

Canadian Foundation for Dietetic Research Dietetic Research Event – June 16-17, 2011

I wish to welcome everyone to Edmonton and the 2011 Dietitians of Canada Annual Conference Research Event. This year we have over 600 participants attending the conference with over 80 research posters and oral presentations that span topics from clinical nutrition to food policy to research methodology to community nutrition and dietetic practice and education. This year the breath of research was very strong indicating the strong role that dietitians play in conducting evidenced based nutrition research that supports dietetic practice in all areas or professional practice. I wish to congratulate each and every presenter for sharing their research and for all their hard work.

This year we will continue with the Poster Tours. These tours allow each presenter to discuss the highlights of his/her research under the guidance of one of the abstract review committee members and/or graduate students. These sessions are very interactive and also provide those attending the tours the opportunity to network with other dietetic researchers in Canada. We hope that you will enjoy these tours once again.

On behalf of the membership of Dietitians of Canada, I would like to thank the Abstracts Review Committee members who took the time from their busy schedules to provide their expertise to review these abstracts. Our abstract committee represented a broad spectrum of dietetic expertise from professional practice sectors across Canada. I wish to thank them for their hard work. Thanks go to: Dr(s) Kate Storey, Laura Forbes, Justine Turner, Anna Farmer, Michelle MacKenzie, Vera Mazurak and Heidi Bates from the University of Alberta, Lyn Zuberbuhler and Tanis Fenton from Alberta Health Services, Alice Lee from Covenant Health, Roula Tzianetas from Mount Sinai Hospital, Roseann Nasser from Regina Qu'Appelle Health Region, Dr Christine Lengyel from the University of Manitoba and Dr. Frances Rioux from the University of Ottawa. I would also like to acknowledge the Canadian Foundation for Dietetic Research and Dietitians of Canada for their ongoing support of practice based research in Canada and for their vision of supporting dietetic training and research in this important area of practice.

Please join me in celebrating Canadian Dietetic Research by attending the poster presentations on Thursday and Friday (June 16th and 17) and the oral presentations on Friday June 17th in the afternoon.

Dr. Diana Mager
Abstract Review Committee Chair, 2011

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These abstracts represent research projects of dietitians that were accepted through a peer-review process for presentation.

*Indicates the presenter

[R] = Research abstract

[E] = Experience-sharing abstract

POSTER RESEARCH PRESENTATION ABSTRACTS

THURSDAY JUNE 16 & FRIDAY JUNE 17, 2011

Research Methodologies

Cooking as inquiry: a method to stir up prevailing ways of knowing, food, and bodies

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Objectives: This work describes a novel research method known as Cooking as Inquiry that explores how we may 'come to know' through cooking together. By engaging in Cooking as Inquiry, we come to understand how art-making through meal-making reveals our desire, emotionality, power, and bodily authorities and the parallel ways in which we enact these subjectivities in classrooms and other spaces wherein our bodies, selves, and possibilities for action are constrained by positivist knowing. **Methods:** In carrying out this work, the authors (a professor and her former student) use cooking together as a means of shining light on otherwise secreted identities, and as yet unspoken relations of power. **Results:** The themes discussed during the cooking form the basis of the session including how we may 'come to know' through cooking together. **Implications & Conclusions:** This method, informed by Anzaldúa's (1999) notion of "invoked art" and collective biography (Davies and Gannon, 2006), 'stirs the pot' by disrupting notions of self, food, and cooking as forms of political and mundane art created both in our kitchens and the academy.

Team-based approaches to qualitative data analysis: the collaborative retreat.

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Objectives: The experiences of a team of researchers is described as they undertake a collaborative qualitative study exploring beginning dietitians' life experiences and the meaning ascribed to those experiences in the context of dietetic practice. **Methods:** Data were collected using Seidman's three step in-depth phenomenological interviewing method. One member of the research team interviewed twelve beginning dietitians who were graduates of three participating dietetic programs that had three different routes to licensure. **Results:** This team-based approach is a writing and data analysis technique described as the Collaborative Retreat that facilitated researchers' collective organization, discussion, analysis and decision making around a highly complex qualitative data set. The use of a virtual research environment facilitated the sharing of data including interview audios, transcripts, initial analysis, notes and memos prior to the Collaborative Retreat. A listening guide facilitated researchers understanding and interpretations of participant voices. Team members participated in activities, for example, storytelling,

writing and sharing resources to create a mutually-supportive environment for analysis. The research team brought multiple perspectives to the process which enriched and deepened the meanings contained in the interview data. **Implications & Conclusions:** The overall collaborative qualitative research process was positive and self-fulfilling resulting in multiple benefits for team members individually and for the research project collectively. Researchers were able to work through methodological and theoretical issues as they arose with the assistance of technology, writing, listening and dialogue. An unexpected benefit was that of mentorship. Relationship building and maintenance emerged as critical to the success of the research process. Collaborative research teams that are committed to listening, writing and dialogue can be a productive site of knowledge generation and mentorship. The collaborative research relationship helps to enhance the capacity of qualitative research in dietetic practice.

A picture speaks a thousand words: using photovoice in nutrition and dietetic research.

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Purpose: Photovoice is an arts-informed, participatory-based methodology that uses the visual image to enrich qualitative research. There is a perceptible gap in the literature since Photovoice has yet to be applied in nutrition and dietetic research (Martin, Garcia, & Leipert, 2010). The effective utilization of this method in health and public health research demonstrates that its application in nutrition and dietetic clinical settings, community settings, and everyday practice could benefit the profession (Martin et al, 2010). **Process or Content:** The theoretical literature on education for critical consciousness, feminist theory, ethnography, and documentary photography grounds the Photovoice method (Wang & Burris, 1997). Photovoice places cameras in the hands of community members to complete a needs assessment from their perspective. The subsequent participatory analysis is a 3-stage process that contextualizes the photographs through narratives and identifies emerging themes. This promotes a critical dialogue among and between community members and academics. Ethical representation of community members' views is especially powerful in communities that have been previously marginalized by class, race, or gender inequities. **Project Summary:** Although highly adaptable to different communities, Photovoice itself has three main goals: to enable community members to record their community's strengths and concerns, to promote critical dialogue and knowledge about important community issues through group discussion of photographs, and to reach policymakers (Wang & Burris, 1997). Together, participants and researchers can plan actions to transform conditions and structures that require changing in nutrition and dietetics. **Recommendations & Conclusions:** In Photovoice, images and the photography process are relational, contextualized, and embodied activities in much the same way as dietitians' work in "producing, distributing, and using food (DeVault, 1999, p.149). There are suggestions to use Photovoice to explore community issues related to food and nutrition. Photovoice could also be applied directly within the various sectors of the dietetic community to explore organizational structures. Photovoice has great potential to inform nutrition and dietetics policy, practice, and education (Martin et al, 2010).

Validity and reproducibility of a food frequency questionnaire to assess dietary intake in college students from Hidalgo, Mexico

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Purpose: To assess the reproducibility and validity of a 114 item semi-quantitative food frequency questionnaire (FFQ) designed to assess dietary intake in college students from Health Science Institute of Autonomous University of Hidalgo **Process:** To test the reproducibility, a FFQ was applied to a randomized convenience sample of 132 students, aged from 18 to 23 years (X=20.48; SD=1.206), stratified by sex and professional course (55% females; 45% males). FFQ was administered twice at an interval of six months. To evaluate the validity we compared FFQs vs. six 24-hour recalls. Geometric means of daily caloric and nutrient intake were calculated to reduce skewedness. Energy-adjusted nutrients were obtained as residual of each nutrient regressed on caloric intake. Pearson's and intraclass

coefficients were calculated to assess reproducibility of the FFQ. To examine the validity of nutrient values, derive from the first and second FFQ, and the average of six 24-hr recalls were used the same correlation coefficients. Food Processor SQL was used to obtain nutrient content. **Results:** Geometric mean values for intake of nutrients assessed by the two FFQs were similar. However mean of the six 24-hr recall was significantly lower. Intraclass correlation coefficients for selected nutrient intakes, assessed by FFQs ranged from 0.28 for carbohydrate to 0.71 for vitamin B12, all $p < 0.05$. Only carbohydrates, vitamin C, and iron intakes had significant intraclass correlations between FFQs and the average of 24h-recalls, $p < 0.05$. **Recommendations & Conclusions:** Study indicates that this semi-quantitative FFQ is reproducible and provides a useful estimate of nutrient intake in young adults. However, its application in different populations will require additional modifications and validation efforts.

Wellness and Public Health

Using social media to promote eating together

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Purpose: To promote eating together among intergenerational families with children aged 5-15 using social media. **Process:** Better Together (BT) is a provincial initiative to help families get started on eating together. Based on prior BT research on family meal behaviour, a BT identity and website were developed (bettertogetherbc.ca). To extend BT audience reach, a social media agency launched a Facebook page, Twitter account, and weekly blog. Weekly Facebook prizes helped to drive traffic to the website culminating in the online Hands-on Cook-off Contest, where short home videos were submitted in celebration of making meals together. **Project Summary:** The social media hub has grown steadily, with an average monthly growth of 20% in the first five months. Twitter followers share our message with their followers reaching over 20,000 people. On Facebook, messages are shared with >600 fans, who are increasingly active on the page, reaching thousands and helping grow the community. The contest directly engaged ~10,000 people, who viewed and voted for the submissions. The indirect reach is far larger. The 26 video entries remain the property of BT and can be used as examples of how to engage children in cooking. **Recommendations & Conclusions:** The use of social media has brought significant gains to the BT initiative. Facebook fans and Twitter followers continue to increase and the regular BT blogs are successful at driving traffic to the website. Average time on the website continues to increase. Website statistics confirm that website traffic responds to activity in the social media forum. A future in-depth evaluation is necessary to truly understand the impact of participation in these social media strategies.

Colorectal and stomach cancer mortality in relation to plant-based food intake in Canada (1981-2007)

M Jessri, A Farmer, B Rashidkhani. University of Alberta, Edmonton, AB. [R]*

Objectives: Over the past 30 years, mortality rates from stomach and colorectal cancers have declined in both sexes in Canada. The objective of the present ecological study was to examine whether changes in dietary patterns correlate with the declining mortality rates from these two digestive cancers. **Methods:** Food availability data of the United Nations from 1981 to 2007 were correlated with age-standardized mortality rates for colorectal and stomach cancers from the Canadian Cancer Statistics in males and females separately. **Results:** During the 27 years of study, contribution of vegetable-based food products to total energy intake has increased by 36.33% in Canada ($p < 0.001$). Among all the food groups, pulse consumption has had the most significant increment rate (138.7%), followed by nuts (106.2%), cereals (58.5%), vegetables (17.1%) and fruits (14.6%). Higher intake of plant-based products in general was

significantly and negatively correlated with colorectal ($r \geq -0.929$) and stomach ($r \geq -0.946$) cancer mortality ($p < 0.001$). Vegetable-based products were estimated to account for $\geq 86.3\%$ of the variability in stomach and colorectal cancer mortality between 1981-2007. Cereal consumption had the largest significant correlation with colorectal ($r \geq -0.923$, $p < 0.001$) and stomach cancer mortality ($r \geq -0.919$, $p < 0.001$) among both genders. This was followed closely by higher consumption of pulses ($r \geq -0.778$, $p < 0.001$), vegetables ($r \geq -0.720$, $p < 0.001$), fruits ($r \geq -0.573$, $p < 0.001$) and nuts ($r \geq -0.382$, $p < 0.001$). **Implications and conclusion:** Changes in dietary pattern seem to play an important role in declining the mortality rate from digestive cancers in Canada. Although various plant-based foods impact cancer risk differently, the overall benefit of a plant-based diet, containing anti-cancer and anti-inflammatory phytochemicals, for cancer prevention and mortality should be prompted. Dietary habit modification to include more plant-based foods would probably be a promising approach.



The Agricultural Institute
of Canada Foundation

Acknowledgment: Mahsa Jessri is supported by a travel fund from “The Agricultural Institute of Canada Foundation” through the “International Union of Nutritional Science Fund”.

Do milk, meat and vegetable oil intake increase the prostate cancer incidence among Canadians?

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Objectives: Prostate cancer is the leading type of cancer in Canadian men and since 1981 to 2007, age-standardized incidence rate of prostate cancer has increased by 1.5 fold in Canada. The objective of this study was to determine whether variations in prostate cancer incidence in Canada correlated with primary risk factors for prostate cancer, such as milk, meat and vegetable oil intake. **Methods:** Age-standardized incidence rates for prostate cancer since 1981 obtained from the Canadian Cancer Statistics 2010 were correlated with the United Nation’s food availability data from 1981 to 2007. **Results:** Since 1981, energy intake from vegetable oil, organ meats and total meat in Canada has increased 1.74, 1.50 and 1.03 times, respectively, while milk consumption has dropped by 1.25 times during the same period. The largest correlation coefficients were associated with consumption of vegetable oil ($r=0.817$), total fat ($r=0.747$) and organ meats ($r=0.662$), while milk consumption was inversely associated with prostate cancer risk ($r=-0.857$), and total meat consumption did not emerge as a significant risk factor. Vegetable oil, milk and organ meat were estimated to account for 70.3% of prostate cancer incidence between 1981-2007. **Implications and conclusion:** This study revealed strong positive association between prostate cancer incidence and consumption of vegetable oil, total fat and organ meats; while an inverse association was observed between dairy intake and prostate cancer risk. Considering the decreased intake of dairy products and increased consumption of fat and meat since 1981 among Canadians, developing public health messages to increase acceptability of dairy products as well as implementing programs and policies to facilitate the availability of this food group to Canadian population seems essential.



The Agricultural Institute
of Canada Foundation

Acknowledgment: Mahsa Jessri is supported by a travel fund from “The Agricultural Institute of Canada Foundation” through the “International Union of Nutritional Science Fund”.

Increasing customer satisfaction by initiating and marketing the *Eat Smart!* Program in a hospital-based cafeteria: A quality improvement initiative

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Objectives: The *Eat Smart!* (ES) nutritional standards were implemented at a hospital cafeteria to identify and market healthier options while engaging and educating customers and staff. **Methods:** A multi-channelled marketing plan was initiated using all elements of the marketing mix: product, place, price, and promotion. Product changes included increasing whole grains and the addition of steamed

vegetables and low-fat cheese. Point of purchase messages and table tents were placed throughout the cafeteria, and menu boards were refreshed to clearly identify healthier choices. As price is often a barrier to healthy eating, prices were reviewed to ensure that healthier options were priced equally or lower than comparable products. Promotion was the most significant component, and included: 1) redesign of the menu boards; 2) creating a Healthy Eating Zone; 3) infield promotions; 4) print media; 5) online communications; 6) staff education; and 7) program launch event. **Results:** The *Eat Smart! (ES)* program offered a new direction for the hospital cafeteria, providing benefits such as: third party recognition, marketing materials and built in sustainability through annual renewal. Questionnaires were distributed at the event to determine customer response: 82% of respondents consider nutrition when buying food in the cafeteria and 93% said they would alter their selections following *ES*. The positive response suggests that *ES* improved customer satisfaction. **Implications and Conclusions:** To ensure program sustainability, staff ownership is crucial to maintain the nutrition standards and customer trust. Education of staff and customers is essential for program longevity and marketing content should be updated regularly to maintain interest. A formal evaluation should be conducted to assess program effectiveness.

Determinants of Food Choice/Dietary Intake

Factors influencing pulse consumption in Canada

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Objectives: To better understand and evaluate the key factors that influence consumers of pulses (beans, peas, lentils and chickpeas) in Canada. The key areas of focus include: a) the types, frequency and form of pulses purchased and eaten; b) motivators and barriers to eating pulses, c) the influence of information. The results of this research will be used by industry associations or other interested stakeholders to form targeted marketing and promotional material. **Methods:** Two approaches were used: a) Quantitative Research - Online survey with a National sample of Canadian adults and a targeted sample of South Asians; b) Qualitative Research - Four focus groups with the general public, conducted in Edmonton and Toronto. **Results:** Approximately 60 per cent of Canadians consume pulses one-to-three times per month. Twenty per cent eat pulses on a regular basis, at least once a week; while only 20 per cent don't eat pulses at all. Taste and health benefits are the two most important factors cited by consumers. **Implications & Conclusions:** Albertans can benefit from the low-fat content and the source of protein that pulses provide. Their health benefits and variety of uses provide consumers with reasons to work pulses into their diets. The study segments consumers into five homogeneous groups of like minded or attitudinally similar people. It presents marketing ideas to address the needs of each consumer group, such as the need for information (personal or environmental health benefits), good recipes or greater availability of pulse products.

Food insecurity among Canadians receiving counseling for diabetes in a health care setting

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Objectives: This study determined the prevalence of food insecurity among clients with diabetes utilizing outpatient diabetes health care services for diabetes in a Canadian health care setting. **Methods:** The study participants were adults with diabetes mellitus attending individual counseling sessions at the Diabetes Hypertension and Cholesterol Centre (DHCC) in Calgary, Alberta. The 10 adult-referenced items in the Household Food Security Survey Module (HFSSM), a multi-item, validated tool for assessing household food insecurity, was verbally administered to clients by trained clinicians. **Results:** 371

subjects were assessed using the HFSSM. The prevalence rate of food insecurity was 18.4% (95% confidence interval 14.6% to 22.8%) and 81.6% of the respondents were classified as food secure. Of the total respondents, 8.4 % (n = 31) were categorized as moderately food insecure and 10.0% (n = 37) as severely food insecure. **Implications & Conclusions:** This study demonstrated a higher prevalence rate of household moderate and severe food insecurity among these subjects with diabetes than reported in national prevalence surveys. The high rate of severe food insecurity, indicating reduced food intake and disrupted eating patterns, in this population is a concern. Severe food insecurity has implications for the ability of this population to follow a recommended pattern of healthy eating necessary for effective management of diabetes. This study reinforces the importance of assessing client's access to food and related supplies, and to consider food insecurity when providing nutritional guidance to assist patients manage their diabetes.

Diet approaches to increase lentil consumption in youth (D.A.I.L.Y.)

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Objectives: The DAILY project seeks to examine the differences between high (HIN) and low (LIN) income neighbourhoods in relation to the benefits and barriers to lentil consumption, nutrition knowledge of pulse foods, lentil consumption data and demographics in families with young children. **Methods:** Since children are dependent upon adults for food, a questionnaire was administered to caregivers using a convenience sample from six elementary schools in Saskatoon (n=401). Eligible caregivers had a child 3 to 11 years of age, were 18 years of age or older and had a role in meal preparation in their household. Participants used a five-point Likert scale (from agree to disagree) to rank 41 statements eliciting information about their beliefs around lentils. Belief (B) scores were calculated with high scores indicating more perceived benefits (fewer barriers). ΣB scores could range from 41 to 205. **Results:** The majority of respondents were aged 26 to 45 years (75.7% female, 58% HIN). Fifty-eight percent of respondents stated they "never or rarely" consumed lentils. Belief scores (mean $\Sigma B = 141.9 \pm 15.6$) were correlated to lentil intake ($r = 0.40, p < 0.01$) with top barriers being lack of knowledge on how to cook lentils (25.2%) and that family members will not accept lentils (21%). No significant difference was detected between HIN and LIN. **Implications & Conclusions:** Despite positive belief scores, there are clear barriers that need to be addressed when planning nutrition interventions geared at increasing lentil intake. Results suggest that interventions would benefit both families living in HIN and LIN.

Evaluating nutrient and food intake of North American infants and toddlers under 2 years of age: parallels for nutritional guidance of Canadian and U.S. children

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Background: In response to the rising childhood obesity epidemic and to fill public health and policy information gaps about what the youngest children are eating, the Feeding Infants and Toddlers Study (FITS) was developed. FITS is a large-scale, dietary survey providing valuable insights into dietary/nutrient intakes, gaps and changing trends of over 3,000 American infants and toddlers (0-48 months). This data has recently helped to shape public policy and recommendations in the U.S.. In Canada, the Canadian Community Health Survey, Cycle 2.2 Nutrition (CCHS, 2004), has also revealed valuable dietary insights for over 2500 infants and toddlers (0-3 years). **Purpose:** To evaluate and compare available CCHS and FITS nutritional adequacy/deficiency data for toddlers and young children, with the goal of developing nutritional guidance, especially for toddlers under the age of 2 years. **Process and Methods:** Analyses and comparison of available CCHS and FITS data, for evaluation of dietary intakes, habits and gaps of North American infants, toddlers and young children. **Project Summary:** Based on an adapted Healthy Eating Index (HEI), diet quality of Canadian toddlers and young children is higher than older demographics, but improvement is required in key areas. Canadian and U.S. children

have adequate intakes of key vitamins, however, there are issues with high sodium, and inadequate consumption of whole grain products, fibre, and inadequate fruits and vegetables, especially dark green and orange vegetables. **Recommendations and Conclusions:** This evaluation of dietary intake data demonstrates consistencies between Canadian and U.S. children and provides key, innovative information for dietary practice and policy recommendations, especially related to toddler nutrition with potential for future research.

Assessment of dietary intake of breastfeeding women compared to Canada's Food Guide and Canadian Community Health Survey Cycle 2.2

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Objective: To compare the dietary intake of breastfeeding women to the recommendations of Eating Well with Canada's Food Guide (CFG) and Canadian Community Health Survey (CCHS) Cycle 2.2 data.

Methods: Thirty-five (19 overweight and 16 healthy weight, mostly Caucasians), two-month postpartum breastfeeding women from London (Ontario) were asked to complete a 3-day food intake record, including one weekend day. These women were 32.8±3.9 (mean±standard deviation) years old (BMI: 24.9±4.0 kg/m²). Their average intake of food guide servings/day was compared to that of CCHS women (31-50 year old, majority non-breastfeeding) and to CFG, to see if breastfeeding women consumed the additional 2-3 servings/day recommended during lactation. **Results:** Breastfeeding women consumed 5.5±2.6 servings/day of vegetables and fruit (V&F). This intake was below CFG recommendation (p=0.001) and was about half a serving/day more than CCHS women. The breastfeeding women consumed 2.4±1.2 servings/day of milk and alternatives, which met CFG recommendation and exceeded the intake of CCHS women by almost one serving/day (p=0.00009). Breastfeeding women also ate 5.3±1.9 servings/day of grain products, which was below CFG recommendation (p=0.04). They met CFG meat and alternatives recommendation (2.5±1.2 servings/day) with intakes comparable to CCHS women. Overall, on average breastfeeding women consumed 2.2 CFG servings/day more than CCHS women.

Implications and Conclusions: Breastfeeding women consumed on average two CFG servings/day more than CCHS women; following the recommendation of having 2-3 additional CFG servings/day while lactating. The additional CFG servings/day were mostly from milk and alternatives and V&F. However, breastfeeding women's overall V&F and grain products servings/day consumed were below CFG recommendations. *Funded by CIHR.*

Barriers to milk product consumption among Canadians: Key learnings from consumer research

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Context: The Canadian Community Health Survey, which provides the latest data on Canadians' eating habits, clearly indicates that a large proportion of Canadians across all age groups are not meeting the minimum recommended number of daily servings of milk products. **Objective:** To understand the barriers to milk product consumption among Canadian consumers. **Methods:** Summary of the key findings from several consumer research studies undertaken by Dairy Farmers of Canada from 1997-2010.

Methodology used in the studies includes qualitative (focus groups) and quantitative designs (on-line surveys, telephone interviews) with a total of approximately 36,660 adults. **Results:** Perceptions regarding the fat/caloric content of milk products was one of the main barriers identified for not getting enough. Other key reasons include: lack of awareness that they are not consuming enough; lack of awareness of the many nutritional and potential health benefits that milk products provide; lack of understanding of what constitutes a portion size. For example, most yogurt consumers are surprised that 175 grams (versus the 100 gram size they are accustomed to) constitutes 1 serving as per Canada's Food Guide. Men perceive themselves as requiring less calcium than women. **Conclusions and Implications for practice:** Health concerns around fat and calories is a key barrier for adequate consumption of milk products. Education to increase awareness regarding under-consumption and

portion sizes as well as the many benefits that milk products provide is warranted. Special education efforts may be needed for men.

Clinical Research (including Outcomes of Interventions)

Identifying indicators of pediatric malnutrition in a tertiary care hospital

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Objectives: This study was conducted to examine the prevalence of malnutrition at a Canadian children's hospital based on available chart variables, to identify gaps in current practices, and to determine the rates and reasons for dietetic consult. **Methods:** A retrospective chart review of pediatric patients (1 month to 17 y) admitted during January and February 2010 was completed. Patients with a length of stay (LOS) <4 days and those with renal, cardiology, oncology, critical care or burn diagnostics were excluded. Variables included: patient characteristics, anthropometrics, diet order, rates and reasons for dietetic consult, biochemical, and gastrointestinal intolerance. **Results:** Eighty- three charts were reviewed (43 females, 40 males) with an average age of 7.3 years. Patients had weights recorded infrequently and only 19 patients had a discharge weight recorded. On average patients spent 24.9 hours NPO or "nothing by mouth" (with a range of 12-116 hrs). Twenty-three patients (27.7%) received a dietetic consult an average of 5.4 days after admission (a range of 0-23 days). Based on growth and/or progress notes, a high number of patients were identified as high risk but did not see a dietitian. **Implications & Conclusions:** A considerable number of pediatric patients who are at risk of malnutrition are not being identified, which may be due to a lack of accurate anthropometrics recorded on patient charts. The data from this study will be used to inform the development of better clinical practice guidelines that will ensure access to optimal nutrition care.

Foods fortified with functional fibre improve bowel habit in adults with chronic kidney disease

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Individuals with late stage chronic kidney disease (CKD) may have reduced intakes of dietary fibre from whole grains, fruits, vegetables and legumes due to diet restrictions and/or poor appetite, which may contribute to constipation and a reduced quality of life. **Objective:** The purpose of this study was to determine if commercially-available grain-based foods with added functional fibre improve bowel habit, gastrointestinal symptoms and appetite in adults with CKD. **Methods:** Consenting adults with CKD (n=15; 9F, 6M; 66±15 y) were provided 4 servings/d of commercially-available foods (cereal, cookies and snack bars) without added fibre for 2 weeks, followed by similar foods providing 23 g/d of functional fibre (pea hull, inulin, and soluble corn fibre) for 4 weeks. Participants completed a daily diary of bowel movement frequency and compliance. The Simplified Nutritional Appetite Questionnaire (SNAQ) and the Gastrointestinal Symptom Questionnaire (GSRS) were completed biweekly and weekly, respectively. **Results:** Participants consumed, on average, 2 servings/d of the study food providing 16.5 g added fibre/d. Daily bowel movement frequency increased from 1.2 ± 0.7 to 1.5 ± 0.7 (p<0.05). GSRS scores were not affected by fibre treatment. SNAQ scores did not change with added fiber, but suggested risk for future weight loss due to poor appetite in 7 participants with and without added fibre. **Implications & Conclusions:** Recommending foods with added functional fibre may be an effective means of increasing fibre intakes and improving bowel habit in individuals with CKD. Funded by the Saskatchewan Pulse Growers.

Characteristics and weight change of patients referred for weight management in an orthopedic clinic

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Objectives: The study was undertaken to evaluate dietitian services provided to a new orthopedic hip and knee clinic. The objectives were to describe the patient population and weight change of patients seen by a Registered Dietitian (RD). **Methods:** A retrospective chart review was completed for 147 of 376 orthopedic patients (surgical and non-surgical) seen by the RD between 2006 and 2008; patients with ≥ 2 visits with a RD were included. Demographic and disease related data included age, gender, surgical status, surgical site (hip or knee), number of RD visits, and number and types of co-morbidities. Weight change was the primary outcome evaluated. Data was analyzed using SAS (version 9.1.3). **Results:** Of the 147 patients, 95 (65%) were female and 108 (73%) were 45-65 years of age. Sixty-one (70%) patients had ≥ 3 co-morbidities; osteoarthritis was most common. The mean number of visits with the RD was 5 ± 3.5 visits. The mean initial BMI was 41.9 ± 6.5 kg/m² (range 28.6-65.9) and the mean weight change was -3.2 ± 5.2 kg. Weight change was associated with more visits with a RD ($p=0.01$) and non-surgical patients had significantly more visits ($p=0.007$). Age, gender and surgical status were not significantly associated with weight change. **Implications & Conclusions:** This study focused on a primarily middle-age, obese orthopedic patient population. The results demonstrated that a RD can assist surgical and non-surgical orthopedic patients achieve weight loss. Further research is needed to determine if weight loss is sustained and whether it is associated with improved surgical outcomes and quality of life.

Improved anthropometric indices and health practices in overweight and obese participants in the 12-week Steps to Less™ group weight management program.

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Many commercial weight loss programs exist, however evidence demonstrating effectiveness is lacking. The Steps to Less Group™ Weight Management Program (STL) at St. Michael's Hospital is a 12-week program involving weekly nutrition and fitness classes. **Objectives:** To determine changes in body weight and waist circumference at 12 weeks versus baseline. Secondary outcomes include changes in dietary energy intake, physical activity, quality of life (QOL) and achievement of personal health goals. **Methods:** All registrants for the January 2010 STL session ($n=37$) were invited to participate in this prospective, intervention study. Participants' weight and waist circumference were measured at baseline, week 7-8, and week 12-13. Dietary intake (3-day food record), physical activity (validated 7-day International Physical Activity Questionnaire), QOL (SF-36) and personal health goals were assessed at baseline and 12-13 weeks. **Results:** Twenty-six participants (51 ± 11 years, 89% female, BMI 35 ± 7) were recruited. Significant reductions in body weight (-3.2 ± 2.1 kg, $n=19$ $p<0.001$) and waist circumference (-5.3 ± 5.4 cm, $n=19$ $p<0.001$) were observed. Participants reported increased physical activity 437 ± 76.3 kcal/day ($n=6$; $p<0.001$) and decreased dietary intake 641 ± 749 kcal/d ($n=7$; $p=0.064$). All respondents ($n=11$) achieved at least one personal health goal, and there was no change in QOL ($n=7$). **Implications and Conclusions:** This study suggests the STL program effects significant reductions in weight and waist circumference and improved health practices in terms of physical activity and dietary intake. Future studies are needed to determine effectiveness at maintaining weight loss over the long-term.

A retrospective review of feeding practices in ICU following abdominal aortic aneurysm repair

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Introduction: Early enteral nutrition (EN) (≤ 48 hours of ICU admission) is recommended for general ICU patients and is associated with improved outcomes. Local quality improvement studies suggest post-surgical AAA patients had delayed EN compared to medical/surgical patients in ICU. Our objectives were to describe times to initiation of feeding, identify variables associated with early feeding (EF), determine if EF is achievable and tolerated and determine if EF was associated with reduction in mortality. **Methods:** A retrospective cohort was used to review records of post-surgical AAA patients admitted to ICU within 48 hours of surgery. Factors associated with EF were identified. Feasibility, tolerance to EF and nutritional adequacy were evaluated. **Results:** Only 35/145 patients received EF. Patients were at higher risk of no EF with open repair (HR=2.9, 95% CI=1.4-6.2, p=0.006), large blood loss (>4L) in surgery (HR=2.3, 95% CI=0.7-7.2, p=0.14), were female (HR=2.3, 95% CI=0.8-6.7, p=0.13), and had longer ventilation (>48 hr) (HR=2.2, 95% CI=1.1-4.8, p=0.048). Vascular surgeons had varying practice regarding EF, by EF between 4-33% of patients (p=0.043). Of 44 patients fed via EN, 27 achieved nutrition adequacy (>80% EN goal). Feed intolerance was similar between early and delayed EN groups (38% vs. 28%, p=0.54). Mortality was not associated with age, sex, type of surgical procedure, amount of blood loss in the OR, APACHE score, ASA score, duration of ventilation, or early feeding in the fully controlled model. **Conclusions:** EF was achieved in a minority of patients and was related partially to surgical characteristics and healthcare provider practices. Further studies are needed to determine safety and benefit of EF in this patient group.

Prevalence of fat-soluble vitamin deficiency in adults with liver cirrhosis undergoing liver transplant assessment

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Objectives: Patients with chronic liver cirrhosis are at high risk of developing protein-energy malnutrition (PEM) and fat-soluble vitamin deficiency (A, D, E & K) due to inadequate intake, increased energy expenditure, and malabsorption. The objective of this study was to determine the prevalence of vitamin A, D & E deficiency in patients with cirrhosis. **Methods:** A retrospective chart review (n=238) was conducted to assess vitamin A, D & E status in adults with cirrhosis undergoing liver transplant assessment at the University of Alberta Hospital (01-January-2009 to 31-December-2010). Primary outcome variables studied included serum levels of retinol, carotene, calcidiol and α -tocopherol, anthropometric (weight, height, BMI) and demographic (types of liver disease, disease severity as assessed by Model for End-stage Liver Disease/MELD) data. Nutritional status was assessed using Subjective Global Assessment (SGA; A=Adequate, B=Mild/Moderate, C=Severe). Data regarding vitamin supplementation were also collected (dose, type). **Results:** Mean (\pm SD) age, BMI and MELD were 52 \pm 11 year, 26 \pm 6.3, and 17 \pm 7.5, respectively. Causes of cirrhosis included viral hepatitis (n=109), cholestatic liver disease (n=38), alcohol induced (n=29), non-alcoholic steatohepatitis (n=16), other liver diseases (n=42; e.g. hemochromatosis, α 1-antitrypsin deficiency), and multiple liver diagnoses (n=7; co-infection of ≥ 2 liver diseases). Ninety-four-percent (n=221) of patients had plasma retinol <1.5-3.5 μ mol/L (0.6 \pm 0.5), forty-percent (n=93) had carotene <1-5 μ mol/L (1.3 \pm 0.9), ninety-percent had calcidiol <80-200 μ mol/L (44 \pm 27), and twelve-percent (n=28) had α -tocopherol concentrations <12-45 μ mol/L (20 \pm 10). **Implications & Conclusions:** Suboptimal vitamin A/D status is highly prevalent in patients with cirrhosis undergoing liver transplant assessment, particularly those with PEM. Routine monitoring of fat-soluble vitamin status in adults with chronic liver disease is warranted to assess and correct nutrient deficiency.

2007-2010 trends of risky factors associated to eating disorders in Mexican bachelor's students

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Objective: The purpose of this study was to determine the risky factors trends associated to eating disorders in a bachelor's students from an urban setting in Hidalgo, Mexico, in the period 2007-2010. **Method:** A school was censusing in 2007 and then in 2010. We paired two samples of adolescents (382 subjects each one; females 53%, males 47%); range of 15 to 19 years (X = 16.23; DE=0.997). Three

previously validated questionnaires in Mexican samples were used to assess sociocultural factors, disordered eating and body thin-ideal internalization. Body dissatisfaction was measured with a nine body images scale. To calculate Body Mass Index (BMI), each subject was weighed and measured. Chi-square and Pearson's correlation analysis were performed; comparisons by BMI, gender and age were realized. **Results:** Although some data were not significant the results showed an overall increase: in sociocultural factors, distress for body shape increased to 4.8% in 2007 to 5.2% in 2010; percentage of disordered eating increased from 2.9% in 2007 to 5.2% in 2010; body thin-ideal internalization increased from 14.9% in 2007 to 16.5% in 2010. Percentage of subjects with dissatisfaction in the sense to be thinner was the same in both years (39.8%). Findings showed a significant increase in males ($p < 0.05$). We found a positive relationship between BMI and disordered eating ($p < 0.01$), and when sociocultural factors increased, disordered eating and body thin-ideal internalization increased too ($p < 0.01$). **Conclusions:** These findings are a significant contribution in the research field of eating disorders in adolescents in Hidalgo, Mexico and it must be considered in the design of preventive programs on the future.

The prevalence of undernutrition: comparing the WHO growth standards to the CDC growth references in the pediatric outpatient setting

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Objectives: To determine if the proportion of infants ≤ 12 months of age diagnosed as failure to thrive (FTT) or undernutrition differs according to two different growth charts: the Center for Disease Control (CDC) Growth References or the World Health Organization (WHO) Growth Standards. **Methods:** A series of length/weight data was collected retrospectively for 28 infants diagnosed with FTT by a pediatrician. Weights for age/length for age percentiles were calculated using an electronic program and then plotted on the CDC and WHO growth charts. **Results:** Of the 28 infants, 79% were diagnosed as FTT on both the CDC and WHO charts. Twenty-one percent ($n=6$) were diagnosed as FTT on the CDC charts, but not considered FTT when plotted on the WHO charts. There were more diagnoses of FTT in subjects between six and twelve months of age ($n=16$), as opposed to subjects less than six months of age ($n=12$). Of the subjects diagnosed after six months of age, 69% ($n=16$) were exclusively breastfed up to six months of age. Of those exclusively breastfed, 85% were diagnosed as FTT on both the CDC and WHO growth charts, leaving 15% of exclusively breastfed subjects not diagnosed as FTT on the WHO Growth Standards. **Implications & Conclusions:** It was found that 21% of included subjects were not diagnosed as FTT when plotted on the WHO Growth Standards, but were diagnosed on the CDC Growth References. These preliminary results suggest that by using the new WHO Growth Standards in practice, pediatric growth monitoring of the exclusively breastfed infant after six months may result in fewer diagnoses of FTT.

Referral criteria in an interdisciplinary ambulatory dysphagia clinic

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Background: Dysphagia is highly prevalent in patients with chronic neurological disorders and can increase an individual's risk for co-morbidities such as aspiration pneumonia and malnutrition. Accurate assessment requires access to interdisciplinary health-care teams with specialized skills in the evaluation and management of dysphagia. To ensure optimal utilization of these services, it is imperative for physicians to refer appropriate patients. The aim of this study was to describe the referral criteria used in an outpatient dysphagia clinic and to examine if the referral tool used resulted in the appropriate patients being referred for dysphagia assessment and treatment. **Methods:** A retrospective chart review ($n=53$) of randomly selected patient charts (January 2008-December, 2010) was conducted. Primary outcome variables included demographic (age, primary diagnosis), anthropometric (BMI) and relevant

symptomology associated with dysphagia. Secondary outcome variables included nutrition care plans (e.g. texture modification), wait time to clinic visit, missed/cancelled appointments and referring health-care providers. **Results:** The mean age and BMI (\pm SD) of patients reviewed was 66 years (\pm 21 yrs) and 25.4kg/m² (\pm 6.3), respectively. The major reasons for referral included: a history of choking (24/53), coughing on liquids/solids/medications (21/53), known incidences of aspiration pneumonia/chest congestion (18/53), gastroesophageal reflux (14/53) and assessment/reassessment of aspiration risk with current diet order (12/53). Average wait times for routine clinic visits was 5.6 months (range 1-11 months) and 1.35 months (range 0 -2.5 months) for urgent assessments. **Conclusions and Implications:** Development of effective referral criteria for health care providers is essential to ensure that patients with swallowing disorders have timely access to assessment and treatment services.

Élaboration et validation d'un outil de dépistage du diabète de type 2 chez l'adulte et l'aîné

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Objectives: 1. Répertorier les facteurs de risque associés au diabète de type 2 (DT2) et déterminer les plus sensibles pour faire le dépistage; 2. Élaborer un outil de dépistage du DT2 simple et valide; 3. Étudier la validité interne de l'outil de dépistage (sensibilité, spécificité et sa valeur prédictive).

Méthodes: Étude transversale descriptive et corrélative réalisée dans quatre pays (Bénin, Canada, Cap Vert et Mexique). La population étudiée était de 717 sujets classés par pays en deux groupes (diabétiques et non diabétiques). Un sous groupe de sujets (35-60 par pays) a été testé par l'hémoglobine glyquée afin de valider l'ODD. Les données sociodémographiques et de santé ont été recueillies à l'aide d'un questionnaire et des mesures physiologiques (poids, tour de taille, taille et tension artérielle, glucose et cholestérol total). Le rappel de 24 heures a servi à collecter les informations alimentaires. Des analyses descriptives/corrélatives et de régression logistique ont permis l'identification des facteurs de risque les plus sensibles. **Résultats:** Dans tous les pays, les facteurs de risque les plus sensibles pour détecter le DT2 sont l'âge, l'indice de masse corporelle (IMC), le tour de taille, les antécédents familiaux de diabète et d'obésité. L'ODD constitué de ces facteurs de risque a une sensibilité de 87,9%, une spécificité de 84,2% et une valeur prédictive positive de 91,9%. **Implications & Conclusions:** Un outil simple et valide pour dépister le diabète de type 2 chez les adultes et les aînés est disponible pour permettre une prise en charge rapide des nouveaux cas. L'ODD s'avère un instrument indispensable pour la prévention et contrôle de la maladie.

Dietetics Practice and Education/Professional Standards

Soaring sea to sky: orientation of a long-service practitioner to a new public health dietetics position in a rural health unit - lessons learned

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Purpose: To orient a long-service practitioner, familiar with core competencies for public health nutrition, to a newly created role in a rural public health unit, serving the "Sea to Sky" communities of Squamish, Whistler and Pemberton. **Process:** From November 2010 through February 2011, staff working in Vancouver Coastal Health (VCH) public health program oriented a long service practitioner to the programs and communities in the Sea to Sky corridor. The orientation was multidisciplinary, delivered by the supervising Manager, a Public Health Dietitian, the Public Health Nursing Practice Leader, the Community Developer, and Administrative Personnel. **Project Summary:** Community contacts were facilitated through informal introductions (by email and in person) by the manager, the community developer and all staff. Initial contacts utilized snowball techniques to develop further contacts.

Orientation to service delivery models was provided by Community Nutrition co-workers, particularly those working in other rural areas of VCH. **Recommendations & Conclusions:** A rural setting's small circle of contacts enhances relationship building. Practitioners must be open to the exploration of new roles and to the provision of ongoing services. The setting contributes to an increased depth and breadth of practice: the need to be a "specialized generalist" – wide breadth of knowledge, but also some specialized clinical expertise. Orientation to organizational structures and "ways-of-doing-things" is important due to differences amongst regions within VCH and structures differing from prior employers. Future talk and discussion of expectations with community contacts facilitates commitment and trust from the community. This model of orientation contributes to positive practice outcomes and positive employee response.

"Goes down easy": an evaluation of a symptom-focused cancer cookbook

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Objectives: Over 50% of oncology patients experience nutritional deterioration and one-fifth of cancer-related deaths are attributable to malnutrition. Quality of life improves if symptoms can be alleviated and intake increased. "Goes Down Easy" is a unique cookbook, developed at Princess Margaret Hospital, to help people manage cancer side effects that can impact nutrition. Each chapter provides recipes and tips from oncology dietitians for a specific problem (anorexia, nausea, dysgeusia, mucositis, dysphagia, and diarrhea). The objective of this study was to evaluate user satisfaction with the cookbook. **Methods:** Individuals who borrowed the cookbook from the hospital library between May 2006 (cookbook release) and January 2008 received a retrospective survey with multiple choice (collated as frequency counts) and open ended questions (reviewed for recurrent themes). **Results:** Eighteen surveys (21%) were analyzed. Survey respondents were primarily English-speaking (94.4%), female (83.3%) and university educated (88.8%). Fifty percent ranked the book as excellent and all would recommend it. Many commented that the recipes were tasty, easy-to-follow, and helped them manage their eating (e.g. "this book became our lifeline as we were trying to stave off weight loss"). One respondent wrote, "I have 217 cookbooks in my collection and this book stands out." Some wanted more information on boosting calories. Individual respondents suggested more recipes for comfort foods, soups, vegetable dishes, ethnic dishes and diabetic appropriate foods. Multiple respondents felt the book should be better promoted. **Implications and Conclusions:** "Goes Down Easy" was well received as respondents liked the recipes and all would recommend the book. Two issues for future focus: improving access to the book and developing more tips and/or new high caloric recipes.

Implementation of nutrition diagnosis at a multi-site health care organization

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Purpose: A decision was made in 2009 to implement documentation of nutrition diagnosis (ND) as standard practice throughout Providence Health Care (PHC), a 15 site health care organization with over 50 dietitians. **Process or Content:** The process was led by the Clinical Nutrition Professional Practice Council (PPC) who planned and organized the education and implementation strategies. Following an introduction to standardized language and ND at regular meetings, a workshop was held with an expert in ND to facilitate the session. American Dietetic Association's Pocket Guides for International Dietetics & Nutrition Terminology were made available to dietitians at all sites. Weekly lunch and learn sessions were held to enhance engagement, provide peer support and to collaborate on ND statements for complex cases. These sessions were planned and facilitated by PPC members who were identified as champions for the project. All nutrition assessment forms were modified to incorporate a section to write the ND statement. **Project Summary:** A chart audit completed 6 months after implementation of the revised assessment forms indicated successful implementation of ND at all sites in PHC. Of 111 charts reviewed, the ND statement was included on the revised assessment forms for 92% of the charts. **Recommendations & Conclusions:** Key components for successful implementation of ND include a

commitment by organization leaders to move ahead with the project, enthusiastic champions to support their peers, and nutrition assessment forms that provide space for the ND statement. The next step for the organization is the implementation of standardized nutrition language for nutrition intervention.

Food and cooking skills in dietetics

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Purpose: To conduct an environmental scan of the literature pertaining to food and culinary skills in dietetics prior to conducting research within this area. **Process:** A literature review was conducted to examine the role of food and culinary skills in the lives of dietitians and dietetic students and the dietetic profession as a whole. **Project Summary:** The literature review highlighted several trends emerging in the food and culinary world. Public interest in food and cooking seems to be at an all time high with entire television stations devoted to cooking programs, culinary tourism on the rise and cooking classes with celebrity chefs occurring everywhere. This has happened at a time when there has been a loss of cooking education in schools and a decline in the traditional forms of cooking skill transference. Consequently, this review showed that the world of dietetics has moved away from its home economics origins towards a more science-based approach. In doing so, some university programs in nutrition and dietetics have limited the time being spent on learning and developing food skills. In addition, high schools have also lessened the importance of home economics in their curriculum, potentially resulting in students entering their undergraduate program with limited culinary knowledge along with a poor skill set in food preparation. **Recommendations & Conclusions:** This review has served as the impetus to the development of a pilot study to gather the perceptions of dietetic student regarding their food and culinary knowledge and skills, as part of a larger research need to understand the relationship between cooking and dietetics.

Interprofessional collaboration in small and rural hospitals in southwestern Ontario: A case study approach

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Objectives: Interprofessional collaboration (IPC) occurs when healthcare professionals and clients work together to enable optimal health outcomes. With decreased healthcare budgets and increased expectations for effective and efficient care, healthcare professionals, including registered dietitians, are expected to work collaboratively to deliver quality care within and across settings. The purpose of this study was to explore healthcare professionals' perceptions of working on interprofessional teams in small and rural hospitals in southwestern Ontario. **Methods:** Through in-depth interviews, 11 healthcare professionals from two interprofessional teams discussed collaborative practice in terms of partnership, cooperation, coordination, and shared decision making. The data were transcribed verbatim, coded line-by-line, and analyzed using a constant comparative method. Participants also completed the Assessment of Interprofessional Team Collaboration Scale (AITCS), a questionnaire measuring interprofessional collaboration among team members. **Results:** Themes identified from both case studies included communication, respect, leadership, benefits of interprofessional teams, and assets/challenges for interprofessional teams working in small and rural hospitals. Data from the AITCS supported the interview findings. Both teams could be situated on a continuum in terms of their evolution towards the IPC model of care – either closer to the traditional medical model or closer to the ideal standard of IPC – particularly with regard to the role of the physician and the level of patient involvement. **Implications and Conclusions:** This research allowed us to learn from established healthcare teams about the benefits and challenges of working collaboratively and to share this knowledge with others. Our findings have the potential to influence new policies surrounding expanded scopes of practice, to inform interprofessional education initiatives, and to improve the day-to-day functioning of current and future healthcare teams.

Ethics in dietetics: expanding perspectives and adopting ethical frameworks

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Purpose: Dietetics is a relatively young healthcare profession and as such its scope of practice is in constant flux. Therefore, ethical dimensions of dietetic practice are continuing to evolve. However, the Dietitians of Canada Code of Ethics was last revised in 1996. The purpose of this experience was to identify ethical issues related to current dietetic practice by comparing the literature and perspectives of ethicists from outside the profession. **Process:** A literature review was undertaken to determine currently identified ethical issues in dietetic practice. The Canadian Bioethics Society “is a forum for professionals interested in sharing ideas relating to bioethics and in finding solutions to bioethical problems”. Members of the society (including philosophers, clinical ethicists and healthcare practitioners with a special interest in ethics) were interviewed to determine what ethical issues they believed were relevant to the field of dietetics. **Project Summary:** Ethical issues identified in the literature included scope of practice; tube feeding and end of life; industry and conflict of interest; confidentiality; and research ethics. Issues identified by informants included government mandated diets in long term care facilities; organizational ethics and resource allocation; food security; and cultural competence. **Recommendations & Conclusions:** Many of the issues identified by ethicists are not new to dietetics, but they are not currently viewed through an ethical framework. It is important to further explore the field of dietetics in order to identify and label the ethical issues that dietitians are facing. Being able to identify and label issues pertaining to ethics would allow dietetic practitioners to analyze such issues differently and implement an ethical problem solving approach, which will assist dietitians facing ever-increasingly complex ethical dilemmas.

Critically appraising the literature: a dietitian’s toolbox.

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Purpose: Evidence-based practice (EBP) is a central tenet of the dietetics profession, yet many dietitians have limited experience critically evaluating the literature and integrating conclusions into current practice. **Process:** The Dietitians of Canada Calgary Continuing Education committee identified a new popular clinical diet trend of potential interest to fellow dietitians. To promote EBP, our group decided to conduct a systematic literature review (SR) regarding this therapeutic diet. We first sought the guidance of the Alberta Health Services Research Lead Dietitian Epidemiologist (TRF), who provided mentorship and assistance throughout our review process. The team formulated a tangible research question and consulted a university librarian to assist with the literature search using keywords and several databases. Studies were narrowed based on team-identified exclusion criteria. Our appraisal process had several steps: 1) identified study designs. In the interest of best evidence, we limited our review to randomized clinical trials (RCTs); 2) summarized the resulting RCT studies based on *PICO* – Population, Intervention, Comparison and Outcome – a means to compare and contrast study methodologies; 3) identified study limitations, including blinding of subjects, outcome reporting and threats to validity; 4) extracted individual study results, grouped based on outcome. Although we attempted to pool study results, our data was too heterogeneous for meta-analyses to be appropriate. Rather, we formulated conclusions by comparing study findings, while keeping in mind the limitations we had previously identified. As research does not exist in a vacuum, we summarized pragmatic implications for dietetic practice. Dissemination of SR results included a continuing education session, conference proceedings and write up for Practice-based Evidence in Nutrition (PEN). **Project Summary:** There are numerous tools available to assist dietitians’ in searching and reviewing research literature. **Recommendations & Conclusions:** The experiential knowledge that practicing dietitians bring to the SR process is invaluable. Increasing self-efficacy in this often-unfamiliar area is essential to promoting EBP contribution across the field of dietetics.

Male alumni perspectives on food and nutrition education and practice

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Objectives: There is a great deal researchers do not understand about men's perspectives as a minority group in dietetics. The purpose of this pilot study was to examine male alumni perspectives of their food and nutrition education and practice experiences to discern issues related to education and retention. **Methods:** Male alumni were recruited through an alumni listserv to complete a 13-item survey as well as an individual interview. Researchers employed an emergent/pilot design whereby a small sample was asked about their experiences in order to identify priority issues for further inquiry. **Results:** Three male alumni aged 28-43 years completed the survey and two were interviewed. Participants (1 RD, 1 diet technician, and 1 medical resident) considered themselves mature students as undergraduates. The alumni perceived their minority status as an advantage in achieving academic success by "standing out" among their professors. During the internship application process, two alumni indicated that they were not as stressed as their peers who excluded them as competitors by not perceiving them as "threats". Two alumni felt the program did not emphasize career options other than being a RD, which would have been "helpful." One alumnus considered leaving the program while another did leave the field after graduation. The RD felt it was "automatically assumed" he was not a dietitian when attending dietetic events because he was male. He expressed concerns for current male students who might leave if such perceptions persist. **Implications & Conclusions:** Understanding male alumni perspectives has the potential to enhance recruitment of more men into dietetics as well as retention, which could lead to a more diverse profession. Larger mixed-method studies with male students as well as their female peers and instructors/preceptors are planned for the future.

Community Based: School Nutrition and Health Education

Understanding intention to engage in diabetes prevention behaviours post-gestational diabetes

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Purpose: To develop and evaluate a 60-minute diabetes prevention information session for women with a recent history of Gestational Diabetes (GDM). Messaging was grounded in the Protection Motivation Theory (PMT). **Process or Content:** Women who develop GDM are at an increased risk for developing Type 2 Diabetes (T2DM) later in life; however, research suggests that relatively few of these women recognize this risk and even fewer are participating in diabetes prevention behaviours. In response to this disparity, the Endocrine and Pregnancy team at St. Joseph's Health Care, London created a 60-minute information session to increase risk awareness and promote behavioural intentions by encouraging practical recommendations to help patients reduce their risk of T2DM. The main constructs of the PMT, perceived vulnerability, perceived severity, response-efficacy and self-efficacy, were employed in the messaging of the information session. Perceived vulnerability was communicated using evidence-based estimates of risk for T2DM in post-GDM women. Perceived severity was incorporated by discussing the complications associated with T2DM. Response-efficacy and self-efficacy were integrated into all eight diabetes prevention behaviour recommendations. Response-efficacy was based on clinical recommendations to reduce risk. Self-efficacy was addressed by providing participants with practical strategies to implement the recommendations and by referring them to relevant resources. **Project Summary:** A post-GDM information session was created to evaluate the effectiveness of PMT-grounded messaging on increasing intention to engage in diabetes prevention behaviours. The 60-minute session will be formally evaluated with eight small groups of three to five month post-partum women. **Recommendations & Conclusions:** This information session will help evaluate the effectiveness of theory-based diabetes prevention messaging, which will help guide future interventions for this unique population.

Manitoba school vegetable and fruit snack pilot program

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Purpose: Increasing vegetable and fruit consumption has a positive impact on risk for major chronic diseases. The addition of even one serving of vegetables or fruit per day has shown to reduce all-cause mortality. While several school vegetable and fruit programs have been developed world-wide these are situated within particular and differing socio-cultural, economic and political contexts, elements of which may or may not be transferable. **Process:** Participants were recruited through an 'expression of interest' and application process. Pilot schools/community places were chosen to represent different school types, communities with vulnerable populations, and geographic locations throughout Manitoba. Participants were provided with guidelines and resources designed to encourage best practices while still allowing flexibility to customise individual programs. Grant allocations were made for the purchase of food, based on student enrolment in the project and the particular community circumstances. **Project Summary:** The pilot study population included over 3,400 students in 26 schools and community centres. Implementation details were unique to each school based on their particular needs and strengths. In all cases a nutrition education component was provided to students, and efforts were made to engage families and community members in at least one nutrition focused activity. Project evaluation included site visits and interviews, pre and post questionnaires, focus groups and program diaries and record forms.

Recommendations and Conclusions: A report documenting the successes and challenges of different program models including resources required for program development, implementation and evaluation. Provide recommendations for a sustainable program model that will increase the amount and variety of fruits and vegetables that students consume. Lessons from practice will be shared with schools and government to strengthen future programs.

The cost of healthy eating in northern Saskatchewan 2009

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Purpose: To calculate the cost of a healthy basket of food in Northern Saskatchewan. **Process:** Food costing was conducted in June 2009 using Health Canada's 2008 National Nutritious Food Basket. The tool was used to collect the prices of 63 representative food items sold in Saskatchewan grocery stores. Grocery stores were selected through a stratified random selection process. Data was averaged by food item and summarized by geographic categories for Saskatchewan. **Project Summary:** Ninety-six stores participated in the survey across the province, including 19 stores in the north. A nutritious basket in Northern Saskatchewan costs \$204.57 more per month, or \$47.25 more per week than the provincial average. Results were further divided into four areas within Northern Saskatchewan based on accessibility. **Recommendations & Conclusions:** The Cost of Healthy Eating in Northern Saskatchewan 2009 supports food security action on an individual and community level. The report can also be used to build policies that address food security and improve the health of the population.

Students and policy: Perspectives of school nutrition and physical activity environments.

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Objectives: The school environment is often the focus of healthy eating and physical activity policies to address childhood obesity. However, students are usually excluded from the development and implementation of such policy. This pilot study explored student perspectives regarding ; 1) school nutrition and physical activity environments; 2) supports and barriers to healthy eating and being active at school; 3) strategies for improving the school nutrition and physical activity environments; and 4) potential

student contributions to the development, implementation, and evaluation of school-based policies.

Methods: Data were collected using focus groups (n= 6) and photovoice with secondary students (n=13) from two schools in a Southern Alberta school district. Focus groups with 3-9 students were conducted using a standardized semi- structured interview. Photovoice participants were provided with cameras to photograph images in their school environment that represent how they view nutrition and physical activity at their school. Focus group analysis was guided by Krueger and Casey's (2000) framework of data analysis. By selecting and interpreting their own photos, participants were involved in the analysis process. **Results:** Themes that emerged in relation to supports or barriers to healthy eating and being active at school were: access to healthy choices; peer influences; teacher influences; and access to physical activity opportunities. Female and male student perspectives varied as to perceived barriers; however both females and males identified similar strategies to improve the school nutrition and physical activity environment. **Implications & Conclusions:** This research offered a unique opportunity to understand the importance of including youth perspectives regarding the development, implementation and evaluation of school-based nutrition and physical activity policy.

Adoption of the Alberta nutrition guidelines for children and youth (ANGCY): Assessing organizational characteristics of early adoption in childcare organizations

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Background: In 2008, the Government of Alberta released the ANGCY as a resource for Albertans to translate nutrition recommendations into practical food choices intended to promote the overall health for children and youth. Since most preschool- and school-aged children consume approximately 1/3- 2/3 of meals/snacks in childcare facilities and/or schools, it is imperative that children have access to healthy and nutritious food choices. Little is known regarding the contextual factors that influence early adoption of nutrition guidelines in childcare facilities or the way organizational behavior influences this process. The objective of this research was to evaluate the organizational and contextual factors that influenced early adoption of ANGCY in childcare facilities. **Methods:** Using multiple case study analysis, two urban childcare centers in Edmonton were examined to assess the organizational characteristics related to the early adoption and implementation processes and strategies used to facilitate adoption of ANGCY. Data was collected using direct observation, semi-structured interviews (n=5) and focus groups (n=5/group) with key informants (childcare staff, parents) from each site. Grounded theory was used for thematic analysis of the qualitative data. **Results:** A comprehensive analysis from one case study indicates that a proactive organizational prototype demonstrated through the active engagement of professional and community networks, a team-based approach including information sharing and regular feedback with staff, and a supportive and collaborative work environment, were the factors that influenced early adoption and implementation of ANGCY. **Conclusions and Implications:** Organizational characteristics and contextual factors of early adopters are important to understand as they could provide insight into what factors influence the uptake of nutrition policies in childcare settings.

Evaluating a school-based health promotion initiative: Mango mania

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Objectives: The goal of the study was to determine the influence of Mango Mania, a school-based health initiative, on children's eating habits, physical activity and health-related benefits. **Methods:** This simple descriptive study took place between January and May 2010 in the region of Miramichi, New Brunswick, Canada. The research was conducted at School Districts 9, 11 and 16 which covers nine communities (3 Francophone, 3 Aboriginal and 2 Anglophone). A short survey was developed to gather demographic data and information on the influence of Mango Mania on elementary school children (K-5) and their parents or legal guardians. **Results:** A total of 114 children/parents participated in the study and the majority of children and their parents spoke English at home (80.2%). In addition, 60.7% of children were

more physically active since participating in Mango Mania. Almost half of children consumed more fruits and vegetables (43.8%), 42.6% consumed less sugary drinks and 33.7% consumed less junk food since participating in Mango Mania activities. Parents reported having encouraged their children to be more active and eat healthier since being exposed to Mango Mania (69.4%). Parents have also observed several benefits in their children, such as more energy, better sleep, better concentration and better self-esteem. **Conclusion:** Our study has demonstrated that this type of school-based health initiative can help promote physical activity and healthy eating in elementary school children that in turn leads to other health benefits. **Implications to Practice:** This study will enable other communities to introduce similar health initiatives in their schools to help reduce the risk of obesity in young children.

Genesis of the “prediabetes initiative and partnership”.

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Purpose: To strengthen the delivery of health services through a community-based healthy lifestyle group education for individuals with prediabetes in London, Ontario. **Content:** Studies have shown that lifestyle interventions that target physical activity and diet reduce the risk for developing Type 2 diabetes by ~58%, but there are few interventions designed to prevent the transition to diabetes in those identified as high risk. To assist with the increasing number of individuals with prediabetes, Brescia and St. Joseph's Health Care initiated a partnership in 2007 to provide an education session to increase diabetes risk awareness and offer guidance in lifestyle modification. Students had the opportunity to learn by assisting diabetes educators with program delivery. Feedback from participants was extremely positive and the education session became the standard of care. Clients stated they wanted more education, so a second session was developed. Between 2007-2009, 27 education sessions were delivered to 535 clients. The program is now expanding to a six-session series over six months. Sessions focus on constructs of the Social Cognitive Theory to enable behaviour change with respect to nutrition and physical activity. This includes hands-on activities to enable skill-building, which helps to make behaviour change sustainable. **Project Summary:** The Prediabetes Initiative and Partnership was created to help meet the need of community-based intervention programs that are feasible and effective in reducing the modifiable risk factors for developing diabetes. It is innovative, sustainable, and community-centred. **Recommendations & Conclusions:** The Prediabetes Initiative and Partnership increases access to health services for individuals with prediabetes in London and contributes to the education of future health professionals. Funded by The Lawson Foundation.

E-SCREEN: development and lessons learned in internet application of SCREENII

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Purpose: SCREEN is a self-administered paper-based tool used to identify nutrition risk in community-living older adults. The Bringing Nutrition Screening to Seniors project (2000-2003) identified that seniors were interested in their food-related behaviours and raising self-awareness through screening was important for behavior change. SCREEN is implemented at recreation sites, physician offices, wellness and meal programs through a screening administrator; this limits the reach and potential benefit self-screening. The internet provides potential for greater exposure and can be ethical if nutrition education and community contacts are provided. **Process:** Working with Dietitians of Canada and Eat Right Ontario, a web based E-SCREEN was developed using a three phase process: 1) four focus groups with diverse seniors (n=29); 2) key informant interviews with health experts (n=11); and 3) usability and reliability testing of the draft E-SCREEN platform with 46 older adults recruited from five sites. A dietitian advisory group and senior advisors participated throughout development and were necessary for reflecting on recommendations for E-SCREEN. **Project Summary:** This extensive development and testing has led to a quality web-based platform. **Recommendations & Conclusions:** Key lessons learned: 1) older adults preferred the internet version as it provided immediate results and links to useful

resources, although many resources were not applicable to this audience; 2) functionality and navigability need to be tested, especially with a senior audience where dexterity, experience and interest in internet use may be limited; 3) seniors have specific needs around accessibility of websites which requires special considerations for design and lay-out; and 4) diverse expertise is needed to develop a successful nutrition screening website.

Exploring the role of a “diversity liaison” to provide nutrition and oral health programming to immigrant families with young children

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Purpose: This project examined the appropriateness of “diversity liaisons” (health services employees working with vulnerable populations) to communicate nutrition and oral health messaging in first language to immigrant parents with children 0-6 years. Project objectives were to: 1) develop culturally appropriate health promotion messages in innovative ways; 2) train liaisons to provide evidence-based health promotion information; 3) increase parents’ access to health information and community services; and 4) strengthen partnerships internal and external to the health system. **Process:** Five liaisons representing Chinese, French, Korean, Punjabi, and Hindi languages were trained to offer information in locations and formats reflective of community needs. The project evaluation, conducted in January - March 2010, included document review and interviews with parents, project staff and stakeholders. **Project Summary:** Results suggested that this was an appropriate model to develop and promote nutrition and oral health messages to immigrant parents, and to enhance health promotion competency in liaisons. Adapted resources focused on key messages shared in a simplified format using visuals, translated materials, and culturally specific foods. All parents interviewed reported increased nutrition and oral health knowledge, and a majority reported changes in behaviour related to health messages and increased access to health and community services. Stakeholders were instrumental in providing community expertise and supporting outreach to vulnerable families. **Recommendations and Conclusions:** Factors for further exploration include defining scope of practice, further training of liaisons in facilitation and outreach strategies, expanding to additional language groups, investigating appropriate education strategies and allocating adequate staff resources and instrumental supports for successful program delivery (food, childcare and transportation).

Consumers’ need for information on supplements.

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Objectives: In Canada, for individuals who are unable or do not meet the recommended nutrient intake from food alone, supplements may be one intervention strategy to help compensate for some of these inadequacies. The 2004 Canadian Community Health Survey found that 28 to 60 percent of individuals of different age/sex groups use supplements. Supplement use is positively associated with income and education level, with higher income individuals consuming a higher amount of supplements and supplement use increasing with education level. Previous research has identified several barriers to supplement usage, one of them being knowledge. The purpose of this qualitative research study was to develop a resource to help inform and educate consumers to select a supplement. **Methods:** Two focus groups with participants from low income Saskatoon neighborhoods, as well as four key informant interviews, were conducted using a semi-structured interview guide. Audio tapes were transcribed and analyzed using thematic analysis to identify emergent themes. **Results:** Data analysis yielded 263 codes from the key informant interviews and focus group transcripts. These codes were then grouped into themes and then further divided into three topics: Barriers to Use, Resource, and Other. This data was subsequently used to create a new tool to help consumers choose an appropriate multivitamin specific to every DRI age/sex group. **Implications & Conclusions:** The aim of this resource is not to convince individuals that they need a supplement, but rather to provide information to help them choose an appropriate supplement once they have already decided to take one. This project will help to enhance

the quality of information available regarding supplement selection through the use of an innovative online tool which is user friendly and meets the consumers' needs.

Vulnerable Groups and Nutritional Needs

Building recipes and understanding nutrition for cancer-survivor health (BRUNCH)

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The Centre for Hospitality & Culinary Arts (CHCA) of George Brown College develops innovation from internal and external initiatives. This abstract provides relevant information of BRUNCH - a current funded innovation / research project at CHCA. Funding for this research project was made available from Natural Sciences and Engineering Research Council (NSERC). Seven members of CHCA (including the author), three members of ELLICSR - Health, Wellness & Cancer Survivorship Centre, Toronto General Hospital and two Dietitians from Princess Margaret Hospital / University Health Network, collaborated in this project with inputs from students of CHCA to design healthy recipes for cancer survivors. The BRUNCH project explored how to involve cancer survivors and expert collaborators in the development and evaluation of palatable and healthy recipes for people with colorectal cancer, with the goal of encouraging mindful eating in the post active treatment phase to optimize health and well-being. The research methodology was divided into four key phases:

- Demographic analyzes needs assessment
- Recipe innovation
- Recipe testing and format standardization
- Information dissemination and home use testing.

A total of 36 recipes were developed that met the cancer survivors' needs, of which 9 were selected to be used for initial dissemination to participants. Healthy eating for colorectal cancer survivors was promoted through innovative delivery methods which included interactive demonstrations, print and video materials. The participants became more mindful of cooking skills and healthy food choices. Through clinical nutrition knowledge from Registered Dietitians, in collaboration with ingredient selection and culinary skills from Chef Professors, delicious and healthy recipes were developed and successfully disseminated to cancer survivors. The quality of everyday lives and eating habits of colorectal cancer survivors was improved and further research is being conducted with other oncology patients.

Nutrition status among residents living in a veteran's long-term care facility in western Canada: a pilot study

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Objectives: To examine the nutrition status and to explore risk factors for malnutrition in an urban Veterans LTC facility in Western Canada in order to determine whether nutrition should be a higher priority for managers, physicians, and staff. **Methods:** A descriptive cross-sectional study design was used to investigate a LTC facility for Canadian Veterans with a resident population of 120 adults who were 65 years or older. The sample consisted of 55 residents. Mean age was 86.5 years for the 50 men and 88.4 years for the five women. The Mini Nutritional Assessment (MNA) was used to examine the nutrition status, and selected items and scales from the Minimum Data Set, Resident Assessment Instrument (MDS-RAI 2.0) were used to substitute for 10 MNA items. **Results:** Six (11%) residents were assessed as well nourished. Thirty-two (58%) residents were considered at risk for malnutrition and 17 (31%) were rated malnourished. A linear regression model revealed that malnutrition was associated with depression, instability in health, and severity of dementia. **Implications & Conclusions:** The majority of residents were found to be at risk or actually malnourished. Managers, physicians, and staff need to pay extra attention to residents with depression and dementia, as well as those whose health is unstable.

Ethical considerations are important in choosing appropriate interventions because many residents living in LTC are at an end-of-life stage. Effective nutrition interventions exist but what has not been well investigated are the methods for translating such knowledge into practice.

Vitamin/ mineral supplements: usage and comparison in long-term care (LTC) residents

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Vitamin/mineral supplementation may offer older adults benefits for health, including favorable effects on cognition, but may also contribute to polypharmacy. **Objective:** This study compared the prevalence of supplement usage in 2009 of older adults (≥ 65 years of age) residing in a long term care (LTC) facility in Saskatoon with and without a diagnosis of dementia. **Methods:** The prevalence of supplement usage and overall "pill count" from pharmaceutical use was assessed in 189 and 56 older adults respectively. Data were analyzed for type of supplement used by residents with ($n=87$) and without ($n=102$) a chart diagnosis of dementia. **Results:** The average use of supplements was 1.0 per day for all residents, with one-third receiving a vitamin D supplement, 20% multivitamins and 26% calcium. The use of supplements was similar between the group with (53%, average 2.0/day) and without (45%, average 2.2/day) a chart diagnosis of dementia, with a range of 1-6 supplements/day. In both groups, approximately 73% of users were taking vitamin D. The use of B / or C vitamins was higher in the dementia (43.4%) compared to the non-dementia (34.7%) group, while calcium use was higher in the non-dementia (63%) than the dementia (43%) group. The number of prescribed medications ranged from 4 to 23 (avg.10) in the subsample studied. **Implications & Conclusions:** These findings suggest that while there was a low overall rate of supplement use, there were few differences in use between residents with and without dementia diagnosis, and some residents were risking overuse with little possible benefit to health.

Vitamin D intake and status in veterans living in long-term care facility

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Objective: Evaluate vitamin D intake and its association with 25(OH)D concentration and biomarkers of bone metabolism in association with health outcomes in veterans living in a long-term care facility (LTCF). **Methods:** Participants ($n=30$, males) were followed to study food intake, using 3 x 3-d weighed food audits, and bone biomarkers for 16 weeks (fall-winter). Anthropometry, Mini-Mental State Evaluation (MMSE), Frail Elderly Functional Assessment Tool (FEFA) scores, handgrip and sun exposure were documented. Serum 25(OH)D, PTH, osteocalcin (OC) (Liaison assays; DiaSorin) and C-telopeptide (CTX) (ELISA; IDS) concentrations were measured. Correlation analysis was conducted using SAS v.9.2. **Results:** Mean values \pm SD for age, BMI, MMSE, handgrip and FEFA were 85 ± 3.6 y, 26.0 ± 4.3 kg/m², 24 ± 3 , 22 ± 8 lbs and 13 ± 8 , respectively. Sun exposure was <0.25 h/d. Average vitamin D provided on trays, from food and food supplements combined, was 433 ± 190 IU/d whereas vitamin D actually consumed was 288 ± 130 IU/d. One participant met the AI of 600 IU with food and food supplements alone. Main sources of vitamin D were fortified milk, margarine, desserts and meal supplements. Tablet supplements provided 64% of vitamin D to those ($n=10$) taking them regularly. The average 25(OH)D value was 50 nmol/L; nearly 33% of participants were <50 nmol/L at each time point. Total vitamin D intake was positively correlated to 25(OH)D concentration. No other correlations were observed. **Implications and Conclusions:** For the population living in LTCF, vitamin D supply is dependent on foods and meal supplements. Achieving the new RDA of 800 IU/d will require tablet supplements for the population >70 y.

Prevalence, severity, perceptions and sociodemographic characteristics of household food insecurity of first nations people living in an on-reserve remote community within the mushkegowuk territory

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Objectives: This study explored food security prevalence and perceptions in an on-reserve remote First Nations (FN) community. The research objectives were: (1) to determine the prevalence, severity and sociodemographic characteristics of household food insecurity in the community using the Household Food Security Survey Module (HFSSM); and (2) to evaluate the perceived relevance, strengths and weaknesses in the HFSSM as a tool for assessing food insecurity of on-reserve FN households.

Methods: One adult from each household in the community was invited to complete the version of the 18-item HFSSM that had been used in the CCHS, Cycle 2.2. Following completion of HFSSM questions, respondents were invited to participate in an interview. Data were collected by a trained community research assistant. Demographic characteristics of the respondent and household were collected. Household food security status was determined from the HFSSM following Health Canada classifications. Thematic analysis was used to interpret qualitative data from interviews. **Results:** Sixty-four respondents completed the HFSSM (84% response) and 28 individuals responded to the interview questions (37% response). Overall, 70% of households were food insecure; 53% moderately and 17% severely. Eighty-three percent of households had children; 62% of those households food insecure. From the interviews, 64% indicated that the HFSSM did not measure food security for FN communities. The majority felt there were aspects of food security not captured by the HFSSM. Themes included: high cost and poor availability of market food; high cost of living; and traditional foods. **Implications and Conclusions:** Results show very high levels of food insecurity on-reserve and themes could contribute to a FN supplement for the HFSSM. Funded by CFDR and CIHR.

Undergraduate Dietetic Internship

An exploration of experiences among dietetic internship coordinators in Ontario

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Objectives: The dietetic internship is a year of intensive practical training and is a pre-requisite for those wanting to be licensed as a dietitian. Limited availability of positions and increasing numbers of student applicants means that many qualified students do not secure internship positions. Internship coordinators are key players in selecting internship applicants as well as shaping interns' professional socialization experiences and professional identities throughout the internship program. However, coordinators experiences have not yet been explored in the dietetic literature. **Methods:** Using an interpretive analytical framework, researchers conducted in-depth semi-structured interviews with current (n=2) and previous (n=4) internship coordinators in Ontario (n=6). **Results:** Although the coordinators' years of experience ranged from three to nine, all stated their commitment and concern towards the dietetic training process. Our thematic analysis revealed that coordinators view the selection process as arbitrary, lacking transparency, and requiring an inordinate amount of time and resources. Conversely, coordinators noted the value of the internship as a time for intensive and essential practical training and felt gratified regarding their contribution to this socialization process. **Implications & Conclusions:** This research has implications for understanding coordinators' roles and responsibilities, the impact of previous dietetic education, the challenges with the selection process, and the internship as a means for training dietitians. Coordinators are in the unenviable position of choosing a relatively small number of interns from a large pool of highly qualified applicants. This represents a very conflictual experience for coordinators. Enhancements to the internship process have positive implications for health human resources (career

satisfaction and job retention) among coordinators, but more research is required to examine specific implications of such changes on dietetic training in Ontario.

Using a blog with dietetic interns to encourage writing, critical thinking, reflection and sharing of ideas

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Purpose: In September 2010 at Vancouver General Hospital we introduced a weblog (blog) to encourage reflection and information/experience-sharing among the VCH dietetic interns. **Process:** As part of the UBC Dietetics Program education module, we developed the private, password-protected VCH Dietetic Internship Blog using the free Wordpress.com platform. Together, we selected timely topics, and then wrote and published new posts monthly. We required all interns to reflect upon each post and respond with at least one comment wherein they shared thoughts, opinions and experiences and engaged in discussion. We also used the blog to list resources on best dietetic practice, the internship placement schedule and calendar of on-site education events. **Project Summary:** We will continue publishing one post per month, (ten by the end of the internship year). To date, post titles & topics have been: *Weight Loss Myths and Realities; It's Holiday Time (holiday traditions and recipes); Eat Food Not Nutrients; Unable to Eat, Unable to Dine; The Ideal Dietitian*. Each post has stimulated discussion amongst interns and coordinating dietitians. Within two weeks after each new post being published, all interns have responded with reflective, insightful comments, although with more recent topics, the dialogue has waned. The first two posts stimulated 20-plus comments; more recent posts have prompted 11 to 15 comments. **Recommendations and Conclusions:** Implementing a dietetic internship blog has prompted reflection, discussion and information-sharing. Publishing new posts monthly has been realistic and achievable for the coordinators and facilitating dietitian. We plan to survey the interns at the end of their internship year to gain more insight on the blog's value as a tool for communication, learning and reflection.

Students to professionals: shifting narratives of dietetic education and practice

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Objectives: In a health care setting, narratives are an important method for conveying information and fostering relationships between health care providers and those seeking their services. Dietetic students can learn and apply narrative practice as interns and practitioners, but very little research has been conducted to determine if narratives enhance dietetic practice. This study examined the transferability of narrative practice as learning in an educational context to that which was applied in a professional context. The study focused on the relationship between what previous students experienced in a senior-undergraduate food and nutrition class entitled *The Art of Storytelling* and how that class influenced their professional practice as either an intern or dietitian. **Methods:** Inclusion criteria for this qualitative study were all students who had completed the narratives course between 2007 and 2010 (n=107). Eight participants were interviewed either in person or on the telephone using a semi-structured interview guide and transcripts were thematically analyzed by extracting significant, reoccurring themes. **Results:** Three major themes emerged from the interviews: 1) Learning narratives as a student allows interns and practitioners insight towards themselves and others; 2) The use of narratives aids in the development of nutrition counseling skills; and 3) Challenges exist for students in reflecting over and writing about their personal experiences in a setting different from the classroom. These themes had a direct impact on how and if a narrative approach was translated into professional practice. **Implications and Conclusions:** Narrative methods learned in an undergraduate classroom are transferable to practice, although challenges do exist. The findings from this study will be used to inform future narrative courses and are currently being applied to inform the curriculum of an interprofessional narratives course being offered to students in nutrition, nursing, and disability studies.

Is the lack of dietetic internship positions in Ontario contributing to a loss of human potential in dietetics? A descriptive survey of unsuccessful dietetic internship applicants in Ontario

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Objectives: Little is known about those who are unsuccessful in securing an internship position in Ontario. Phase one (presented here) of this two-phase, mixed methods study sought to answer two research questions: (1) Who are the applicants that apply, but are unsuccessful in securing an internship position; and (2) what do applicants do after an unsuccessful internship application? **Methods:** A 68-item online survey. **Results:** The study sample (n=84) was fairly homogenous: female (99%); heterosexual (98%); Caucasian (70%); Canadian-born (75%). Seventy-three percent spoke English as a first language and over 40% were multilingual. Mean grade point average (x=3.35) was above the minimum (x=3.0) required by most Ontario internship programs. Twenty-nine percent had completed a previous undergraduate degree. Just over one-quarter eventually secured an internship position. Little difference was found between those who were eventually successful and not yet successful applicants. **Implications & Conclusions:** Survey results indicate that unsuccessful applicants are eligible for admission to dietetic internship programs in Ontario. These findings suggest that insufficient training opportunities create a loss of human potential in dietetics. It is possible that this loss reduces diversity among practitioners and reduces the variety of complementary skills such as additional languages that unsuccessful individuals would otherwise contribute.

Enhancing consumer-focused writing skills: A volunteer writing group for dietetics students

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Purpose: Consumer-focused writing is particularly challenging for dietetics students, due to the need to translate complex concepts and technical terminology into plain language at an appropriate comprehension level for a target audience. To augment a module on consumer-focused writing in one of our professional practice courses, working in collaboration with campus student health outreach services, we established a dietetics student writing group in 2006. **Process:** The group is coordinated each year by two dietetics students, working in consultation with a faculty member (dietetics program leader). Students prepare brief action-oriented food and nutrition articles for campus residence and student-run café newsletters, using author guidelines adapted from those developed for the course. Each article draft is assigned to a peer reviewer and undergoes final review by the faculty member contact prior to being submitted for publication. **Project Summary:** In the current academic year, 17 student authors/reviewers are involved, producing an average of six articles per month for seven campus publications. Topics are chosen to appeal to student interests, ranging from managing seasonal eating to addressing common nutrition-related issues to practical advice for healthy eating on campus. One challenge the group has faced is the absence of a mechanism for reader feedback, something they hope to address with intermittent online surveys and focus groups. **Recommendations & Conclusions:** A volunteer writers network is a useful way to give students exposure to consumer-focused nutrition writing and the peer review process. The students who oversee the network gain organizational and facilitation skills, while participants gain valuable writing and review experience. Involvement of a faculty member helps to ensure that articles are appropriate in content and writing style.

"I've never been asked": experiences of students who participate in research about their learning

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Objectives: While there is much literature related to adult education and learning theory, very little research has been done to understand food and nutrition students' experiences as participants in studies

related to their learning. The purpose of this pilot study was to ask students to think meta-cognitively about their participation in research regarding their learning and how those experiences influenced their engagement, career development, and academic success. **Methods:** Undergraduate students who had previously participated in educational research were invited to participate in this study. Those who accepted the invitation completed a brief demographic survey and then had the option to complete an 8-item questionnaire or participate in a focus group. **Results:** Five participants opted to complete the questionnaire and five others participated in a 60-minute focus group. Participants indicated that they chose to contribute to educational research because it enhanced their understanding of themselves, it afforded them a voice in the direction and quality of their educational experience, and it enabled them to develop important relationships with educators and mentors. All participants said that their experience as research participants positively affected their education, their relationships with co-participants, and their thinking about their future careers. **Implications & Conclusions:** Engaging students in research on their own experiences of learning is beneficial to scholars of teaching and learning, but also to the student participants themselves. Research on student learning provides important understandings about how students learn, what knowledge is required for safe, ethical, and effective dietetic practice, and what training dietetic educators/preceptors require to be successful at facilitating student/intern learning. The scholarship of teaching and learning is a new area of dietetic inquiry, but one that holds potential for enhancing the preparation of future professionals.

Building a mystery: creating a dietetic research mentoring culture in qualitative human sciences

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Purpose: In an effort to enhance the qualitative research skills of undergraduate and graduate students, a faculty member engaged students in a structured research mentoring process. In addition to providing additional experience with qualitative research, the purpose of this process was to enhance the capacity of qualitative research on professional practice issues, an area where relatively little literature exists in dietetics. **Process or Content:** Based on expressions of self-interest, ten senior undergraduates and graduate students indicated their wish to participate as research team leaders. These students submitted ethics protocols, designed survey instruments, created interview guides, recruited study respondents, collected data, and analysed that data all while being mentored by the faculty member. These student leaders also worked closely with junior undergraduate students who wished to gain a greater appreciation for various aspects of the research process. In the next cycle of the research mentorship process, the junior undergraduates became senior undergraduates and as such took on research roles with greater responsibility and autonomy. **Project Summary:** Students were active contributors to the knowledge generation process. Through the process of successive mentorship, a research team was created whereby all participants learned from each other. The research culture that the entire team created helped reinforce a positive research experience. This experience attempts to shift the balance between what types of research is conducted and funded in dietetics. **Recommendations & Conclusions:** Similar research teams situated in dietetic undergraduate education programs and internship and/or practical training contexts can significantly increase the type and quality of inquiry that is conducted by students and interns. University researchers can reduce the research load experienced by intern coordinators if those researchers take on a facilitators' role. As those student researchers move into practice or doctoral studies, they possess the capacity to create their own research mentorship programs, thus over time, qualitative research on professional practice issues in dietetics has the potential to increase considerably.

Other:

Development of a Canadian food label information program (FLIP) database

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Purpose: Food product labels are a valuable source of nutrition information for consumers. The Food Label Information Program (FLIP) is a University of Toronto database of Canadian packaged food labels. The purpose of the FLIP is to provide an overview of the nutrition and claim information found on food products in the Canadian marketplace. **Process:** Using the Canadian Nutrient File (CNF) structure for generic foods, more than 20 distinct food categories, plus sub-categories were identified for food package label collection. Products were purchased from retailers selected to represent the chains with the greatest market share, by 2009 sales, in Canada. Products were purchased between February 2010 and February 2011. All foods within a product category with a Nutrition Facts table were purchased; food products sold at multiple retailers (like national brand products) were only purchased once. In addition, various sizes of a single brand item were only purchased in one size. The food label of each product purchased was removed, retained, and assigned a database ID. The following details from each label were recorded in the FLIP: CNF food category, Universal Product Code, company, brand, price, container size, nutrient content claims, disease risk-reduction claims, front-of-pack nutrition labelling systems, Nutrition Facts table information, and date and location of purchase. **Project Summary:** Food package labels for more than 10,000 food products have been collected and entered into the FLIP database. FLIP data is now being used to evaluate the composition of food products and the food labelling environment in Canada. **Recommendations & Conclusions:** The FLIP database will need to be periodically updated to monitor changes in the food supply over time – including changes in the labelling environment and food composition.

Designing an efficient tray assembly process at Queen Elizabeth II Hospital

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Purpose: Tray assembly is the largest task in terms of volume and labor for the Patient Food Services (PFS) department at Queen Elizabeth II Hospital (QEII), assembling approximately 800 meal trays daily. In September 2010, the traditional long beltline was replaced with a new method for tray assembly – the Work Cell. **Process:** PFS worked with Business Process Improvement to create and utilize a *Beltline to Cell Implementation Manual*. Beltline data including menu item inventories, staff minutes per tray (SMT), staff minutes for pre-work, and staff minutes for tray delivery/pick-up was collected and used to plan a future state. Lean concepts and tools such as work cell, standardized work, line balancing, and visual management were included in the Cell. Prior to implementation, frontline staff participated in two interactive training sessions: 1) Lean 101 and 2) orientation to Cell equipment. PFS engaged Site Management and conveyed regular communication prior, during, and after implementation. **Project Summary:** The Cell improved efficiency, productivity, workflow, and ergonomics, all within a smaller footprint. The Cell requires only four staff plus a runner; a 38% decrease in staff when compared to the seven or eight workers needed on the traditional beltline. SMT including pre-work decreased 19% from 3.36 SMT to 2.74 SMT. PFS staff were redirected to return to care activities, allowing nursing more time for direct patient care. **Recommendations & Conclusions:** The success of the Cell implementation and sustainability of improvements is attributable to staff involvement and management approval, commitment, and ongoing support. Since the implementation, PFS staff strive for continuous improvement as they have embraced a Lean culture. Other QEII departments are following PFS's lead of applying Lean tools in the workplace.

Implementing standardized texture adapted diet plans for dysphagia in Quebec

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Purpose: Dysphagia to liquids affects nearly 8% of institutionalized clients whereas dysphagia to solids affects between 30 to 65%, depending on clientele surveyed. In 2005, a survey revealed discrepancies in terminology used to label nutritional plans for the treatment of dysphagia in Quebec (n=75 institutions). Moreover, the same label used for a specific diet plan included foods that were quite different in texture in

various centers. **Process:** Dietary intervention in dysphagia usually based on qualitative and descriptive evaluation of foods. Rheology, the study of food texture, was used to interpret the qualitative sensory variation perceived amongst foods offered on each diet plan. The classification of foods of the new diet plans was based on 4 primary rheological parameters: hardness, adhesiveness, cohesiveness and elasticity. **Project Summary:** Provincial terminology was developed to categorize foods in the new diet plans labelled 'Tendre', 'Molle', 'Hachée' and 'Purée'. Foods describing the continuum of the scales for each parameter (Eg: Very hard: carrot sticks; Very soft: puddings) were compiled and a rheological evaluation grid was developed. These tools allow more systematic classification to provide better nutritional treatment plans to clients suffering from dysphagia. **Recommendations & Conclusions:** All foods and recipes could never be fully detailed as they change in composition and preparation methods. However, standardized vocabulary and classification approaches will help in insuring a continuum of care for the patients serviced by Quebec institutions. The new tools will help in classifying these specific foods and recipes in the adequate diet plan. Continuing education sessions are taking place to help managers of dietary services and clinical dietitians to clarify expectations for each diet plans.

Free for all: using open-access journal systems to share outcomes of dietetic inquiry

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Purpose: The purpose of this session is to provide a rationale for using an open-access journal system (OJS) as well as an overview for how to use OJS for those who wish to initiate their own peer-reviewed scholarly journal. OJS represents another means for distributing the results and outcomes of dietetic research and scholarship. Sharing dietetic-based research results through OJS has the potential to enhance the reach of dietetic research to those who might not otherwise access such knowledge, thus it represents a new forum for the integration of dietetic knowledge into practice and perhaps an enhanced capacity for dietetic-based research among practitioners in our global community of practice.

Content: Our presentation will provide an overview of the OJS describing briefly the history and philosophy of the OJS and the necessary technology required to initiate a new journal through OJS. The advantages and challenges of using OJS will also be shared while session attendees will be provided with necessary information to consider initiating their own peer-reviewed journal using OJS.

Project Summary: The presenters will share their experiences of initiating a new journal using OJS, describing the challenges and opportunities of the system and the implications for dietetic research exchange with those who access to traditional scholarly journals is limited. Information will be provided to those who attend about how to go about starting a new journal and the resources required to do so.

Recommendations and Conclusions: OJS represents an opportunity for those who are conducting dietetic research to expand the reach of their findings since journals created using OJS are publicly available for any and all who wish to read such research. OJS represents a leading edge technology in research dissemination, one that is more inclusive and accessible than traditional scholarly journals.

ORAL RESEARCH PRESENTATION ABSTRACTS - FRIDAY JUNE 17, 2011

Dietetic Practice and Education

Does it count? Examining possibilities for the recognition of prior learning in dietetics

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Purpose: Prior Learning Assessment and Recognition (PLAR), otherwise termed Recognition of Prior Learning (RPL), is a process that has been successfully utilized by a number of health professions (and others) to credit prior learning. RPL has been used on a limited basis by the dietetic profession but has great potential application for dietetic registration and in dietetic education programs. **Process or Content:** The College of Dietitians of Ontario and the Internationally Educated Dietitians Pre-registration Program (IDPP) jointly pursued an environmental scan to determine how RPL models and processes are used within dietetics and other regulated health professions nationally and internationally. **Project Summary:** This presentation will present results from the environmental scan of PLAR models and processes. Examples of current PLAR approaches within and beyond dietetics will be shared. Questions related to “our” beliefs and values on what does and does not constitute relevant experience will be explored. **Recommendations and Conclusions:** RPL has the potential to re-shape pathways for entry to the profession and is essential to the growth and future of the dietetics profession. A number of possible methods have been utilized by other professions that may be relevant for consideration in dietetics.

Collaborative client-centred nutrition education (3CNE) framework and practice points: Relevance in practice, education and research

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Objectives: This presentation reports on the relevance of the 3CNE framework in practice, education, and research. **Methods:** The 3CNE framework and practice points emerged from consultation with 22 dietitians who participated in a series of national, small group tele-discussions on consumers’ expressed needs and preference for nutrition education. **Results:** Collaborative, client-centred nutrition education is where clients and dietitians work in partnership to combine client wants/needs with the dietitians’ assessment of clients’ nutritional requirements. The framework contains four sections presented in four concentric (nested) rings with the client-educator dyad at the centre (the focus of nutrition education efforts). The rings represent: 1) Exploring one’s perceptions of the nature and purpose of nutrition education; 2) Exploring one’s context/setting; 3) Interpersonal communication; 4) Collaborating with individual clients, families, and groups. The practice points refer to each of the sections. Participants referred to the practice points as “A buffet rather than a banquet”. Participants thought that each dietitian-user, depending on their stage of development and/or their assessment of client needs and wants, would choose from the practice points what they wanted/needed to work on, what they wanted to incorporate into nutrition education, or what they might use in precepting. **Implications & Conclusions:** Participants expressed interest in the immediate adoption of the framework and practice points noting their usefulness to dietitians in counselling practicing, and in dietetic education (to students, preceptors, and other dietetic educators). This approach contrasts the ‘spray and pray’ approach to nutrition education.

From student to professional: An exploration of dietitians’ professional socialization and identity development

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Objectives: The objective of this study was to explore the processes of professional socialization and identity development among dietitians in the early stages of their careers. **Methods:** A phenomenological approach using Seidman’s three-step interview method was used. Twelve dietitians, practicing for three years or less, were interviewed. Data was analyzed thematically using a collaborative process involving all four members of the research team. **Results:** Findings indicate that new dietitians struggle to develop their dietitian identity. They feel unprepared for the relational and practice realities of the workplace and find the transition from dietetic intern to dietitian challenging. The “crazy competitiveness” they

experienced in dietetic education does not end when they graduate. They have to work hard to feel valued and accepted, both by their colleagues and other health professionals. They cope in multiple ways by seeking the support of others, “practising what they preach”, attempting to keep their professional and private identities separate, and planning for the future. **Implications & Conclusions:** Findings suggest a need to prepare dietetic students and interns for a period of adjustment to practice. As new practitioners become aware of the dissonance between their expectations and experiences, they may develop coping strategies to manage this dissonance, changing their identity or contemplating a career move. Feeling inadequate and undervalued can lead to job dissatisfaction and burnout. Others are more resilient and able to cope. Understanding the factors that contribute to this resilience and creating workplace environments where new colleagues feel supported and able to fulfil their expectations can help prepare dietitians for the realities of the workplace.

Applicability of psychotherapeutic techniques to dietetic practice: a systematic literature review

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Objectives: Although dietitians interact with clients on a psychological and therapeutic level the use of psychotherapy techniques in dietetic practice outside of the area of eating disorders is relatively new. Given the use and impact of psychotherapeutic techniques within dietetics, regulatory bodies are currently reviewing the possibility for changes to controlled acts to include specific mention of these techniques. Therefore, the objective of this study was to conduct a systematic literature review of the use of psychotherapeutic techniques in dietetic practice where patients have not been diagnosed with an eating disorder as defined by the DSM-IV. **Methods:** A systematic literature review of two databases (PubMed and PsychInfo) was undertaken by the research team. Two independent reviewers evaluated all articles based on practical screening and methodological quality criteria. A third reviewer was used to address any discrepancies in evaluations. **Results:** 541 articles were reviewed and 7 studies met the inclusion criteria. Motivational interviewing was found to be the most commonly employed psychotherapeutically informed technique used by dietitians and was the primary intervention in 5 of the 7 studies. Nutrition professionals also used cognitive-behavioural therapy based interventions that drew upon behaviour change theories and models including the Health Belief Model and Social Cognitive Theory. **Implications & Conclusions:** Despite the fact that psychotherapeutic techniques have recently been identified as useful tools for dietitians counselling diverse client populations, limited research has been done in this area. More studies are needed to determine the effectiveness of dietitian implemented psychotherapeutically informed interventions and the training required to prepare dietitians adequately for applying such interventions.

Exploring motivational interviewing at EatRight Ontario

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Purpose; Eatright Ontario (ERO) is a pilot program funded by the Ontario Ministry of Health Promotion and Sport, managed by Dietitians of Canada. ERO's three service components (toll-free call centre, e-mail-a-RD feature and website) provide Ontarians with free access to evidence-based nutrition information from Registered Dietitians (RD). www.ontario.ca/eatright
In 2010, ERO collaborated with the University of Ontario Institute of Technology to explore an expanded role for ERO-RDs involving a motivational interviewing (MI) approach: a client-centered approach to enhance goal-setting and behaviour change. **Process;** Data collection included focus group interviews with ERO-RDs (n=9); individual interviews with national/international MI experts (n=5); and one group interview involving the ERO Management Team. A trained interviewer, using a semi-structured interview guide, conducted and digitally recorded the interviews. Professional transcripts were prepared. Data were analyzed with an inductive thematic approach whereby patterns, similarities and differences pertaining to practices and/or perspectives were identified through coding. **Project Summary;** Four main themes are

reported: training in MI for ERO-RDs; developing policies/procedures for the use of MI; exploring potential linkages between the ERO telephone and web-based services; clarifying the communication of key messages to ERO stakeholders. **Recommendations & Conclusions;** At ERO, MI can provide an overarching lens for integrated services, education and support to clients. Expert training in a MI approach and resource development are required for successful implementation. Time restraints associated with service delivery, client record-keeping and follow-up were not identified as barriers to implementation. MI experts described ERO's approach as leading edge, recommending further exploration of MI with the goal of expanding service delivery. Future evaluation efforts should consider client and RD satisfaction in response to a MI approach at ERO.

Research Methodologies

Modifying the nutrition environment measures survey for stores (NEMS-S) for the Canadian context

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Purpose: The Nutrition Environment Measures Survey for Stores (NEMS-S) is an instrument designed to assess the consumer nutrition environment in food stores. It focuses on the availability and pricing differences between healthier and less healthy food options. The NEMS-S was designed in the United States and has become the standard tool to assess store environments in that country. The purpose of this project was to modify the NEMS-S instrument for use in Canada. **Process:** Modifications were made to NEMS-S using Canadian Food Consumption data (Statistics Canada) to ensure food categories and food items corresponded to Canadian consumption patterns. Nutrition guidelines and key messages from Canada's Food Guide were also considered. Notable modifications include the addition of frozen and canned fruits and vegetables as well as shelf stable juices. Studies in a range of food stores were done to determine brand commonality between stores. Where possible brand specific choices are used to allow between store comparisons. Conversion to metric units of measure was completed. Finally, the modified NEMS-S was field tested for inter-rater and intra-rater reliability, which were 94% and 97% percent. **Project Summary:** The NEMS-S tool is used to assess the food store environment with respect availability, pricing and quality of healthy and less healthy food choices. This project modified the NEMS-S for use in Canada. A systematic approach was used to ensure that measures reflect Canadian consumption patterns, recommendations and brands. This tool is now available on the NEMS website. **Recommendations and Conclusions:** The Canadian NEMS-S tool has been used in studies in three different provinces to date. Wider dissemination and use of the measure will lead to a greater understanding of the consumer nutrition environment in Canada.

Validity, reliability and effectiveness of nutrition applications for mobile devices: a systematic review

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Objectives: Mobile devices (e.g., Smartphones) and their applications are rapidly becoming more affordable, powerful, and popular. For dietetics, this presents exciting potential for monitoring dietary intake and supporting intervention. A literature review was conducted regarding the effectiveness of applications for mobile devices used to track dietary intake and/or support nutrition intervention. **Methods:** Research databases (i.e., PubMed, Web of Science, PsycINFO, Embase, CINAHL, Scopus) were searched for articles from January 2000-December 2010 meeting the following criteria: participants who are healthy or in weight loss programs, used a mobile device (e.g., Smartphone, personal digital assistant), and included measures of application effectiveness for tracking dietary intake and/or supporting nutrition intervention such as dietary intake validity/reliability assessments and/or dietary self-

monitoring adherence measurements, and/or changes in body weight/composition or diet. **Results:** Seventeen studies met our criteria and application types were divided into two categories: those where users select food/drink type and portion size from databases or where users take pictures of their food and drink and send them to a dietitian/researcher for analysis. Study participants were usually higher income, female, and interested in nutrition. Both application types had moderate to good validity for assessing energy and nutrient intakes compared to 24h recall interviews, total energy expenditure or weighed food records. In most cases, mobile devices were comparable or preferable to standard methods (e.g., paper records) for diet self-monitoring adherence, and supporting improved dietary intake and/or anthropometrics. Technology acceptance and proper use was key for success. **Implications & Conclusions:** The relative validity and effectiveness of early mobile devices in supporting dietary monitoring and intervention suggests strong potential to incorporate emerging 'apps' into dietetic practice and research.

Community Based: Nutrition and Health Education

EarthBox® Kids...creating veggie grow-ops in classrooms

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Purpose: increase the access children have to growing, preparing and eating more fruits and vegetables within the school setting. **Process:** In 2009 Alberta Agriculture, with Federal Growing Forward funds started the EarthBox® Kids project. An EarthBox® is a scientifically engineered gardening kit which comes with a specialized aeration screen and watering system allowing for excellent yields with less water, less fertilizer and less work. This system is also being used by the World Health Organization in impoverished countries, allowing for students to connect to others across the world. **Project Summary:** In 2010, 12 schools in Alberta, from Kindergarten to high school established EarthBoxes® gardens in their schoolyards in conjunction with school curriculum and subjects like plant science, weather, math, health, food security, and water/soil conservation. In the winter of 2011, 15 more schools, including several schools on first nations' reserves, have joined the program to start growing fresh herbs and vegetables indoors using grow lights and will use them for soups, salsa or salads. Another 10 schools will be joining the program spring 2011. **Results:** Both qualitative and quantitative studies are showing that EarthBox® garden education improves the quality of life for students by not only increasing consumption of vegetables but also bringing together families and communities. **Recommendations/Conclusions:** To ensure sustainability of such a program, a database of funding sources and community supports is being developed along with a network support system. Partnerships with various community organizations and industry partners within Alberta, nationally and internationally are being established to extend this program. Gardening in schools promotes the development of healthy eating habits to all those involved.

The importance of a health champion in nutrition programming: an elementary school case study

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Objectives: In June 2008, the Government of Alberta released the Alberta Nutrition Guidelines for Children and Youth ("the guidelines"). The aim was to provide schools with a tool to help children and youth make healthy food choices. The purpose of this research was to examine how the support of school staff for the guidelines influenced implementation of new healthy eating strategies among schools in Alberta (Canada). Preliminary results from one school are presented here. **Methods:** We used a case study design. Six key informants among school staff were interviewed using a semi-structured questionnaire. Direct observations in the school setting were used to supplement and corroborate

interview findings about staff members' support for the guidelines. Open, axial and selective coding was used to analyse thematic content based on an inductive grounded theory approach. Direct observations were similarly coded. **Results:** All staff members positively described the role of a "health champion" (someone closely involved with the implementation of the guidelines). The presence and work of the health champion was commonly described, and observed, as pivotal to the improvement of the foods offered within this case school after the adoption and implementation of the guidelines. On the other hand, the role of the principal was complicated. He was mentioned as a facilitator, but it was also perceived that he should be the leader of the initiative, which was not the case. **Implications & Conclusions:** Having a school champion may help encourage schools to adopt and implement healthy eating innovations based on sound nutrition guidelines. Decision makers should consider employing health facilitators to overview the implementation of healthy eating strategies.

Development of menu planning tools and resources for Nova Scotia child care centres

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Child Care Centre (CCC) menus plan for the provision of nutritious meals and snacks necessary for the optimum health and growth of young children in their care. **Objectives:** To develop comprehensive and user friendly tools/resources that will incorporate the proposed NS policy directives as well as menu, child and facility specific factors. **Methods:** Based on quality improvement and action research, this ethics approved project invited menu planners in regulated CCCs in NS to participate by either completion of on-line questionnaire and/or serving as a member of a collaboration group. **Results:** The questionnaire respondents (n=75) indicated that they wanted their menus to be more interesting, practical and cost effective. Menu templates, sample menus and costed recipes topped the list for desired resources. About 66% wanted access to the tools/resources on a website and about 33% expressed interested in a blog. The collaboration group participants (n=25) met twice and provided valuable input for the development of a menu planning model that integrates the factors, menu templates and sample menus. Recipes, with costs and food group analyses, and other relevant tools/ resources, including a link to a blog, were made available in August 2010 on the www.msvu.ca/menuproject website. An intermediate evaluation indicated that 50% of respondents (n=39) had consulted the website, found the sample menus the most useful and plan to consult the other resources in the future. **Implications & Conclusions:** The model provides a unifying framework for the menu planning tools/ resources. The website, blog and on-line survey enable on-going development supported by input from the menu planners. The tools/resources should be relevant to other provincial CCCs as well as adaptable to elementary school menu planning.

Multi-sectoral perspectives on food system policymaking, planning practices and access to food: a case study of Waterloo Region

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Objectives: There is increasing interest in local food systems as an important environmental factor in shaping what people eat. A primary objective of this study was to identify the key contextual factors, facilitators and barriers associated with food system planning (FSP) policymaking in Waterloo Region (WR). Secondary objectives were to examine current policies and planning practices affecting the establishment of healthy food outlets and the role of the Region's Public Health (PH) Department in contributing to food system change. **Methods:** Forty-seven in-depth interviews were conducted with regional decision makers (n=15), planning and public health staff experts (n=17), and regional food system stakeholders (n=15). Interview guides were adapted from previous policymaking research in WR and through work with a Project Advisory Committee. Grounded theory methods were used to identify and examine emerging themes. **Results:** As part of the Region's growth management strategy, controversial planning policies and actions were proposed by the Region's Planning (RP) Department to: (1) protect agricultural land from sprawl; and (2) ensure access to food stores in neighbourhoods as part of intensification efforts surrounding 'complete communities'. PH's strategic ability to influence a 'food systems' policy frame, establish critical internal and external partnerships, and garner international

recognition for progressive food system ideas were key facilitating factors in the adoption of FSP policies. **Implications:** Findings from this study, along with a FSP conceptual framework, can be used by public health and nutrition professionals in other jurisdictions to better understand relevant factors related to food system policymaking. **Conclusions:** The findings reveal that PH actors can play a critical role in facilitating access to healthy, local food by influencing planning policies, mobilizing partners, and creating a supportive community food environment.

Exploring immediate outcomes of an after-school snack program

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Objective: In 2009 the Government of Ontario in partnership with community organizations, launched an after-school province-wide initiative to reduce obesity and improve health outcomes in vulnerable children. This community-based study examined immediate outcomes of a snack program implemented by Eastview Boys & Girls Club (EBGC) in Oshawa, Ontario involving nearly 100 children daily. **Method:** Data collection included in-depth key-informant interviews (n=7); one focus group interview with parents (n=8); three interactive sessions with children (n=8), and document review. Interviews were conducted by a trained interviewer using semi-structured interview guides. The guides focused on research questions and their development was informed by a logic model. Interviews were digitally recorded, and professional transcripts were prepared and downloaded into NVivo8 software, which helped code transcripts. An iterative, multi-step coding process helped identify reoccurring themes and highlighted areas of convergence and divergence. **Results:** Four salient themes emerged: 1) EBGC as a trusted niche in the community; 2) shifts in programming (e.g., changes in children's eating behaviours including willingness to try new foods); 3) key facilitators (e.g., staff commitment, strengthened partnerships; previous program accreditation); 4) significant barriers (e.g., gaps in nutrition-related knowledge/skills of staff alongside a lack of time and program-specific training and resources). **Implications & conclusions:** The snack program resulted in positive changes in children's nutrition-related behaviours. However, changes in children's nutritional knowledge were not well-documented. Community-based nutrition professionals should lend their expertise to organizations to encourage successful program implementation. Recommendations to government decision-makers propose building capacities of community organizations to enhance the nutrition education component of this initiative, ensuring curricula meet current practice guidelines. Future research should evaluate long-term outcomes of the after-school initiative.

Effectiveness of relational-cultural theory in nutrition counselling

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Objectives; Relational-cultural theory (RCT) has not been evaluated for use by dietetic practitioners offering therapy to those experiencing eating disorders or disordered eating. The purpose of this study was to evaluate the effectiveness of RCT as a means for addressing eating concerns among students attending a downtown Toronto university. **Methods;** Over the course of eight months, the researcher engaged in nutrition counselling with students seeking support regarding their eating and weight concerns. Intensive nutrition counselling sessions with three female participants were recorded and analyzed using a constant comparative approach. **Results;** Participants' average age was 21 years and they self-identified as white women from upper-middle class backgrounds. One had been previously admitted to an eating disorders clinic and was currently seeking "maintenance" support. Three key themes emerged: distrust; ambivalent relationships with food; and bodily control. RCT has specific applications with regards to enhancing trust with physiological functions as a means for diminishing control and strengthening women's relationship with food. **Implications & Conclusions;** Control discourse constitutes participants' eating patterns as a series of reasoned, discrete, and quantifiable choices (i. e. weigh, measure, limit, and avoid) in direct contrast to views that eating is determined by

emotion, hunger, appetite, and social environments. Alternatively, RCT invites wisdom discourse which subverts the isolation, disconnection, and domination of bodies inherent in a more traditional dietetic counselling encounter. By invoking a wisdom discourse, a relational-cultural approach to nutrition counselling has implications for how dietitians come to understand bodily differences; their own and those who seek their services. Implications exist for those who are educating and training future dietitians in counselling contexts.

Vulnerable Groups

The meaning of 'place' to the mealtime experience for those living with dementia; transitions to formal care

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Background: A six-year longitudinal qualitative study called Eating Together (ET), sought to better understand the mealtime experience of community dwelling persons with dementia and their primary partners in care through in-depth yearly interviews with both members of the dyad. Findings from this study highlighted the importance of mealtimes for connecting and honouring identity; as persons with dementia moved into formal care it was noted that the meaning of the mealtime experience was challenged. **Objective:** This study analyzes data from ET, to understand the impact of place on mealtimes for persons with dementia and their primary partners in care. The goal is to understand how relocating to formal care changes mealtimes for these families. **Methods:** Of the twenty-seven dyads from ET, seven met the inclusion criteria; they were followed for a minimum of four years and had transitioned into either a retirement home or nursing home during the study. Thematic analysis of all transcribed interviews collected for these dyads was performed. **Results:** Preliminary findings revealed six themes related to the mealtime changes and the meaning families attributed to this change in place. These include: comparing to home, commensal dining, systemizing the meal, learning to adapt, developing a new identity and becoming "at home". **Implications & Conclusions:** Preliminary results suggest that the organizational space of formal care leads to barriers that make it hard for residents to 'feel at home'. It highlights the need for facilities to consider where routines, rules and other organizational structures can be made flexible to promote personalization of mealtimes and hopefully a more positive transition for families living with dementia.

Determinants of Food Choice/Dietary Assessment

Dietary sodium intakes and food sources of sodium in Chinese adults in Edmonton, Alberta

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Objectives: The traditional Chinese diet differs from the Canadian diet for sources of sodium. To provide culturally appropriate nutritional messages about sodium reduction, the study aimed to document the sodium intake and top food sources of sodium of Chinese in Edmonton. **Methods:** Chinese men and women aged 18-58 years were recruited from the University of Alberta (n=38 Canadian-born Chinese (CBC); n= 39 Foreign-born Chinese (FBC)). Two in-person 24-hour dietary recalls were completed following the multi-pass technique for one weekday and weekend day. All foods and beverages (excluding supplements) were recorded. **Results:** The mean sodium intake was 3623±1406 mg/d. Sodium intakes between CBC and FBC were not significant (P=0.958). Sodium intakes of 99% of males

and 84% of females exceeded the tolerable upper intake level (UL) of 2300 mg/d for adults. Condiments contributed the most sodium to the diets of CBC and FBC (27.8% and 35.1%); mostly from salt added to foods during home cooking and when prepared by restaurants (13.3% for CBC vs. 20.7% for FBC). Condiments (e.g. soy sauce) accounted for 8.2% and 13.9% of total sodium intake for CBC and FBC, respectively. Other important sodium sources for CBC were grains (11.4%), fast foods (11.2%), and meats and alternatives (10.7%); for FBC important sodium sources were commercially processed meats and poultry (9.1%), grains (8.9%), and mixed dishes (8.7%). **Implications & Conclusions:** Study findings include new information regarding the major food sources of sodium in Chinese Canadians. This is important to ensure that sodium reduction strategies in this population are effective.

Assessment of pre-pregnancy dietary intake using a food frequency questionnaire

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In addition to dietary intake during pregnancy, pre-pregnancy intake may have an important role in fetal development. **Objectives;** The objective of this study was to determine the relative validity of a food frequency questionnaire (FFQ) to retrospectively assess pre-pregnancy dietary intake of pregnant women in Alberta. **Methods;** Two approaches were utilized. First, the FFQ was completed by two groups of women: pregnant and non-pregnant. The FFQ required pregnant women to recall dietary intake for the year prior to pregnancy and, for non-pregnant women, the past year. Independent t-tests were used to compare mean intakes. Secondly, in non-pregnant women only, dietary intake measured by FFQ was compared to intake measured by a 24 hour recall (24HR). Paired samples t-tests were used to compare mean intakes. In addition to energy and macronutrients, key micronutrients chosen for comparison were: folate, vitamin B₆, vitamin B₁₂, calcium, vitamin D, and iron. **Results;** Pregnant (n= 91) and non-pregnant women (n=101) were recruited from Edmonton, AB. The comparison between groups (pregnant FFQ vs. non-pregnant FFQ) showed no significant differences in mean intakes for energy, carbohydrate, fat, protein, or any key micronutrient except calcium which was significantly higher in pregnant women (p=0.026). The comparison between tools (FFQ vs. 24HR) in the non-pregnant group showed no significant differences in mean intakes for energy, or macronutrients. However, mean intakes from FFQ were significantly higher for all key micronutrients except calcium; folate (p=0.000), vitamin B6 (p=0.000), vitamin B12 (p=0.000), vitamin D (p=0.002), iron (p=0.031). **Implications and Conclusions;** Preliminary analysis indicates that this FFQ is a reasonable tool for assessment of pre-pregnancy macronutrient intake; however additional detailed information may be required for micronutrients.

Undergraduate Education and Dietetic Internship

Expectations and perceptions of dietetic practice among first-year nutrition students in DC-accredited Ontario undergraduate programs: A descriptive study

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Objectives: The two predominant factors affecting the declining supply of dietitians include barriers to entering the profession and departures from the profession. The purpose of this research was to establish a baseline of expectations and perceptions of dietetic practice among first-year Ontario nutrition students. Continuing to monitor these expectations over time will determine whether reality of practice matches perceived ideals. **Methods:** A 49-item online survey was distributed to first-year nutrition students in Ontario. Survey questions assessed motivation, perceptions, and expectations of education and dietetic practice. **Results:** Of approximately 350 registered students, 63 completed the entire survey. Almost 97% of respondents intended to become a dietitian. The majority of respondents saw themselves practicing in

private practice (81%), community nutrition (76%) and clinical nutrition (68%). Fifty-seven percent preferred to work in urban areas. Although 96% of respondents thought that job prospects for dietitians were good, only 24% thought that dietetic internship prospects were equally as positive. However, 91% of respondents were interested in pursuing a dietetic internship. **Implications & Conclusions:** Although prospects for attaining an internship are viewed as poor, an overwhelming majority of respondents intended to become dietitians. If the reality of practice is found not to match student perceptions, transition shock may result causing practitioners to leave the profession. An understanding of expectations of nutrition students will aid in development of strategies to prevent further decline and/or to bolster current professional numbers to ensure appropriate access of Ontario residents to dietetic services.

Knowledge, attitudes and beliefs of undergraduate students regarding the use of experiential teaching methods in clinical nutrition curriculum

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Objectives: Knowledge and application of nutrition assessment/nutrition support skills are important in clinical dietetic practice. These skills are taught within Clinical Nutrition (NUTR468) and Advanced Clinical Nutrition (NUTR476) at the University of Alberta. Courses consist of lecture/seminar segments that include experiential learning opportunities (case-based learning using simulated technologies) to encourage self-initiated learning and application of nutrition assessment/nutrition support skills. Our aim was to investigate the knowledge, attitudes and beliefs of undergraduate nutrition students enrolled in NUTR468/NUTR476 regarding the use of experiential learning techniques to teach nutrition assessment/nutrition support. **Methods:** A 25-question survey consisting of open-and-close-ended questions was administered to undergraduate students at the beginning/end of semester in two courses (NUTR468 (n=70)/NUTR476 (n=23)) by an independent investigator. Questions regarding demographics (year of study, prior degree), knowledge/beliefs related to nutrition assessment/support and experiential learning opportunities were addressed. Face/content validity of survey content was performed by dietitians and undergraduate students previously enrolled in NUTR468/NUTR476. Exclusion criteria included graduate students and prior course enrollment. Categorical data was coded and analyzed using chi-square analysis; open ended data was categorized into themes and analyzed using grounded theory. **Results:** Over 97% of students demonstrated competency in core knowledge of nutrition assessment/nutrition support at course completion ($p < 0.05$). Use of case studies utilizing simulated technologies (video, internet mediated) and/or direct patient/interdisciplinary team member interactions were identified to be important factors in knowledge acquisition and application of nutrition assessment/nutrition support skills in course curriculum ($p < 0.001$). **Implications & Conclusions:** Use of experiential learning opportunities using simulated technologies and increased interactions with patients/interdisciplinary team members in undergraduate clinical nutrition curriculum is an important component in teaching nutrition assessment/nutrition support skills to dietetic students.

**MORGAN MEDAL AWARD
POSTER RESEARCH PRESENTATION ABSTRACT**

Jennifer Frohlich was awarded the Morgan Medal by the Canadian Foundation for Dietetic Research.

This award is presented to a dietetic intern or student who demonstrates excellence in a practice-based research project

Flavonoid intake of adult Albertans with type II diabetes estimated using three day food records: part of the Physical Activity and Nutrition for Diabetes in Alberta (PANDA) study

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Diet has been studied extensively as an important component of diabetes treatment, mainly from the perspective of essential macro- and micronutrients. Foods contain many other non-essential nutrients and compounds with the capacity to impact human health. In particular, flavonoids show potential in the management of diabetes and other chronic diseases. The purpose of this study was to estimate flavonoid intake and the contribution Alberta produced foods make to total flavonoid intake in adult individuals with type II diabetes, living in the Edmonton, Alberta area. Subject information (n=31, 42% male, age=58 years), dietary intake (n=31), and physiological parameters (n=30) were obtained from a previously completed study (1). From this study information, total flavonoid intake was estimated using two sets of three-day food records (time point (TP) 2 and 3) which were transcribed into a computerized database combining nutrient data from Food Processor (v.10.1.0), and the USDA Database for the Flavonoid Content of Selected Foods (2). Correlation analysis was used to examine the simple relationships between flavonoid intake and physiological parameters including body mass index, blood pressure, hemoglobin A1c, and waist to hip circumference ratio. The contribution (%) of different food groupings to total flavonoid intake was calculated, and the individual foods that contributed most to total flavonoid intake were identified. Results showed no difference in total flavonoid intake between men and women at either time point (TP2: women 488±165 mg/day vs. men 200±56 mg/day; TP3: women = 478 ±153 mg/day vs. men = 161 ±43mg/day). Women's intake of flavonoids per 1000 kcal basis was significantly higher at TP3 (women: 80 ±85 mg/1000kcal vs. men: 77±24 mg/1000kcal, $p<0.05$). Alberta produced foods contributed minimally to total flavonoid intake in both genders at both time points, while teas contributed most (47.8%) to total flavonoid intake. Flavonoid intake was not significantly related to glycemic control in this study population. The study of non-essential nutrients, like flavonoids, is a promising topic and one that remains to be investigated.

References:

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