

Topic Area: Clinical Research (Including Outcomes of Intervention)

Abstract Title: Effect of Nuts on Fatty Acid Concentration and *in vitro* Cancer Cell Growth in Type 2 Diabetes
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Objective: To determine the effect of tree nuts and peanuts on serum fatty acids and their association with cancer cell proliferation and coronary heart disease (CHD) risk.

Methods: A 12 week randomized controlled trial was completed by 100 participants with type 2 diabetes consuming one of 3 isocaloric dietary supplements: 1) full-dose nut (~75 g mixed nuts per day), 2) half-dose nut (~37.5 g nuts + 1.5 muffins), or 3) control (3 muffins). As part of a secondary analysis, CHD, *in vitro* prostate cancer cell (LNCaP) proliferation, used as a marker of cancer risk, and serum fatty acids levels were analyzed using fasting blood obtained at weeks 0 and 12. LNCaP proliferation was assessed using an MTS assay, a colourimetric sensitive assay for the quantification of viable cells, and the fatty acid concentrations in the phospholipid, triacylglycerol, free fatty acid, and cholesteryl ester fractions were analyzed using thin layer and gas chromatography.

Results: Nut consumption, full-dose supplementation compared to control, increased oleic acid (P=0.036) and monounsaturated fatty acids (MUFAs, P=0.024) in the phospholipid fraction. This increase in oleic acid and MUFAs observed with nut intake in the phospholipid fraction was associated with decreased CHD risk (r = -0.278, P = 0.006; r = -0.260, P = 0.010, respectively) but not with altered LNCaP cell growth (r=0.008, P=0.941; r=-0.052, P=0.608, respectively).

Conclusions: The fatty acids present in nuts do not appear to increase prostate cancer cell growth, but reduced CHD risk. Thus dietary recommendations to include nuts may be beneficial for heart disease risk reduction with no association with cancer risk.

Significance to the Field of Dietetics: Results from this study provide dietitians and other health professionals with evidence to inform advice given to individuals with diabetes with regards to nut intake to help reduce their CHD risk.

Trial Registration: clinicaltrials.gov Identifier: NCT00410722

Abstract Title:

Therapeutic Christmas hampers: Impact on nutrition knowledge, attitudes and behaviour with hemodialysis patients

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Objectives: The purpose of this study was to evaluate the impact of an annual 'food box' program at the TBRHSC hemodialysis unit.

Methods: The renal appropriate Christmas hampers consisted of low phosphorus, potassium, and sodium food items with recipes to prepare a dinner, dessert and breakfast meal including a beverage for two people. A 5-item survey was administered to 177 patients receiving hemodialysis in the Thunder Bay site one to two days after receiving the hamper. The survey included open and closed ended questions related to patient's knowledge of food items and overall satisfaction. Completed surveys were collected and responses inputted and analyzed in Excel© using frequencies and pivot tables.

Results: The response rate was 67% (n=119). Of those who responded, 15 chose not to accept the hamper for various reasons. Nearly half (44%, n=99 responses) reported an introduction to a new food. Of these 44 patients, 66% (n=29 responses) said they were likely to purchase the new food again. The average satisfaction rating of the hampers was 8.8 out of 10 (n=99 responses). Limitations included a lack of clarity with some questions, insufficient administrator assistance (English was a second language for some patients) and survey timing (many patients had not had an opportunity to try the foods yet).

Conclusion: This small study showed that an innovative approach with therapeutic Christmas hampers introduced new foods to this patient population which may motivate them to purchase and consume in the future. A larger and longer term study with more diverse hemodialysis patients and sites is needed to fully understand translation of nutrition knowledge to behaviour change.

Significance to the field of Dietetics: This study contributes to understanding novel patient centered interventions for behaviour change in other populations adhering to therapeutic diets; ultimately increasing quality of life and decreasing morbidity and mortality for those living with chronic disease.

Abstract Title:

Differences in quadriceps muscle layer thickness, (QMLT), between community and low-risk, institutionalized elderly participants: A cross-sectional study

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Introduction: Sarcopenia describes the age-associated loss of lean muscle mass. Individuals with sarcopenia have adverse outcomes including disability, poor quality of life and increased mortality. With aging, the likelihood of developing sarcopenia increases. However, there is still no simple bedside diagnostic tool for clinicians to assess lean muscle mass (LMM). Recently, ultrasound muscle measurements, measuring quadriceps muscle layer thickness, (QMLT) have been shown to produce valid, reliable measurements as a surrogate marker to detect muscle depletion.

Objectives: To determine if there is a difference in QMLT between community elderly individuals residing in southwestern Ontario age ≥ 65 years compared to low-risk, institutionalized elderly [LTC] of the same age and region.

Methods: This is one part of a much larger cross-sectional study whereby 34 LTC residents and 17 community living individuals had their QMLT measured with FUJIFILM SonoSite M turbo ultrasound machine.

Results: In LTC the mean QMLT [cm] for **females:** 2.49 ± 0.843 compared to community: 2.57 ± 0.821 [p=0.78]. In LTC the mean QMLT [cm] for **males:** 2.79 ± 0.758 compared to community: 3.38 ± 1.02 . [p=0.43].

Conclusion: It appears as though community individuals may have higher QMLT compared to LTC individuals, although not significant. Further research is needed to validate these findings in a larger sample size and this project is ongoing.

Significance to the field of Dietetics: The age-related loss of muscle mass and function represents major socioeconomic and medical issues. As such, health care professionals require easy, reliable ways to detect muscle loss in their patients, to help design optimal nutrition care plan. These nutrition intervention strategies can focus on the identifying adequate intake of calories and protein for the prevention and treatment of patients with sarcopenia, to improve their quality of life.

Abstract Title:

The effect of SMOFlipid vs Intralipid on liver enzyme, total bilirubin, and triglyceride levels in adults receiving parenteral nutrition for seven days

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Objective: Patients on total parenteral nutrition (TPN) are at risk of developing parenteral nutrition associated liver disease (PNALD). This study investigated the association between two different intravenous lipid emulsions (ILE) on selected markers of liver function.

Methods: Retrospective chart review of hospitalized adults who received either Intralipid (n=47) or SMOFlipid (n=47) as the ILE in their TPN solution during the two years prior to September 8th, 2014 for the Intralipid group and the two years after for the SMOFlipid group. Liver function was assessed by comparing baseline and endpoint serum lab values for alanine transaminase (ALT), alkaline phosphatase (ALP), total bilirubin (TB), and triglyceride (TG) within and between each group. Data was analyzed using paired and independent two-sided t-tests.

Results: No significant changes in ALT, ALP, TB, and TG within and between each group.

Conclusion: A smaller magnitude of elevation of TG levels can be seen with patients on SMOFlipid compared to those on Intralipid. Further study utilizing a larger sample size, a longer time period, and expansion to multiple hospitals is required to better investigate the clinical outcome of the population of patients on Intralipid and on SMOFlipid.

Significance to the field of Dietetics: In September 2014, Hamilton Health Sciences (HHS) changed their standard lipid in TPN from Intralipid to SMOFlipid. This decision was based on literature (Klek et al., 2012 and Praedelli et al., 2012) that demonstrated an association between SMOFlipid and reduced incidence of PNALD, represented by a smaller magnitude of elevation in biochemical markers used to diagnose PNALD. Anecdotally, patients who receive TPN at HHS have a smaller magnitude of increase in ALT, ALP, TB, and TG with SMOFlipid than with Intralipid. Clinical evidence for this is paramount for Dietetics as it would inform clinicians of the appropriate solution to use to reduce PN-associated health risks.

Abstract Title:

Difference in quadriceps muscle layer thickness (QMLT) size and contributing risk factors in free-living and low-risk institutionalized older adults: A cross-sectional mixed method study

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Introduction: Low skeletal muscle mass is associated with increased morbidity and mortality in older adults, largely due to decreased physical activity and poor nutrition. Assessing risk factors affecting Quadriceps Muscle Layer Thickness (QMLT), a muscle mass measurement, and perceived protein intake is important in determining nutritional interventions.

Objectives: 1. To measure QMLT and identify potentially associated risk factors like handgrip-strength (HGS), protein intake, fat mass and nutritional status in free-living (FL) and low-risk institutionalized older adults (IL). 2. To understand how perceived food intake compares to actual food intake.

Methods: FL individuals were recruited using poster advertisement in the community. ILs were recruited at a Long-Term Care home. QMLT using ultrasound technology, subjective global assessment (SGA), HGS using dynamometer, 3-day food intake (using food records with FL and direct observation with IL), and fat mass using bio-impedance analysis (BIA) were measured. Three focus groups of 3-5 participants were conducted with FL and four individual interviews with IL to analyze their perceived understanding of protein. Sample size: 60-75 participants (using 10-15 participants/variable).

Results: Preliminary results: 30 participants (15 per group) indicated HGS FL females (49.8 ± 13.5 lbs) compared to IL females (29.4 ± 10.7); $p=0.001$. A positive correlation between QMLT average and fat mass in IL females ($r=0.643$, $n=11$, $p=0.033$) was identified. There were no difference in protein intake between the two groups. Inductive content analysis revealed budget and access to healthy food may play a role in protein intake. Conclusion: FL females appear to have higher HGS than IL females and fat mass may affect QMLT size in older adults. Further analysis is needed to identify roles of protein intake on QMLT.

Significance to dietetics: Assessing nutrition and lifestyle factors affecting QMLT in older adults may allow development of new guidelines for prevention and/or treatment of sarcopenia.

Abstract Title:

Perceived food intolerances in patients with irritable bowel syndrome (IBS)

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Introduction: Small intestinal bacterial overgrowth (SIBO) is a poorly understood condition associated with irritable bowel syndrome (IBS). The current gold standard for SIBO treatment is antibiotics. An effective dietary intervention has not been identified.

Objectives: To identify patients' perceptions of how food is related to symptoms and whether specific food intolerances can be related to IBS and a diagnosis of SIBO. We aim to test the hypothesis that high fermentable oligosaccharides, disaccharides, monosaccharides and polyol (FODMAP) foods will provoke symptoms in patients with SIBO.

Methods: This is an observational cross-sectional study including patient data collected at baseline from the Canadian Food for IBS (CanaFIBS) study. Participants diagnosed with IBS completed a questionnaire to identify foods which provoked their symptoms. They also completed the IBS symptom severity scoring system (IBS SSS)(0-500 increasing with severity). A glucose breath test was used to assess SIBO status. Students' t tests were used to test statistical significance of continuous variables and chi squared to test categorical variables.

Results: Questionnaires were completed by 91 participants; 65 females aged 40.4 s.d 13.9 years. 12 participants had SIBO. No difference in IBS SSS by SIBO status 272 s.d 104 (non SIBO) vs 256 sd 97 (SIBO). The two foods most frequently identified by all participants as triggers were wine (72%) and hot spices (64%). High FODMAP fruit, except apples (39%), were infrequently identified as provoking symptoms. Only 17% identified nectarines and pears, 20% apricots, 21% plums and 24% watermelon.

Conclusion: IBS patients self-report both high and low FODMAP foods as provoking their symptoms. This study was unable to determine if there were differences in foods which provoked symptoms by SIBO status.

Significance To The Field Of Dietetics: Dietitians should continue to individually assess IBS patients for trigger food and consider additional strategies to improve digestive health in addition to the low FODMAP diet.

Abstract Title:

La perception de l'intégration des diététistes en milieux cliniques primaires en Ontario en lien avec la gestion de poids
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Presenter:

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Introduction : L'intégration des diététistes est relativement nouvelle dans les milieux cliniques primaires ontariens. Ceci pointe au besoin d'évaluer la perception envers l'intégration des diététistes dans ces cliniques multidisciplinaires.

Objectif : L'objectif du projet vise à évaluer la perception de médecins et d'infirmières praticiennes sur l'intégration des diététistes dans les milieux cliniques primaires en Ontario en lien avec la gestion de poids.

Méthodologie : Dix-neuf participants (médecins (n=6) et infirmières praticiennes (n=13)) de milieux cliniques primaires ontariens ont été interviewés. Les données des entrevues semi-structurées ont été analysées avec le logiciel *NVivo*.

Résultats : Tous les médecins et les infirmières interviewés étaient favorables à la présence des diététistes en milieux cliniques primaires car la consultation est gratuite et accessible aux patients. D'après la plupart, la proximité des diététistes facilite la communication entre les professionnels et les rencontres avec les patients. Tous les médecins et infirmières ont rapporté ne pas avoir le temps et certains ne pas avoir les connaissances nécessaires pour évaluer les habitudes alimentaires des patients et l'expertise des diététistes complète l'évaluation. Certains ont mentionné que l'information échangée dans les rencontres avec les diététistes est disponible dans les dossiers de santé électroniques et un meilleur suivi est fait avec le patient. Selon tous, les diététistes sont une source fiable de renseignements. Les diététistes participent aux rencontres d'équipe, partagent des changements à apporter et planifient des événements éducationnels pour les patients. D'autre part, les médecins et infirmières praticiennes se disaient plus enclins à introduire le sujet de la nutrition lors de leurs rencontres avec les patients car les diététistes sont présents pour appuyer les clients dans leur démarches.

Conclusion et implication pour la pratique : La présence des diététistes dans les milieux cliniques primaires ontariens est utile et favorise les soins en nutrition en lien avec la gestion du poids selon les témoignages des médecins et d'infirmières interviewés.

Topic Area: Determinants of Food Choice, Dietary Intake

Abstract Title: The effects of enhancing the appearance of food on overall recovery of children in hospitals
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Objectives: The objective of this project was to explore how, if at all, the appearance of food can affect the recovery of hospitalized children. This project was undertaken for Senior Seminar, the capstone course for the Bachelor of Science in Nutrition.

Methods: The project involved two parts: a literature review pertaining to how food appearance impacts children's eating behaviour, and why there is a change in children's eating patterns during hospitalization, and key informant interviews. Databases used include, PEN, Acadia Library and Science Direct. The interviews were semi-structured with a pediatric nurse and a dietetic intern who is a childhood cancer survivor about their experiences with hospital food for children. The interviews augmented the limited information available from the literature research. Research was conducted in early 2017.

Results: Enhancing the appearance of food can have an effect on the recovery of children in hospital. As many children have a negative weight balance at diagnosis and cancer treatment can cause further weight loss, enhancing food appearance can increase consumption thus decreasing weight loss. When food was made appealing by manipulating shape, colour, and texture, children were more likely to eat and were happy with food being tailored to their needs. This information was gathered from eight different articles. The informant who survived childhood cancer stated that food appearance had an enormous impact on what she ate. If the food did not appear familiar, she was less likely to eat it. The interviews revealed children's hospitals do try to make food appear more appealing.

Conclusion: Children rely on the appearance of food when deciding what to eat. Manipulating food appearance is associated with increased intake. Further research would involve investigation of how more visually-appealing food can be produced for hospitalized patients.

Significance to the field of Dietetics: Understanding how the appearance of food impacts a person's intake and recovery is important to consider when planning hospital meals, not only for children.

Abstract Title:

L'association entre les comportements alimentaires et l'apport en protéines chez les hommes d'âge moyen – Résultats préliminaires

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Objectif: Évaluer l'association entre les comportements alimentaires et l'apport en protéines d'hommes avec ou sans le prédiabète ou le diabète de type 2 (DT2).

Méthodologie: Trente-et-un hommes de 40-70 ans ont été recrutés, dont treize avaient le prédiabète ou le DT2. Pour évaluer les comportements de restriction cognitive (RC), d'alimentation incontrôlée (AI) et d'alimentation reliée aux émotions (AÉ), les participants ont rempli le 18-items Three-Factors Eating Questionnaire. L'apport journalier en protéines a été estimé à l'aide d'un rappel alimentaire de 24h analysé avec ESHA Food Processor par une diététiste. Le test chi-carré a été utilisé pour évaluer les différences dans les proportions de participants atteignant ou non l'apport nutritionnel recommandé (ANR) pour les protéines, entre les participants en bonne santé et ceux avec le prédiabète ou le DT2. L'association entre les comportements alimentaires et l'apport en protéines a été évaluée à l'aide d'une corrélation de Pearson.

Résultats: Seulement trois participants (n=1 en bonne santé, n=2 avec prédiabète ou DT2) n'atteignaient pas l'ANR pour les protéines, sans différence significative entre les deux groupes de participants (p=0.361). En ce qui a trait aux comportements alimentaires, il y avait une association négative et significative entre le score de RC et l'apport journalier en protéines (r=-0.433; p=0.008). De faibles associations positives mais non significatives ont été observées entre les scores d'AI (r=0.166; p=0.186) et d'AÉ aux émotions (r=0.204; p=0.135) et l'apport journalier en protéines des participants.

Conclusion: Malgré l'atteinte de l'ANR pour les protéines par la majorité des participants, ces résultats suggèrent une association négative entre la RC et l'apport en protéines.

Importance pour la pratique diététique: Ces résultats préliminaires indiquent que davantage d'études sont nécessaires afin de permettre l'amélioration continue de l'évaluation et des recommandations nutritionnelles pour la gestion du poids et du DT2.

Abstract Title:

Intuitive Eating and Weight Management:
A Complementary Approach to Dieting
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Objective: Intuitive eating is a long term behavioral change that encourages a healthy relationship with food through eating in response to internal body cues. Considering 30% of the world's population is obese or overweight (WHO, 2015), intuitive eating offers a viable alternative to dieting as a means of weight management and overall health. This review focused on intuitive eating among college aged women with healthy body mass indexes (BMIs).

Method: A literature search on Pubmed and Scopus was performed using the following key words: mindless eating, mindful eating, intuitive eating, weight management, obesity, weight loss and body mass index. Four research articles were found to meet the inclusion criteria including one randomized controlled trial and 3 cross-sectional observational studies.

Results: High intuitive eating was found to have a positive effect on health indicators such as BMI, blood-lipid profile, total iron binding capacity, and cardiovascular risk measurements. One research article suggested caloric restriction as a superior means of weight loss. Conclusions: Over time, high intuitive eating may help prevent a transition of these indicators into levels not beneficial to health. Though some research suggests caloric restriction as a superior means of weight loss, it is believed that intuitive eating offers a more viable, long term, solution to healthy weight management. Significance to the field of

Dietetics: In light of the strong correlation between diet/lifestyle and chronic disease, it is important for Dietitians to educate clients on intuitive eating practices so as to encourage a healthy relationship with food, maintain a healthy weight and support the prevention of chronic disease by keeping health indicators in the normal range.

Abstract Title:

Effet d'un programme d'exercice sur la fréquence de la prise alimentaire chez des adolescents sédentaires

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Plusieurs études ont investigué l'effet aigu d'un exercice aérobic sur l'apport énergétique d'adolescents de poids normal et en surpoids. Par contre, les résultats des études sont contradictoires. Certaines ont rapporté une augmentation de la prise alimentaire suite à une session d'exercice, sans tenir compte du statut de poids. Par ailleurs, peu d'études ont investigué l'effet chronique de l'exercice sur la prise alimentaire des adolescents.

L'objectif était d'identifier l'effet chronique de l'exercice et du statut pondéral sur la fréquence de la prise alimentaire d'adolescents.

Nous avons effectué des analyses secondaires de données sur l'effet d'un programme d'exercice aérobic d'intensité modéré de huit semaines sur les habitudes alimentaires de 26 participants sédentaires (13 filles, 13 garçons) de 14-18 ans. Deux rappels alimentaires de vingt-quatre heures ont été recueillis en pré-intervention et quatre en post-intervention et la moyenne quotidienne de la fréquence de la prise alimentaire a été déterminée. Une ANOVA à méthode mixte a été utilisée pour déterminer l'effet de l'exercice et du statut de poids sur la fréquence de la prise alimentaire des participants.

L'exercice et le statut de poids n'ont eu aucun effet significatif sur la fréquence de la prise alimentaire des participants de poids normal et en surpoids. Également, il n'y a eu aucune interaction significative entre l'effet de l'exercice ou le statut pondéral. En groupant tous les participants, aucune différence significative n'a été identifiée entre la fréquence de la prise alimentaire en pré- et en post-intervention.

Nous n'avons pas identifié d'effet du programme d'exercice modéré sur la fréquence de la prise alimentaire des adolescents. Plus d'études sont nécessaires pour documenter l'effet chronique d'un programme d'exercice sur la qualité de la diète des adolescents.

Évaluer l'effet de l'exercice sur la prise alimentaire des adolescents pourrait permettre de mieux conseiller les adolescents dans l'adoption de saines habitudes alimentaires.

Abstract Title:

The Canadian Healthy Eating Index as a measure of nutrient intake change in a lifestyle intervention for metabolic syndrome

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Objectives: The Canadian Healthy Eating Index (HEI-C) is a measure of diet quality that examines 11 adequacy and moderation components on a 100-point scale and could be used to assess changes in food behaviours during diet interventions in patients at cardiometabolic risk. This sub-study of the Canadian Health Advanced by Nutrition and Graded Exercise (CHANGE) feasibility study, a primary care intervention for patients with metabolic syndrome, evaluated the degree to which HEI-C components were associated with nutrient intakes in the first 3 months.

Methods: Two-hundred and ninety-three participants were recruited. At baseline and after 3 months, dietary data were collected from all participants by dietitians using 2, 24-hour multi-pass recalls to calculate HEI-C; average nutrient intakes were assessed using ESHA software. Changes in HEI-C scores were examined using paired t-tests and associations between HEI-C scores and intakes of relevant nutrients were examined by Pearson correlation.

Results: At 3 months, improvements were observed for the total HEI-C score (10.8±14.9 points, p<0.001, n=255) and HEI-C component scores significantly improved for *total vegetables and fruits, saturated fat, sodium, and other foods*. Total HEI-C score was moderately correlated with fibre, saturated fat, vitamin C, magnesium, potassium, and sodium at baseline and 3 months ($|0.221| < r_{\text{total grains and carbohydrates}} = 0.50$, p<0.001), and *milk and alternatives* and calcium ($r = 0.66$, p<0.001) were observed from baseline to 3 months; other HEI-C components and nutrients were not strongly correlated.

Conclusions: In the CHANGE Program, the HEI-C components identified dietary behaviours that changed at 3 months but were not strongly associated with changes in relevant nutrient intakes.

Significance to the field of dietetics: The HEI-C may provide a foundation for further development of a diet assessment tool that can be used to assess the effectiveness of diet interventions for clients at cardiometabolic risk. The HEI-C cannot substitute for nutrient analysis.

Abstract Title:

A description of weight trends and metabolic syndrome risk factors in the Alder Tertiary Mental Health Unit population
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Objective: To determine the prevalence of risk factors (RFs) for metabolic syndrome (MetS) and weight trends in clients admitted at Alder Tertiary Mental Health Unit at St. Vincent's: Langara residential facility.

Methods: A retrospective chart review was completed for all clients (n=50) admitted from January 1, 2011- October 31, 2016 at Alder Tertiary Mental Health Unit. Data was collected on psychiatric diagnosis, demographics, anthropometrics, lipid profile, and the presence or absence of hypertension and diabetes mellitus and their corresponding medications. No data points were collected past October 31, 2016. Descriptive statistics were used for analysis.

Results: The majority of the study subjects were aged 40 years or older (n=47, 90%) and male (n=40, 80%). Brain injury was the most common admitting diagnosis and all clients were on a form of antipsychotic medication. There was no universal weight trend among the study population over the course of the study time frame. Average initial and final BMI for the study population varied only slightly from 24.1kg/m² to 24.77kg/m² during the study time frame. Low HDL and elevated TG were the most prevalent RFs, accounting for 80% (n=40) and 54% (n=27) of the study population, respectively. 38% (n=19) of the study population met the criteria for MetS, defined as having 3 or more RFs.

Conclusion: Interventions directed at combating MetS risk in the population at Alder Tertiary Mental Health Unit may provide greatest benefit if they target improving client blood lipid profiles.

Significance to the field of dietetics: MetS is prevalent in Canada, resulting in significant strain on affected individuals and the healthcare system. There are currently few studies investigating the prevalence of MetS and specific RFs in the tertiary mental health setting and a knowledge gap remains. Study outcomes may help guide nutrition interventions to enhance patient care in this unique population.

Topic Area: Dietetic Practice and Education

Abstract Title: Opening the book on nutrition literacy: A critical investigation into Canadian dietitians' knowledge, attitudes, and practices
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Objectives: This study describes registered dietitians' (RDs) knowledge, practices, and attitudes (KPAs), barriers, and preferred learning methods with regard to functional (FNL), interactive (INL), and critical (CNL) nutrition literacy.

Methods: An invitation to an online survey was distributed to Canadian RDs by four provincial dietetic registration bodies, three working groups, and Dietitians of Canada. Items included demographics, (dis)agreement statements about nutrition literacy KPAs, barriers, and preferred learning methods. To assess differences in demographics by KPAs, barriers, and preferred learning methods, independent samples t-tests and chi-square analyses were used. All statistical tests were two-sided with significance set at $p < 0.05$.

Results: Of the 437 survey respondents, over 80% believe that FNL, INL, and CNL are important to promote nutrition-related behaviours in Canada. Only 47%, 66%, and 20% implement FNL, INL, and CNL in their practice, respectively. Those most likely to teach INL and CNL include: RDs over 40 years of age ($p < 0.01$), community-based RDs ($p < 0.05$), and RDs whose work involves at least 50% nutrition education ($p < 0.01$). The most common barriers identified by respondents were (1) a lack of credibly trained nutrition professionals to teach nutrition literacy (54%); (2) a lack of access to education resources (53%); and (3) a lack of interest from clients (51%). Over 90% of respondents indicated that they would prefer learning how to teach nutrition literacy through professional practice guidelines, webinars, and online tutorials.

Conclusions: RDs in Canada realize the importance of nutrition literacy and feel responsible for promoting it, yet few do beyond the Functional level. By promoting and enhancing client nutrition literacy at higher levels, RDs could do much to improve the nutritional health of Canadians.

Significance to the field of dietetics: These results present the training needs and barriers with regard to teaching nutrition literacy and may support the development of training resources for RDs and their advocacy for nutrition literacy in general.

Abstract Title:

Training dietitians as clinical public health practitioners

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Purpose: *Clinical public health* (CPH) is the integration of primary care, preventive medicine, and public health into health-care practice. Academics and practitioners have called for revitalized health education programs to meet the needs of the changing health-care landscape. DLSPH at the University of Toronto responded with a novel approach to training its students as ‘transdisciplinary’ CPH professionals. The Masters of Public Health in Nutrition & Dietetics (MPH-ND) (formerly the Master of Community Nutrition) was the first program to use this pedagogical approach to train students pursuing Registered Dietitian credentials. Program coordinators formed key partnerships with Toronto Public Health and University Health Network hospitals to facilitate practica. Two recent graduates (new dietitians) share key aspects of their experiences in the first cohort of students in the CPH-based curriculum.

Summary of Process: Seventeen students (including both authors) in the inaugural class of the MPH-ND underwent this innovative training approach. Faculty and students met regularly during the first year to discuss the program curriculum and practica, with open dialogue between faculty and students on the opportunities and challenges of the new format. At year end, students independently researched a single dietetic issue from across the continuum of care to apply their CPH learning. Students highlighted diverse issues and demonstrated their acquired understanding of and commitment to systems-thinking and CPH in nutrition.

Conclusions and Recommendations: Students felt more competent as systems thinkers, and were able to brainstorm innovative CPH solutions. The MPH-ND program is graduating its first cohort in June 2017. We recommend:

- Evaluating the experience of graduates to ascertain how their innovative training contributed to their careers and what could make the training stronger.
- Using evaluation findings to improve the curriculum and practica for future cohorts
- Developing a sustainable framework to implement in dietetic training programs across Canada.

Abstract Title:

Based on current evidence-based practice, can Dietitians recommend soy beverages as an acceptable alternative to cow's milk for healthy term infants at weaning? – A review of the literature

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Background: Current PEN Pathways suggest that fortified soy beverages [FSB] be introduced in weaning, under limited circumstances. Growing interest in plant-based diets requires a review of the material to determine whether there is sufficient evidence to support Dietitians in recommending the use of FSB in complementary feeding.

Objectives: A literature review was conducted to provide Dietitians with adequate knowledge to develop nutrition clinical care guidelines regarding the use of FSB in healthy term infants.

Methods: Infant Nutrition PEN Pathways *Infant Formula and Complementary Feeding* [2013-2016] were reviewed. SUMMON searches took place in February/March 2017 using key words: *Complementary feeding, Cow milk protein allergy, Galactosemia, Genistein, Infant feeding, Isoflavones, Manganese, Nutrition, Phytoestrogens, Plant-based milk alternatives, Protein, Soy beverages, and Vegetarian*. Original research and review articles from peer-reviewed journals published in English between 2000-2017 were included. Fifty-four human and animal full-text articles were obtained and PEN-graded.

Results: Eighteen original research studies show limited adverse effects of hormonal shifts from consumption of soy; thirteen show inconsistent results; and two show adverse effects. FSBs are comparable in nutritional adequacy to cow's milk, and do not appear to have a negative effect on growth and development, or endocrine functions. Other plant-based beverages including oat and rice milk should not be used in complementary feeding due to low protein concentration, and risk of mineral toxicity.

Conclusion: There remains a scarcity of human data available that examines long-term effects of genistein, the primary phytoestrogen in FSBs. Evidence is insufficient to conclusively support the use of FSBs as an acceptable alternative to cow's milk for healthy term infants at weaning.

Significance to the field of Dietetics: The results reinforce the need to conduct clinical research that examines the long-term effects of using FSBs in complementary feeding practices of healthy term infants to enhance dietetic evidence-based practice.

Abstract Title:

Evaluating the implementation of the Malnutrition Screening Tool (MST) in acute-care patients at North York General Hospital

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Objective: This study evaluated the implementation of the validated Malnutrition Screening Tool (MST) at North York General Hospital (NYGH). This tool, administered by nurses within 24 hours of admission and repeated weekly, flags patients at nutritional risk. An MST score of three or higher (ie. positive score) warrants secondary screen and possibly nutrition assessment by a dietitian. This study assessed whether the MST (1) was administered as intended and (2) prompted the intended response by dietitians.

Methods: This retrospective chart review included adult patients (>18 years old) admitted to General Medicine/Surgery Units who were not palliative or receiving nutrition support. Data collected included: number of patients for whom the MST was completed on admission and weekly; number of scores completed, partially or not completed; number of times a positive score prompted a secondary screen by a dietitian and resulted in a nutrition assessment. Descriptive statistics were calculated using Microsoft Excel.

Results: A snapshot census provided a total of 219 patients. After applying exclusion criteria, 178 patient charts were reviewed. 31 Patients received positive scores, 22 (12%) of which were upon admission and nine (5%) were upon follow up. Out of these 31 patients, 21 (67%) received a secondary screen by the dietitian. Nine patients (38.5%) went on to receive a nutrition assessment, eight of which were directly related to the MST.

Conclusions: The MST tool at NYGH is being administered as intended. Nurses are screening initially and recurrently for the majority of patients, and dietitian's are making note of the scores to identify and assess patients at nutritional risk.

Significance to Field of Dietetics: Research evaluating implementation of the MST in Canadian hospitals is limited. The MST can contribute to timely identification of nutritional risk and effective management of dietitians' workload. This study may contribute an understanding of the use of this tool in Canadian hospitals.

Abstract Title:

Knowledge translation: Moving Evidence to Best Nutrition Practices in Long Term Care facilities in Alberta

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Objective: To identify facilitators and Knowledge Translation (KT) practice gaps for moving nutrition evidence to practice among Long Term Care (LTC) dietitians in Alberta.

Methods: An online survey with closed and open-ended questions was sent to 80 dietitians in LTC (AB) with 31 surveys returned.

Rogers' diffusion of innovation theory concepts were identified and used to form broad categories. Pathman's awareness to adherence model was used to determine the impact of evidence-based tools such as clinical practice guidelines, Practice-based Evidence in Nutrition (PEN) and systematic reviews.

Results and Conclusion: The most common facilitators identified were the dietitian being self-directed (67%), strong beliefs in Evidence-based Practice (50%), supportive dietitian colleagues (33%) and supportive multidisciplinary team (29%). Other facilitators included a supportive workplace, opportunities for professional development, access to resources like PEN, the dietitian being a best practice leader, having strong communication skills and good rapport with staff.

The most common barriers reported were limited time (29%), staff/team/department resistance to change (32%), corporate policies (21%), limited budget (18%), entrenched practices (18%), limited resources (11%) and families/physicians resistance to change (7%). With 52% of the LTC dietitians reporting not having subsidized access to PEN and 75% of the dietitians indicating that they experienced barriers, many dietitians (93%) reported being able to change their practice when new evidence was introduced. Practice change in spite of barriers suggests that barriers were overcome to adapt evidence into practice.

Significance to the Dietetics field: This formative evaluation provides valuable information on present practices of dietitians in LTC by identifying facilitators and KT gaps in moving nutrition evidence to practice. Being aware of these practice gaps may provide a better understanding to help bridge the evidence to practice gap in the field of dietetics nationally and internationally. This may also add to the scholarly discourse on the topic of KT gaps in dietetics.

Abstract Title: Dietetics past, present and future: Dietitians' roles in affecting social change
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Objectives: The dual purposes of this project were to learn about the history of dietetics and to learn from the past to envision roles for dietitians on advocating for social change.

Method: For Senior Seminar, the capstone course for the Bachelor of Science in Nutrition, a literature search was conducted regarding the history of dietetic practice related to social change in Canada. Search terms included *home economics*, *dietetics*, *dietetic practice*, *social change*, and *dietetics future*. Eleven articles were reviewed on the history of home economics and dietetics since the 1800s, dietitians' roles in social change, and the importance of imagination to advance practice. Sources reviewed included all issues of the Canadian Dietetic Association/Canadian Journal of Dietetic Practice and Research, the Dietitians of Canada website, the Canadian Encyclopedia, and Practice-based Evidence in Nutrition [PEN].

Results: Dietetics and home economics professionals have advocated for and achieved positive social change originating from the beginnings of home economics in the late 1800s. Creativity, innovation, and imagination have been beneficial and are encouraged to continue to affect social change. Many of the political issues dietitians have worked to address reflect the Social Determinants of Health used in present-day practice.

Conclusions: Dietitians have had and continue to have important roles in affecting social change. Historically, dietitians have drawn upon more than nutritional knowledge to address the root of social inequities that affect nutritional health. More research is required to further these learnings and to educate dietitians on a social change-oriented approach to practice.

Significance to the field of dietetics: As the dietetics profession is largely affected by politics, dietitians in Canada can benefit from understanding the creative, innovative and imaginative practice from leaders in the past to address the root causes of social issues and inequalities that affect nutritional health and well-being.

Abstract Title:

The implications of using food as a reward on the healthy development of children ages 0-6: A review of current literature

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Background: Healthy child development is influenced by how and why children are fed. Feeding practices include instrumental and emotional feeding in response to a child's behaviour and emotions respectively as well as prompting and encouragement to eat (e.g. a variety of foods), and control over eating (e.g. determining the types and quantities of foods consumed). This literature review focused on one facet of instrumental feeding; using food as a reward. Studies show that the use of food rewards in young children has negative consequences later in life.

Objectives: To conduct a literature review and summarize current evidence relating to the implications of using food as a reward on the physical and psychological development of children ages 0-6.

Methods: PubMed, CINAHL, PsycInfo and TRIP were systematically searched from September 2016 - January 2017 for English articles published after 2009 which included children ages 0-6, and specifically used food rewards. Retrieved articles were critically appraised using the Practice-based Evidence in Nutrition (PEN®) Evidence Grading Checklist (2014) and then thematically analyzed.

Results: Eighty unique articles were initially identified. Twelve studies were included in the final review: two systematic reviews, two literature reviews, three randomized control trials, four cohort studies, and one cross-sectional study. Despite differences in study design and context, several consistent themes emerged from the literature. The implications of using food to reward young children included: increased preference and over-consumption of energy dense foods (n=8), decreased intake of healthy foods (n=2) and rapid weight gain and Body Mass Index rates (n=2).

Conclusions/ Significance: Findings illustrate the potential negative consequences on children's development, namely increased risk for poor eating habits and excessive weight gain. Discouraging this practice through evidence informed key messages used by Registered Dietitians and other healthcare professionals may prevent unhealthy feeding practices during this critical stage of development.

Abstract Title:

Homemade blenderized tube feeding: A survey of dietitians
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Objectives: Homemade blenderized tube feeding (HBTF) appears to be gaining popularity. The purpose of this cross-sectional survey study was to describe dietitians' perspectives and perceived expertise on HBTF.

Methods: An anonymous web-based questionnaire was emailed to all 715 dietitians registered with the College of Dietitians of British Columbia holding the authority to design, compound, or dispense enteral nutrition. Response frequencies were analyzed.

Results: There were 221 completed questionnaires. Respondents varied with regards to practice settings and patient age ranges, with the majority working primarily in acute care and with adults. Only 28% of respondents felt knowledgeable about HBTF and 24% felt they could confidently manage patients/clients using HBTF. Less than half felt they had the expertise to design HBTF, administer HBTF, or teach patients/clients to administer HBTF (29%, 16%, 24%). Comparing commercial formulas to HBTF, many respondents felt HBTF provides equal or superior nutritional benefit (33%, 37%), is more cost effective (46%) and more effective for managing food allergies (40%). However, a considerable number felt HBTF has higher risk for tube blockages and bacterial contamination (77%, 84%). Respondents' HBTF education was mostly derived from informal sources (self-directed learning 49%, learning from colleagues 33%, learning from patients/clients 32%), while 27% reported having no education of any kind. Most respondents (64%) support the use of HBTF and 89% reported a desire to learn more about HBTF.

Conclusion: Dietitians have limited confidence in managing patients/clients who chose to use HBTF. They perceive themselves to lack knowledge and expertise on the practice. Formal education on HBTF is uncommon among dietitians, however support of the use of HBTF is prevalent.

Significance to the Field of Dietetics: The trend towards HBTF appears to be gaining momentum among patients/clients. In order for dietitians to confidently and capably support patients/clients using HBTF, education is essential.

Abstract Title:

Exploring Dietitians' Use of Expressive Touch in Patient Encounters

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Objectives: Effective communication skills are necessary for establishing successful Registered Dietitian (RD)-patient relationships. Expressive touch (ET) is a form of spontaneous, affective, non-verbal communication that has not been explored in the Dietetics literature. This study aims to explore clinical RDs' perceptions and use of ET in patient encounters.

Methods: Phase one of a two-phase mixed methods study was an online survey (Qualtrics©) with one open-ended and 12 Likert-scale questions emailed to a convenience sample of 249 clinical RDs practicing in Northern Ontario (January 2017). Quantitative data analysis included descriptive and association statistics using Excel© while free-text responses were analyzed using thematic analysis. Research ethics approval was received from Lakehead University.

Results: The response rate was 54% (n=135); distribution by age, practice location, and work setting were consistent with the College of Dietitians of Ontario membership statistics. Years of practice ranged from 1 to 30 years; majority working with adults (94%) and in ambulatory settings (64%). Many perceived that ET may effectively communicate feelings (77%), increase patients' comfort (66%), and enhance therapeutic relationships (68%). Half of respondents (52%) reported being comfortable using ET, which was significant among RDs \geq 30 years of age. In practice, the majority (81%) did not commonly use ET, with the exception of those working with pediatric populations (85%). RD respondents reported the perceived benefits and risks, as well as the influence of several personal, professional, patient, and situational characteristics on their use of different forms of ET.

Conclusion: RDs perceive ET to be beneficial, yet this is not necessarily translated into practice. Factors influencing RDs' perceptions and actions require deeper exploration in Phase two (2017-2018).

Significance: As a form of non-verbal communication, ET has the potential to improve patient outcomes in nutritional care. Understanding RDs' perceptions and use of ET can inform dietetics training towards effective patient-centred practices.

Topic Area: Education, Training and Counselling

Abstract Title: Knowledge and attitudes of first year medical learners at the Northern Ontario School of Medicine (NOSM) on the importance of a supportive food environment and its relationship to healthy eating
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Objectives: To better understand NOSM-Laurentian Campus first year medical learner perspectives and beliefs on healthy eating in the campus food environment and its impact on lifestyle habits.

Methods: In December 2016/January 2017, participants were recruited using posters, weekly learner newsletters and word of mouth for one of two focus groups held in early February. Online registration (Fluid Survey[®]) was used and included demographic information (age, gender, and undergraduate education) which was analyzed quantitatively. Two focus groups of 45 minutes each were conducted by a facilitator using a focus group guide with a healthy lunch as incentive. The guide included questions regarding barriers and facilitators to a supportive food environment. Responses were recorded electronically and then transcribed and analyzed using themes found in literature such as available facilities and equipment, food options, location, social motivation and support.

Results: Half (18 of 36) of the first year class at this campus attended the groups; 78% were female and all between the ages of 20-29. Most agreed the school offered limited healthy eating supports but did note access to a small lunchroom with equipment (fridge, microwave oven, etc.) as well as a Student Wellness Committee. Other barriers included a lack of healthy catering and vending options; stress; and time constraints for meal planning and preparation. The NOSM campus was also considered isolated and in a food desert.

Conclusions: To truly improve the overall health of the general population, it is critical that future medical practitioners promote and practice healthy eating habits. Providing medical students with the knowledge and tools required for practice is essential and includes a supportive campus food environment.

Significance to the field of Dietetics: Results have implications for the nutrition curriculum for learners as well as NOSM and campus food policies with recommendations to encourage a food environment conducive to healthy eating.

Topic Area: Food Security

Abstract Title:

Student food insecurity at Memorial University

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Objectives: Our study compared the prevalence of food insecurity among three population subgroups of students attending Memorial University of Newfoundland (MUN): International, Canadian out-of-province (OOP), and Newfoundland and Labrador residents (NL). Factors potentially associated with a higher risk of food insecurity were also investigated, such as living arrangement and primary income source.

Methods: Data was collected via an online survey of an estimated 10,400 returning MUN students registered at a campus in St. John's. Respondents were recruited through e-mails, posters, and social media. Demographic data was collected and respondents were asked 10 questions from the Canadian Household Food Security Survey Module (HFSSM) to assess food security status (adult scale). Logistic regression was used to compare rates of food insecurity between the three population subgroups.

Results: 971 of 1,486 participating students were deemed eligible. 39.9% of students were food insecure (moderate or severe). After controlling for program type, parental status, living arrangement, and primary income source, OOP and international students were 1.63 (95%CI = 1.11-2.40) and 3.04 (95%CI = 1.89-4.88) times more likely, respectively, to be food insecure than NL students.

Conclusion: Approximately 40% of MUN students experienced food insecurity, a higher proportion than reported for the overall provincial population. High risk groups include international students, students with children, and those relying on government funding as their primary income. Future research should further investigate why these particular groups are at a higher risk.

Significance to the field of dietetics: Food security remains an issue for many Canadians, including post-secondary students. Dietitians can play an important role in supporting community food programs and collaborating with other stakeholders on actions that help to alleviate food insecurity, including supports for post-secondary students.

Topic Area: Nutrition and Health Education

Abstract Title: Full-time work and food skill behaviors of Canadian parents
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Introduction: Deskillling (reduced level of food skills) of Canadians has been attributed to the increased role of women in the workforce. Despite similar proportions of men and women in the workforce, 80 % of women are still responsible for family food preparation. Furthermore, time restrictions of working parents has led to an increased dependence on convenience meals (dinning out, ready-to-eat foods and processed meals).

Objective: To explore the relationship between full-time working parents, food skills and diet quality.

Methods: A representative sample of 2201 Canadian parents with children 2-12 years old who were responsible for $\geq 50\%$ of family meal preparation were recruited by a private firm using random-digit-dialing as part of an evaluation of a national healthy eating campaign. Parents were invited to complete a web-based survey that included a sociodemographic questionnaire, a validated food frequency questionnaire and questions from Statistics Canada's *Canadian Community Health Survey Food Skills* (CCHSFS) component. The healthy eating index (HEI) adapted to the Canadian Food Guide was calculated to measure diet quality. All items from the CCHSFS were dichotomized to allow for logistic regression modelling. Sociodemographic variables were used as covariates in regression models.

Results: Parents ($n=771$) engaging in more food skills also had better diet quality ($p<0.05$), however, there was no difference in diet quality between parents who worked full-time and those who did not. The only food skill that full-time working parents engaged in less was the use of mostly basic and whole ingredients to prepare meals ($p<0.05$).

Conclusions: Results indicate that food skills are important for family diet quality, but that working full-time has little effect on food skills practices. Timing of food skill acquisition (in childhood, adolescence or early adulthood) should be studied as well as the coping mechanisms that full-time working parents use to facilitate family meal preparation.

Significance to the field of dietetics: This study increases our understanding of family food skill practices of working parents.

Abstract Title: Electronic Sodium Calculator screening tools: A promising intervention for improving sodium-related knowledge, attitudes and behaviours
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Objectives: Dietary sodium reduction strategies aim to prevent and manage health outcomes associated with excess sodium intake, including hypertension. At the individual level, a significant barrier to implementation and personal action are the misconceptions and awareness surrounding personal sources of dietary sodium. To engage the public to take personal action in reducing sodium, tools to screen for and educate about dietary sodium are warranted. The objective of this study was to determine if two web-based dietary sodium screening tools, with instant personalized feedback on the amount and sources of dietary sodium (Sodium Calculator and Sodium Calculator Plus, SC, www.projectbiglife.ca), could improve sodium-related knowledge, attitudes and behaviors (KAB) in a group of young adults.

Methods: In this cross-sectional study, post-secondary students 18-35 years without a meal plan and with no sodium homeostasis disorders were recruited. To assess KAB, a short, paper-based questionnaire was administered to 199 subjects (21±4 yrs, 48% male) immediately before and after completing the SC.

Results: After completing the SC the number of subjects who thought they consumed too much sodium significantly increased from 41% to 66% ($p < 0.001$). Recall of dietary sodium recommendations also significantly improved following completion of the SC from 19% to 74% for the sodium Adequate Intake level of 1500 mg ($p < 0.001$) and from 23% to 74% for the sodium tolerable Upper Level of 2300 mg ($p < 0.001$). After using the SC, participants reported significantly greater interest in limiting sodium intake (33% to 48%, $p < 0.015$) and interest in engaging behavioral modification to reduce dietary sodium, specifically related to reading the Nutrition Facts table, consuming more vegetables and fruit, consuming less packaged foods and limiting restaurant foods.

Conclusion: The web-based SC are promising tools that can improve sodium-related knowledge, attitudes and behavior.

Significance to the field of Dietetics: These innovative tools may be a cost-effective approach for dietitians, and other healthcare professionals, to incorporate into practice to assist individuals in achieving dietary sodium reduction goals.

Abstract Title: Nutrition screening in the adult stroke population using the Canadian Nutrition Screening Tool (CNST) in comparison with the Subjective Global Assessment (SGA)
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Introduction: Although the Canadian Best Practice Recommendations for Stroke Care recommend all acute stroke patients be screened for pre-morbid malnutrition within 48 hours of admission to hospital using a valid screening tool, none have been validated for use in adult acute stroke patients. The Canadian Malnutrition Task Force has developed and validated the CNST tool to screen for malnutrition within medicine and surgery patients.

Objective: To estimate the level of agreement between the CNST and the Subjective Global Assessment (SGA), a previously validated tool for the identification of malnutrition, in a cohort of acute adult stroke patients.

Methods: In this prospective study, adult patients admitted to the Southwestern Ontario Regional Stroke Centre in London, Ontario with acute stroke were identified. The patient's nurse conducted the CNST within 48 hours of admission using information obtained from the patient or a proxy in the event of cognitive and/or language impairments. The research dietitian, blinded to the CNST results, conducted the SGA and classified patients as either A (well nourished), B (moderately malnourished), or C (severely malnourished). B and C of the SGA were combined into one "malnourished" category.

Results: Fifty-eight patients (27 women, 31 males) were enrolled. CNST indicated 12.1% were at risk for malnutrition; however, SGA found 43.1% of patients to be malnourished. The CNST showed a fair level of agreement with SGA (Kappa=0.23). Sensitivity was low at 24% and specificity high at 97%.

Conclusions: CNST may not be the most effective nutrition screening tool to use within the acute stroke population.

Significance to field of dietetics: This is the first study conducted within a Regional Stroke Centre in Canada and with acute stroke patients to observe level of agreement between a malnutrition screening tool and a nutrition assessment.

Topic Area: Patient Services

Abstract Title:

Dietary management of new ileostomies: an evaluation of a new patient education handout and implementation of a pre-printed order set

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Background: Nutrition plays an important role in managing ileostomy complications, improving patient outcomes and patient satisfaction. The purpose of this study was to measure patient satisfaction with a newly updated nutrition education handout and to determine if a new pre-printed order set (PPO) improves clinical markers for patients with new ileostomies.

Methods: Patients with new ileostomies who received the nutrition education handout were interviewed over the phone. A questionnaire was developed to assess patients' satisfaction with this handout in managing their ileostomy. A retrospective chart review of patients admitted to the Pasqua Hospital and Regina General Hospital for ileostomy surgery from December 1st, 2016-March 31st, 2017 was also conducted to evaluate the use of the pre-printed order set and measured outcomes. Information collected from both the patient satisfaction surveys and the chart review was organized and analyzed in separate Microsoft Excel databases.

Results: All survey participants (n=14) found the nutrition education handout easy to read and understand. All participants rated themselves as satisfied or very satisfied with the handout (n=14). Twelve patient charts were studied, with 4 patients having surgery after the implementation of the PPO. Three of these four patients had the PPO used as early as day 7. The pharmaceutical management of all patients, including the patients who had the PPO used, was improved from the results of a previous study. The PPO was used late in care (starting day 7-14 post surgery, rather than within 48 hours) and there were inconsistencies in which standing items on the PPO were ordered.

Conclusions: Patients are satisfied with and use the new nutrition education handout. Larger sample sizes and observations over a longer period of time are needed to better evaluate PPO use and subsequent patient outcomes. Education is needed for members of the interdisciplinary care team to better understand and use the PPO.

Abstract Title:

Staff Perceptions, Attitudes and Beliefs of Food Available in Hospital

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Background: Institutional food in general, and particularly hospital food, is subjected to a great deal of negativity in the press, the literature, and amongst hospital employees. The Regina Qu'Appelle Health Region (RQHR) has conducted a number of patient surveys to find that patients are overall generally satisfied with the meal service. However, staff in RQHR have never been surveyed about their perception of the quality and acceptability of patient meals. The objective of this study was to determine direct care staffs' perceptions of patient meals and what factors may influence these perceptions, as well as staffs' overall satisfaction and acceptability of patient meals when blinded to the intent of the meal.

Methods: During the month of February 2017, this two-part study was conducted in two different RQHR acute care hospitals: Part I at the Regina General Hospital and Part II at Pasqua Hospital. Part I measured participants' overall perceptions of hospital meals served to patients and determined if these perceptions were influenced by personal experience as a patient. In Part II, participants evaluated the quality of six meal items over a three-day period, however, participants were not informed that they were evaluating items from patient meals, rather "items considered for the cafeteria menu."

Results: Part I saw 57 respondents participate in the survey, with Registered Nurses (RN) and Licensed Nurse Practitioners (LPN) being the most predominant positions (94.5%). The majority of respondents were aged 30-39 years (45.6%). Overall, responses to the six questions related to patient meal ratings were mostly negative. For example, only 8.8% agreed or strongly agreed patient meals look appetizing and just 7.1% rated the meals as being excellent. However, 68.5% agreed that meals served to patients look neat and tidy on the tray. There were no significant differences in patient meal ratings for those respondents who had experiences as a patient and for those who had not. In Part II, a total of 327 surveys were collected for the six meal items offered. The majority of respondents were aged 50-59 (29.8%) and came from a diverse range of units and positions, with 57.7% identifying as someone other than nursing staff (RN/LPN). In contrast to perceptions of meals served to patients, over 50% rated the taste, appearance, smell, healthfulness, and overall quality as either very good or excellent. Overall, 75.2% of respondents reported that they were satisfied, or very satisfied, with the meal items provided. For two meal items in particular, 97.3% (Greek Pork Chop) and 98.2% (Harvest Chili) of respondents were either satisfied or very satisfied.

Implications & Conclusions: The findings of this study support the well-accepted notion that hospital food has a reputation for being undesirable. It is apparent that hospital staff share the prevailing negative perception of hospital food, whereas the participants who took part in the taste trials rated hospital food much more positively.

Given the important role direct care staff have on influencing patient perceptions, understanding how patient meals are perceived by this group can have important implications on the patient's experience. Furthermore, if these perceptions could be dispelled and replaced by more positive and accurate views based on experience rather than stereotype, the impact on patient meal acceptance could be dramatically improved.

Topic Area: Professional Development

Abstract Title:

The Dietetic Confidence Scale: An evidence-based tool for measuring dietitians' confidence in working with clients impacted by common mental health conditions
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Objectives: Valid and reliable evaluation tools are needed to measure dietitians' professional confidence. This research aimed to develop a tool to measure dietitians' professional confidence in working with clients impacted by common mental health conditions.

Methods: A review of practitioner confidence measures informed the development of the 'Dietetic Confidence Scale' (DCS). Two cross-sectional samples of Australian dietitians ($n=185, 458$) were recruited to test the scale. Principal Components Analysis (PCA) helped refine scale items and derive a model, which was then validated using Confirmatory Factor Analysis (CFA).

Results: The review identified 14 instruments from 20 studies. No tools specifically measured dietitians' professional confidence in working with clients impacted by common mental health conditions. PCA results indicated a 13-item, two-factor solution accounting for 69.1% of total variance. Dietetic confidence was associated with 1) Confidence in Nutrition Care Process (NCP, $\alpha=0.95$), and 2) Confidence in Advocating for Professional Self-Care and Client-Care (ASC, $\alpha=0.81$). CFA results supported the proposed scale and model (Good Fit Index 0.95). The final scale showed good reliability ($\alpha=0.93$)

Conclusion: Dietitians need to develop and use evidence-based measures of practitioner confidence. The DCS is a psychometrically robust instrument with strong internal consistency, tested with two independent samples. The DCS can be used to measure dietitians' professional confidence about working with clients impacted by common mental health conditions, evaluate professional development that is aimed at increasing confidence, and highlight where additional support or training may be needed. Further validity and reliability testing is needed to confirm scale generalisability and use.

Significance to the field of dietetics: The DCS is an evidence-based tool useful for educators, researchers and practitioners. To improve professional confidence, dietitians should focus on developing their transferable person-centred care skills using the NCP. In addition, CPD activities involving advocacy, reflective practice, mentoring and professional self-care also contribute to dietitians' confidence in working with clients impacted by mental health conditions.

Abstract Title:

Physician and nurse (PhaN) knowledge and attitudes toward enteral feeding on a general medicine ward

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Objective: To describe the attitudes and knowledge of physicians and nurses (PhaN) toward enteral feeding on the general medicine wards at an acute care hospital.

Methods: An original survey was developed to assess attitudes and knowledge of PhaN toward enteral feeding on the general medicine wards at St. Paul's Hospital in Vancouver, BC. The 15-item questionnaire was developed by dietitians with survey design experience, and was subject to a multi-step review process, including review by dietitians and a research statistician with a background in behavioral and attitudinal survey design, followed by a pilot test. Participants were recruited through convenience sampling. Paper and online questionnaires were self-administered over a three week period. Responses were analyzed using descriptive statistics.

Results: Seventy-nine surveys were returned (28% response) and 76 analyzed. Respondents included nurses (71%, n=54/76), physicians and residents (18%, n=14/76), or medical/nursing students (11%, n=8/76). Eighty-two percent (n=62/73) of respondents "strongly agreed" or "agreed" with three or more statements reflecting a positive attitude toward enteral feeding. Three percent (n=2/76) correctly answered five or more questions out of six on the knowledge component of the survey.

Conclusion: The results suggest PhaN on the general medicine wards at St. Paul's Hospital have a positive attitude toward enteral feeding, but limited knowledge of its basic principles. These findings are consistent with other studies that describe PhaN attitude toward, and knowledge of enteral feeding, although they are not generalizable. Further research is needed to determine how knowledge and attitude impact behaviour specific to enteral feeding

Significance to the field of Dietetics: This study contributes to the body of evidence on PhaN attitudes toward, and knowledge of enteral feeding and, its findings will be used to develop site-specific education for PhaN to improve delivery of nutrition support.

Abstract Title:

Cross-sectional study of the attitudes, skills and knowledge of Eastern Health dietitians in using the Nutrition Care Process (NCP)

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Objectives: Eastern Health Regional Authority Dietetics team (EH) has identified the adoption of the Nutrition Care Process(NCP) as a strategic direction. The leadership team has made several efforts to implement the NCP, but progress has remained inconsistent. This cross-sectional study explored the challenges of implementing NCP among EH dietitians (RDs). The objectives were to identify EH RD's 1) knowledge 2) familiarity 3) confidence 4) values and 5) perceived barriers.

Methods: An electronic survey adopted from the ASK NCP (Australian Dietetic Association survey) was distributed to all 50 RDs within EH. This survey uses multiple choice, the Likert Scale, and open-ended questions to collect descriptive data. The Statistical Package for the Social Sciences (SPSS) was used to summarize the data.

Results: Forty-four RD's (88%) participated in the study; 66% had more than 11 years of experience in the field of dietetics. The majority (76%) were familiar with the NCP process. Six (16%) scored 100% in the knowledge-related category, whereas 61% scored 70-90%. Overall, 47% did not feel confident to implement NCP and 67% did not value the importance of NCP in their practice. Several barriers for using NCP were identified by 79% of participants. Additional comments for not implementing NCP included 1) limited support and time 2) limited training and 3) unrecognizable language to other healthcare professionals.

Conclusion: The majority of participants were knowledgeable and familiar with the NCP, but not confident in its use. RD's did not value its importance in practice and identified several barriers for complete implementation.

Significance to the field of Dietetics: To move forward with the NCP adoption and implementation, the NCP leadership team may consider providing further support and training to EH RDs to meet their needs. This information also provides considerations for other RDs interested in adopting and implementing the NCP within their practice area.

Topic Area: School Nutrition

Abstract Title: Identification of benefits and barriers to the implementation of school breakfast programs: The role of parental perception
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Introduction: School breakfast programs (SBPs) can help reduce the incidence of breakfast skipping. Caregivers have an influential role in a child's eating behaviours and food choices, meaning that it is possible that caregiver perceptions about the program could determine whether or not children participate.

Objective: To obtain caregivers' perspectives on (1) benefits of and barriers to the current SBP operation in Halifax, NS; (2) effectiveness of the current breakfast program operations; and to propose recommendations to improve the delivery of school breakfast programs in Halifax.

Methods: A single focus group comprised of two subgroups was conducted with parents of school-aged children who regularly participate in a SBP (n=4) and those who do not participate on a regular basis (n=4). A student researcher facilitated the focus group using a focus group guide. Audio transcripts of the session were examined and interpreted by two student researchers.

Results: Caregivers of children who attended the SBP frequently displayed a greater understanding of the operation of SBP compared to the caregivers whose kids did not attend regularly (51% vs 15% of responses). Of those who identified as not actively participating in SBP, 57% of responses suggested that caregivers/children may not attend because no program is available, or they are unaware that there is one available. Caregivers identified that there is a need for more communication between SBPs and caregivers. Caregivers provided insight on stigmatism present in schools and it can be decreased.

Conclusion: Continuing to educate parents about SBPs could increase the likelihood that caregivers will access this service. Caregivers should be provided with information about how to access the program. Standardization of SBPs across a region could be a method of improving the delivery of SBPs, eliminating stigma, and increasing the attendance at SBP's.

Significance: This study can serve as the basis of larger more rigorous SBPs.

Abstract Title: 3D food printers: Toward enhanced consumption of pureed diets in long term care (LTC)
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Objectives: Pureed texture diets are used in LTC settings to facilitate food intake for those living with swallowing difficulties. A challenge is that pureed foods can lack visual appeal, impeding food intake. 3D food printers allow users to print pureed foods in any desired 3D food shape, thus enhancing visual appeal. The objective was to conduct a literature search to explore the use of 3D food printing to create familiar food shapes, and the links between food appearance and food intake for people on pureed texture diets.

Methods: Resources reviewed were those describing additive manufacturing (adding layers of product to produce the final shape) and applying this process to food, and those exploring the relationship between pureed diets, visual appeal, food consumption, and risk of malnutrition.

Results: Residents on pureed diets experience decreased energy intake, perhaps related to the unappetizing appearance. A challenge associated with serving pureed foods in LTC is overcoming the negative views of staff and residents that these foods are unappetizing. This can affect the caregivers' feeding interest as well as residents' eating experiences. Projects involving 3D food printing in LTC facilities have had positive feedback owing to the superior appearance of food products. 3D printed foods offer the opportunity to enhance visual appeal of pureed foods, and increase food intake. **Conclusions:** More research is necessary into the feasibility of using 3D food printers in LTC from the perspectives of residents, families, and staff, and the effects of using 3D printed foods on perceptions about pureed foods, residents' consumption, and malnutrition rates.

Significance to the field of Dietetics: 3D printing technology is an emerging tool that has potential to transform food service in LTC that shows promise to enhance the appearance of pureed food to address malnutrition in LTC.

Topic Area: Undergraduate Education and Dietetic Internship

Abstract Title: Evaluating the Health at Every Size® Curriculum for Use as a Weight Bias Reduction Tool with Canadian Dietetic Students Mills C¹

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Objectives: To determine if the Health at Every Size (HAES) curriculum could serve as a weight bias reduction tool for dietetic students in Canada.

Methods: A search of academic literature and grey literature was conducted to determine best practices in weight bias reduction interventions. Google Scholar and the keywords "weight bias reduction" were used. A total of 261 articles were identified; of these six described best practices for weight bias reduction. The HAES curriculum was then evaluated using these best practices. The curriculum was also compared to the foundational knowledge required of Canadian dietetics students in order to determine its suitability for use in undergraduate programs.

Results: The HAES curriculum includes many of the components required for effective weight bias reduction interventions, such as including information on weight bias, focusing on health not weight, and the use of multiple strategies. However, it is missing some important pieces, including an in-depth look at the etiology of overweight and obesity. A number of the concepts it covers would also allow undergraduate students to acquire some of the foundational knowledge required for entry into dietetic practice.

Conclusions: The HAES curriculum could be used as a weight bias reduction tool in Canadian dietetics programs. However, it would be strengthened by including more information on the etiology of obesity, discussing common obesity myths and stereotypes, and profiling individuals who challenge those stereotypes. Canadian information and examples should also be included.

Significance to the field of dietetics: Studies have shown that weight bias occurs among dietitians and dietetics students. Since weight bias has numerous negative consequences for clients, it is important to reduce the prevalence of weight biased attitudes in dietetics professionals. The HAES curriculum, with some modifications, could be incorporated into undergraduate dietetics programs in Canada and serve as a weight bias reduction tool.

Abstract Title:

The use of simulations in dietetic education programs: A literature review

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Objectives: The aim was to review published studies on the use of simulations as a teaching and assessment method in undergraduate or graduate dietetic education programs.

Methods: MEDLINE, EMBASE, CINAHL and Education Source databases were searched (February 2016) with the keywords simulation or [standardized or simulated] patient or “objective structured clinical exam”, and [diet or nutrition] student or intern or education or program. The search was limited to articles published 1990-2016 in English or French. Selection criteria included: articles on all types of simulations, nutrition/dietetic students/interns and any type of research.

Results: Fifty of 276 articles were selected for full screening based on inclusion criteria. Those studies revealed that various types of simulations are used as a teaching method in dietetic programs. Objective Structured Clinical Examinations (OSCEs) have been researched the most (n=10). This may be explained by the utilization of OSCEs in other health disciplines such as medicine and nursing. Furthermore, the use of standardized patients was the second most frequent type of simulations reported (n=8). Eleven out of fourteen studies that evaluated student’s satisfaction regarding simulations reported that they were perceived as a valuable learning experience. Simulations in dietetic programs were mostly used to practice communication and counselling techniques. In most studies, except OSCEs, the assessment of the learning experiences was based on students’ perspective and not on the measurement of competency performance indicators.

Conclusion: According to these results, some dietetic programs are using simulations as part of OSCEs and/or with standardized patients. Although simulations are often being used to practice communication skills, their impact on developing competencies has yet to be documented using objective performance indicators.

Significance to the field of dietetics: It is important to understand how dietetic education programs use simulations and how they may optimise attainment of learning outcomes. (Funding: CNFS–volet Université d’Ottawa)

Abstract Title: Observation of mealtime environments in Northern Health long-term care facilities: Dietetic intern research project
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Objective: Globally, malnutrition affects 12-54% of residents in long-term care (LTC). A primary cause of malnutrition is poor dietary intake. The mealtime environment (i.e., social interactions, eating assistance, and physical environment) can affect residents' intake, but little is known about the mealtime environment in Northern Health LTC homes. The objective of this study was to observe the mealtime environment in two Northern Health LTC homes to identify current strengths and areas for improvement.

Methods: A naturalistic observational study was conducted at two LTC homes in northern British Columbia. In one dining room at each facility, two trained raters assessed mealtime practices in three domains (social interactions, eating assistance, and physical environment) using a modified version of the CHOICE+ Mealtime Practices Checklist. This checklist includes mealtime practices associated with person-centered care. Nine meals were observed at each facility. For each mealtime practice, raters recorded the proportion of meals at which the practice was observed. Interrater agreement was assessed by calculating percent absolute agreement.

Results: All raters observed the following practices during at least 67% of meals: 1) staff addressed residents respectfully, 2) food was served in a timely manner, 3) staff supported residents to dine at their own pace, and 4) residents were included in social conversations. The least frequently observed practices (fewer than 20% of meals) included 1) asking residents if they wanted a clothing protector, 2) offering residents their choice of beverage or first course, 3) delivering medications before meals, and 4) playing music in the dining room.

Conclusion: Many of the mealtime practices on the CHOICE+ checklist were regularly observed at both LTC homes. Potential areas for improvement were also identified.

Significance to the field of dietetics: The results of this study will inform quality improvement initiatives to enhance the mealtime environment in these Northern Health LTC homes.

Abstract Title: Healthy and Sustainable Eating on Campus: An Examination of a Novel Policy Alternative
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Objectives: The purpose of this study is to critically examine the role of interests and ideas in the development of a student-led food policy initiative launched at Ryerson University in 2016. *Thrifty Fifty* (TF) aims to support healthy and sustainable decision-making concerning food catering for campus events by promoting a desired minimum of plant-based food. Nutrition advocates (NA) are seeking a commitment from the Ryerson community to provide at least 50% plant-based food at catered events and functions involving food. The goal is to promote inclusivity, cost savings, environmental protection and health.

Method: Informal discussions with students and faculty identified concerns with food waste and inclusivity and confirmed an urgent need to stimulate discourse about sustainability. Further exploration included consultations with Ryerson's Sustainability Office and its food service provider. Influential student groups and student champions were identified and informally interviewed as a key step in recruiting supporters. A focus on shared values between NAs and student groups was critical for successful recruitment of supporters.

Results: Content analysis revealed that students want to support healthy, inclusive and sustainable food choices but need implementation guidance from NAs. In 6 months, 7 student groups representing more than 35,000 endorsed TF.

Conclusion: TF shows that a few individuals can inspire and mobilize large student bodies to create a movement with powerful legacy for human and planetary health.

Significance: A better understanding of the interaction between interests and ideas can inform the process used by NAs to address food-related issues. The adoption of a plant-based minimum policy is consistent with recent shifts in dietary guidance, Meatless Mondays and organizational actions within Canadian dietetics to examine sustainable eating. Results from this study can provide critical insight into the practical training of nutrition students through participatory action research and can inform the work of other interest groups.

Abstract Title:

Dietitians' use of integrative medicine principles
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Objective: The objective of this project, conducted for Senior Seminar, the capstone course for the Bachelor of Science in Nutrition, was to conduct pilot interviews with purposively identified Canadian dietitians on how they use principles of integrative medicine and to compare their perspectives to what was reported in the literature.

Methods: Four participants were located through the Dietitians of Canada member directory or the Integrative and Functional Nutrition Network using search terms including 'mindful' and 'integrative', and interviewed by telephone or Skype. Content categorization was performed on the interview material and four themes emerged: building relationships with the client; focusing on the whole person; using practices informed by evidence; and implementing all appropriate therapeutic approaches.

Results: Participants built relationships with clients by viewing the client as partner, being non-judgmental, and using motivational interviewing. When focusing on the whole person, participants identified the importance of the mind-body connection. Practices included mindful eating, body acceptance, yoga, and meditation. All participants used practices informed by evidence, notably with recommendations for natural health products. Participants indicated that when using practices for which there is not yet an evidence base, they inform clients of the potential benefits, and recommend proceeding only if no harm might arise. When issues arose that were outside of the participants' scope of practice, they made referrals to other care providers. Participants stated that they believed that integrative approaches increased the efficacy of their work. These findings are consistent with the principles of integrative medicine. **Conclusions:** Participants used methods within every category of integrative medicine consistent with the literature.

Significance to the field of dietetics: The principles of integrative medicine offer a framework for dietitians to consider incorporating into practice. Questions arising for further research are what classifies a dietitian as an integrative practitioner, and how many dietitians identify as such?

Topic Area: Vulnerable Groups and their Nutritional Needs

Abstract Title: Vitamin and mineral supplement use by older adults with complex medication needs: Potential for adverse drug-nutrient interactions
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Objective: Vitamin and mineral supplements have been increasingly available for decades. The increase in availability of supplements and their use in combination with prescription drugs suggests that the risk of an adverse drug-nutrient interaction has drastically increased. This is especially concerning in populations with greater medication use. The purpose of this study was to assess vitamin and mineral supplement use in older adults with complex medication use to identify supplement overuse and use from multiple sources. The results of this study will aid in identifying potential adverse drug-nutrient interactions.

Methods: A retrospective chart review was completed on 229 medically-complex patients 50+ years of age who had new medication assessments completed between January 2014 and January 2017.

Results: Data indicate that 76% of patients (mean: 69 years) reported using ≥ 1 vitamin and/or mineral supplement daily. Total product count (oral prescriptions, over-the-counter (OTC) products, dietary supplements) ranged from 1-48 per day, with a mean 10 and median of 9. The tolerable upper intake level (UL) for nutrients was exceeded by 33% of reported supplement users. One case exceeded the UL for 6 different nutrients, from supplemental intake alone.

Conclusions: Vitamin and mineral supplement use in conjunction with prescription drugs and OTC products was observed in this population, with reported intake of many supplemental nutrients that exceeded the UL.

Significance: This study sought to identify data needed to investigate the potential for adverse drug-nutrient interactions. Additionally, the data from this study will aid in the development of resources aimed at maximizing the benefits of vitamin and mineral supplements while mitigating the potential effects related to overuse of these supplemental nutrients. The population captured in this study represents a difficult to reach population as they are community dwelling individuals with complex medical histories.

Abstract Title: Congenital heart defects: Personalized nutritional care plans to promote healthy growth and development
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Objective: The objective of this research was to explore and raise awareness of the relationship between congenital heart defects (CHD) in infants and their nutritional requirements that, in turn, affect their growth and development.

Methods: For Senior Seminar, the capstone course in the Bachelor of Science in Nutrition, a literature review was conducted on the relationship between CHD in infants and nutritional care guidelines. Resources from the Canadian Heart and Stroke Foundation and the American Heart Association contained general information on CHDs in infants and nutritional needs. Review of resources located using the terms 'congenital heart defect', 'infant nutrition', and 'failure to thrive' (FTT) revealed that personalized nutrition care plans are important when feeding infants with a CHD.

Results: Depending on the severity of CHD, various factors can alter how an infant will consume and absorb food and nutrients, affecting growth and development. These include greater caloric needs and poor appetite, breathing difficulties, and gastroesophageal reflux disease. Increased caloric needs and difficulties feeding can lead to malnutrition and FTT. High density formula (about 0.40 kcal per ml higher than standard formulae) can help increase nutrient intakes and promote weight gain. If oral feeding is not adequate, nasogastric feedings may be used to help reduce the risk of FTT.

Conclusion: In addition to energy needs, continued research is needed to establish standard macronutrient ranges for infants living with a CHD to prevent malnutrition and FTT. When infants living with a CHD consume the nutrients they require, they grow and live normal lives.

Significance to the Field of Dietetics: These findings are significant because dietitians' need to know how to properly screen and detect these issues so that a nutritional care plan can be put in place. Early detection and intervention is important when screening for feeding difficulties to prevent malnutrition.

Abstract Title:

I have multiple sclerosis, why do I need a dietitian?

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Objective: The objectives of this research were to conduct an in-depth interview with a person living with multiple sclerosis (MS), analyze interview material, and, based on the findings, determine the potential role of Registered Dietitians (RDs) within the circle of care. This research was completed for Senior Seminar, the capstone course for the Bachelor of Science in Nutrition.

Methods: An unstructured interview was completed with a person known to the researcher who had been diagnosed with MS in the preceding 24 months. The participant was asked to describe his experiences pre and post-diagnosis with health care providers, whether or not he had been referred to or consulted with an RD, and to describe any remaining nutrition-related concerns.

Results: The participant described a negative experience obtaining a diagnosis with MS at a specialty clinic, and frustration with drug therapies being the only offered treatment method. Although the participant had many questions about the validity of nutrition information from various sources related to MS, an RD was not on staff at the clinic, nor was consultation with an RD recommended. The participant chose a Naturopathic Doctor as his primary care-giver. An RD's specific skill-set could have been beneficial in providing nutritional care and recommendations, as well as interpretation of available nutrition information and advice.

Significance to the Field of Dietetics: The participant expressed a need to find positive, client-centered, well-informed nutritional care upon diagnosis. This raises questions about the experiences of others living with MS, and whether an RD might be of value in providing nutritional care from the time of diagnosis throughout disease progression. **Conclusions:** Further exploration is needed about the value of including an RD's specific skill set within the circle of care for those living with MS, and approaches to advocacy for their inclusion.