P57 (continued)

macronutrients, micronutrients, critical thinking skills, and designing and analyzing diets. Strategies identified to ease understanding of difficult concepts included additional exposure to concepts with interactive materials and more study time.

Conclusions and Implications: Results suggest additional strategies are needed when covering digestion and metabolism concepts in introductory nutrition courses. Covering fewer concepts more in-depth with an interactive approach to allow additional exposure may be warranted.

Funding: None

P58 The Ability of the Registered Dietitian to Promote Weight Gain Prevention

Catherine Metzgar, RD, LDN, metzgar2@illinois.edu, University of Illinois at Urbana-Champaign, 260 Bevier Hall, 905 S. Goodwin, Urbana, IL 61801; S. M. Nickols-Richardson, PhD, RD

Objective: To compare the ability of the registered dietitian with a counselor to facilitate weight gain prevention.

Target Audience: Young adult and perimenopausal women.

Theory, Prior Research, Rationale: Intervention efforts to prevent the development of obesity should target young adult and midlife women as these are crucial intervals for weight gain. Few studies have addressed weight gain prevention and none have compared the facilitation of weight management by a registered dietitian against another health professional. This study will be grounded in Social Cognitive Theory.

Description: Women (n=180) will be recruited for this 12-month parallel-arm weight gain prevention randomized controlled trial. Women will be randomized to a nutrition education intervention group led by a registered dietitian (RDG) or counselor (CSG), or a wait-list control (CON) group. Women in the intervention groups will attend identical education sessions that cover general nutrition and fitness information and emphasize portion control, planning ahead for food intake and vegetable consumption. The only difference will be the leader of the intervention (RDG vs. CSG).

Evaluation: The main outcome will be change in body weight. Changes in blood pressure, biochemical markers of metabolism, dietary intake, physical activity participation and Social Cognitive Theory mediators of behavior will be assessed.

Conclusions and Implications: Compared to the CON group, women in the intervention groups are hypothesized to maintain current body weight; women in the RDG group are postulated to have the least weight gain over time. Findings will help inform the role of the registered dietitian in weight gain prevention and provide a foundation for future weight gain prevention studies.

Funding: None

P59 Systematic Review of Culinary Interventions to Promote Healthy Eating: Directions for Future Research and Practice

Henna Muzaffar, PhD, RD, LDN, muzaffa1@uiuc.edu, University of Illinois at Urbana-Champaign, 904 W. Nevada Street, MC-081, Urbana, IL 61801; B. Fiese, PhD; J. M. Jarick, BS

Objective: A systematic review was conducted to evaluate culinary skills interventions to identify specific programs and programmatic factors associated with improvement in the quality of diet, BMI, and positive changes in psychosocial variables.

Target Audience: The settings for culinary interventions included schools, colleges and the community. Target population included children, adolescents, and adults.

Theory, Prior Research, Rationale: Policy makers, scientists, and food and nutrition practitioners suggest that there is a societal decline in culinary skills, which is predictive of poor dietary habits contributing to childhood obesity. Twelve interventions were grounded in a behavioral theory and 7 incorporated social cognitive theory framework.

Description: Pubmed/Medline, Cochrane database and hand search identified 131 articles, 26 articles were selected for further examination based on inclusionary criteria. Study designs included 2 randomized controlled trials, 4 quasi-experimental, 1 non-randomized pre and post comparison study, and 19 pilot studies. Study methodology included cooking classes, nutrition education lessons, parent and community components, gardening classes, school lunchroom components, tasting sessions, and trips to farmers market.

Evaluation: Qualitative evaluations of the programs indicate positive findings in terms of program appeal and improvement in cooking skills and healthy eating. Quantitative analysis indicate improvement in food preferences, cooking skills, cooking self-efficacy, cooking behavioral intentions, food preparation frequency, knowledge, healthy dietary intake, BMI, and blood pressure.

Conclusions and Implications: The findings from this review support a positive relationship between culinary interventions and improvement in cooking skills, consumption of a healthy diet and positive changes in anthropometric assessments. However, further research should emphasize rigorous methodological standards, develop theory-based standardized frameworks and evaluate long-term effects of interventions.

Funding: None

P60 Pre-Health Professionals' Attitudes About Obesity Before and After an Obesity and Weight Management Course

Lori Klos, PhD, RD, neighbol@uwm.edu, University of Wisconsin-Milwaukee, Department of Kinesiology, 455 Enderis Hall, Milwaukee, WI 53201; C. Greenleaf, PhD; T. Cass; N. Paly, BS; M. Kessler, BS

Continued on page S130

P60 (continued)

Objective: To examine the impact of a university-level obesity and weight management course on the weight-related attitudes and beliefs of pre-health professional students (PHPS).

Study Design, Setting, Participants, and Intervention: A controlled before and after design was used to examine changes in PHPS' attitudes and beliefs following a 16-week obesity and weight management course (n=19; comparison course n=25) offered at a large, public university in the midwestern U.S. Course content included the epidemiology, etiology (biological, environmental, behavioral), consequences (biological, psychosocial), treatment (emphasis on diet and exercise), and prevention of obesity.

Outcome, Measures and Analysis: Implicit and explicit anti-fat attitudes were measured using the Weight-Implicit Association Test (Weight-IAT) and Anti-Fat Attitudes Test (AFAT), respectively. Beliefs about weight locus of control were measured using the Dieting Beliefs Scale (DBS). ANCOVAs were used to assess end-of-semester differences between courses, adjusting for baseline values and group differences.

Results: Weight-IAT scores indicated significant anti-fat/pro-thin implicit bias ($p < .001$) which did not vary between courses at the end of the semester. End-of-semester AFAT scores (2.01 ± 0.47) suggested consistently low levels of negative attitudes towards obese persons for students in both courses. End-of-semester DBS scores (64.10 ± 8.74) remained high for students in both courses, indicative of the belief that weight is under an individual's control.

Conclusions and Implications: Pre-health professional university students' anti-fat attitudes, and beliefs about the locus of weight control, did not change following an obesity and weight management course. It is possible that certain course content (e.g., environmental determinants of obesity) may lead to within-semester improvements in anti-fat attitudes, while other topics (e.g., behavioral determinants of obesity) may mitigate those improvements.

Funding: None

P61 Evaluation of a Multi-Component, Theory-based Farm to School Intervention

Rebecca Bishop, RD, alicia.landry@usm.edu, The University of Southern Mississippi, 118 College Drive, #5172, Hattiesburg, MS 39406; A. S. Landry, PhD, RD, LDN

Objective: Fruit and vegetable (FV) intakes in Mississippi school children remain lower than recommended. Theory-based, multi-component nutrition education interventions like Farm to School (F2S) target FV consumption to improve dietary behaviors. The objective of this study was to describe changes in key constructs from the Theory of Planned Behavior (TPB) over the course of a F2S intervention.

Study Design, Setting, Participants, and Intervention: A F2S intervention based on TPB was implemented to enhance FV-related beliefs, norms, and self-efficacy, thus potentially increasing the intention of rural, 5th grade students to consume more FV. The F2S month intervention included environmental and educational components like an assembly with taste-testing's, menu changes, lesson plans, daily morning announcements, bulletin boards, and posters.

Outcome, Measures and Analysis: Outcome data included demographics, knowledge, preferences, norms, self-efficacy, FV intake, beliefs, access, and intentions related to FV. All were collected via 84-item pre- and post-intervention surveys. Data were analyzed using Wilcoxon signed ranks test and multiple regression in SPSS v.21.

Results: Nearly all (n=120, 96.5%) 5th grade students in intervention school participated. Significant improvements were noted for students' FV beliefs ($z = -2.18$; $p = 0.029$). Regression analysis of post-intervention TPB constructs revealed the overall model was statistically significant at $F(3, 88) = 7.2$, $p < 0.001$, although only self-efficacy significantly predicted intentions, $t(91) = 2.25$, $p = 0.027$. Intentions did not predict FV intakes.

Conclusions and Implications: Knowledge, norms, and intentions improved over time, but only beliefs significantly improved. Future F2S interventions should consider longer intervention and/or maintenance periods so that behavior changes can be accurately assessed. Likewise, sustainability and cost-effectiveness of programs should be considered.

Funding: None

P62 Multi-Component Nutrition Intervention Featuring a Learner-Centered, Garden-Enhanced Curriculum Improves Nutrition Knowledge

Jessica D. Linnell, BS, jdlinnell@ucdavis.edu, University of California, Davis, Graduate Group in Nutritional Biology, One Shields Avenue, Davis, CA 95616; Smith, MH, EDD; R. E. Scherr, PhD; Y. Nicholson, University of California Cooperative Extension; T. Spezzano; K. M. Brian, MPH, University of California, Davis; S. Zidenberg-Cherr, PhD

Objective: The Shaping Healthy Choices Program (SHCP) was developed to explore the effectiveness of a multi-component nutrition intervention to improve children's dietary behaviors. The objective of this study was to examine whether students participating in this program improved scores in nutrition knowledge and critical thinking skills.

Study Design, Setting, Participants, and Intervention: Schools meeting inclusion criteria in Northern (NC) and Central California (CC) were randomly assigned to control (C) or intervention (I) groups. Fourth-grade classrooms in intervention schools

Continued on page S131