

P017 (continued)

comparing groups, overall diet quality improved in 100% graduate couples vs. 95% (SM), including increased vegetable intake (54% couples vs. 40% SM)

Conclusions: Preliminary data indicate that UGA EFNEP as a nutrition intervention for pregnant women improves overall diet quality, including fruit and vegetable intake. Father involvement in nutrition education may provide an additional benefit to improving overall diet quality for their pregnant partners.

Funding: Expanded Food and Nutrition Education Program

P018 The Pathophysiology of Food Insecurity: A Narrative Review and System Map

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Background: The chronic disease impacts of food insecurity have been studied extensively. There is a more contemporary appreciation, though, for how food insecurity may influence a wider array of health outcomes, and a need to synthesize the rapidly-expanding literature on relationships between food insecurity and biological antecedents of poor physical and mental health.

Objective: To synthesize recent evidence of the complex and interdependent biological mechanisms that intermediate well-known relationships between food insecurity and health diagnoses.

Study Design, Settings, Participants: Narrative review of English-language, peer-reviewed, published articles was conducted based on an iterative series of searches in the PubMed electronic database and subsequent vetting of reference lists for additional studies of relevance. Studies were eligible if they analyzed relationships between measured food insecurity and one or more health-related biomarkers. Studies were not excluded due to publication year, study setting, or population to afford a comprehensive review.

Measurable Outcome/Analysis: Key findings were extracted and synthesized narratively. Using a framework not unlike those used to describe disease processes, the review culminated in the creation of a concept map of body systems affected by food insecurity and involved in the development of related chronic diseases.

Results: Research related to various isolated biological and clinical impacts of food insecurity were widely available; however, no articles characterized the impact using a systemic, pathophysiological framework. The available evidence supports the theory that food insecurity can contribute to toxic stress and a systemic inflammatory stress

response. This response contributes to: poorer mental health outcomes, including heightened risk for eating disorders and depression; changes to the gut microbiome with implications for nutrient metabolism and chronic disease; and susceptibility to weight gain and central adiposity in particular, with implications for insulin resistance and metabolic syndrome.

Conclusions: Food insecurity is a social risk with individual and intergenerational biological consequences. Synthesizing the most recent evidence on such consequences affords a more precise appreciation for the value of community-clinical partnerships to monitor and address it.

Funding: None

P019 Validation of a Smartphone-Based App for Assessing Energy Intake: A Pilot Study

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Background: Smartphone-based methods are innovative and promising tools to accurately quantify energy intake (EI). The PortionSize™ app measures dietary intake using embedded templates and provides real-time feedback. PortionSize also sends food images to a server where they can be analyzed using the Remote Food Photography Method (RFPM). The RFPM accurately measures EI; however, it requires human raters to analyze food images; therefore, the RFPM does not provide dietary feedback in real-time.

Objective: To compare the validity of EI estimates from PortionSize and RFPM to weighed meals (WM).

Study Design, Setting, Participants: Fifteen adults used the PortionSize app during covertly-weighed simulated meals in a laboratory setting. Trained personnel also quantified EI from the images captured from the PortionSize using the RFPM.

Measurable Outcome/ Analysis: Demographics and body mass index (BMI). Dependent t-tests were performed to investigate whether EI measured with templates in PortionSize or using the RFPM differed to EI from WM.

Results: Mean (\pm SD) age and BMI of participants were 28 (\pm 12) years and 24.1 \pm 6.6 kg/m², respectively, and 73.3% were female. PortionSize estimated EI was 743 \pm 328 kcal, EI RFPM-estimated intake was 660 \pm 196 kcal, and weighed intake was 659 \pm 191 kcal. The mean differences of EI estimation between PortionSize and WM (84 \pm 288 kcal) and between RFPM and WM (1 \pm 32 kcal) were not significant ($P > .05$). The mean difference in EI estimation (83 \pm 284 kcal) between PortionSize and RFPM was not significant ($P > .05$).

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