P14 (continued)

Study Design, Settings, Participants: A non-experimental, pre-post study design of a four-credit, 13-week, academic course intervention in a sample of college students from the University of Rhode Island enrolled in Applied General Nutrition.

Measurable Outcome/Analysis: Students consenting to participate in research completed a demographic survey and a validated, five-item CNL Scale. CNL items were administered on a five-point anchored Likert scale from strongly disagree to strongly agree, with five indicating high CNL. Repeated measures analysis of variance (ANOVA) was used to assess if students increased their CNL score after completing the course.

Results: Out of the 118 consenting students, 80 students had complete data for CNL and demographics, and were between the ages of 18 and 24. The average age was 18.7 ± 1.1 (SD) years old; the majority were white (82%), female (79%), freshmen (61%), lived on-campus (70%), and had a meal plan (75%). Participants significantly increased their CNL score from baseline to post intervention from 2.34 ± 0.7 (SD) to 2.63 ± 0.7 (SD) (P < .01).

Conclusion: Results indicated that there was a significant increase in CNL score from baseline to post intervention, although the increase was limited. Future introductory nutrition classes should highlight the ability to critically analyze nutrition information, through determining its credibility and truth, and how to use this information to improve dietary choices.

Funding: USDA.

P15 Low-Carbohydrate Diet was Not Associated with Diabetic Retinopathy: Results From US Representative Adults with Diabetes Mellitus

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Background: As there are no specific dietary recommendations for people with diabetes mellitus (DM), they can choose eating patterns, which they deem helpful in managing blood glucose levels.

Objective: To describe the dietary intakes of people with DM and to examine the association between the low-carbohydrate-diet (LCD) pattern and diabetic retinopathy (DR).


Measurable Outcome/Analysis: The presence of DR was self-reported, and LCD score was calculated based on the proportions of energy from three macronutrients (range 0-30; a higher LCD score indicates a lower intake of carbohydrate). The relative risk of DR comparing highest and lowest quintiles of the LCD score was evaluated in multiple logistic regression analysis.

Results: The average diet of adults with DM consisted of 48 ± 11% of carbohydrate and 35 ± 10% of fat with a mean LCD score of 15.0 ± 7.4. 20.6% of participants reported having DR, and it was associated with male gender, non-Hispanic Blacks and other race/ethnicity, smoking, overweight/obesity, lower education, lower income, HgA1c, and time since diagnosis. After multivariable adjustment, the odds ratio (OR) of having DR comparing highest (carbohydrate 33.9%) and lowest (carbohydrate 62.9%) quintile of the LCD score was 1.01 (95% confidence interval [CI], 0.59 to 1.72; Ptrend = 0.4702). There was no difference in HgA1c levels between the comparison groups (7.51 ± 1.94 vs. 7.40 ± 1.85; P = .131). Post-hoc analysis showed higher diet quality was associated with decreased risk of DR among males (OR comparing highest and lowest quintile, 0.44; 95% CI, 0.20 to 0.98; Ptrend = 0.074).

Conclusion: Diets lower in carbohydrate are not associated with decreased risk of DR in adults with DM. Targeting diet quality may have greater impacts in improving diabetic prognosis.

Funding: University of Central Florida.

P16 Out of the Box Uses for Vegetables: Reframing the Old to Draw Interest and Improve Health

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Objective: To increase participant knowledge about new ways to use and prepare vegetables, increase the amount and variety of vegetables participants consume, and reduce the amount of vegetables participants throw away.

Use of Theory or Research: Social cognitive theory constructs of self-efficacy, behavioral capability, and outcome expectations were used to design the program and increase likelihood of behavior change.

Target Audience: Adults at worksites or community centers in Polk County, Florida, during convenient times for the audience.

Program Description: A class titled “Out of the Box Uses for Vegetables” was created to put a different spin on eating vegetables. Class participants learn the recommended servings per day, health benefits of vegetables, basic cooking methods that work for most vegetables, and how to save money and reduce food waste by making simple and fun additions or substitutions to foods using vegetables. This class uses integrative methods, including brainstorming and discussion among participants, and taught at an intermediate level. Food demonstrations, such as carrot dogs, were done to showcase a unique use of vegetables.

Evaluation Methods: A retrospective pre-post survey was used to evaluate knowledge gain and intent to change behavior.

Results: As a result of the class, 94% of participants (n = 34) said they have new ideas for using vegetables, 97% were extremely or somewhat likely to increase the amount of vegetables they eat, 97% were extremely or
P16 (continued)

somewhat likely to increase the variety, and 83% were less likely to throw away vegetables. **Conclusion:** This class has drawn interest from class site locations and shows promise in helping people eat more vegetables and over time lead to improved health and lower health care costs. Secondly, this class can help reduce food waste thereby creating a more sustainable food system with less impact on our environment.

**Funding:** USDA.

P17 Participation in the Child and Adult Care Food Program (CACFP) Influences Nutrition-Related Practices of Child Care Settings in Nebraska

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**Background:** Federal food assistance programs such as the Child and Adult Care Food program (CACFP) are designed to promote healthy dietary habits for young children.

**Objective:** Determine how CACFP participation influences implementation of nutrition-related best practices and barriers in childcare settings.

**Study Design, Settings, Participants:** Cross-sectional surveys were distributed to 3,014 licensed childcare facilities in Nebraska in 2017 to collect provider-reported information on facility demographics, CACFP participation, and practices implemented in childcare settings serving children aged 2-5 years.

**Measureable Outcome/Analysis:** Chi-square analysis was performed in SPSS to determine differences in best practice implementation, barriers, and difficulty level between those who do versus do not participate in the CACFP, stratified by childcare context (center-based versus family childcare home-based).

**Results:** The sample included 1,345 childcare programs (54.6% response rate); 86.8% participated in the CACFP, 21.7% were center-based, and 78.3% were home-based. Childcare programs who participated in the CACFP were more likely to serve foods and beverages according to best practices across both contexts; practices included serving fruit at least one time, serving vegetables at least one time, and serving skim or 1% milk (P < .05 for all). In family childcare homes only, those who participated in the CACFP were more likely to role model eating healthy foods and serve meals family style (P < .05 for both). Across both contexts, those who participated in the CACFP were more likely to receive professional development on child nutrition (P < .01).

**Conclusion:** While participation in the CACFP was related to higher prevalence of serving healthier food and beverages, few mealtime practices were affected. This could be attributed to CACFP regulations requiring participating childcare programs to serve nutritious food and beverages to children, but only recommending mealtime-related best practices. These findings could suggest that CACFP-related trainings should emphasize the importance of these practices with consideration of known provider-reported barriers.

**Funding:** None.

P18 Perception of Vegetarian Diets in College Students

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**Background:** Since the vegetarian diet is becoming more accessible to students, there is a greater need for individuals to have an open mind about this diet. Further input regarding students’ perceptions can help assist in reaching this population and aid in the creation of healthy eating behaviors.

**Objective:** To determine the perceptions of vegetarian diets between male and female vegetarian and non-vegetarian undergraduate college students.

**Study Design, Settings, Participants:** Online survey including demographic and perception questions. Participants were undergraduate college (n = 1,191) students at a Midwestern University enrolled in courses on the main campus recruited through their university email.

**Measureable Outcome/Analysis:** College student’s perceptions of the vegetarian diet according to gender (male and female) and current diet type (vegetarian and non-vegetarian). Data was analyzed using descriptive statistics and Factorial ANOVA; P < .05 was considered statistically significant.

**Results:** Statistically significant differences were found in scores of perceptions for the vegetarian diet between males and females (P = .001), as well as non-vegetarians and vegetarians (P < .001). Females had a more positive perception compared to males, while vegetarians had a more positive perception than non-vegetarians.

**Conclusion:** Information on college student’s perceptions of vegetarianism creates material dietitians can use to better frame their advice and instructions while working toward improving this population’s overall health status and behavior toward the vegetarian diet.

**Funding:** None.

**Behavior and Education Theory**

P19 An Examination of the Immigrant Paradox and Unhealthy Eating Behaviors

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Continued on page S41