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Effects of APOE Genotypes and Resveratrol Supplementation on Gut Microbiota Composition in Mice

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Learning Outcome: We aimed to compare the composition of the gut microbiota from APOE3 and APOE4 mice fed a standard (STD) diet supplemented with or without (RSV).

Background: The gut microbiome is an extensive and diverse ecosystem that has recently been highlighted as an important modulator of metabolic, immune, and neurological function. Changes in gut microbiome species can potentially contribute to various disease states. Apolipoprotein E (ApoE) is a plasma protein involved in cholesterol transport, especially in the brain. The 3 human variants of ApoE have differential associations with disease states. The ε4 variant of the APOE gene (APOE4) increases risk for Alzheimer's disease, cardiovascular disease, and metabolic syndrome (MetS); these diseases have been associated with imbalances in gut microbiota. Resveratrol is a natural polyphenol with anti-inflammatory effects that may beneficially impact the gut-brain-axis.

Methods: A total of sixteen 12-week-old female mice of APOE3 and APOE4 genotypes were used. Mice from each group were randomly assigned into either RSV diet or a STD diet group. DNA extraction and bacteria 16S rRNA gene amplification were conducted from stool-impacted colon tissue.

Results: Both alpha and beta diversity analyses showed no significant differences between genotypes or dietary groups. Moving deeper to the genera level, Akkermansia and Alistipes, which are implicated in lipid metabolism and cardiovascular disease respectively, were found significantly affected by RSV in APOE4 mice. In addition, a confounding finding showed that Helicobacter at the Genera level was eliminated by RSV in APOE3 group.

Conclusion: RSV may differentially impact gut microbiota and disease risk based on APOE genotype. Further investigation is necessary to determine relevance in humans.

Funding Source: None

Efficacy of Metabolic Surgery During the COVID-19 Pandemic

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Learning Outcome: Upon completion, participants will better understand and be more equipped to care for bariatric weight-loss patients in an increasingly electronic health care world.

Background: There is an obesity epidemic in the United States and many people have resorted to bariatric surgery. This study sought to determine if patients who received surgery immediately prior to the pandemic were less successful in weight loss and comorbidity resolution.

Methods: Weight loss and comorbidity resolution were recorded through EMRs. The experimental group included patients who received surgery from December 2019-February 2020 (immediately prior to the start of the pandemic). The control group included patients from December 2018-February 2019.

Results: Of the 64 participants who met inclusion criteria (control, N=34; experimental, N=30), the average starting BMI=47 6-month BMI=35.6, and 12-month BMI=33.8. Results showed that the experimental group experienced a decrease in BMI of 1.51 points less than the control (p=0.189) at 6-months. The experimental group experienced a BMI decrease of 2.89 fewer points (p=0.132) at 12-months. There were no statistically significant differences in weight loss between the two groups. Women experienced a 6-month BMI decrease of 11.0 compared to men at 12.6 (p=0.11). Women experienced a 12-month BMI decrease of 11.9 compared to men at 16.7 (p=0.018).

Conclusion: Results indicate similar success of bariatric surgery between experimental and control groups. This could be caused by less strict COVID restrictions in Texas compared to European nations who demonstrated variance in weight loss due to COVID impact. Women lost less weight compared to men which is opposite to most bariatric research conclusions and warrants further long-term study to determine internal validity and potential socioeconomic causes specific to this region.

Funding Source: No funding, student led project.

Employment Migration from Inpatient to Private Practice Among RDN IBCLCs

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Learning Outcome: Up completion participants will be able to describe 1 reason why RDN IBCLCs tend to move from working in patient to private practice settings.

Objective: To conduct an in-depth exploration of how dietitians with an International Board Certified Lactation Consultant (IBCLC) credential pursued their training and the settings in which they practice.

Research methodology/design: RDNs who were currently credentialed as IBCLCs were recruited through snowball sampling to participate in a 9 question Zoom interview. Questions included: why they became IBCLC's, how they pursued the required training, how they use the credential in practice and bill for services, and if they collaborate with other IBCLCs. Demographic data was collected anonymously via a Qualtrics survey emailed after the interview.

Major findings: The 12 interviewees were mostly white, female, aged 25-44, with a master's degree and 6-10 years of professional experience. Most earned their IBCLC while working in different setting than the one in which they currently practice with a shift from inpatient care to private practice. One currently practiced inpatient lactation care. Several mentioned that they were excluded from practicing inpatient lactation care because they were not RNs. Private practice and outpatient clinic RDN IBCLCs billed for services. Most of the private practice RDN IBCLCs billed clients directly, however, billing insurance through a third party was also used.

Conclusions: While well positioned to understand the nutritional components and advantages of human milk, RDNs may face barriers to practicing inpatient lactation care. Lactation may provide RDNs with opportunities for additional reimbursement to promote generating revenue. Future research should explore barriers to RDNs practicing lactation care in the inpatient setting.

Funding Source: None

Improved Methods of Making Standardized "Ready to Eat" Chinese Food: Individual Quick Frozen with 95% Cooked

Author: Y. Tang; Earth Big Data Lab

Learning Outcome: Participants will learn about a general-purpose improved preparation method for ready-to-eat Chinese meals.

Affected by the COVID-19 epidemic, food is becoming more and more important as the foundation of people's livelihood. However, Chinese food has been unable to be standardized because of its high complexity and numerous dishes. In 2022, R2E standardized Chinese food market rise rapidly. Liquid nitrogen rapid cooling technology has always been an important means to store food in Japan and South Korea. Its food cells are well preserved, which makes the storage time long and the melted food tastes good. In this study, the improved method "95% cooked" method was adopted in cooking Chinese food with Robot, then liquid nitrogen rapid cooling treatment was carried out, and it was stored at freezing temperature in refrigerator, it was cooked by microwave oven with high heat before eat. Through the comparison of 40 people's focus group, it is found that: 1. The taste satisfaction of meat products (shredded pork with fish flavor, kung pao chicken, boiled fish, etc.) in R2E food increased by 15% after the "95% cooked" method, but the vegetable products (stir-fried cabbage, etc.) did not significantly improve; 2. The taste is good when the storage period is less than one year; 3. Although the cooking time of the microwave oven with liquid nitrogen quick cooling and 95% ripening is one minute longer than that after 100% ripening, the cell wall of the food is broken after cooking, and the pot smell of the food is better.

Funding Source: None