

SNACK STUDY – SATIETY, NUTRITION AND APPETITE IN CHILDREN

K. Nguo¹, C. Huggins¹, E. Barber¹, J. Brown^{2,3}, H. Truby¹, M.P. Bonham¹. ¹Department of Nutrition and Dietetics, Monash University, Australia; ²Department of Paediatrics, Monash University, Australia; ³Department of Paediatric Endocrinology and Diabetes, Monash Children's Hospital, Australia
E-mail: kay.nguo@monash.edu (K. Nguo)

Background/Aims: Childhood obesity is a growing concern in Australia. For prevention and treatment of obesity it is beneficial to provide nutritional advice promoting the consumption of foods with a high level of satiety ('fullness') and low in energy ('calories'). The macronutrients in food: carbohydrate, protein and fat influence the body's internal signals that control appetite.

Methods: Seven obese and 12 healthy weight adolescents 12–19 years were randomised to complete two testing days involving the consumption of a high carbohydrate (79%) or high protein (55%) breakfast. Self-reported hunger and fullness, and appetite hormones or energy expenditure were collected postprandially over four hours. This was followed by an *ad libitum* lunch and a 24 hour food recall. Differences between groups were assessed using independent samples *t*-test.

Results: Preliminary results to date indicate differences in appetite between weight status groups. Following the high protein breakfast, the obese group were significantly less hungry ($p = 0.024$) compared to the healthy weight group after four hours. Following the high carbohydrate breakfast, the obese group consumed significantly less at the buffet lunch per kg of body weight ($p = 0.034$) compared to the healthy weight group.

Conclusions: The associations seen thus far indicate a relationship between macronutrient intake, body weight and subjective appetite sensations. Further recruitment to achieve the desired subject numbers, and ultimate analysis of the full set of outcomes including appetite hormones and energy expenditure will generate quality evidence towards the understanding and development of dietary advice for children.

Funding source(s): Monash University Strategic Grant.

DIETARY RISK SCORES OF TODDLERS ARE ASSOCIATED WITH NUTRIENT INTAKES AND SOCIO-DEMOGRAPHIC FACTORS, BUT NOT ADIPOSITY

L. Bell¹, R. Golley², A. Magarey¹. ¹Nutrition and Dietetics, School of Medicine, Nursing and Health Sciences, Flinders University, Adelaide, SA, Australia; ²Sansom Institute for Health Research, Division of Health Sciences, University of South Australia, Adelaide, SA, Australia
E-mail: lucy.bell@flinders.edu.au (L. Bell)

Background/Aims: A newly developed Toddler Dietary Questionnaire (TDQ) assessing toddlers' dietary risk was shown to have good reliability and comparative validity. This study aimed to determine the validity of the dietary risk construct by assessing whether TDQ-derived dietary risk scores are associated with nutrient intakes, socio-demographic characteristics and adiposity.

Methods: Parents of Australian 12–36 month olds ($n = 117$) completed a demographic questionnaire and the 19-item TDQ that assesses food-group intake over the previous seven days and is scored against a dietary risk criterion (0–100; higher score = higher risk). Nutrient intakes were established by applying TDQ food-group nutrient profiles to the amount consumed per week and tallying for all items. Energy and energy-adjusted nutrient intakes across quartiles of risk scores were investigated using linear trend analysis. Regression analysis was employed to determine the association between dietary risk score, socio-demographic characteristics and BMI *z*-score.

Results: Toddler risk scores (Q1 20.0 ± 2.7 vs. Q4 41.6 ± 5.6) were positively associated with energy, total fat, saturated fat, sugar and sodium and negatively associated with protein, fibre, iron, magnesium and phosphorus intakes. Risk scores were positively associated with household numbers ($n = 115$, $p = 0.037$) and toddler age ($n = 115$, $p = 0.008$) but not BMI *z*-scores ($n = 114$, $p = 0.845$).

Conclusions: Dietary risk scores are associated with nutrient intakes and demographic characteristics in expected directions, providing support for use of the TDQ as a dietary screening tool in early childhood preventative health efforts.

Funding source(s): Commonwealth Australian Postgraduate Award, NHF, Australia

OBJECTIVE MEASURE OF SNACKING BEHAVIOUR OF AUSTRALIAN CHILDREN

F. Fayet-Moore¹, L. Ridges², T. Keighley³, P. Petocz³. ¹Nutrition Research Australia, Sydney, NSW, Australia; ²Nestle Australia Ltd, Rhodes, NSW, Australia; ³Macquarie University, Epping, NSW, Australia
E-mail: flavia@nraus.com (F. Fayet-Moore)

Background/Aims: There is no universal definition of snacking. There is a need for an objective measure of snacking to be developed and adopted for nutrition research.

Methods: Data from the 2007 Australian National Children's Nutrition and Physical Activity Survey were used (ages 2–16 years). Percent energy and frequency of foods consumed on weekdays were plotted by time of day. Three main meal peaks and between-meal time periods were identified. Eating occasion (EO) was defined as all foods and beverages consumed at a unique time point. A snacking occasion (SO) was defined as an EO occurring in between-meal time periods. Total daily number of EO, SO, items consumed and energy and nutrient contribution of EO and SO to daily diet were determined. Multiple linear regression was used to adjust for age, gender, BMI *z*-score, energy intake and physical activity. Statistical significance was set at $p < 0.01$.

Results: Children consumed on average 7 EO and 2.6 SO per day. On average each EO contributed 14% of total energy. Daily SO's contributed 28% of total energy and 19–35% of total nutrient intake. There were no gender differences in number of SO, and both daily EO and SO decreased with age. Higher frequency of EO and SO were associated with higher total energy intake but were not associated with BMI *z*-score.

Conclusions: This objective method for assessing snacking behaviour showed SO significantly contributed to total energy and nutrient intake without being associated with adiposity.

Funding source(s): Nestle Australia Ltd.

PREDICTORS OF DIETARY INTAKE AMONG TWO-YEAR-OLD CHILDREN: FINDINGS FROM THE HEALTHY BEGINNINGS TRIAL

K. Kunnaratnam¹, M. Halaki¹, L.M. Wen², L. Baur³, V. Flood^{1,4}. ¹Faculty of Health Sciences, University of Sydney, Australia; ²Health Promotion Service, South West Sydney and Sydney Local Health District, Australia; ³Discipline of Paediatrics and Child Health, Sydney Medical School, University of Sydney, Australia; ⁴St Vincent's Hospital, Sydney, Australia
E-mail: vicki.flood@sydney.edu.au (V. Flood)

Background/Aims: Few studies have investigated the effect of maternal predictors on child eating practices. Our study aimed to explore associations between maternal-child eating behaviours and determine their predictors.

Methods: Data from control participants ($n = 243$) in the Healthy Beginnings Trial, which involved first-time mothers and their 2 year-old children in south-western Sydney, were assessed using short dietary questions (sFFQ) on children's dietary behaviours including consumption of vegetables, fruit, water, milk, sugary drinks, processed meats, take-away and hot chips. Correlations and logistic regressions were used to examine mother-child dietary relationships and determine predictors.

Results: The majority (92%) of children were reported to have met recommended fruit intake but only 20% met recommended vegetable intake, with mean (SD) serves of fruit 2.2 (1.2) and vegetables 1.7 (1.2). Approximately 50% of mothers reported meeting recommended fruit intake but only 7% reported meeting recommended vegetable intakes with a mean (SD) of 1.6 (1.1) serves of fruit and 2.3 (1.3) serves of vegetables. Children with higher educated mothers (university or above) had lower intakes of sugary drinks, similar to children with older mothers (> 25 years). The latter group also reported less processed meat intake ($p < 0.05$). Children from a higher household income (> \$40,000) had higher intakes of fruit, lower sugary drink consumption, less take-away foods and less frequent consumption of hot chips ($p < 0.05$).

Conclusions: Our findings suggest an association between mother and child dietary intakes and various socio-economic factors. A clear understanding of these predictors will help in developing targeted approaches to assist mothers to model healthier food consumption patterns.

Funding source(s): NHMRC.