

Nutrition 537 Research Day Abstracts

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Diet quality and bone health in Canadian children: positive associations between NRF 9.3 scores, bone mineral content, and bone density

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Introduction: Childhood is a critical developmental window for bone formation, shaping future skeletal integrity. Nutrient-rich diets and adequate physical activity contribute to optimal bone mineralization, yet their combined influence in Canadian children is not well characterized.

Objective: To investigate associations between diet quality, measured by the Nutrient Rich Food Index (NRF 9.3), and bone health outcomes among Canadian children aged 5–11 years.

Methods: Baseline data from 112 participants in an ongoing longitudinal study, the Nutrition and Growth Study, were analyzed. Dietary intake was measured using three serial 24-hour dietary recalls, and nutrient density was calculated using the Nutrient-Rich Food Index 9.3 (NRF 9.3) score. Bone mineral content (BMC) and bone mineral density (BMD) were assessed by dual-energy X-ray absorptiometry (DXA) at the total body, femur, and lumbar spine. Physical activity was measured using the Physical Activity Questionnaire for Children and Youth. NRF9.3 scores as a predictor of bone outcomes were examined using multivariable linear regression models adjusted for total energy intake, age, sex, height, physical activity, and skin colour.

Results: Higher NRF9.3 scores were positively associated with total BMC ($\beta = 0.37$, SE = 0.15, $p = 0.014$) and BMD ($\beta = 0.0002$, SE = 0.00007, $p = 0.005$), after multivariable adjustment. No significant associations were found at site-specific skeletal regions (all $p > 0.05$). Potential confounding by biological maturation was evaluated, and maturation was not found to significantly influence the outcomes in this study.

Conclusions: Greater nutrient density, reflected by higher NRF9.3 scores, was associated with higher total bone mass and density in children aged 5 to 11 years, when adjusted for confounders. These results point to a role for overall diet quality in early skeletal development and identify NRF9.3 as a useful composite measure for studies of pediatric bone health. (This study was funded by the Dairy Farmers of Canada.)

Exploring the perspectives of patients and care partners receiving nutrition care from a dietitian within a rural primary care memory clinic

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Introduction: Dementia progression can result in nutritional challenges, which may lead to adverse health outcomes in absence of appropriate nutrition care. Rural-dwelling individuals often have low access to nutrition care from dietitians. Within interprofessional rural memory clinic teams in Saskatchewan, dietitians deliver personalized nutrition care.

Objectives: The study objective was to examine the perspectives of patients and care partners regarding the care provided by a registered dietitian in a rural primary care memory clinic.

Methods: We used a qualitative descriptive design. Following their appointment in a rural memory clinic where a dietitian was present, patients and care partners were recruited through purposive sampling. Individuals participated in a semi-structured telephone interview, which was transcribed and subsequently analyzed using six-phase reflexive thematic analysis.

Results: Analysis resulted in four themes: (1) There's no I in Team, (2) No Concerns, But..., (3) Navigating Complexity Through Clarity, and (4) Shared Voices, Shared Choices. Dietitian care was valued by participants. The dietitian role included identifying nutrition-related concerns that patients and care partners were not aware of, offering support to manage comorbid conditions, and providing clarity on nutrition information.

Conclusions: Dietitians identify and address key nutritional care needs of rural memory clinic patients. Nutrition needs that may go undetected by patients, care partners, and other team members can be recognized and managed by dietitians due to their unique skillset and training. Nutrition advice tailored to each patient's needs can reduce the risk of poor health outcomes over time.

Significance: Teams working with persons living with dementia and care partners should consider the positive impact of dietitian contact on these individuals.

Expression of Genes Linked to Odontogenesis and p63 Signaling in *X. tropicalis*

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The incredibly vast majority of vertebrates that have specialized teeth indicate that the integration of the teeth into the jaws was a highly successful adaptation. Tooth and jaw development needs to be highly coordinated to make sure they form in the right place, at the right time. It is known that the jaws and teeth share many genes and genetic pathways during their developmental stages, but large gaps of knowledge for how these factors function together still remain. Expressions of *p63*, *Krt15*, *Fermt1*, *Prss8*, and *Cbln1* were examined and found to be positive in epithelial tissues of *X. tropicalis*. This study adds to the growing body of research on the putative p63 GRN by providing expression data for genes linked to tooth development in amphibians.

Investigating the Association of Diet Quality and Nutrient Adequacy with Cognitive Ability in School-Aged Children

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Introduction: Childhood is a period of rapid physical and neurological growth, making it a critical stage for cognitive development. Nutrition plays an important role in supporting brain development. However, there remain gaps in understanding how nutritional factors are related to specific cognitive processes involved in cognitive ability.

Objectives: To explore the relationships that exist between cognitive ability as measured by the KABC-II and dietary intake and quality for Canadian children aged 5-11 years.

Methods: This study utilized a cross-sectional analysis of observational data collected from September 2022 to November 2025. We assessed associations among dietary intake, diet quality, household food security, physical activity, child anthropometrics, and cognitive ability. Descriptive statistics were used to summarize participant characteristics while separate univariate linear regressions were conducted for each predictor against KABC-II standard scores.

Results: Data were collected for 85 children (female n=39, male n =46). Knowledge scores were positively associated with whole-grain intake ($\beta = 0.36$, $p < 0.001$) and household income ($\beta = 0.01$, $p = 0.02$), and inversely associated with choline intake ($\beta = -0.36$, $p < 0.001$), HEFI-2019 scores ($\beta = -0.26$, $p = 0.02$), and screen time ($\beta = -0.22$, $p = 0.05$). Planning scores were inversely associated with folate intake and NRF 9.3 (both $\beta = -0.34$, $p = 0.003$), BMI Z-score ($\beta = -0.26$, $p = 0.03$), and screen time ($\beta = -0.25$, $p = 0.03$). BMI Z-score was inversely associated with Planning, Learning, Simultaneous, and FCI scores, while caregiver education was positively associated with Sequential processing. Multilevel models were non-significant ($p > 0.05$).

Conclusions: Intake of whole grain foods, caregiver education, household income and a reduction in screen time and BMI may have a positive relationship with cognitive ability for school-aged children. Further research is required to understand how choline and folate intake and the NRF 9.3 and HEFI-2019 may be inversely associated with cognitive ability.

Significance: Nutrition professionals should continue to promote the intake of whole grain foods and advocate for healthy behaviours and improved socioeconomic status.

The Effects of Opiates on Patients' Gastrointestinal Function in Adults Intensive Care Units

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Background: Opioids are used in the intensive care unit (ICU) for analgesia and sedation but can impair gastrointestinal function and contribute to opioid induced constipation (OIC). This can result in underfeeding and worsened clinical outcomes. Naloxone is used to counteract the effects of opioids and help manage OIC.

Objective: The purpose of this study is to determine whether opioid use affects the delivery of volume-based feeding protocols, length of stay, and ventilator days in ICU patients.

Methods: A retrospective chart review of 138 ICU patients (January 2022- December 2024) at Pasqua Hospital and Regina General Hospital was conducted using a data collection tool. Inclusion required ICU admission, receiving enteral naloxone, and being mechanically ventilated for ≥ 72 hours.

Results: Thirty-seven charts met inclusion criteria. Most patients were admitted for respiratory complications 56.8% (n=21/37), and ICU mortality was 51.4% (n=19/37). Naloxone was initiated on day 4.2 on average (Range 0-16) and was associated with improved feeding tolerance, with increases in energy (28%), protein (14%), and enteral volume (24%) goals. Volume-based feeding targets rose from 57.3% to 75.2% and polymeric formula use from 51.4% to 78.6%. Higher opioid doses were associated with reduced enteral nutrition volume and increased length of stay (LOS) and ventilator days, particularly in patients who received Tylenol in combination with either hydromorphone or fentanyl. Overall, 83.8% (n=31/37) of patients experienced constipation. Stool occurrence increased from 45.9% (n=17/37) to 89.1% (n=33/37) after naloxone and time to first stool decreased from 2.28 days to 1.60 days.

Conclusion: Naloxone administration was associated with improved gastrointestinal function and enteral nutrition delivery in the critically ill. Greater opioid exposure was linked to reduced feeding tolerance, increased LOS and ventilator days.

Significance & Implications: Opioid use in ICU patients impacts nutritional adequacy and clinical outcomes, strengthening the importance of strong interprofessional collaboration to improve patient care and inform future research endeavours.

Outpatient Dietitian Services in Saskatchewan

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Introduction: Outpatient dietitian services support team-based care, chronic disease management, health promotion, and continuation of care across many practice settings. In Saskatchewan, there are many dietitians who provide outpatient services in community, primary health care networks, and tribal councils. Unfortunately, there are challenges that clients face in accessing and receiving outpatient dietetic services.

Objectives: The purpose of our research was to conduct an environmental scan to determine what outpatient services are currently available across Saskatchewan and how they are accessed.

Methods: An online survey was distributed to registered dietitians offering outpatient services in Saskatchewan. Quantitative and qualitative data was collected. The survey was open from January 13th to February 13th, 2026.

Results: Fifty-five participants from various settings including the Saskatchewan Health Authority, First Nations communities and community clinics completed the survey. Participants shared that clients access outpatient dietitian services through a variety of referral methods. Referrals were most often received from physicians and nurse practitioners via fax (n=39) and email (n=31). Services primarily focused on chronic disease management. Key recommendations included standardized electronic medical records (n=13), increased awareness of services (n=10), and improved flow of information between inpatient and outpatient care (n=8). Half of participants (n=50) reported malnutrition screening occurs in their community.

Conclusion: Outpatient dietitian services in Saskatchewan face challenges in availability, accessibility, coordination and quality of care. A centralized dietitian directory is an important first step in supporting these goals and promoting safe and adequate patient care.

Significance to Dietetics: The Saskatchewan Health Quality Council's Connected Care Strategy aims to improve team-based care in hospital and community settings and improve the way we communicate with patients and providers when patients move between these settings. Understanding barriers to accessing outpatient dietitian services can guide practical recommendations to improve referral processes, transitions of care, malnutrition screening, and support advocacy for increased awareness of dietitian services across Saskatchewan.

Evaluation of the “Growing up... Time for an Open Cup” handout

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Purpose: This study aims to gain insights into the strengths and limitations of the “Growing Up...Time for an Open Cup” handout from parents’ and caregivers’ perspectives to inform recommendations for improvement. It seeks to answer the question: “What are parents’ and/or caregivers’ perspectives of the resource?”

Methods: An online survey was conducted to assess parents’ and caregivers’ perceptions of the “Growing Up...Time for an Open Cup” resource. Participants who had reviewed the resource were recruited via QR code posters and completed a brief REDCap questionnaire. Eligible respondents included parents and caregivers who had engaged with the resource. The survey included closed- and open-ended questions assessing clarity, usefulness, and content. A total of 36 responses were analyzed.

Results: Among the 36 respondents, 35 indicated that the resource improved their knowledge of oral health and nutrition, and 97.2% found the information easy to understand and follow. Nearly all participants (97.1%, n=33/34) reported that the resource was helpful in learning how to introduce an open cup at 6 months of age and that it increased their confidence in doing so. Qualitative findings indicated that the resource made the transition feel more manageable and less intimidating. Participants also emphasized the need for greater clarity on the rationale and benefits of open-cup use, additional step-by-step visuals, troubleshooting guidance, and offering different formats of the resource (e.g., digital, paper, and video). Variability in who provided the handout also highlighted uncertainty about where to seek reliable information.

Conclusion: The high prevalence of early childhood caries, especially in Indigenous communities, underscores the importance of this research. Most parents and caregivers reported high satisfaction and engagement with the resource and increased confidence in introducing an open cup at six months. These findings can improve current resources and inform future efforts to develop educational materials that best serve indigenous communities.

Evaluation of Food Asset Maps in the Saskatchewan Health Authority

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Background: Food insecurity in Canada has increased due to the COVID-19 pandemic and rising food prices (Li, B., 2024). In Saskatchewan, 30.6% of individuals live in food insecure households (PROOF, 2025). Food Asset Maps are a tool to help people access food by highlighting local resources (Li, B., 2024). Public Health Nutritionists in the Saskatchewan Health Authority (SHA), have created Food Asset Maps for seven communities.

Purpose: To determine service providers' perceptions and attitudes of the Food Asset Maps and usefulness of the supporting resources on the SHA website.

Methods: A cross-sectional online survey was distributed to service providers in Saskatchewan from January 14th to February 19th, 2026.

Results: Fifty-six service providers participated, representing diverse roles both within and external to the SHA. Perceptions were largely positive with 86.5% (n=45/52) agreeing the Maps help identify strengths and gaps in available food assets and 82.7% (n=43/52) agreeing they make resource sharing easier. Recommendations included offering printed versions, maintaining yearly updates and adding transportation information.

Conclusion: Perceptions and attitudes of service providers toward the SHA Food Asset Maps were favourable. Participants identified improvements that can guide Public Health Nutritionists in enhancing the Maps to make them more useful.

Significance to Dietetics: This study demonstrates there is a reliance on the SHA Food Asset Maps by a variety of service providers from different sectors, and having up-to-date information regarding community food assets is helpful.

Perceptions of the Current Food Service Delivery Model at Jim Pattison Children's Hospital (Phase 2: Post Room Service Implementation)

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Introduction: Room service meal delivery improves food intake, patient satisfaction, and reduces food waste in hospital settings. In October 2025, Jim Pattison Children's Hospital (JPCH) transitioned from a traditional to room service model for pediatric and maternity inpatients.

Objectives: To compare patient satisfaction, Nutrition and Food Service (NFS) employee perceptions, food intake, food waste, and length of stay (LoS) before and after room service implementation.

Methods: A pre–post observational design was used. Patient and NFS employee satisfaction surveys were collected from February 17 to March 24, 2026. Daily meal tray audits assessed food intake and waste from February 17 to 23, 2026. LoS data were collected for pediatric and maternity inpatients during the same period.

Results: Maternity patients rated meal quality 9% higher. Pediatric meal satisfaction increased by 28%, and satisfaction with meal timing improved 21%. Positive NFS employees' meal ratings increased by 6%, although employee fulfillment was 13% higher in Phase 1. Food intake increased, food waste decreased, with entree consumption rising 31%. Average LoS decreased by 49% for pediatric and 20% for maternity patients.

Conclusion: Room service improved nutritional intake and patient satisfaction; workforce impacts and LoS effects require further study.

Significance: As the first Saskatchewan Health Authority (SHA) site to implement room service, findings may inform broader expansion and support strategies to reduce hospital malnutrition.