**Concurrent Session 11: "Brain food" and School Nutrition**

**The nutritional value of packed lunches consumed by New Zealand primary school children: what is eaten and not eaten**

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**Background** – Most New Zealand primary schools enforce a packed lunch policy. The content of lunch boxes makes a significant contribution to a child’s daily nutritional intake.

**Objective** - To determine children’s food consumption at school by undertaking a cross-sectional survey of school lunchboxes and analysing unconsumed foods deposited in provided food waste disposal bins.

**Design** – A cross-sectional survey was conducted in 6 different urban primary schools (age range 5-11 years) throughout December 2005 in the Manawatu Region of New Zealand. 927 individual lunch boxes were photographed at the beginning of the school day before the first food break. After the lunch break, all the rubbish bins from each school were collected. The photographed food items were categorised by food group and judged according to the UK *Balance of Good Health* guidelines. Unconsumed food items were categorised according to portion size and food group.

**Outcomes** – Bread was the most popular food item in the lunch boxes. Fruit or vegetables were present in 70% of lunch boxes; 32.4% of lunches met the recommendation of two servings. 57% of lunch boxes contained potato crisps and 15% contained confectionary. The majority of foods belonged to the moderate to high fat, sodium and sugar groups. Only 11% of lunchboxes met the guidelines. Over 80% of unconsumed food items were sandwiches, fruit and dairy products.

**Conclusions** – The lunch boxes in this study were high in saturated fat, sugars and sodium. The inclusion of snack and convenience foods appears to be at the expense of more nutritionally desirable items such as fruit. The results identify areas for educational activities designed to improve awareness of the need to include fruit and vegetables and to increase the ratio of starch to sugars.

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**The influence of the school canteen on children’s food intake at school**

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**Background** – Developing relevant and practical guidelines for healthy school canteens requires a greater understanding of how school children use the canteen and how this use influences the nature of foods brought to school.

**Objectives** – To compare the type of foods and beverages purchased from the school canteen with the type of foods and beverages brought to school by children users and non-users.

**Design** – An exploratory study of a representative sample of metropolitan Melbourne government and catholic schools. Four hundred and sixteen (37% response rate) Grade 5 and 6 students aged 9-12 years consented to take part in the study of which 384 provided a completed data set. Children were classified as a canteen user if they purchased from the school canteen ‘everyday’, ‘most days’ and ‘sometimes’, or as a non-user if they ‘hardly ever’ or ‘never’ purchased from the school canteen. The frequency and type of foods and beverages purchased from the school canteen and brought to school was determined using a 26 item food check list. Differences between users and non-users of the school canteen was determined using chi-square analysis.

**Outcomes** – Canteen users purchased significantly more junk food items than non-canteen users, in particular more pies/pasties/sausage rolls, lollies, and potato chips (*P* <0.05). Non-canteen users tended to purchase more vegetables (*P* = 0.09) and soft drink (*P* =0.02) than canteen users. Canteen users not only purchased significantly more junk food items they also brought to school significantly more of these items than non-canteen users, in particular more cake, potato chips and soft drink (*P* <0.05). On average, both canteen user groups brought to school more junk food items than what canteen users purchased from the school canteen (*P* <0.05).

**Conclusions** - School children brought to school more high energy dense foods and beverages than what was purchased from the school canteen. These findings suggest that healthy canteen policies alone may not be able to significantly change unhealthy eating behaviours at school as the majority of poor food choices are coming from outside of the school canteen environment.