanek Krogstrand (Nebraska, now retired), Diane Tidwell (Mississippi) and Robin Orr (deceased)

Objective 5 members. Members of W2005.

Impact Statements:

Objective 1 has provided baseline data to increase the effectiveness of Cooperative Extension nutrition programming through changes that bring it more closely into alignment with national recommendations for childhood obesity prevention programs.

Objective 2 has increased the awareness of physical activity within USDA and the extension/nutrition community and the role it plays in energy balance and obesity prevention

Objective 3 has increased the awareness of the role of parenting and feeding styles in the development of childhood obesity among members of the *American Society of Nutrition*, the *Society for Behavioral Nutrition and Physical Activity*, and the *Society for Nutrition Education and Behavior*.

Objective 4 has identified and reported tools to measure feeding practices, parenting styles, and feeding styles.

Objective 5 submitted a new multi-state proposal *Parenting, energy dynamics, and lifestyle determinants of childhood obesity: New directions in prevention*. This has been approved as W2005, 2012-2017.

Overall impact statement: W1005 has achieved the projected impacts in the original proposal for the multistate project:

- Graduate and undergraduate students were mentored in research and/or extension throughout the duration of the project.
- Advances in the study of obesity were attained, presented at national meetings, and are currently under review by editorial boards of peer-reviewed journals.
- Entry points for development of effective solutions to reverse trends in childhood obesity were identified.
- Networks and collaborations focused on obesity prevention were developed and have been carried forward into W2005.
- W1005 Impact Summary that was compiled and designed by Sara Delheimer.
http://agisamerica.org/Websites/agisamerica/images/Impact_Statement_PreventingChildhoodObesity.pdf

The W1005 final report is dedicated to Robin Orr for her strength and devotion.