**Title: EXPANDED HEALTH BELIEF MODEL IN WOMEN WITH A HISTORY OF GESTATIONAL DIABETES**

**Author(s):** P M Woodson, PhD, RD, CDE; Eastern Virginia Medical School, Norfolk, VA

**Abstract:** Gestational diabetes (GDM) is costly and presents health risks to baby and mother. The main maternal risk is increased risk for Type II diabetes in the following 10 to 20 years, which has been estimated at 35% to 60%. Eating healthfully and exercising can reduce this risk. Subjects (n = 153) from a GDM clinic who had a recent history of GDM completed a 115-question survey. Questions assessed their diet and exercise, health beliefs, self-efficacy, environmental support, diabetes-related variables, and socio-demographics. Five multivariate logistic regression models tested the utility of the Health Belief Model with added constructs in predicting diet and exercise behavior. The models consisted of varying combinations of health beliefs, self-efficacy, and environmental factors. High-calorie food/beverage intake, exercising ≥ 30 min three days or more weekly, and exercising to a sweat three days or more weekly were all significant (p < .01). The two models assessing health beliefs, self-efficacy, and environmental support showed the most predictive strength. Benefits exceed barriers and self-efficacy showed the highest prediction. By utilizing an Expanded Health Belief Model with the added constructs, self-efficacy and diabetes-related and specific ecological/environmental cues to action, we were able to improve prediction of compliance with healthy lifestyle recommendations.

**Title: MICROBIAL QUALITY OF MEAT FROM CENTRAL VIRGINIA FOOD DESERTS**

**Author(s):** A. Fischette, K. Lopez; Department of Family and Consumer Sciences, Virginia State University, Petersburg, VA; C. Kim, B. Goodwyn, S. Albukhaytan; Agricultural Research Station, Virginia State University, Petersburg, VA 23806.

**Abstract:** The lack of nearby large chain supermarkets (LCSM) for residents in food deserts results in the over reliance on small independently owned stores (SIOM) to acquire fresh foods. This study assessed the microbial quality of meat sold at SIOM and comparable products sold at LCSM in and surrounding food desert areas of Petersburg and Colonial Heights, Virginia. A total of 186 meat samples were procured from five SIOM and five LCSM, between April 2019 and October 2019. The samples were tested for E.coli, campylobacter, listeria, and salmonella. Findings showed that SIOM products were more likely to contain one or more of these pathogens and had a greater total aerobic mesophile count, overall. SIOM stores were also observed to exhibit more food safety violations, such as 40% were observed without hair restraints and none were observed to have washed hands prior to packaging meat for sale. This study illuminated the unique food safety risks associated with SIOM in food desert areas. Due to the presence of high microbial levels and prevalence of pathogens in SIOM, the development and dissemination of future food safety training and educational programs are needed for these small independently owned stores.

**Title: HEALTHCARE PRACTITIONERS COLLABORATE TO EVALUATE SUSPECTED UNDERFEEDING ABUSE IN AN ELDERLY PATIENT**

**Author(s):** A. Hurst, Dietetic Intern, Virginia Tech Dietetic Internship, Blacksburg, Virginia

**Abstract:** This case reviews a severely malnourished patient with several comorbidities and how an interdisciplinary team worked together to provide the best possible care for her. The patient is a

65-year-old female who was admitted to the hospital by her son with 66% unintentional weight loss in less than a year, body mass index of 12.1, weight of 65 pounds, and the concern of improper administration of tube feedings versus not properly absorbing her tube feedings. Communication was key in delivering the best patient care and determination of the likely reason for her weight loss, which was determined to be elder abuse. The criteria used by Adult Protective Services to evaluate suspected abuse in a patient’s care will be highlighted.

**Title: VEGETABLE PREFERENCES, PREPARATION, AND PURCHASING PRACTICES FOLLOWING A COMMUNITY-BASED PROGRAM**

**Author(s):** A. Schwartz, BS, Harrisonburg, VA, Julie Pierantoni, RN, Harrisonburg, VA, J. Walsh, PhD, RD, Harrisonburg,

**Abstract:** Using a theoretical framework, an experiential healthful eating and physical activity program was designed, implemented, and evaluated with partners from a local Diabetes Prevention Program, farmers market, and Dietetics program. Six weekly 3-hour experiential workshops included participant food preparation, mindful eating practice, physical activity, and farmers market shopping. Survey items from Food Attitudes and Behaviors Survey and on food purchasing practices are reported herein. Data was collected at baseline, 6 weeks and follow-up at 12 weeks. Nine participants (8 females, 1 male), 56.5 (24-69) years of age completed the study. The preference for the number of vegetables liked did not change though the median times of vegetable preparation at home in a week increased from 2.5 (3) at baseline to 4.0 (3) at follow-up. Self-efficacy of vegetable preparation improved from 4 (2) to post-assessment 5 (1) using a 5-point Likert scale. Purchase of vegetables from a farmers market increased from 1 (3) time in the past month at baseline to 4 (5) times at post-assessment. Healthful eating and physical activity workshop series may support improved vegetable-related practices. The unique community partnership and program model may be useful to dietitians to support individuals with or at-risk of prediabetes in other communities.

**Title: UTILIZING THE CDC CLEAR COMMUNICATION INDEX TO INCREASE THE EFFECTIVENESS OF EDUCATIONAL MATERIAL AMONG THE CARDIAC REHABILITATION POPULATION**

**Author(s):** Kristin Weyenberg, Dietetic Intern, Virginia Tech Internship in Nutrition and Dietetics

**Abstract:** The CDC released the Clear Communication Index (CCI) as a means of promoting educational material that is appropriate for a diverse population with varying educational levels.  A rating of 90% or above indicates that a piece of material that is of high quality and appropriate for a range of populations. The CCI was used to improve the effectiveness of an educational packet used in a medical center in Southwest Virginia where health literacy tends to be low.  The initial resource was scored at 70% and was rated poorly by dietitians do to it’s advanced education level material, lengthy sentences, and unappealing format. After using the strategies described in the CCI, the updated material was scored at 94% along with feedback of dietitian and client satisfaction. The process for using the CCI and the specific steps a dietitian may take to update educational material in their own place of work will be displayed.

**Title: USING AMINO ACID THERAPY TO PROMOTE MENTAL HEALTH IN A UNIVERSITY SETTING**

**Author(s):** N Allen, Virginia Tech Northern VA Dietetic Intern, M VanNortwick, BS, MS, RDN, IFNCP Mary Baldwin University - Staunton, VA

**Abstract:**

Integrative and functional medicine, which includes functional nutrition, has become increasingly prominent in healthcare practices throughout the United States. Amino acid therapy is an emerging area within functional nutrition research that shows potential for improving health and well-being among certain individuals. One specific amino acid therapy protocol includes individualized amino acid supplementation in tandem with improved overall dietary intake and lifestyle. This project sought to enhance the amino acid therapy program used in a university health and wellness center by creating new educational tools and resources for participants. Following a comprehensive needs assessment, client-facing materials were created to educate potential participants about the role of amino acid therapy and dietary sources rich in amino acids and the necessary co-factors. The effectiveness of this project is currently being evaluated using a survey to assess client awareness and potential application of the information contained in the newly created resource. Preliminary survey results will be available in early March 2020. This project may prove beneficial to those seeking to learn about amino acid therapy for themselves, or professionals considering the program for inclusion in their practice.

**Title: THE NEED FOR MID-UPPER ARM CIRCUMFERENCE FOR DIAGNOSIS OF PEDIATRIC MALNUTRITION: THE DIETITIAN’S ROLE**

**Author(s):** Clara Britton, Lauren Sigmon, RD

**Abstract:** Pediatric malnutrition is a serious disorder that is caused by insufficiencies in protein, calories, and other imperative nutrients potentially resulting in decreased IQ, poor wound healing, organ failure, and malabsorption. Registered Dietitians (RDs) are able to help pinpoint pediatric malnutrition in their assessment utilizing nutrition focused physical exams, specifically the mid-upper arm circumference. Fluid status affects Body Mass Index and weight; however, does not affect mid-upper arm circumference. Performing nutrition focused physical exam, which includes mid-upper arm circumference, allows RDs to play a vital role in diagnosing malnutrition among children. Currently, the tools used to predict pediatric malnutrition require multiple data points some of which are not available for example, patient weight loss. Lack of weight history hinders accurate diagnosis. In many cases, malnourished patients may not be diagnosed in an adequate time frame, leading to increased health issues, rehospitalizations, or death. This study focuses on eight pediatric cases where mid-upper arm circumference was not used, but could have served as the deciding factor for diagnosing malnutrition. The addition of a nutrition focused physical exam with mid-upper arm circumference is one major factor that could improve patient care while simultaneously reduce rehospitalization rates. This study identifies a potential need for change in hospital policies in order to provide adequate care.

**Title: ADJUSTING CONGESTIVE HEART FAILURE PATIENT EDUCATION TO REDUCE READMISSIONS**

**Author(s):** L Suryani, Virginia Tech Dietetic Intern

**Abstract:** Congestive Heart Failure (CHF) is a high-risk disease for hospital readmission. However, research has demonstrated that effective nutrition education has a significant impact in reducing a patient’s risk for being readmitted to the hospital. This project involved an exploration of the most recent research on sodium and fluid restriction to ensure that one hospital’s nutrition education protocol was aligned with evidence-based recommendations. The results of a literature review indicated that sodium restriction of two grams per day remains best practice, however the effectiveness of a fluid restriction is more variable. Instead, the literature suggested that fluid restriction should be individualized to a patient’s fluid weight gain to achieve the highest quality patient care. The volume of this restriction for the majority of patients ranged from 1.5 to 2.0 liters per day. The results of this research were used to update the hospital’s multidisciplinary CHF nutrition education protocol to better manage patient care and reduce CHF readmissions.

**Title: THE BENEFITS OF THIAMINE, VITAMIN C, AND HYDROCORTISONE SUPPLEMENTATION FOR TREATMENT OF SEPSIS**

**Author(s):** Tia Glover

**Abstract:**There is a growing body of literature examining thiamine, vitamin D and hydrocortisone supplementation as a complementary treatment for sepsis and septic shock. The most common treatment involves improving oxygen delivery through intravenous fluid and vasoactive medications, along with infection treatment through antibiotics and source control. This new adjunctive therapy uses supplementation to reduce serum lactate, increase antioxidant pathways, and reduce free radicals. The pathways behind this process, outcomes of research trials and recommended protocol based on various studies will be presented. Overall, these studies show promise that supplementation can offer benefits. The current research resulted in select facilities adopting this protocol and it is expected to grow as more research is conducted.

**Title: NUTRITIONAL INTERVENTIONS FOR ACUTE PANCREATITIS IN A PATIENT WITH AUTISM SPECTRUM DISORDER**

**Author(s):** R.A. Steinbach, Virginia Tech Northern VA Dietetic Intern

**Abstract:** Autism spectrum disorder is a complex condition with unique treatment considerations in the critical care setting. This case report examines the nutritional care of a patient with autism spectrum disorder who was unable to maintain an oral diet upon admission to the hospital for acute pancreatitis. The patient’s severe developmental delays associated with his autism contraindicated the use of enteral nutrition at several points during treatment. Contraindications included repeated self-removal of the feeding tube, severe agitation and discomfort, as well as potential development of small bowel obstruction. Throughout the course of his hospital stay, multiple nutrition interventions were used to provide this patient with the most appropriate care. This case demonstrates that health-care professionals, and specifically registered dietitians, must be able to adapt evidence-based guidelines in order to provide appropriate medical nutrition therapy for patients with autism spectrum disorder and other developmental disorders.

**Title: APPLYING NOURISH TO CREATE A FOOD SOURCING GUIDE FOR BACKPACK PROGRAMS**

**Author(s):** Michelle Hesse, PhD RD; Melissa Bondurich; Megan Godsey

**Abstract:**

In Virginia, 1 in 8 children struggle with hunger and are most vulnerable after-school and on weekends. To close the childhood hunger gap, Blue Ridge Area Food Bank (BRAFB) operates a Family Backpack program and to extend our reach, partners with community supported back pack groups who procure nutritious weekend staples from BRAFB. Additionally, these groups receive food donations from the public, particularly single-serve meals and snack items. For back pack groups and donors, it can be difficult to determine the nutritional quality of foods. Using Nourish, BRAFB’s cloud-based software that ranks foods based on nutrient density, we created a donation guide for our partners to help make informed procurement decisions with a focus on nutrition. Based on feedback from back pack partners, 8 food categories were created and a total of 63 food items were ranked. Ten food items scored green, 24 yellow, and 29 red. Encouraging partners to source items that rank green and yellow will ensure that children receiving back pack will have a variety of nutritious options.

**Title: PREMEAL WATER DURING WEIGHT LOSS AND MAINTENANCE: INFLUENCE ON COGNITIVE FUNCTION**

**Author(s):** L Herra, Virginia Tech, Blacksburg, VA; K Airaghi, Virginia Tech, Blacksburg, VA; B Katz, PhD, Virginia Tech, Blacksburg, VA; K Davy, PhD, Virginia Tech, Blacksburg, VA; T Savla, PhD, Virginia Tech, Blacksburg, VA; B Davy, PhD RDN, Virginia Tech, Blacksburg, VA

**Abstract:** Water consumption is associated with numerous health benefits, including greater odds of achieving clinically meaningful weight loss. Our objective was to determine if premeal water intake combined with a hypocaloric diet improves cognitive function, hunger management, and short-term weight loss/maintenance in middle-aged/older adults. Participants (n=30, 50-75 yrs, BMI 25-40kg/m2) were randomized to either a standard hypocaloric diet (nonwater; NW, n=14) or a hypocaloric diet with 500ml of premeal water 3x/day (water; W, n=16) for 4 weeks, followed by a 4-week weight maintenance phase. Hunger perception (TFEQ) and computerized cognitive function testing were completed at baseline, weeks 4 and 8. Weight loss at week 8 was similar in W [11.8±1.4 lb. (4.5%)] and NW [10.5±0.7 lb. (4.3%)] (group difference, p>0.05). Hunger perception was lower in W than NW (p<0.05). Significant time, but not group, differences were observed in reaction time (19.9±7.3s improvement) and accuracy (16.9±5.3 more correct hits) on the AX-CPT task as well as errors of omission (5±1.4 less errors) and total errors (6.4±1.4 less errors) for the Go/No-Go task at week 8. These findings suggest that premeal water with a hypocaloric diet may reduce hunger, but does not improve cognitive function more than a standard hypocaloric diet alone.

**Title: COMPARISON OF ENTERAL NUTRITION PROTEIN PROVISION TO CRITICAL CARE BEST PRACTICES**

**Author(s):** M Irvin, Dietetic Intern Virginia Tech Dietetic Internship

Washington Hospital Center, Washington D.C.

**Abstract:** Research has demonstrated there are extensive benefits when patients achieve a protein intake of1.2 grams per kilogram (g/kg) by day four of an intensive care unit (ICU) stay. These benefitsinclude decreased mortality rate, infection rate, and time on a mechanical ventilator. Theobjective of this study was to assess the enteral protein intake of critically ill patients on day fourof their ICU admission as compared to the 1.2 g/kg target. Enteral nutrition intake data werecollected for 60 patients across seven units on ICU day four. Total grams of protein was assessedusing ideal body weight in patients with a body mass index (BMI) > 30. Two of seven units metthe protein intake goal of 1.2 g/kg for all patients, three units met the protein goals in only obesepatients, and the remaining two units did not meet the protein goal in any of the patients studied.

This study indicates that a stronger emphasis needs to be placed on early protein intake in the ICU. Dietitians should continue working with the medical team to initiate early enteral nutrition and to supplement with modular protein as needed to achieve the target intake among all patients.

**Title: HEMP EXTRACT ATTENUATES GROWTH OF BRAIN CANCER GLIOBLASTOMA MULTIFORME CELLS.**

**Author(s):** L. Stavinoha, B.S, Department of Family and Consumer Sciences, Virginia State University, Petersburg, VA R. Siddiqui, PhD.; Agricultural Research Station, Virginia State University, Petersburg, VA

**Abstract:** Glioblastoma multiforme (GBM) is the most aggressive form of brain cancer with most patients surviving less than a year after diagnosis. There is no effective cure for GBM as most drugs cannot efficiently pass through the blood-brain barrier (BBB). Hemp (Cannabis sativa L) has been used to manage nausea, pain, anorexia, and inflammation for centuries. The active components in hemp extracts are cannabinoids, which exhibit psychoactive properties suggesting their transport across the BBB. Based on this rationale, hemp extracts were tested on DB029 glioblastoma cells to determine if cancer cell growth could be attenuated. Extracts were taken from the flowers, leaves and stems of four hemp strains (Midwest/Cherry wine/Lifter/Hybrid). The extracts were added separately to both a hexane and methanol base and applied to the DB029 glioblastoma cells. The DB029 cells showed a loss of cell viability on treatment with hemp extracts. Flower extract was extremely more effective than leaf or stem extracts. Cherry wine was the most effective strain whereas Hybrid was least effective. Data suggest that cannabinoids may be used as a treatment for brain cancer. Further studies are required to identify the active compound in hemp extract for the potential use as an effective chemotherapy agent.

**Title: SELENIUM DEFICIENCY AND PROLONGED QT INTERVAL WITH THE KETOGENIC DIET: CASE REPORT**

**Author(s):** H. Goodkin, MD, PhD, University of Virginia Health System, Charlottesville, VA D. Lehner-Gulotta, RDN, CNSC, University of Virginia Health System, Charlottesville, VA O. Obertello, MS, University of Virginia Health System, Charlottesville, VA

**Abstract:** Although the long-term effects of the ketogenic diet (KD) are not well known, it has a long history as an efficacious therapy for epilepsy. The KD provides 80-90% of calories from fat and 10-20% from carbohydrates and protein. The macronutrient distribution of the KD inherently reduces consumption of many nutrient-dense foods, which increases the risk for micronutrient deficiencies. Therefore, supplementation is essential and is monitored by dietitians. Selenium, the focus of this report, is an essential micronutrient important for protein and enzyme development, and antioxidation. There are four reported cases of prolonged QT interval with low serum selenium in the setting of KD. These cases also reported concomitant status epilepticus or sudden cardiac-related death. We report a fifth case of a prolonged QT interval and cardiac event associated with selenium deficiency. A patient presented with status epilepticus while following the KD. During hospitalization, two cardiac events occurred and selenium deficiency was detected after the code events. Selenium’s role in cardiac events in patients with epilepsy on the KD is not well understood or researched. These case reports create a base of knowledge to support further research to better understand this relationship.

**Title: MEALTIME BEHAVIORS AND GASTROINTESTINAL ISSUES IN CHILDREN WITH AUTISM SPECTRUM DISORDER IN NORTH CAROLINA**

**Author(s):** A. Seramur, MS Candidate and Dietetic Intern, M. Barth, PhD, MPH, M. Gutschall, PhD, RD. Appalachian State University, Boone, NC

**Abstract:**

Autism Spectrum Disorder (ASD) is a complex developmental and neurological condition that presents in the first three years of life and is characterized by difficulty with social interactions and communication skills1. ASD is one of the fastest growing development disabilities globally, impacting approximately 1 in 69 children in the United States2. The aim of this study was to collect data regarding the prevalence of mealtime disturbances and gastrointestinal issues among children with autism in rural western North Carolina. The Brief Structured Questionnaire for Early Identification of Feeding Problems and Gastrointestinal Symptoms in Children with ASD (BEFG-ASD) was distributed to 90 parents of children with diagnosed autism spectrum disorder through the Watauga County Public School System. The most significant results included 74.5% parents of children with ASD reporting food refusal, 80.9% food selectivity, 82.6% new food refusal, and 25% responding yes to at least one question regarding gastrointestinal ailments. The present findings suggest that feeding behaviors may be the greatest dietary concern for parents of children with ASD in rural western North Carolina at this time. Future interventions should be focused on providing nutrition education for feeding difficulties and strategies, with relevant education sessions and materials to better support these families.