Concurrent Session 14: Iodine

The iodine status of toddlers and preschool children living in Adelaide

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Background – Iodine is needed for normal growth and development particularly of the central nervous system. Because the human brain continues to grow rapidly up until the third year of life, it is important that pre-school children consume diets that meet their iodine requirements.
Objective – To determine the iodine status of children participating in the Food Intake and Nutritional Status of Toddler and Pre-schoolers (FINS) study.
Design – A cross-sectional survey of 300 children between the ages of 12-60 months living in Adelaide. Children were recruited using a door-knocking protocol to obtain a representative sample of this age group. Dietary intake was assessed using a 3-day weighed food record and iodine intakes determined using data from the 2006 Australian Nuttab and New Zealand Food Composition databases. A casual urine sample was collected from 282 children for the determination of urinary iodine concentration (UIC).
Outcomes – The median urinary iodine concentration (MUIC) of the children was 129 µg/L; WHO defines optimal iodine nutrition as a MUIC between 100-200 µg/L. There was a trend for UIC to decrease with increasing age, but this was not significant. The mean dietary iodine intake was 71 µg/day; above the EAR of 65 µg/day but below the RDI of 90 µg/day. Dairy products made the largest contribution (72%) to total dietary iodine, followed by bakery products (4%) and infant formula (4%), if used.
Conclusions – MUIC is the most commonly accepted index of iodine status, thus the children in this study had adequate iodine status (i.e. >100 µg/L). The limited number of foods in the Nuttab database with an iodine value may explain the lower than expected iodine content of these children's diets.

Restriction of meat and poultry negatively impacts nutrient intake and nutritional status in women of childbearing age

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Background – Animal products such as meat and poultry are rich sources of nutrients such as iron, zinc and vitamin B12. Exclusion of animal products from the diet may have adverse long term consequences on nutritional status.
Objective – To investigate the effects of animal food group restriction and eating behaviour on nutrient intake and biochemical markers of nutritional status in young female students.
Design – Females (n=256; age 22.4±3.8 y; BMI 21.4±2.6 kg/m2; mean ± SD) participated in a cross-sectional study. Eating behaviour was assessed by the Three-Factor Eating Questionnaire which measured restraint, overeating and hunger. Participants were categorized as avoiders or non-avoiders of meat and poultry based on their responses to a Food Frequency Questionnaire. Blood samples were analysed for biomarkers of iron and vitamin B12 status.
Outcome – Serum ferritin and serum vitamin B12 concentrations were positively correlated with consumption of red meat ($P<0.001$) and chicken ($P<0.001$). The highest restriction was observed for pork (n=51) followed by chicken (n=40) and red meat (n=24). Restraint scores in avoiders of red meat (11.0±5.6 arbitrary units), chicken (10.0±5.6) and pork (9.6±5.6) were higher than scores in non-avoiders (8.0±5.0). Intakes of energy, protein, zinc, selenium and vitamin B12 were significantly lower in meat and poultry avoiders than in non-avoiders. Individuals who consumed fewer than two serves of red meat per week had significantly lower concentrations of ferritin and vitamin B12 in serum, higher serum methylmalonic acid (MMA) concentrations and higher restraint scores than those who consumed more than two serves per week.
Conclusion – The results indicate that dietary restriction of meat and poultry is associated with lower dietary intakes, and lower nutritional status of some key nutrients. Further studies are required to identify reasons for restrained eating and dietary restrictions and potential means of improving nutrient status.
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