Satellite Symposium

Childhood Obesity Prevention: Nutritional and Behavioral Aspects

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17:45 - 19:15 | Hall 1

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Tuesday, 14th May 2013
17:45 - 19:15

Chairperson:
Prof. Barbara Rolls | USA
Laboratory for the Study of Human Ingestive Behavior | Department of Nutritional Sciences
The Pennsylvania State University

Speakers:

Nutritional Strategies to Prevent Obesity in Children
Prof. Barbara Rolls | USA

Eating Behaviour and Risk of Obesity
Prof. Marion Hetherington | UK

Establishing Healthy Eating Behaviors:
Learnings From the Cookid Study
Dr. Klazine van der Horst | Switzerland
The recent rapid rise in childhood obesity has occurred in an environment characterized by a wide variety of large portions of energy dense foods. Children learn what to like and to eat, as well as how much to eat, in this obesogenic environment that often does little to promote consumption of healthful foods. A number of studies indicate that environmental and behavioral factors that drive excess intake can be used strategically to encourage intake of nutrient-dense foods such as vegetables. For example, increasing the variety of vegetables offered to preschool children as a snack significantly increased vegetable intake. Portion size can also be used positively to increase intake of vegetables in children. Offering larger portions of vegetables served either as a side dish or as a first course at a meal was an effective strategy to increase vegetable intake. Serving palatable, nutrient-dense foods when children are hungry and when there are no competing foods was particularly effective. Promoting intake of vegetables is important not only because of their nutritional value but also because the high water content gives them a low energy density. Reducing dietary energy density by increasing vegetable intake can lead to significant decreases in energy intake. This can be achieved by incorporating large amounts of either pureed or chopped vegetables into a variety of foods such as casseroles and baked goods. This approach encourages even reluctant eaters to meet daily recommended vegetable intake. The associated decrease in dietary energy density can significantly lower children’s energy intake and the effect persists over two days. Strategies that have been shown to increase vegetable consumption have the potential to improve consumption of other nutrient-rich foods while moderating children’s energy intake. Future studies should focus on how food variety, portion size, and energy density can be used strategically to influence body weight and prevent childhood obesity.
Obesity levels are rising across Europe however, some countries appear to have significantly higher levels of overweight and obesity than others. This raises the question about which underlying cultural and behavioural factors promote risk of weight gain and what individual differences might protect against permissive environmental factors. In order to characterize eating behaviours associated with the pre-obese phenotype we have explored two critical periods in development – childhood and early adulthood. In children, we have conducted a series of studies to examine “risky” eating behaviours such as eating in the absence of hunger, and response to high or low energy drinks or snacks. Under these circumstances, it is clear that some children resist tempting foods when not hungry and will regulate short term energy intake in response to snacks which are high in energy. In probing this response further, we demonstrated that children who tend to select high energy density foods after a fixed energy load are children who are at higher risk of developing obesity (Cecil et al., 2008). In this research we reported that children carrying the A allele of the FTO gene tend to be heavier, have more body fatness and prefer higher energy dense foods. Thus, individual differences in genotype, food preferences and response to nutritional challenges predicts risk of overweight (Cecil et al., 2012). Similarly, in our studies of weight change in young adults (sometimes referred to as the “Freshman 15”) during the first year of University we found that individual differences in eating behaviour such as disinhibition (or opportunistic eating) predicted weight gain over 12 months (Finlayson et al., 2012). Clearly, living in environments which are obesogenic increases risk of developing overweight and obesity, however, despite permissive contexts some individuals resist overconsumption and maintain a healthy weight. It is important to characterize both the environmental factors which facilitate overeating at the same time as understanding what individual differences in eating behaviour are protective and what specific behavioural strategies (Buckland et al., 2013) might defend against excessive food intake.

References
The promotion of fruit and especially vegetable consumption in children is considered to be of high importance as many children fail to meet the recommendations in Europe and the USA (Lorson, Melgar-Quinonez, & Taylor, 2009; Yngve et al., 2005). Research indicates that making children familiar with foods might impact their food acceptance and intake. (Heath, Houston-Price, & Kennedy, 2011). Involving children in food-related activities like food preparation could be an opportunity to develop healthy eating habits and to increase vegetable consumption. Most research in which cooking is discussed focuses on school based nutrition education programs in which food preparation is one part of all the activities such as tasting lessons, gardening and classroom education (Robinson-O’Brien, Story, & Heim, 2009; Seeley, Wu, & Caraher, 2010). The purpose of the CooKid project was to examine the mere effect of children’s involvement in meal preparation on children’s vegetable intake in an experimental setting.

An experiment was conducted with 47 children aged 6 to 10 years. In condition 1 (n=23), children prepared a lunch meal (pasta, breaded chicken strips, cauliflower, and a salad) with assistance of the parent. In condition 2 (n=22) the meal was prepared by the parent alone while the child was sitting in the same room doing another activity (e.g. colouring) to mimic an in-home situation. Independent-samples t-tests were conducted to compare intake in the “child cooks” and “parent cooks” conditions. A significant effect of cooking involvement on the intake of salad (+76% grams, p<0.01), chicken (+27% grams, p<0.05), and energy (+24% calories, p<0.01) was found. There was a trend towards an increased intake for cauliflower consumption for the children who cooked (+23% grams, p=0.167). Mean vegetable consumption was 145 grams in the group of non-cooking children, while the children who cooked their own meal had a mean intake of 206 grams. Children who cooked did not increase the liking of the foods, but cooking the meal was highly appreciated.

The CooKid study shows that a single involvement in a cooking activity has an clear effect on the intake of vegetable in the subsequent meal. Children who cooked consumed the recommended daily amount of 200-220 grams of vegetables in one meal. Cooking seems a promising component for interventions aiming to improve children’s dietary behaviours. Long term effects need to be explored.

References
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