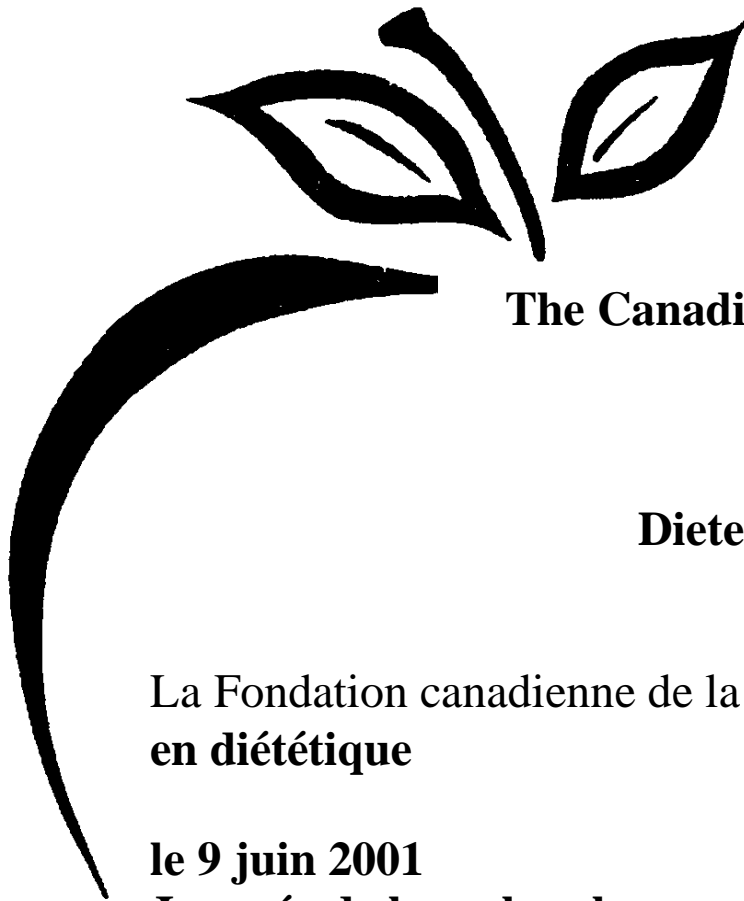


*Canadian Journal of  
Dietetic Practice and  
Research*

**A supplement to Vol. 62, No.  
2, June 2001**

*Publication Mail Permit No. 09797*



**The Canadian Foundation for  
Dietetic Research**

**June 9, 2001  
Dietetic Research Event  
Abstracts**

La Fondation canadienne de la recherche  
en diététique

le 9 juin 2001  
Journée de la recherche  
en diététique

*Revue canadienne de la  
pratique et de la recherche  
en diététique*

## June 2001 Supplement

**Editor/Rédactrice en chef**

Dawna Royall, MSc, RDN, Fergus, Ontario

**Associate Editor/Rédactrice adjointe**

Hélène Delisle, PhD, DtP, Montréal, Québec

The *Canadian Journal of Dietetic Practice and Research* is the official peer-reviewed publication of Dietitians of Canada. The *Journal* publishes reports of original research and other articles that contribute to best practice in dietetics. Opinions expressed in articles published in the *Journal* are those of the authors and do not imply policy of the Association unless so stated.

**Editorial Correspondence** – Manuscripts, letters to the editor and resources for review should be sent to The *Canadian Journal of Dietetic Practice and Research*, c/o pg(e)tools, 500 Cochrane Drive, #5, Markham, ON L3R 8E2. Tel: (905) 940-0200, Fax: (905) 940-0204, E-mail: pgetools@pgetools.com. A Guide for Authors is available from the Dietitians of Canada Web site at: [http://www.dietitians.ca/research/i1\\_1.htm](http://www.dietitians.ca/research/i1_1.htm) or upon request from pg(e)tools in English and in French.

**Reproduction** – Authorization to make a single copy of any article for personal research, teaching or internal use is granted by the copyright owner. Requests to make multiple copies for the above uses, or permission to reproduce material in new works should be addressed to Dietitians of Canada. Multiple copies for resale at profit is not permitted. The *Canadian Journal of Dietetic Practice and Research* is available via microform and/or electronic database from Bell & Howell Information and Learning, P.O. Box 1346, Ann Arbor, MI 48106-1346. For further information on format availability contact Bell & Howell Information and Learning at <http://www.bellhowell.infolearning.com> and is indexed in the Cumulative Index to Nursing and Allied Health Literature print index and CINAHL® database. A document delivery service is available from CINAHL Information Systems® at [www.cinahl.com](http://www.cinahl.com)

**Subscriptions** – The *Canadian Journal of Dietetic Practice and Research* is published quarterly, one volume per year. Subscriptions and change of address should be sent to Dietitians of Canada, #604 - 480 University Avenue, Toronto, ON M5G 1V2. Tel: (416) 596-0857. Annual subscription rates are: CAN \$55 (plus GST or HST); US and Overseas - US \$55. Single copy: Canada - CAN \$15 (plus GST or HST); US and Overseas - US \$15. DC members: \$6/year.

**Advertising** – All inquiries and correspondence concerning advertising should be addressed to Canadian Journal of Dietetic Practice and Research, c/o pg(e)tools, 500 Cochrane Drive, #5, Markham, ON L3R 8E2. Tel: (905) 940-0200. Publication of an advertisement in the *Journal* should not be construed as an endorsement by the Association of the product or the advertiser. Publications mail No. 09797. All rights reserved.

La *Revue canadienne de la pratique et de la recherche en diététique* est l'organe officiel des Diététistes du Canada. La *Revue* publie, sur l'avis d'un comité de lecture, des rapports de recherche inédits et d'autres articles qui contribuent à améliorer la pratique diététique. Les opinions exprimées dans les articles publiés dans la *Revue* sont la responsabilité des auteurs et leur parution ne suppose pas que les DC en ont fait une politique, à moins d'avis contraire.

**Correspondance** – Les manuscrits, les lettres à la rédaction et les ressources à évaluer doivent être envoyés à la *Revue canadienne de la pratique et de la recherche en diététique*, a/s pg(e)tools, 500 Cochrane Drive, #5, Markham, ON L3R 8E2. Tél. : (905) 940-0200, Téléc. : (905) 940-0204, Courriel : [pg\(e\)tools@pg\(e\)tools.com](mailto:pg(e)tools@pg(e)tools.com). Un Guide de rédaction en anglais est offert sur le site Web des Diététistes du Canada à l'adresse suivante : [http://www.dietitians.ca/research/i1\\_1.htm](http://www.dietitians.ca/research/i1_1.htm). On peut également se procurer le Guide en français ou en anglais en s'adressant à pg(e)tools.

**Reproduction** – On peut obtenir l'autorisation de reproduire un seul article à des fins personnelles de recherche, d'enseignement ou pour l'usage interne en s'adressant au détenteur du copyright. On peut obtenir la permission de faire plusieurs copies réservées aux usages mentionnés ci-dessus ou de reproduire des extraits de travaux nouveaux en s'adressant au bureau des Diététistes du Canada. Il est interdit de reproduire des articles en plusieurs exemplaires pour les vendre à profit. La *Revue de la pratique et de la recherche en diététique* est offerte sur microforme ou base de données électronique par Bell & Howell Information and Learning à l'adresse suivante : <http://www.bellhowell.infolearning.com> et son contenu est indexé dans l'index cumulatif de la Nursing and Allied Health Literature® et dans la base de données CINAHL®. CINAHL Information Systems® offre un service de distribution de documents à l'adresse suivante : [www.cinahl.com](http://www.cinahl.com)

**Abonnements** – La *Revue canadienne de la pratique et de la recherche en diététique* est une publication trimestrielle; chaque volume correspond à une année. Les demandes d'abonnement et de changement d'adresse doivent être envoyées aux Diététistes du Canada, 480, University Avenue, Bureau 604, Toronto, ON M5G 1V2. Tél. : (416) 596-0857. Abonnement annuel : 55 \$CAN (plus TPS ou TVH); étranger : 55 \$US. Prix à l'unité : 15 \$CAN (plus TPS ou TVH); étranger : 15 \$US. Membres des DC : 6 \$ par année.

**Publicité** – Les demandes et la correspondance relatives à la publicité doivent être adressées à la *Revue canadienne de la pratique et de la recherche en diététique*, a/s pg(e)tools, 500 Cochrane Drive, #5, Markham, ON L3R 8E2. Tél. : (905) 940-0200. La publication d'une annonce dans la *Revue* ne doit pas être interprétée comme une approbation du produit ou de l'annonceur par l'association.

Envoi de publication – Enregistrement n° 09797. Tous droits réservés.

ISSN 1486-3847: Issue Date June 2001/Date de parution : juin 2001

# Canadian Foundation for Dietetic Research

## Dietetic Research Event – June 9, 2001

*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*

### Outcomes of Intervention

#### **Community-based pre-school nutrition screening: feasibility assessment**

*R. Sanderson, H. Cullis, L. Rysdale, J. Beyers\*, Public Health Research, Education and Development (PHRED) Division, Sudbury & District Health Unit, Sudbury, Ontario. [E]*

No valid and reliable community-based nutrition screening tool for pre-school children (aged 3-5) currently exists. This study consisted of two major components: the development of a nutritional screening tool "STEP" (Screening Tool about Eating for Pre-schoolers) and its pre-testing in a developmental sample to determine the feasibility of conducting a large-scale validation of the tool. Factor identification, questionnaire development, content and face validation was completed based on a literature review, the input of ten dietitians and parent pre-testing. The tool included 29 questions with a five-point response scale covering seven attributes: food; eating habits; food security; body image; activity level; overall health; and body mass index. Some questions were weighted more heavily than others to reflect their greater contribution to overall nutritional status and therefore overall STEP score. Three levels of risk for pre-schoolers were recognized: "no nutritional concerns"; "some nutritional concerns"; and "requires referral". The tool was piloted within a school readiness Health Fair in Sudbury, Ontario. In the final sample of 37 pre-schoolers, the STEP tool score was compared to the current standard measure of nutritional risk, the dietitian's nutritional assessment of the child. Item response, frequency endorsement, and inter-correlated item analyses were conducted. Eight percent of the pre-school children assessed had significant nutrition problems requiring follow-up. Scatter diagrams suggest that relatively distinct clustering of the screen scores corresponded to the three levels of the dietitians' assessments. ROC scores indicate that reasonable cut-points for "screening" nutritional risk could be established (sensitivity 67%, specificity 87%, positive predictive value 29%, negative predictive value 88%). Pre-test results indicate that following tool modification, a large-scale validation of

the STEP screening tool be conducted.

#### **Evaluation of a community based nutrition education program for school aged children**

*L. Holuk Siddall\*, St. Vital Community Health Resource, Youville Clinic Inc., Winnipeg, Manitoba. [E]*

The Morrow Avenue Kid's Cooking Club is a community based, drop-in, nutrition program targeted at children seven to nine years old, who live in a low-income housing neighborhood. The project was developed in partnership between Youville Clinic and the Salvation Army. The emphasis of the education was to provide an interactive, non-threatening, fun, learning experience. Each session is comprised of a food preparation activity, eating, cleaning and a nutrition education activity. The evaluation of the program was intended to provide information on how the program operated in order to meet its objectives and to provide feedback about the development and delivery of the program in order to set future directions. The primarily process evaluation protocol was based upon the evaluation protocol for the Kids C.A.N. Program, Saskatoon, Saskatchewan 1997-1998 and was adjusted for the uniqueness of this community based program. Qualitative methods of data collection were utilized based upon the nature of the process evaluation. Input was sought through individual and group interviews with persons who were involved with program development and implementation, and parents of children who participated. Findings are relevant to the administrators of the partner organizations, community partners, community health professionals and volunteers. Findings included program participation, strengths, weaknesses, experiential approach to education and skill building, program impact, partnerships and volunteers. The project met all of the program objectives to some extent. As per the purpose of the evaluation, the evaluation findings will be used to set future directions for the program in the Morrow Avenue and other neighborhoods. If the program model is to be used in different communities, adjustments may be required depending upon community capacity and need.

### **Community Nutrition Project for Children with Special Needs**

*J. Schlenker\*, J. Cocking, J. Gilley, C. Richards, Sunny Hill Health Centre for Children, Vancouver, British Columbia. [R]*

The project's purpose was to use the Sunny Hill Parent Nutrition Screening Checklist in the community to detect nutritional problems in children with special needs and to assess the effectiveness of nutrition intervention. The project's four objectives were to determine if any parents of children with special needs were concerned about their child's nutritional status, to determine if Dietitians agreed, to assess effectiveness of nutritional intervention and to examine parent satisfaction with intervention. Parents of thirty-four subjects (children age 1-18 years with mean=6.6 years) completed the nutritional checklist (P1) prior to the home visit when the Dietitian assessed the child, provided nutrition recommendations and completed the Checklist (D1). Ten children, at high nutritional risk, were chosen for follow-up assessment and parents completed the checklist again (P2). After intervention, all parents received the Satisfaction Questionnaire (PS). A comparison of (P1) and (D1) revealed that in general, parents showed more concern than Dietitians,  $F_{(1,66)} = 6.515, p < .01$ . For 79.4% of the children, however, parents and Dietitians agreed about the need (24) or absence of need (3) for nutrition intervention. The effectiveness of nutrition intervention was determined by comparing parent Checklists (P1 to P2) and Dietitian Checklists (D1 to D2). Parents indicated fewer concerns after intervention,  $F_{(1,50)} = 3.64, p < .06$ , whereas Dietitians showed no significant difference,  $F_{(1,22)} = 2.88, p < .10$ . Parents had a high level of satisfaction, noting that nutrition intervention was worthwhile for their children and that Dietitians' suggestions were useful and practical.

### **Evaluation of kids shop smart tours**

*S.C. Smith\*, L. Kalina, Nutrition Program, Thompson Health Region, Kamloops, British Columbia. [R]*

The present study investigated the impact of Kids Shop Smart Tours (KSST) on participant's attitudes toward trying new foods and eating a variety of foods and their understanding of Canada's Food Guide (CFG). Qualitative and quantitative data was collected from parents and students using a questionnaire and quiz. In total, 869 students participated in the study and 53% returned complete questionnaires. KSST participants tried unfamiliar foods introduced on the tour 56.3% of the time. Additionally, children who had never tried or had previously disliked foods introduced on the tour reported liking them post-tour 14.9% and 18.0% of the time, respectively. Children requested foods they tried the week following the tour 27.9% of the time. No significant differences were found between the average

scores of children's willingness to try new foods or eat a variety of foods pre- and post-tour. However, 23.3% and 27.0% of parents reported post-tour that their child was more willing to try new foods and was eating a greater variety of foods, respectively. Over a quarter (31.8%) of parents reported a change in their child's attitude towards food after the tour, including increased willingness to try new foods and increased knowledge of and interest in CFG. The average quiz scores for KSST participants and a comparison group were 51% and 57%, respectively. The difference between these scores was insignificant. However, 46.6%, 91.1%, 15.6% and 68.9% of KSST participants correctly answered questions on grains, vegetables/fruit, milk and meat/alternatives, respectively. The KSST may encourage some participants to more willingly try new foods and eat a wider variety of foods in addition to facilitating the recognition of foods within the food groups of CFG.

---

The Canadian Foundation for Dietetic Research funded this project.

### **Canadian Dietitians' Awareness and Practices of the Dietary Fat Recommendation for Children**

*M.J. Cooper\*, A.V. Piekartz, S.H. Zlotkin, Division of Gastroenterology/Nutrition, Program in Metabolism, Research Institute, The Hospital for Sick Children, Toronto, Ontario. [R]*

Nutrition guidelines are an important means for registered dietitians to be kept informed on a variety of key recommendations. In 1993 Health Canada re-evaluated the nutrition guideline concerning dietary fat intake and concluded that the intake suggested in 1990 (#30% of energy) was inappropriate for children. The current guideline states that "from the age of two until the end of linear growth, there should be a transition from the high fat diet of infancy to the level recommended for adults". The purpose of this study was to determine the awareness and practices of dietitians related to the nutrition guideline for dietary fat intake and children. A self-administered 22-item questionnaire was sent to 509 members of Dietitians of Canada who had indicated skills in pediatrics on their 2000 membership application. The overall response rate was 63%. Results from 272 respondents were used in the analysis. 46 dietitians were excluded because they were neither specialists (> 25% of their work related to children) or interested in pediatrics (<25% of their work related to children). From the total analyzed sample, 61% of dietitians had an awareness of the current Health Canada recommendation for fat intake, with a greater awareness among specialists compared to those with an interest in the field (65% vs. 35%) ( $p < 0.023$ ). Conversely, 1/3 of specialists had no awareness of this recommendation. Among those who were aware, 22% did not put the

current recommendation into practice. Our results suggest that improvement in dissemination strategies is needed so that all specialists in pediatrics have the means to provide current 'best practice' to their clients.

### **Linear growth and nutritional status of children with epilepsy on the ketogenic diet**

*Y.C. Liu\*, S. Williams, C. Basualdo-Hammand, R. Curtis, Division of Neurology, The Hospital For Sick Children, Toronto, Ontario. [R]*

**Objective:** The ketogenic diet is one of the most effective therapies for intractable seizures. Potential growth and nutritional risks have been evaluated by limited studies. This study investigated the impact of the medium chain triglyceride and classic ketogenic diets on children's nutritional status. **Methods:** Participants included 16 children on the classic and 14 on the MCT diet. All children had failed at least two anticonvulsant treatments. Weight, height, skinfold measurements and biochemical indexes were obtained at pre-diet and 4 months on the study. Paired-t tests were conducted. **Results:** 83% of participants completed the study. Both groups had statistically significant height increases ( $p<0.05$ ); post intakes of protein, vitamins (A, B1, B2, B6, C, D, E) and minerals (calcium, magnesium, iron, phosphorus, zinc) met or were close to recommended nutrient requirements; and all biochemical indexes (serum albumin, calcium, magnesium, zinc, vitamin E, phosphate, ferritin) remained within the normal range. The classic diet group had significantly lower albumin and magnesium, higher ferritin and vitamin E at 4 months ( $p<0.05$ ) and higher total cholesterol/HDL ratio associated with increased cardiac risk. The MCT group, in contrast, had a significantly lower cholesterol/HDL ratio ( $p<0.05$ ) but no significant differences among other biochemical indexes. **Conclusions:** This study demonstrated that the nutritional status and linear growth of children on the ketogenic diet could be maintained over a 4 month period. Further research may be needed to determine whether the linear growth and nutritional status can be maintained over a longer period and with a larger sample size.

### **Associations among plasma homocysteine, dietary intake and nutritional status in hemodialysis patients on long-term vitamin supplementation**

*K. Burleigh\*, R. Hanning, M. Goldstein, P. Darling. St. Michael's Hospital and Dept. of Nutritional Sciences, University of Toronto, Toronto, Ontario. [R]*

Hemodialysis (HD) patients have a high prevalence of both cardiovascular disease and elevated plasma homocysteine (tHcy), despite taking B-vitamin supplements that would normalize tHcy in healthy individuals. This study examined the influences of malnutrition and nutrient intake on tHcy in 45 HD

patients prescribed 1mg folate and 6µg B12/d. A fasting pre-dialysis blood sample was analyzed for tHcy, folate and vitamin B12. Nutritional status was assessed by subjective global assessment (SGA), and dietary intakes of energy, protein, folate and vitamin B12 from 3 day weighed food records and a food frequency questionnaire. tHcy was elevated in 89% of the patients ( $27.3\pm 12.6\mu\text{mol/L}$ , mean $\pm$ SD), and was 42% higher in patients who were non-compliant with vitamin supplementation ( $n=7$ ), versus compliers ( $42.2\pm 16.7$  vs  $24.5\pm 9.6\mu\text{mol/L}$ , respectively,  $p=0.003$ ). No patients had low serum folate or vitamin B12. Based on SGA, 44.4% of patients were malnourished. However, tHcy was not significantly different in well-nourished vs malnourished patients. Energy and protein intakes ranged from 11.6 to 43.6kcal/kg/d and 0.7 to 2.0g protein/kg/d and were adequate in 22.2% of patients. Only 12.9% of patients met the RNI for folate (400µg/d) from food alone. Plasma tHcy was inversely correlated with serum folate ( $r = -0.362$ ;  $p=0.015$ ) and with dietary energy, protein, folate and vitamin B12 intakes ( $r = -0.467$ ,  $p=0.01$ ;  $r = -0.449$ ,  $p=0.019$ ;  $r = -0.491$ ,  $p=0.006$ ; and  $r = -0.592$ ,  $p=0.0001$ , respectively). Vitamin B12 intake accounted for 35.1% of the variance in tHcy on multiple regression analysis. These results suggest that higher dietary intakes in addition to compliance with vitamin supplementation may counter hyperhomocysteinemia of HD.

---

*Supported by the Canadian Foundation for Dietetic Research.*

### **Dietitians Can Make a Difference: NUTRITION RESEARCH can IDENTIFY high-risk malnourished CAPD patients earlier**

*C. Chatalasingh, \* DG Oreopoulos. Peritoneal Dialysis Unit, TWH, Toronto, Ontario. [R&E]*

Previous research to validate BIA in the evaluation of Nutritional status of CAPD patients was completed at TWH -UHN identifying 47 CAPD patients, 26 men (age  $58.0 + 14.6$  yr. duration on CAPD,  $27.3 + 18.3$  mths) and 21 women (age  $56.2 + 14.9$  yr. duration,  $34.5 + 23.4$  mths). We evaluated these patients using SGA and BIA (BCM, fat mass, & phase angle). According to SGA, patients were scored as well nourished (GRP I,  $n=24$ , SGA=A); mildly malnourished (GRP II,  $n= 18$ , SGA=B); and moderately malnourished (GRP III,  $n= 5$ , SGA=C). Analysis of the main nutritional parameters within these sub groups revealed a proportional decrease in phase angle, with a statistically significant correlation ( $p<0.009$ ), between these two parameters. Serum albumin was only significantly lower in GROUP(GRP) III ( $35.4 \pm 7.3$ ) vs. GRP I ( $40.3 \pm 4.2$ ).

	GRP I (n=24)	GRP II (n=8)	GRP III (n=5)
BCM(Kg)	23.2 ± 6.3	20.9 ± 6.2	19.0 ± 6.5
Fat(Kg)	25.8 ± 11.8	23.2 ± 11.4	20.6 ± 14.5
Phase Angle	5.44 ± 1.21	4.52 ± 1.11	3.50 ± 1.54

Subjective Global Assessment is a simple and reliable method in routine clinical practice for assessment of nutritional status of CAPD patients as correlated with BIA (phase angle). As a result of this study we have modified the SGA rating technique to a more specific range of nutritional status, involving 7 parameters. A, A-, B+, B, B-, C+ and C (well nourished to severe wasting). Thus, high-risk malnourished CAPD patients are identified earlier, through a simple technique of Subjective Global Assessments, resulting in earlier intervention and justifying the role of dietitians in CAPD management.

#### **Utility of nutrition lab reports for peritoneal dialysis patients: a patient survey**

*N. Pendle\*. Southern Alberta Renal Program, Foothills Hospital, Calgary, Alberta. [E]*

The objective of the study was to determine if the implementation of a nutrition lab report (NLR), stating albumin, potassium and inorganic phosphate results, provided a useful method of informing Southern Alberta Renal Program (SARP) peritoneal dialysis (PD) patients of their lab results. A telephone survey consisting of 12 questions about the utility of the NLR was conducted. Patients were questioned about their perception of the usefulness of the NLR's, if they wanted to continue receiving NLR's, and if there was anything about the NLR they felt should be changed. If the majority of patients found the NLR's to be of use to them then the program would continue to offer this service to PD patients. Of 61 PD patients, 40 were eligible and 36 (90%) completed the survey. Ninety-seven percent of respondents found the NLR useful and wanted to continue receiving it. Ninety-one percent of respondents reported feeling more informed about their health. Seventy-four percent reported making changes to the way they ate as a result of information on the NLR, and 14% reported they did not make any changes to their diet as their lab results did not indicate a reason to do so. Three (8%) respondents reported confusion with parts of the NLR, while seven (19%) requested that more blood test results be added. It was concluded that the majority of PD patients found the NLR useful. Patients reported they felt more informed about their health, and were able to make changes to their diet based upon the lab results. As a result of this survey, the nutrition lab report will continue to be utilized in the Southern Alberta Renal Program for peritoneal dialysis patients.

#### **Effect of in-patient nutrition counseling on dietary behaviour changes**

*S.L. Cook\* and R. Nasser, Department of Clinical Nutrition Services, Regina Health District, Regina, Saskatchewan. [R]*

There is a growing need to assess the adequacy of nutrition services as they are currently delivered in clinical practice. Not only is this information essential to administrators to justify current staffing levels, but it is also an important measure of job satisfaction for Dietitians. Thus, providing objective data on the ability of Dietitians to promote positive dietary changes is of particular importance. The purpose of this study is two-fold: 1) to identify whether clients incorporate dietary changes based on the information provided to them by the Dietitian, and 2) to determine to what extent these changes are maintained over time. Clinical Dietitians from 2 acute care hospitals distributed a 96-item Food Frequency Questionnaire (FFQ) to in-patients prior to nutrition counseling. The FFQ's were then self-administered by the client. Dietitians maintained detailed records of the specific nutrition goals provided for each client. Successive FFQ's were then mailed to clients at both 3- and 6-months following discharge. Questionnaires were analyzed based on changes in the consumption of specific foods. Of the 50 clients completing all three surveys, 75% and 71% of participants made positive dietary changes at the 3- and 6-month time-points, respectively. Of those individuals making positive changes, one-third incorporated less than 25% of the Dietitians recommendations, one-third incorporated between 25 and 50% of the recommendations and one third incorporated greater than 50% of the recommendations. These preliminary results suggest that in-hospital nutrition counseling has the ability to positively impact clients' food choices. Furthermore, time does not appear to have an effect on the number of positive dietary behaviours incorporated. These results confirm the importance of Dietetic Services as they are currently provided in-hospital.

#### **Efficacy of behaviour modification techniques to reduce dietary fat intake in clients with hyperlipidemia**

*R. Nasser\*, S.L. Cook, K.D. Dorsch, R.G. Haennel, Department of Clinical Nutrition Services, Regina Health District, Regina, Saskatchewan. [R]*

The evidence is conclusive that a high fat diet is a major risk factor for the development of cardiovascular disease. Unfortunately, traditional diet counseling has not been successful in promoting a reduction in dietary fat intake for the majority of people with hyperlipidemia. Recently, the Stages of Change Model has been identified as a potential method for promoting positive health behaviours, including dietary fat reduction. The purpose of this study was to determine the effectiveness

of the Stages of Change Model in promoting a decrease in dietary fat intake in clients with hyperlipidemia. Individuals referred for diet control of hyperlipidemia were recruited for this study through the Regina Health District Lipid Clinic. Sixty participants were randomized to receive either the conventional approach to dietary management of hyperlipidemia or the Stages of Change approach. The treatment group was provided with tailored dietary activities based on their readiness to change, whereas the conventional group received a series of diet instruction classes. Dietary fat intake was assessed using 4-day food records administered at baseline and then again at 4- and 16-weeks. Fat intake (total and saturated fat) was based as an average from the 4-day food records and expressed as a percentage of total daily calories. No significant differences were found between fat intake between the two groups between baseline, 4 and 16 weeks ( $P < 0.05$ ). The results of this study identify that Stages of Change approach does not increase the participants' ability to change dietary behaviours when compared to the conventional approach. However, diet instruction as delivered by either approach was identified as promoting significant improvements in dietary fat intake.

**Personal investment in cardiac health: A pilot study to promote behavioral change in the workplace**

*G.M. Shah\*, C.A. Jones, C.S. Brewis, L.A. Webb, CRHA Hypertension and Cholesterol Centre, Foothills Medical Centre, Calgary, Alberta. [E]*

The objective of this study was to collaborate with occupational health nurses (OHN) to facilitate small group behavior modification programs to promote adherence to lifestyle recommendations for individuals at risk for cardiovascular disease (CVD). The multidisciplinary team of dietitians, nurses and clinical psychologists at the Hypertension & Cholesterol Centre (HCC) developed a set of seven "Creative Lifestyle Changes" modules for participants, as well as a facilitator's manual. The study design was developed with extensive input from the OHNs. Occupational health nurses recruited individuals with hypertension, dyslipidemias, diabetes, strong family history of CVD or high level of stress. The 6-month program was held at the worksites, facilitated by HCC staff and the OHN. Prochaska's Stage of Change model was incorporated throughout the program. Pre and post intervention data included assessment of Lifestyle behaviors, anxiety and depression scores, readiness for change and cardiovascular risk factors. Data was analyzed by paired T-test. Eighty-two participants were recruited from five companies. Fifty-six participants completed the study. Statistically significant improvements ( $P$ -value  $< 0.05$  +/- 95% confidence intervals) were found for waist circumference, weight, systolic and diastolic blood pressure, eating habits, anxiety and depression scores, readiness to change score for eating habits and physical

activity and, importantly, the Framingham 10-year risk for coronary artery disease. The study suggests that there are benefits to partnering with OHNs to offer small group behavior modification programs for cardiovascular risk reduction within the workplace.

**Examining dyslipidemia in the Lung Transplant Population. Is there potential value in nutrition intervention?**

*J. Madill\*, C. Gutierrez, C. Chan, M. Hutcheon, T. Waddell, and S. Keshavjee. Toronto Lung Transplant Program, Toronto, Ontario. [R]*

Cardiovascular disease (CVD) is a major complication in kidney, heart and liver transplant recipients. Dyslipidemia is a major risk factor for the development of CVD and may also be a risk factor for chronic rejection. However, little is known regarding dyslipidemia among lung transplant recipients. The purpose of this study was to describe the pre and post-transplant prevalence and incidence of dyslipidemia in our lung transplant population. Between 1986 and April 2000, 364 patients were transplanted, 14 were excluded because of re-transplants, 49 patients died before 3 months. A retrospective review of 301 patients, 152 males and 149 females, mean age  $45.6 \pm 13.4$  years was completed. Dyslipidemia was defined as any abnormality of total cholesterol, triglycerides, LDL-Cholesterol, HDL-Cholesterol or Chol:HDL ratio. There was a high incidence of developing dyslipidemia post transplant within the first 3 months (55%). The Odds Ratio (OR) of finding dyslipidemia at 3 months increased with each year of age (OR=1.04). The OR of finding dyslipidemia at 3 months was greater for females (OR=2.3). There was no significant association of BMI and dyslipidemia. Patients with dyslipidemia die more often from the post transplant complication of Bronchiolitis Obliterans compared to the other common complications of infections or cancer (OR=2.3), but this was not statistically significant ( $p=0.17$ ). Furthermore, after 90 days and between the first 2 years post transplant, there was a higher mortality in patients with normal lipid levels versus dyslipidemia ( $p=0.0255$ ). The implication of this study is that the transplant dietitian's role is critical in further examining dyslipidemia and in validating the potential benefits of nutrition interventions in this patient population.

## Determinants of Food Choice

### **Women's experiences of eating with changed health status: Phase I report**

*C. Morley\*, A. H. Neufeldt, Community Rehabilitation and Disability Studies/Graduate Division of Educational Research, University of Calgary, Calgary, Alberta. [R]*

While food selection, eating and feeding behaviour are recognized as expressions of one's sense of self, and one's sense of self is understood to undergo transformation with change in health status, no previous studies seem to have addressed the intersection of these subject areas. This two-phase study explores the experiences of women living with changed health status who have feeding responsibility for others using a methodology based on hermeneutic phenomenology. Hermeneutic phenomenology endeavours to explore the meaning imbedded in everyday phenomena, in this case, eating - an essential everyday activity regardless of changes in personal circumstances. Phase I was to obtain descriptive accounts of women's experiences and to identify themes in the nutritional narratives to guide decision-making about Phase II. Interviews were conducted with four women, each living with a different chronic condition and family configuration. Taped narratives were transcribed and underwent content categorization to identify emergent themes. There was strong concurrence amongst the participants' narratives describing considerations in feeding their families and themselves at three levels: household, personal (of which biology was a minor part), and beyond household. While personal biologic needs associated with their health status were acknowledged, effort was primarily directed at preserving household routines and each participant's role in her household, as well as satisfying household members' preferences. Participants reported weariness with monitoring their diets and health status, often choosing to endure the consequence of eating whatever they wanted. The dominance of household considerations in feeding and eating behaviour when living with changed health status warrants further consideration in dietetic research and practice. Phase II interviews will focus on assessing the conceptual framework and exploring practice implications.

### **The benefits and challenges associated with eating fruits versus vegetables among Canadian women: A qualitative investigation**

*J.A. Paisley\*, S. Skrzypczyk, Hamilton Social and Public Health Services, Hamilton, Ontario. [R]*

Higher levels of fruit and vegetable consumption have been associated with reduced risk of chronic disease. Recent provincial surveys have reported that fruit and vegetable consumption levels among most Canadian

adults are below the recommended minimum five servings daily. This study used an inductive qualitative approach to examine the perceived benefits and challenges relating to fruit versus vegetable consumption among Canadian women aged 20 to 44 years. Forty-seven participants were recruited through community programs and newspapers. Eight semi-structured group interviews were conducted using a serial technique that enhances the trustworthiness of study findings by allowing participants to verify themes as they emerge from the data. The constant comparison method of data analysis was used to identify overarching themes. The first theme, seasonal enjoyment, described a widely shared benefit of eating fruits and vegetables. The second and third themes, a morality associated most strongly with vegetables and a reluctance to try new fruits and vegetables due to lack of preparation information, described challenges participants associated with eating these foods. Two themes relating specifically to the challenges of eating fruit also emerged. Eating fruit was associated with concerns about contamination and with dissatisfaction concerning the cost and quality of imported fruit. Further research can determine whether the perceived similarities and differences between the benefits and challenges of eating fruits versus eating vegetables described by study participants are widely held. Tailored nutrition interventions that address similarities and differences in the benefits and challenges for eating fruits versus vegetables may be needed to encourage increased consumption of these foods.

### **Self-reported lactose intolerance: development of a questionnaire to explore knowledge, attitudes, diagnostic characteristics and calcium intake**

*H.Y. Lovelace\*, S.I. Barr, R. Levy-Milne, S. Ulmi, Human Nutrition Graduate Program, University of British Columbia, Vancouver, British Columbia.[E]*

Numerous studies indicating that more people claim to be lactose intolerant than actually are suggest widespread misconceptions about lactose intolerance. However, there has been little research to study how people decide that they are lactose intolerant, and the nutritional implications of this perception. The role of psychological factors in perceived lactose intolerance has received little attention, despite anecdotal reports that people with lactose intolerance have negative perceptions of milk and other dairy products. Perceived lactose intolerance may be just as important as true lactose intolerance since dietary changes may ensue, possibly compromising calcium intake and increasing osteoporosis risk. This study involved the development of a self-administered questionnaire to assess diagnostic characteristics, knowledge of lactose intolerance, and attitudes towards dairy products in individuals with self-

reported lactose intolerance. Also assessed were dairy product consumption behaviour and calcium intake from various sources. Questionnaire pre-testing on 7 self-reported lactose intolerant participants and 5 nutrition professionals indicated an appropriate level of readability by participants, and lead to some minor wording changes. Twelve participants completed the questionnaire twice at a one-week interval for reliability testing. Reliability was assessed using Pearson's product moment correlation and scales were assessed using alpha-reliability statistics. Scales measuring knowledge, attitude and behaviour achieved acceptable alpha-reliability coefficients (range 0.85-0.91) and product

moment correlations (range  $r=0.83-0.96$ ,  $p<0.01$ ). The food frequency questionnaire for calcium intake achieved a correlation of  $r=0.97$ ,  $p<0.01$ . The questionnaire appears to be an appropriate tool to explore perceptions surrounding self-reported lactose intolerance, and may provide useful information to help understand knowledge, attitudes and behaviour of this group, and plan appropriate education materials.

## New Roles for Dietitians in Meeting Health Needs of Canadians

### Expanded role of the dietitian in a diabetes education setting

*K Anderson\*, J Peterson Watt, K McQuillen, S Ludwig, D Gelskey, N Pentland, Diabetes and Chronic Diseases Unit, Manitoba Health, Winnipeg, Manitoba. R Miller, H Samson, K Beardy, C McCusker, Burntwood Regional Diabetes Program, Burntwood Regional Health Authority, Thompson, Manitoba. [E]*

*Diabetes: A Manitoba Strategy* recommended expansion of the community-based Manitoba Diabetes Education Resource (DER) Program to integrate education into the continuum of diabetes prevention, care, research and support services. A three year demonstration project was initiated by Manitoba Health in partnership with the Burntwood Regional Health Authority to demonstrate the feasibility of implementing some of the key recommendations from *Diabetes: A Manitoba Strategy*. One component of the Burntwood Regional Diabetes Program (BRDP) demonstration project is to provide complication risk factor assessments in a group setting. This includes activities not traditionally done by Registered Dietitians (RDs) such as foot screening and blood pressure measurements. Within the BRDP framework, RDs have expanded their role to primary educators and case managers. The process for ensuring professional competency and protection of the public included 1) discussions with regulatory bodies, regional

health authorities and insurance companies to determine scope of practice and delegation of function issues 2) development of a competency package to ensure appropriate knowledge and skills 3) completion of competency package through training of RDs 4) evaluation component. In conclusion, RDs can achieve the necessary competencies to do foot screening and blood pressure measurement through training and the support of other members of the diabetes health care team. The employing authority assumes liability for activities outside of the defined scope of practice for RDs. It was recommended that RDs working in an expanded role should achieve and maintain Certified Diabetes Educator status, to ensure professional competency and provide protection to the public.

## Vulnerable Groups and their Nutritional Needs

### **Energy, macronutrient intakes and growth of Canadian term infants 8-26 months**

A.H. Chen\*, S.M. Innis, *Department of Human Nutrition, University of British Columbia, Vancouver, British Columbia. [R]*

Major changes in nutrient intake occur during weaning from the exclusive milk diet of the infant to incorporation of specific weaning foods, and eventually an adult diet. Little information is known about macronutrient intakes for children under 2 years of age, when complementary foods are introduced to the diet. Information on the potential relation between dietary intake, specifically fat, and growth of infants is also limited. We quantify energy and macronutrient intakes in term infants and compare the energy intakes of infants in this study with the Recommended Nutrient Intakes (RNI). The potential relations between dietary nutrient intakes and anthropometric measures were also determined. This study involved 146 infants 8-26 months of age. Three-day weighed food records were used to determine nutrient intakes followed by computer-based analysis. Length and weight were determined. The weight-for-age, length-for-age and weight-for-age data for each infant were plotted on the revised National Centre of Health Statistics (NCHS) growth charts and z scores were calculated, then converted to percentiles. Energy from fat declined from 37% to 29% from 8 to 26 months. The major complementary food source of fat was milk and milk products. About 69% of infants in our study had average energy intakes below the RNI. The weight of infants was lower than the value in the NCHS growth charts, explained by lower weights of infants of Chinese ancestry. Positive relations between energy intake versus weight and length percentiles were found. Future studies are warranted to determine if the revised NCHS growth charts are appropriate for children of different ethnic backgrounds. The possible importance of low energy and fat intakes in some children remains to be explored.

### **“Feeding Your Toddler” video developed for multicultural audience in Vancouver**

H. Yeung, S. Raja\*, C. Scheuer, G. Mumick, *Vancouver/Richmond Health Board, Vancouver, British Columbia. [E]*

A video entitled “Feeding Your Toddler” was produced by the Vancouver/Richmond Health Board with the objective to help parents and other caregivers feed young children (1 – 3 years) in ways that promote healthy eating behaviours and attitudes. The video explains healthy feeding relationships and healthy meals and snacks in a visual, useful format and is available in five languages—English, Cantonese, Punjabi, Spanish, and

Vietnamese. The responsibilities of the parent/caregiver and the child in the feeding relationship are explained in ways that respect people from different socio-economic and cultural backgrounds. Given the diverse cultural and ethnic population of Vancouver, the planning and production of the video involved professionals and community members with different backgrounds. Dietitians, nutritionists, community health nurses, lay counsellors, and the Multicultural Health Education Consultant of the Vancouver/Richmond Health Board participated in developing the video and a facilitator’s guide. The video shows examples of foods from North American, Central American, and Asian diets. The resource has been promoted for sale to community centres, family centres, neighbourhood houses, child care facilities, multicultural service agencies, as well as external health units. The video is now being widely used by early childhood staff and their families. In addition, local media outlets have been contacted to increase the audience reached. A handout entitled “Feeding Your Toddler (9-18 months)”, also available in English, Chinese, Punjabi, Spanish, and Vietnamese, complements the video’s messages of promoting healthy eating in a healthy feeding relationship. The poster presentation will present the video and print resource to help health professionals who work with young children and their caregivers. Although developed for Vancouver’s multicultural audience, the video would be appropriate for most settings in Canada.

### **Food security issues of caregivers of nutritionally vulnerable preschool children**

S. Berenbaum\*, E. Misskey, M. Leurer, *College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, Saskatchewan. [R]*

Despite mounting evidence supporting existence of hunger in children, little is known about the specific food security issues of Saskatchewan’s childhood population. This study explored the food security issues of the preschool population (under 5 years of age) in Regina. The research objectives were: 1) to better define the preschool population most at risk for being nutritionally vulnerable, 2) to describe current services and programs that address hunger and nutrition issues for preschoolers, and 3) to identify food security issues of households with nutritionally vulnerable preschoolers. Three phases guided the study. Phase 3, presented here, was a qualitative inquiry using interview methodology. Caregivers in households most likely to have nutritionally vulnerable preschool children were identified through various agencies and organizations acting in partnership with the research team. Fifty caregivers agreed to participate in a one hour taped interview with a member of the research team and a

social work placement student. An interview guide focusing on identifying food security issues of caregivers was developed, pretested and used by the interviewers. Transcripts were transcribed verbatim; data was analyzed using QSR-NUDIST. Several major themes emerged focusing on diet (typical and preferred), income management, food management, food acquisition, and feelings of being in a food vulnerable position. Results indicate that caregivers struggle with accessing, preparing and serving adequate and acceptable foods for their children. Numerous coping strategies are used to bring enough food into the home and to use foods of higher quality. These strategies include bulk purchasing, comparison shopping, using generic brands, budgeting, pawning items, using coupons, seeking help from family and friends, and using charitable food assistance and vouchers. Caregivers identified barriers to acquiring and managing food including child preferences, storage, lack of nutrition and food preparation knowledge, anxiety, poor quality charitable foods, and lack of transportation. Some caregivers do not like to admit the need for help, and are often embarrassed, degraded or ashamed for seeking help. Results provide insight and direction for planners, caregivers, organizations and others for addressing food security problems for this target group.

#### **Energy, nutrient and fibre intake, and weight status of children aged 10 to 12 years in Perth County, Ontario, and Charlottetown, Prince Edward Island**

*S. Evers, Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, Ontario; J. Taylor\*, Department of Family and Nutritional Sciences, University of Prince Edward Island, Charlottetown, PEI; C. Midgett, Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, Ontario. [R]*

Our objective was to assess the energy, nutrient and fibre intake, and the prevalence of overweight for 64 boys and 73 girls aged 10 to 12 years. The subjects were part of a larger study of health behaviours in grades 5 to 8. Individual interviews were conducted in school to complete a 24 hour dietary recall and measure weight and height. Mean intakes were calculated using the Candat Nutrient Analysis System and compared to Recommended Nutrient Intakes or Dietary Reference Intakes, as appropriate. Weight status was determined by comparing Body Mass Index ( $\text{kg}/\text{m}^2$ ) to age- and sex-specific reference data. Mean intakes were below recommended levels for folate (boys -  $236 \pm 106$   $\mu\text{g}$ ; girls -  $210 \pm 112$   $\mu\text{g}$ ), calcium (boys -  $1095 \pm 569$   $\text{mg}$ ; girls -  $992 \pm 574$ ), and zinc (girls -  $8.6 \pm 4.5$   $\text{mg}$ ). Fibre intake was below the "age + 5" recommendation for both boys ( $14 \pm 8$   $\text{g}$ ) and girls ( $11 \pm 6$   $\text{g}$ ). Children in PEI had higher intakes of fat ( $t=3.01$ ;  $p=.004$ ) and zinc ( $t=3.15$ ;  $p=.003$ ), and lower intakes of fibre ( $t=1.98$ ;  $p=.052$ ). 15.6% of boys and 15.6% of the girls were  $\leq 15^{\text{th}}$  percentile for BMI; 26.6% of boys and 19.2% of girls were  $\geq 85^{\text{th}}$

percentile. These findings suggest that the nutrient intakes of adolescents need to be evaluated and they must be encouraged to develop healthy eating behaviours.

---

*Funded by the NCIC through the Socio-behavioural Cancer Research Network.*

#### **Dietary behaviour modification activities developed for a Regina lipid clinic**

*M.L. Classen\*, S.L. Cook, R. Nasser, Clinical Nutrition Services, Regina Health District, Regina, Saskatchewan. [E]*

Compliance with dietary regimes aimed towards reducing the risk of coronary heart disease has not been successful in the majority of clients with hyperlipidemia, primarily due to the inability to adopt the recommended behaviours. Recently, the Stages of Change Model has emerged as a behavioral modification technique which may facilitate and direct behaviour change through tailoring interventions to an individual's readiness to change. Dietitians at the Regina Health District Lipid Clinic have adopted these behavioural techniques to assist in promoting positive patient outcomes. Since changing behaviour is a multi-step process, the challenge for Dietitians is to develop tailored activities appropriate for each stage of change. The purpose of this presentation is to highlight the stage-based activities developed for the Regina Lipid Clinic. Forty-eight nutrition tools and activities have been developed for four-60 minute nutrition classes. The classes and activities target five key dietary behaviours associated with hyperlipidemia: adding fat, cooking methods, reading labels, snacking and restaurant eating. The activities incorporate behavioural techniques such as self-evaluation, problem-solving, goal-setting and social support. To determine the clients' readiness to change, participants complete a 5-item questionnaire for each of the above-cited behaviours prior to participating in the stage-based activities. All activities were pre-tested with clients prior to incorporating them into a large-scale study. Scripts have also been developed for facilitators to assist them with cueing clients. Based on our experiences and preliminary results, the stage-based activities have assisted clients in achieving positive dietary behaviours.

### **Evaluation of an osteoporosis nutrition education program**

*C.A. Rideout\*, S.I. Barr, Human Nutrition, University of British Columbia, and K. Kruse, B.C. Women's Hospital, Vancouver, British Columbia. [R]*

This study assessed client satisfaction with the nutrition component of an ongoing osteoporosis education program at the British Columbia Women's Hospital. A questionnaire, developed based on interviews with 15 past participants, was sent to 149 women aged >40 years who had attended the education session within the past year. Clients' perceived learning needs prior to attendance, their perceptions of the session itself, and its impact on nutrition-related behaviour afterwards were evaluated. The overall response rate was 52%. More than half of the respondents reported having osteoporosis, roughly 30% reported osteopenia, and 15% reported normal bone density. Data analysis (conducted in SPSS version 9.0) indicated that late respondents, who received reminders to return the survey, did not differ from early respondents. Thus, non-response bias was unlikely to have affected the results. Overall satisfaction with the program was high, with approximately 75% indicating that they found the information presented to be useful. More than 80% of respondents reported changes in nutrition-related behaviour since attending the session. The most commonly reported dietary modifications were increased use of calcium and/or vitamin D supplements, dairy products, and foods considered good sources of calcium. Most clients reported a preference for learning about nutrition through lectures, group discussions, and pamphlets, while only 20% would use the Internet to access information. The results of this study indicate that this osteoporosis education program meets the nutrition information needs of most clients and serves as an effective cue to action to increase dietary intake of calcium and vitamin D. Insights gained regarding clients' perceived needs and preferred learning styles can be applied to the development of similar nutrition education programs.

### **Food use patterns and dietary intakes among women with breast cancer in Prince Edward Island.**

*J. Knight\*, Department of Anatomy & Physiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI; J. Taylor, Department of Family and Nutritional Sciences, University of Prince Edward Island, Charlottetown, PEI; L. Spangler, Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Prince Edward Island. [R]*

The objective of this research was to compare dietary intakes and food use patterns in women with breast cancer and healthy women in Prince Edward Island. A 119 item semi-quantitative population specific food frequency questionnaire was used to assess usual food

intake in the previous year. Cases included women diagnosed with incident cases of breast cancer (n=50); controls (n=50) were healthy women category matched by age ( $\pm 3$  yrs) and residence. Nutrient intakes were generated from the food frequency data using the Candat Nutrient Analysis System. Food use patterns were identified using Jerome's categorization system based on frequency of consumption (core, secondary core, peripheral). Controls reported consuming a higher number of portions of carrots, vegetable soup, lentils, other vegetables and lean beef ( $p < 0.05$ ); cases consumed more potatoes prepared with added fat ( $p = 0.02$ ). Further, a greater number of high fat foods (E.g. chocolate, potatoes prepared with fat) were identified as "core" foods (consumed 2X wk or more by at least 25% of sample) among cases compared with controls. Fewer differences in nutrient intakes were observed: controls aged 50+ years (n=37) had significantly higher median intakes of carotenoids than did cases (n=34) ( $p = 0.03$ ). Study results concur with past research which suggests that vegetables and carotenoid containing foods are protective while higher fat foods may increase cancer risk.

---

*Funded by the NCIC through the PEI Cancer Research Council.*

### **Dietary quality among Quebecers aged 55-74**

*B. Shatenstein\*, S. Nadon, G. Ferland. Centre de recherche, Institut universitaire de gériatrie de Montréal, Montréal, Québec. [R]*

Our population is aging rapidly and more dietary research on autonomous Canadian seniors is needed. To determine whether older Quebecers are eating adequately, dietary intakes were studied in a representative subset of participants aged 55-74 (n=460, 47% male) from the 1990 Enquête québécoise sur la nutrition (EQN) dataset. An interviewer-administered 24-hour recall and a second non-consecutive recall (10% of the sample) was used to score participants' diet quality. Food intake data were coded into food groups to reflect Canada's Food Guide, and the usual Dietary Diversity Score (maximum DDS=4) and Dietary Adequacy Score (maximum DAS=18) were calculated after correcting portions for intraindividual variation. Scores were validated and examined separately for men and women. Average usual DAS (mean  $\pm$  standard error) was  $14.9 \pm 0.15$  and  $13.7 \pm 0.15$ , in men and women, respectively. Only 7% of men and 1% of women achieved a usual DAS of 18. Similar proportions of men and women scored a usual DDS of 3/4 (44-45%) or 4/4 (50-55%). Correlations examining the association between usual DAS and DDS scores and means of the percent achieved of 15 nutrient recommendations were statistically significant ( $p < 0.001$ ); for DDS, Spearman's  $r = 0.4$  (men) and  $0.58$  (women), and for DAS, Pearson's

$r = 0.79$  (men) and  $0.83$  (women). While valid, these scores are subject to the limitations of dietary evaluation based on Canada's Food Guide (for example, the indices cannot explain diet quality in terms of energy needs or intakes, or discretionary fat consumption). With improvement, such summary information on diet quality can provide critical data for planning nutrition education programmes targeting older persons, as well as a useful tool for tracking diet quality.

#### **Addition of pea hull fibre to pureed foods for use with dysphagic institutionalized elderly**

*W.J. Dahl\*, R. Furkalo, A. Kish Greer, C. McGladdery, Midwest District Health and College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, Saskatchewan. [R]*

Dysphagic elderly requiring pureed diets are at particular risk of developing constipation, in part, due to low intakes of dietary fibre. Commercially available pureed foods and those commonly prepared in institutions do not provide recommended levels of dietary fibre, however, we hypothesized that institutionally prepared pureed foods can provide recommended levels dietary fibre (>25 grams/day) if enriched with processed fibre. The objective of this study was to develop acceptable pureed foods prepared with finely processed pea hull (90% dietary fibre), a colorless, bland tasting, primarily insoluble fibre source processed from the hulls of yellow peas. Eleven pureed food items with 0.5 to 3 grams per serving of pea hull fibre were developed. Fifteen institutionalized, cognitively functional, elderly residents completed a single-blind taste test of pureed foods with and without added pea hull. None of the residents who participated in the taste test were currently on a pureed diet. Residents completed a standard evaluation form ranking each food as *good*, *fair* or *poor*. Control samples were preferred for six (55%) of the pureed foods and pea hull enriched foods were preferred in five (45%). All pureed foods enriched with pea hull were evaluated as acceptable. In conclusion, we have found that finely processed pea hull fibre can be incorporated into a variety of pureed food items with little effect on food acceptance. As pea hull fibre can be incorporated into

meats, desserts, sauces and other foods, it is predicted that a pureed diet supplemented with pea hull can supply in excess of 20 grams of dietary fibre per day.

#### **Weight loss is associated with death on Special Care Units**

*H.H. Keller,\* L. Boudreau, M. Pattillo, H.M. Brown Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, Ontario. [R]*

Weight loss is a common occurrence in cognitively impaired seniors who live in long-term care facilities. These cognitively impaired seniors reside in Special Care Units (SCU) that provide a secure environment, appropriate for the wandering demented senior. This longitudinal study describes the association between weight pattern of 82 seniors who resided in SCU in two long-term care facilities in southwestern Ontario, and the occurrence of death during a nine-month period. Comorbidity and medication usage were collected from the medical chart. Functional status was assessed at baseline with Barthel's Index and aggressiveness was measured with BARS; The Mini Mental State Exam (MMSE) was also completed. The diet prescription and texture provided at baseline were recorded on the chart. The average age of residents was  $80.0 \pm 7.4$  years and the majority (62%) were women. Most residents had a diagnosis of probable Alzheimer's dementia (76%), on average residents had  $2.5 \pm 2.0$  comorbid diagnoses, and  $5.3 \pm 2.7$  medications. Over the 9-month period, 10 seniors (12%) died. Few covariates were significantly associated with the occurrence of death. Those seniors who lost at least 5% of their baseline weight were more likely to die (OR=4.9) than those who maintained or gained weight. It is concluded that weight pattern and specifically weight loss is significantly associated with death of SCU residents.

## **Other**

#### **Great customer service in hospital retail**

*Elma Carson \* Nutrition and Food Services, Health Sciences Centre, Winnipeg, Manitoba. [E]*

The key to satisfied customers is great customer service. What tools do we use to empower our staff in dealing with customers? How can we make staff aware of the importance of positive customer service? First, we

developed customized workshops "Becoming a Customer Service Star". Three workshops were presented - two 1-hour sessions for staff and one 2-hour session for supervisors were spread over 10 weeks to

allow participants to implement skills and techniques learned. The first session covered the basics of customer service to ensure staff had a solid understanding of the need and benefits of being customer focused. The second set of workshops "Cooking with Customers" was delivered in 2 hour modules over a 12 week period. Interactive sessions focused on skills, techniques and tips to improve the level of service provided. Retail supervisors participated in a 3-hour training session "Dimensions of Coaching" to help them coach the cafeteria staff. Each month, 30-minute customer service sessions are presented by our in-house education department. Goals are identified at the start of each session, and participants brainstorm on how to accomplish and set future customer service goals. The result is that customer service issues have become an important part of weekly staff meetings and staff are comfortable and able to solve problems as soon as they are identified. Cafeteria staff whipped up some of their own customer service ideas to promote Customer Service Week "Whipping Up Great Service". Loyal, appreciative and supportive customers were identified by cafeteria staff and submitted names of these customers into a draw. The winning "great" customers were presented with prizes and certificates and recognized in the hospital newsletter. Success of the educational programs is evident in that staff are more confident in dealing with customers and they take more pride in providing great customer service.

#### **Nutrition & Food Services on the 'net (the Internet as a communications medium)**

*H. Knight\*, Nutrition & Food Services, Calgary Regional Health Authority, Calgary, Alberta. [E]*

As a regional department on five sites, Nutrition and Food Services within the Calgary Regional Health Authority (CRHA) faces many challenges. One of these challenges is the timely communication of key information across the region. One resource that has been developed to facilitate communication of Nutrition & Food Services information is a web site. Actually composed of two web sites (one internal to the CRHA network, or "intranet" site), and one external and available to the general public, these sites offer valuable information to interested stakeholders. Launched in September 2000 after internal and external consultation, the internal website provides information that is relevant to staff within the department and across the region. This includes background information on department mission and values, contact information for Nutrition and Food Services coordinators and managers, departmental policies, cafeteria hours and locations, as well as internship manual information (learning plans, case studies, evaluation forms). The external web site provides more general information about the department, cafeteria hours and locations, as well as information regarding the internship program for prospective

students. This web application has sought to augment traditional sources of information, rather than seeking to replace them. The majority of feedback regarding these sites has been regarding cafeteria issues (internal), internship manual (increased ease of access to evaluation forms and assignments for facilitators and interns), and internship brochure information (external). Based on user feedback, enhancements have been planned to the sites. These include addition of quality monitoring information (schedules and audit tools in downloadable format), and cafeteria menu information. In a world where technology is becoming increasingly widespread, Nutrition & Food Services departments can capitalize on this technology for internal and external communications.

#### **Are dietitians in the express lane of the information highway?**

*P.M. Buklis, C. Einstoss\*, L. Beauchamp, Canadian Sugar Institute, Nutrition Information Service, Toronto, Ontario. [R]*

Dietitians are often reminded about the importance of client-centred intervention, a concept that applies equally when the client group itself is composed of dietitians and nutrition educators. To address the interests of health professionals, not only must the subject matter be considered relevant and credible, but the method of information delivery must be consistent with the audience's preferences. While there is no doubt about the explosion of Internet use in Canada, the Canadian Sugar Institute (CSI) wanted to explore the interest of Canadian dietitians and nutrition educators in Internet-based communications. More specifically, CSI wanted to investigate the potential for enhanced distribution of information through e-mail and the CSI Web site. In the context of a recent survey sent with a CSI mass mailing (predominantly to dietitians), CSI included two questions on this topic: one inquiring about preference for receiving new information through e-mail (vs. traditional mailings); and another asking respondents whether they had ever visited the CSI Web site. Despite high estimates of Internet access among this group, only 20% of respondents expressed a preference for Web-based distribution of material over more traditional, paper-based communications. Further, in spite of repeated invitations to visit CSI on-line, only 31% of this audience reported having visited the CSI Web site in its first year of operation. The results of this short survey provide CSI with clear direction to continue distributing printed resource material while developing its capabilities in Web-based communications. However, these same results also leave many unanswered questions about the current role of the Internet in the professional lives of dietitians and nutrition educators.

### **A Profession at a Crossroads: A Case Study of the British Columbia Dietitians' and Nutritionists' Association**

*S. Hostetler Miller\*, Faculty of Education, Simon Fraser University, Burnaby, British Columbia. [R]*

A qualitative research project was conducted to explore ways that the changes in the British Columbia Dietitians' and Nutritionists' Association's (BCDNA) focus and mission have affected the registrants, the types of continuing education activities they engaged in and recommendations registrants may have for the BCDNA. The data collection approach included interviewing seven dietitians. Two participants were observed in their daily practice and their Professional Action Credit (PAC) forms (a requirement for licensing and registration) reviewed. A three way comparison was made to examine what the dietitians were observed to do in their practice, what they said they did in the interviews and the types of continuing education activities they engaged in as evidenced by their PAC forms. The use of triangulation, (using different sources, methods, and theories) provided corroborative evidence for the validity of the research. The technique of "member checking", asking the participants to review rough drafts of the writing was used for verification of the data. Data analysis included the use of describing the case and its content, direct interpretation and establishing patterns of categories. Study results revealed that the interviewees perceived competency to have multiple and varied meanings, that limited feedback was received from peer reviewers and that the current system did not seem to assess competency or future learning needs. In conclusion, recommendations included developing a website with a registrant information package and definition of competence, Code of Ethics and Conflict of Interest Guidelines, policies and procedures related to the complaints and disciplinary action, and PAC systems. Other recommendations included the hiring a QA Manager to oversee the QA program; conducting focus groups to determine ways registrants could better assess their practice; and developing both a mentorship program and a course to update registrants who have been out of practice for a few years.

### **Perceived competencies of graduating dietitians in Canada (1999): Depth and breadth of learning opportunity and preparedness for practice.**

*M.E. Rose-Lucas\* L. McAlpine, Department of Educational and Counselling Psychology, McGill University, Montreal, Quebec.I. Strychar, Département de Nutrition, Université de Montréal, Montréal, Québec. [R]*

A Canada wide questionnaire survey collected data from 168 dietetics trainees and 23 preservice program coordinators regarding perceptions of preservice practice. First, to what extent were trainees and

coordinators aware of and involved with the Competencies for the Entry Level Dietitian? Second, how prepared were trainees for practice? Third, what was the depth and breadth of learning opportunity in competencies of assessment, planning, implementation, and evaluation? Fourth, what were the number of learning opportunities in competencies of professional practice and communication. Further, did perceptions vary with format of preservice practice (integrated or internship) or respondent type (trainee or coordinator)? Results showed most trainees received a copy of the competencies and they were used in trainee evaluation, though only 60% of trainees were very familiar with them. Preparedness for practice was rated as sufficient for 25 (56%) of the 45 competencies. Eighty-eight (61%) of the 145 competencies and sub competencies were practiced in sufficient depth and breadth or number. Preparedness ratings were higher in integrated programs than internships. Agreement between coordinator and trainee perceptions was higher in integrated programs than internships. Problems identified were in certain areas of management, communication, monitoring and evaluation, and research. Comments received related to difficulty with comprehensibility of the competencies, their usefulness as a framework for guiding preservice practice, and problems associated with use in trainee evaluation; the sometimes lack of support and guidance for trainees; benefits of integrated programs; and the greater emphasis placed on clinical nutrition than on food service or community nutrition during the programs. Recommendations are given for dietetics educators.

### **Dietetic internship policy development for transfer of previous experience**

*S. Behari, M. Mueller and P. O'Neil, London Health Sciences Centre, London, Ontario. [E]*

Dietetic Internship Programs are based on achievement of comprehensive competencies. As outlined in the Dietitians of Canada Dietetic Internship Program Procedures Manual (1998), interns can apply for a transfer of previous experience resulting in a revised program. At LHSC, an Exemption Committee (EC) comprising of Patient Food Services (PFS) Leadership and the Internship Coordinator developed a policy to guide the PFS rotation exemption process. The policy (four steps) was refined based on experience implementing it for three dietetic interns who requested exemptions. In step I, the intern must submit an application for exemption comprising of a resume, letter of request and supporting evidence of knowledge, skills and abilities corresponding to the comprehensive internship competencies. In step II, the EC reviews and evaluates the application. In step III, the competency interview assesses the intern's ability to demonstrate critical thinking and leadership skills and clarifies any ambiguities in the intern's application. In step IV, the

competency evaluation, the intern is given four written assignments testing competencies in labour relations, labour budget, meal day costing and a general food service case to complete individually. At each step, the EC evaluates the intern's competencies, may request more information and approves progression to next step. The EC recommends a partial, total or no exemption upon completion of step IV. A total exemption is equivalent to a two-week rotation with specific assignments. Partial exemption may be from three to five weeks during which projects are assigned based on the competency level demonstrated in the evaluation process. The policy, now a part of LHSC internship policies, will guide interns applying for exemptions and can be used as a template for exemptions from other rotations or by other internship programs.

### **Refining approaches to research education for dietetic interns**

*K.A. Traviss\*, K.A. Ramage, P.J. Slattery, J. Johnstone, M. Molag, C. Morley. British Columbia Dietetic Educators' Group, Vancouver, British Columbia. [E]*

During dietetic internship, interns are expected to build upon basic research concepts learned at university, in order to learn how to critically evaluate issues and apply research techniques in practice. As part of their learning, they are typically expected to complete a small research project. This is not always an optimal educational experience, due to time constraints, variable skill levels of designated research advisors, limited access to resources (e.g., computer programs, consultants for specific issues), and emphasis on some methodologies to the exclusion of others. Interns may also lack the self-confidence to carry out a research project, and as a result, the experience may be stressful. To address some of these issues, the BC Dietetic Educators' Group opted, in 1999, to offer all BC interns (n~24): (1) An annual research skills workshop; (2) A network of contacts to assist them in carrying out their research; and (3) Simple written guidelines to completing a research project. The one-day workshop has included a facilitated panel discussion of research issues, presentations on research basics and the merits of both qualitative and quantitative methodologies, sharing of resource materials, and facilitated small group discussions of intern research projects. Evaluation feedback from the interns has been very favourable; many have reported that the education and support provided have enhanced the quality of their research projects. They have also reported being more confident and positive about being involved in research. Our approach may be applicable to other aspects of intern education and to research skill education for dietitians.

### **Evaluation of integration of research into the dietetic practice of New Brunswick dietitians and nutritionists**

*J. Lévesque\*, L. Villalon, University of Moncton, Moncton, New Brunswick. [R]*

In New Brunswick, little research is available to date that describes the integration of research into dietetic practice. A survey of members of the New Brunswick Association of Dietitians (NBAD) was conducted to determine: 1) the number of dietitians who engage in research activities, 2) the level of competency of dietitians to conduct research, 3) the attitudes of dietitians to research, 4) the barriers impeding integration of research into practice, and 5) the intentions and interests regarding postgraduate studies. A validated questionnaire was filed to all active members of the NBAD (n=233). A 74% response rate was obtained after two telephone callbacks. The results show that 18% of dietitians with a Bachelor's degree (81.76% of respondents) engaged in research activities in the course of their professional experience, while 74% of dietitians with postgraduate training are active in research. On the whole, 55% of dietitians have competencies to conduct research. Attitudes to research are positive (mean =  $39.53 \pm 4.64$  for a possible score of 11 to 55). Dietitians who have not taken postgraduate studies perceive more barriers to conducting research than those with postgraduate studies ( $P = 0.001$ ). Thirty percent show interest in enrolling in postgraduate studies in the next 5 to 10 years. The data collected from this study will serve as an information source for implementation of strategies to encourage integration of research into practice.

### **Logic models in nutrition program planning and evaluation; simple yet sophisticated**

*J. Slater\*, J. Barg, C. Byard, M. Kozak, C. Ogaranko, R. Szabadka, M. Thiessen, Winnipeg Regional Health Authority, Winnipeg, Manitoba. [E]*

Program logic models are useful planning and evaluation tools for public health nutrition programs. Logic models integrate planning and evaluation and demonstrate the inter-relatedness of program components. They provide a schematic description that clarifies how a program is structured. Logic models list objectives, activities, target groups and outcomes which facilitate program accountability and provide feedback for continuous improvement. They are helpful when communicating with others, both internal and external to the organization. Logic models provide succinct documentation that answers the question "what does your program do?" The Winnipeg Regional Health Authority public health nutrition program began using logic models in 1999 and our understanding and application of this tool has continued to evolve. Development of a logic model required the declaration of goals, objectives and outcomes. Bringing "best practice"

evidence to the process has allowed the nutrition team to prioritize services and activities while eliminating some traditional practices. One of the most challenging and valuable outcomes of planning with logic models has been that this process highlights the time, money and expertise required for evaluation. Many health departments have historically had little or no resources allocated for this function. Consequently, while many planning models incorporate evaluation components, programs often have little ability to subsequently carry out those evaluations. Our experience at the Winnipeg Regional Health Authority has been that moving toward one or two valuable outcomes each year, coupled with the use of “best practice” evidence for proxy outcome measures, increases our capacity to evaluate. Logic models provide an excellent framework within which to achieve this.

### **Nutrition Information Needs of Myocardial Infarction Patients**

*M.A.Toone\* B.L. Whitmore, Calgary Regional Health Authority, Calgary, Alberta. [E]*

Clinical Nutrition and Heart Health Services evaluated nutrition information needs of patients admitted with a myocardial infarction (MI) to one of the three tertiary care centres in Calgary. A Heart Health information folder containing pamphlets on heart disease, exercise, stress and nutrition is distributed to patients while in hospital. Nutrition services offered to patients include individual counselling with a dietitian and Heart Healthy Eating Classes in some centres. A telephone survey was conducted on 53 post MI patients two to six weeks after discharge. Seventy-two percent stated that they had received the information folder and 97% of those reported reading the nutrition information. Thirty percent of the participants were counselled by a dietitian while in hospital and 34% attended a nutrition class offered on the unit. Seventy-seven percent of participants reported the importance of nutrition in the prevention and treatment of heart diseases as high or very high. Eight-five percent of participants identified the hospital as an optimal time to receive nutrition information. Reasons given included knowledge required for discharge, time to learn, and motivation due to present health crises. Eight-three percent reported making changes to their eating habits since their discharge from hospital. Changes included increased fruit and vegetables, decreased fats and increased fibre. Seventy-six percent said they were interested in receiving additional information after discharge. The study confirmed that patients value nutrition as a treatment for heart disease. In conclusion, MI patients desire nutrition information in the hospital, as well as after discharge. These results provide information for health care professionals working in Heart Health, regarding the preferred timing of the provision of nutrition information.

### **Alternative Supplement use in a Cardiac Population: Prevalence and Potential Drug Interactions**

*M. E. Bowlby\*, S. Papadakis, M. St.-Amour. University of Ottawa Heart Institute Prevention and Rehabilitation Centre, Ottawa, Ontario. [R]*

Alternative supplement use has become increasingly more popular amongst patients seeking to prevent and treat heart health problems. Many of these remedies have the potential to interact with prescribed medications. Little information is available about the specific supplements being used by cardiac patients and the prevalence of harmful interactions. To investigate alternative supplement use in a cardiac population, 396 consenting cardiac patients (mean age = 58.1 years; 84% male gender) were surveyed upon entry to a cardiac rehabilitation program about supplement and medication use. Thirty-four patients (8.6%) reported using alternative supplements. A total of 31 different supplements were being used by study participants, of which thirteen (41%) were associated with potential heart health benefits. Forty-one percent of the supplement users were using two or more alternative supplements. The most popular alternative supplements included garlic, Coenzyme Q 10, Canola Oil, saw palmetto, ginkgo, St. John's Wort, and hawthorn.

<b>Most Prevalent Alternative Supplements</b>	<b>Potential Benefits</b>	<b>Number of Patients Using HS</b>	<b>% of Patients Using HS</b>
Garlic	Blood Pressure and Lipid Profile	15	3.8
Coenzyme Q10	Antioxidant, "Strengthen Heart"	10	1.8
Canola Oil Capsule	Lipid Profile	5	1.3
Saw Palmetto	Prostate	3	.8

Two harmful contraindications with prescribed medications (coumadin with garlic and beta blocker with evening primrose oil) were found amongst the supplement users. Study findings indicate that cardiac patients are using alternative supplements and are at risk for serious contraindications.

### **Body image issues and eating disorders in Canadian nutrition students and dietetic interns**

*M.G. Coles\*, D.M. Drummond, and M.S. Hare, Department of Nutrition and Food Service at the Grey Nuns Community Hospital and Health Centre, Edmonton, Alberta. [R]*

Studies conducted in the United States indicate that students studying nutrition and dietetics have an increased risk of developing body image issues and eating disorders. This study explores the prevalence of these issues in nutrition students and dietetic interns on a Canadian campus. Focus was also directed at how these

risks might affect weight prejudices and perceived barriers to teaching body image and/or eating disorder issues. The Weight and Shape Questionnaire and the Risk of Eating Disorder Inventory (REDI) were used to gather information on eating behaviors, eating disorder risk factors, weight issues, and barriers to teaching these topics. 57 subjects were recruited from a University of Alberta 4<sup>th</sup> year clinical nutrition class and both dietetic internship programs in Edmonton, Alberta. The findings of this study indicated that one third scored as having eating disorder behaviors or having eating disorder risk factors. Of the total population we found that 10% showed weight prejudices towards overweight people. In addition, lack of knowledge was found to be the number one perceived barrier to teaching body image and/or eating disorder issues. Results suggest that this population group has problems with body image issues and eating disorders. Although these issues were not found to correlate with weight prejudices toward overweight persons, there is still a need and demand for increased education and support in undergraduate nutrition programs and internships to deal with body image and eating disorder issues.

#### **Are girls' dieting attitudes similar to their mothers'?**

*G. Marchessault, University of Manitoba, Winnipeg, Manitoba. [R]*

This research tested first for differences in dieting attitudes between the mothers of girls who were most and least concerned about their weight, and then for similarity of attitudes within mother-daughter pairs. This project was part of an in-depth interview study of 80 mother-daughter pairs from two Winnipeg and two rural Manitoba schools, chosen to include both Aboriginal and non-Aboriginal families. Families were randomly selected from Grade 8 class lists with an overall response rate of 72.6%. The design was a cross-sectional comparison of the mothers of the 10 highest- and 10 lowest-scoring girls on the Restraint Scale (RS). All participants completed the RS and the Eating Attitudes Test (EAT-26). RS scores indicated good separation between the two groups of girls (means were 18.2 and 2.2,  $t = 21.2$   $p < 0.00001$ ). Contrary to prior research with younger girls, the mothers of the high-restraint girls did not score higher than the mothers of the low-restraint girls on either scale. Mean RS scores were  $11.4 \pm 1.31$  SE and  $11.4 \pm 1.77$  SE (one-tailed  $t = 0.00$ ,  $p = 0.5$  NS). Mean EAT-26 scores were  $3.5 \pm 1.48$  SE and  $4.7 \pm 1.64$  SE (one-tailed  $t = -0.54$ ,  $p < 0.3$  NS). There were no significant associations between mothers' and daughters' scores on either scale (Pearson's  $r = -0.01$ ,  $p < 0.98$  NS for the RS and  $r = -0.14$ ,  $p < 0.57$  NS for the EAT-26). These results, along with the interview data, suggest the transmission of weight concerns is more complex than a simple like-mother, like-daughter transfer of cultural values.

#### **Nutrition screening of acute care hospitalized patients**

*B. Roberts, Royal Jubilee Hospital, Victoria, British Columbia. [R]*

Identifying patients at risk for malnutrition is important in providing early nutritional care. Increased patient acuity, shorter hospital stays, and decreased staff has made it difficult to identify these patients. The present study was undertaken to determine the number of nutritional at risk patients in acute care, the Characteristics of the patients at high nutritional risk, and the number of high risk patients seen by a clinical dietitian. Prospectively, 531 consecutive acute care adult patients were screened 48 hours after admission using a screening tool developed by Nagel. A nutrition risk score was calculated for each patient and one of three risk levels was assigned to each screened patient. Patients assessed to be at low nutritional risk were rescreened every seven days until discharge. The study found 40% (217) of patients were at high or moderate nutritional risk. In the high risk group, patients tended to have lower albumin levels and more significant weight loss. Cancer and GI disease were predominant diagnoses in high nutritional risk patients. The average length of stay was 1.5 times longer for patients at nutritional risk. Fifty-six percent of patients in the high risk group were seen by a dietitian. The results support the need to have a screening system for the acute care population to target patients who would benefit most from nutrition intervention.

#### **A practical tool for tracking postnatal growth of premature babies**

*H. Fraser\*, Nutrition Services, CHA Royal Alexandra Hospital, Edmonton, Alberta. [E]*

Preterm infants have potential for very rapid growth. Daily weights of premature babies are used in clinical practice to manage fluids and nutrition. Growth assessment is integral to the evaluation of nutritional care. Growth charts visually represent daily changes and longer trends. Postnatal charts currently in use tend to be relatively old (Babson, 1976; Dancis, 1948). In the last twenty-five years, neonatology has changed dramatically. The prematurity and acuity of the infants have increased. More recent published growth studies are not presented in a useful form for the clinical setting. The purpose of this project was to devise a practical postnatal weight chart intended for use at the bedside in the neonatal intensive care unit (NICU). Dietitians at the Royal Alexandra Hospital NICU in Edmonton, Alberta, have used two recent postnatal growth references to monitor all preterm babies they have followed since June 1999. From these two references, combined now in a new format, the actual recorded data for the baby becomes the dominant feature. The grid lines and the eight growth curves selected for birth-weights ranging from 550 to 2400 grams are subdued. The y axis is scaled for convenience in marking and the x axis is

prepared for daily or intermittent plotting. This postnatal growth chart is designed as a practical tool for health professionals in the NICU.

#### **Effects of dietary zinc repletion on lymphoid tissue and lymphocyte number**

*H.J. Hosea\*, C.G. Taylor, Department of Foods and Nutrition, University of Manitoba, Winnipeg, Manitoba. [R]*

Secondary zinc deficiency may be present in clinical conditions such as malnutrition, renal disease, burns, Crohn's disease, celiac disease, malignancies and AIDS. Dietary zinc deficiency is characterized by atrophy of lymphoid tissue, reduced lymphocyte numbers, and increased susceptibility to infection. The objective of this study was to determine the time course for recovery of lymphoid tissue and lymphocyte numbers when zinc deficient animals are repleted with zinc-adequate diet. Rats were fed either a zinc deficient (<1 ppm zinc) or a nutritionally complete control diet (30 ppm zinc) for 3 weeks. For the repletion phase, the rats were fed control diet ad libitum for 3 days, 1 week or 3 weeks. The body weight of the zinc deficient group did not completely recover after 3 weeks of zinc repletion. Throughout the experiment, the thymus/body weight ratio, spleen/body weight ratio and T cells per gram of organ remained constant. The thymus of zinc deficient rats recovered to control levels after 1 week of repletion while the spleen weight did not recover until the third week of repletion. The adrenal/body weight ratio was elevated in the zinc deficient group when compared to the control group and may be an indication of stress due to dietary deficiency. Adrenal weight recovered after three weeks of zinc repletion. In summary, there appears to be a priority for recovery of thymus weight (primary lymphoid organ) followed by spleen weight (secondary lymphoid organ) and then body weight. This order of recovery would enable the body to produce more T lymphocytes and release them into circulation for immune defense while nutritional recovery is in progress.

#### **Altered zinc metabolism in obesity and insulin resistance**

*K. Petroulakis, M.E. Gillam\*, C.G. Taylor, Dept. of Foods and Nutrition, University of Manitoba, Winnipeg, Manitoba. [R]*

Several human studies suggest that zinc metabolism is altered in Type 2 diabetes mellitus as indicated by lower plasma zinc concentrations and hyperzincuria (4-7 fold higher urinary zinc excretion) compared with non-diabetic controls. A zinc supplementation study in post-menopausal women with Type 2 diabetes also suggested altered zinc metabolism and homeostasis. The objectives of this study were to determine if zinc metabolism is altered in the pre-diabetic state independent of hyperglycemia, and if it can be modulated by dietary zinc intake. The fa/fa Zucker rat was used as the model of obesity and insulin resistance. Weanling male fa/fa and lean Zucker rats were fed marginally zinc-deficient (5 ppm), zinc-adequate (30 ppm), or zinc-supplemented (150 ppm) diet for 9 weeks. Biochemical assays and atomic absorption spectrophotometry were used for tissue and serum analyses. The fa/fa Zucker rats were obese, hyperlipidemic and hyperinsulinemic, but not hyperglycemic. The fa/fa rats had altered zinc metabolism as indicated by significantly greater urinary zinc excretion ( $3.39 \pm 0.43$  vs.  $0.79 \pm 0.11$  mg zinc/mg creatinine) and lower liver zinc concentrations ( $49.4 \pm 2.6$  vs.  $94.9 \pm 2.7$  ug/g dry weight), despite elevated femur zinc and serum zinc concentrations ( $328 \pm 14$  vs.  $274 \pm 17$  ug/g dry weight and  $2.37 \pm 0.09$  vs.  $1.85 \pm 0.05$  ug/ml, respectively) compared to lean rats. These parameters were not affected by dietary zinc intake, except for higher zinc excretion in the fa/fa rats fed the zinc-supplemented diet. In conclusion, altered zinc metabolism was present in a pre-diabetic model of obesity and insulin resistance, and tissue zinc concentrations were not influenced by dietary zinc intake. Further research on zinc status and zinc metabolism in Type 2 diabetes is warranted given the numerous roles of zinc in insulin signaling, carbohydrate and lipid metabolism.

## Abstracts Presented by Dietetic Interns

*Note: These abstracts represent research projects of dietetic interns across Canada and were not subject to the DC peer-review process.*

1. T. Peters, A. Toogood  
Regina Health District Dietetic Internship Program  
Regina, Saskatchewan  
Adequacy of Calcium, Phosphorus and Vitamin D in Pre-term Infants in the NICU of the Regina Health District
2. D. Mollerud, S. Lingelbach  
Regina Health District Dietetic Internship Program  
Regina, Saskatchewan  
Self-Reported versus Actual Weights and Heights Among Acute-Care Clients
3. T. Georgacocos, N. Cugnet  
Regina Health District Dietetic Internship Program  
Regina, Saskatchewan  
Extent of Malnutrition Among Children in the RHD Cystic Fibrosis Clinic
4. J. Lambdon, M. Jorgenson  
Regina Health District Dietetic Internship Program  
Regina, Saskatchewan  
Efficacy of Pectin to Alleviate Diarrhea in Enterally Fed Patients
5. N. Lee, V. Chidambaram  
Calgary Regional Health Authority  
Dietetic Internship, Calgary, Alberta  
Impact of CBORD Diet Office/7-day menu implementation on patient satisfaction
6. S. Howell  
Calgary Regional Health Authority  
Dietetic Internship, Calgary, Alberta  
Vitamin, mineral and herbal supplementation: a study of the current practices and perceptions of dietitians in the Calgary region
7. M. Brennan, C. Anderson  
Calgary Regional Health Authority  
Dietetic Internship, Calgary, Alberta  
Adolescence - a difficult stage of development for type 1 diabetics: a nationwide survey of group diabetes education programs available for adolescents
8. K. Hanson  
Calgary Regional Health Authority  
Dietetic Internship, Calgary, Alberta  
Types of enteral nutrition products for adult populations in use in acute care sites across Canada.
9. P. Woo  
Calgary Regional Health Authority  
Dietetic Internship, Calgary, Alberta  
Review of nutrition information on the Calgary Regional Health Authority "Your Health" web site
10. L. Swaré  
Capital Health Authority  
Edmonton, Alberta  
Physical Barriers to Eating as Contributors to Malnutrition in Acutely Ill Hospitalized Patients
11. K. Janick  
Grand River Hospital Internship Program, Kitchener, Ontario  
Patients perspectives on a cardiovascular nutrition intervention
12. N. Desrochers  
Grand River Hospital Internship Program, Kitchener, Ontario  
Patients' perceptions of nutritional intervention prior to chemotherapy

13. A. Rigutto  
Grand River Hospital Internship  
Program, Kitchener, Ontario  
Renal bone disease risk factors and recommendations for  
management in a community-based hemodialysis unit
14. T. Muto, S. Snider  
Hamilton Health Sciences Corporation,  
Hamilton, Ontario  
The prevalence of osteopenia and osteoporosis in patients with  
inflammatory bowel disease determined by dual-energy x-ray  
absorptiometry
15. S., Leung & K. Ferrigan  
Hamilton Health Sciences Corporation,  
Hamilton, Ontario  
The effects of a behavioural weight loss program on the dietary  
composition of obese juveniles at the Children's Exercise and  
Nutrition Centre
16. I. Toombs & S. Psiuk  
Hamilton Health Sciences Corporation,  
Hamilton, Ontario  
Determining if waist-to-hip ratio is a valid method for assessing  
obesity in a pediatric population
17. L. Stacey  
Health Care Corporation of St. John's  
Internship Program,  
St. John's, Newfoundland  
Characteristic eating patterns of alzheimer's patients
18. G. Yetman  
Health Care Corporation of St. John's  
Internship Program,  
St. John's, Newfoundland  
Adequacy of fluid intake in adult patients with dysphagia receiving  
honey thickened fluids within the Health Care Corporation of St.  
John's
19. L. Hollett  
Health Care Corporation of St. John's  
Internship Program,  
St. John's, Newfoundland  
Adequacy of fluid intake among the elderly in a long-term care
20. T. Haines  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
Food allergies and your baby – development of a resource pamphlet
21. C. Woodrow  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
Infant cereal: the first solid food for your baby
22. E. St. Godard  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
Development of a nutrition education brochure to increase dietary  
intakes of omega 3 fatty acids in low-income pregnant and lactating  
women
23. T. Kafka, K. Syposh  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
Do maternal avoidance diets during pregnancy and lactation play a  
role in the prevention of allergy?
24. V. Renn, K. Klippenstein  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
Development of a resource to increase dietary magnesium intake
25. C. Willstrop  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
Is my baby constipated? – development of a resource for parents.
26. A. Lazeckzo  
Winnipeg Health Sciences Centre  
Winnipeg, Manitoba  
School Division No. 1 Breakfast Program Manual & Inservice for  
Food Coordinators

27. J. Field  
Kingston, Frontenac & Addington  
Health Unit, Kingston, Ontario  
Nutrition For Me: a nutrition education program for drug addicted women
28. K. Marcoux  
Kingston, Frontenac & Addington  
Health Unit, Kingston, Ontario  
Development of menu planning resource book for day nurseries
29. A. Myers  
Kingston, Frontenac & Addington  
Health Unit, Kingston, Ontario  
Improving the nutrition quality of school snacks and meals:  
assessing the need for nutrition education.
30. J. Glavin  
London Health Sciences Centre  
London, Ontario  
Use of a transitional diet to decrease the length of hospital stay for  
bowel surgery patients
31. J. Boston  
London Health Sciences Centre  
London, Ontario  
A retrospective chart review of patients with acute pancreatitis,  
looking at appropriateness of nutrition intervention.
32. C. Lozenski  
London Health Sciences Centre  
London, Ontario  
Investigating the dose and time of iron supplementation in  
premature very low birth weight (VLBW) infants to prevent iron  
deficiency (ID) and improve iron status.
33. S. Faulds  
London Health Sciences Centre  
London, Ontario  
Nutritional adequacy of puree diets in a long term care setting
34. M. Alexander – Dionisi  
London Health Sciences Centre  
London, Ontario  
A retrospective study of the nutrient adequacy on a dysphagia diet  
for stroke patients in the neuroscience setting at London Health  
Science Centre
35. C. Tolia  
London Health Sciences Centre  
London, Ontario  
Association between standard measures of nutritional status and  
incidence of febrile neutropenia and infection in paediatric patients  
with non-brain solid tumours.
36. S. Wollin  
McGill University  
St. Anne de Bellevue, Quebec  
Waste audits are not accurate predictors of meal satisfaction
37. E. Magriplis  
McGill University  
St. Anne de Bellevue, Quebec  
Weaning from a ketogenic diet: A stepwise approach versus  
reintroduction of foods on demand
38. T. Lozenski  
Misericordia Health Center  
Winnipeg, Manitoba  
Development of a nutrition care audit for a long term care setting
39. J. Beauchemin  
Misericordia Health Center  
Winnipeg, Manitoba  
Development of evaluation tools to measure nutrition knowledge  
and attitudes toward food of children participating in nutrition  
education at an after school play program
40. J. Wong  
Mount Sinai Hospital Comprehensive  
Dietetic Internship Program,  
Toronto, Ontario  
The relationship between body fat mass, functional capacity and  
cardiac function in congestive heart failure patients

41. P. Araujo  
Mount Sinai Hospital Comprehensive  
Dietetic Internship Program,  
Toronto, Ontario  
Breastfeeding incidence and duration in the neonatal intensive care  
and special pregnancy units at Mount Sinai Hospital
42. L. Bryden  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
Effect of providing background information about the QEII on  
patient satisfaction ratings
43. H. Budrow, C. Smith  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
Assessment of the relationship between weight loss and co-morbid  
factors in Alzheimer's disease
44. H. Aylward  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
To determine gastroenterologist's usual practices in dealing with  
milk allergy, and to determine if a relationship exists between the  
history and symptoms of cow's milk allergy and the outcome of a  
challenge test
45. D. Burns  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
An assessment of the information provided to ileostomy patients at  
the QE II Health Sciences Center
46. C. Edgecombe, M. Cutten  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
Retrospective survey of the hospitalization, disease symptoms, and  
clinical outcome measures of patients with Crohn's disease who have  
received diet counselling from a dietitian
47. L. Brothers  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
Patient food service satisfaction audits: linking patient satisfaction  
with plate waste
48. S. LeBlanc  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
Benefits of enteral feeding and nutrition support in head and neck  
cancer patients treated with radiotherapy
49. H. MacPhee  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
The effectiveness of an IBS education class in improving dietary  
behavior and decreasing symptoms of IBS patients
50. N. Penney  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
The effectiveness of nutrition education on the fibre choices made  
by male spinal cord injured patients
51. M. Smith  
Queen Elizabeth II Health Sciences  
Centre Dietetic Internship Program  
Halifax, Nova Scotia  
Assessing the interrater reliability of the food diary variable scoring  
scale

52. R. Furkalo, A. Kish Greer, C. McGladdery  
Saskatoon District Health,  
Saskatoon, Saskatchewan  
Addition of pea hull fibre to pureed foods for use with long term care residents
53. K. Eilers, N. Mireau & K. Olafson  
Saskatoon District Health,  
Saskatoon, Saskatchewan  
Development of a food allergen awareness program for inpatients within Saskatoon District Health
54. E. Poirier  
Saskatoon District Health,  
Saskatoon, Saskatchewan  
Development of a staff education tool for dysphagia
55. J. Silverman  
St. Michael's Hospital  
Toronto, Ontario  
The effect of diets high in soy isoflavones on serum prostate specific antigen levels in healthy male volunteers.
56. E. Norrie, S.DeMaio  
St. Michael's Hospital  
Toronto, Ontario  
Adequacy of enteral feeding in the medical/surgical intensive care unit
57. S. Roop  
St. Michael's Hospital  
Toronto, Ontario  
The prevalence of anemia in the adult cystic fibrosis population at St Michael's Hospital
58. D. Penwarden  
The Hospital For Sick Children  
Toronto, Ontario  
A retrospective study of nutritional status and postoperative morbidity in pediatric patients undergoing surgery for scoliosis repair at the Hospital for Sick Children.
59. K. Sherwood  
The Hospital For Sick Children  
Toronto, Ontario  
Investigating and quantifying differences in weight and length percentiles among Tanner-Whitehouse, NCHS and CDC growth charts
60. J. Bakish, L.Stefanizzi  
The Hospital For Sick Children  
Toronto, Ontario  
The estimation of the total folate pool produced by intestinal microorganisms in exclusively human milk fed and formula fed infants
61. J. McCrea  
The Ottawa Hospital  
Ottawa, Ontario  
The usefulness of the standard gestational diabetic diet in controlling blood glucose levels of patients of the Ottawa Hospital diagnosed with gestational diabetes mellitus – A retrospective chart review.
62. L. Skromeda  
The Ottawa Hospital  
Ottawa, Ontario  
The effects of individual dietary counseling on the eating habits of patients with dyslipidemia
63. T. Williamson  
The Ottawa Hospital  
Ottawa, Ontario  
Enteral nutrition support in the critically ill, a retrospective study
64. T. Laurin  
The Ottawa Hospital  
Ottawa, Ontario  
The Effect of Probiotics on Diarrhea: A Systematic Review
65. M. Knutt  
The Ottawa Hospital  
Ottawa, Ontario  
Comparison of two methods for calculating body weights used in estimating energy and protein requirements for predialysis patients.

66. V. Smith  
The Ottawa Hospital  
Ottawa, Ontario  
Public perception on newly proposed Canadian nutrition labelling policy
67. T. LaVallee  
University Health Network  
Toronto, Ontario  
An examination of the relationship between knowledge and fear of hypoglycemia in insulin-dependent type 1 diabetics from the ambulatory endocrine metabolic unit at the university health network.
68. M. McCarney  
University Health Network  
Toronto, Ontario  
Development of a quality of life questionnaire module for measuring the impact of enteral feeding on head and neck cancer patients
70. S. Colucci  
University Health Network  
Toronto, Ontario  
Evaluation of a multicultural nutrition education class for elderly clients in a Senior Wellness Clinic
71. L. Staresinic  
University Health Network  
Toronto, Ontario  
Is pretreatment nutritional intake a predictor of outcome in patients with eating disorders?
72. B. McDevitt  
University Health Network  
Toronto, Ontario  
The prevalence and type of feeding problems in autistic children
73. T. Hsieh  
University Health Network  
Toronto, Ontario  
Nutrition intervention may be helpful in treating drug-induced dyslipidemia in lung transplant patients
74. K. Cohen Conway  
University Health Network  
Toronto, Ontario  
Can Canada's Food Guide Meet the Needs of the Older Chinese Population at the Diabetes Education Centre at the University Health Network?