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The role of fatty acids in satiation and satiety

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Background – Satiation and satiety describe the events which lead to meal termination and the maintenance of hunger induced by physical and metabolic events following food ingestion. Fatty acids, components of dietary fat (triglyceride) may be important, if not essential components of satiation and satiety. Emerging evidence suggests fatty acid now constitutes a sixth taste modality and orally sensed fatty acids mediate unique cephalic and hormonal responses priming the body for fat digestion, and may contribute to sensory specific satiety. Once ingested, fatty acids are sensed in the gastrointestinal tract (GIT) where they cause the release of hormones, stimulate the vagus and enter the blood stream where they act a number of organs (brain, liver) to influence satiety.

Objective – To review the role of fatty acids in sensory and metabolic satiation and satiety.

Design – Literature search and review of papers from the past decade on satiety, satiation, fat taste and fatty acids.

Outcomes – The physiological significance of gustatory fat detection is still unclear, but it may signal the nutritious content of fat similar to the tastes of sweet or umami which signal the presence of carbohydrate or proteins. Like other tastants, fatty acid taste sensitivity is thought to vary in the population and differences in sensitivity may influence dietary choice and fat intake. Fatty acid taste may contribute to sensory specific satiety as foods are eaten. Animal models have observed an inverse relationship between oral fatty acid sensitivity and fat consumption, which leads to obesity. Observations that the obese have heightened preferences for, and consume more fat than lean individuals questions whether such a relationship may also be apparent in humans. At the GIT, fatty acids are sensed by enterocytes and bind to receptors, transporters or ion channels where they initiate gut-brain communication over nutrient status through the vagus and cause the release of satiety hormones which lead to meal termination. Inefficient fatty acid sensing at either or both locations is thought to accompany the aetiology of obesity.

Conclusion – Variations in sensitivity to fatty acids may alter preferences and consumption of fats or hormonal responses to fat ingestion which influence sensory-specific, metabolic and subjective satiety.

P04

Exploring food habits and nutrient intakes of university students undertaking a food and nutrition unit

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Background – Eating habits and nutrient intakes of young adults have appeared to be undesirable however recent studies focusing on Australian young adults is scarce.

Objectives – To assess the nutrient intakes and describe the food-related habits and beliefs of university students. The influences of living arrangement and nationality were also explored.

Design – University students (N=130) undertaking a food and nutrition unit completed a food and diet questionnaire, two 24-hour food records and a food variety survey.

Outcomes – Most students performed their own food preparation (83.7%) but only 34.1% were responsible for food shopping. Students living away from home were more likely to purchase and prepare their own meals and report cooking more frequently than students living at home ($p<0.05$). Low fat and/or low sugar diets were most commonly followed and 89% considered their diets as healthy. The importance of healthy eating behaviours such as moderating fat and salt intakes were recognised by over 80.0% of students. Food was most commonly consumed alone, with friends or family; at home; and while talking. Students living away from home and those of Australian nationality consumed more alcoholic drinks per week compared to those living at home and non-Australians respectively ($p<0.05$). High saturated fat (13.2%) and sodium (2573 ± 1376 mg) intakes were reflected in the students' diets. Only 55.9% had diets of ideal food variety. Nutrient intakes and food variety scores did not differ significantly with different living arrangements (except vitamin C intakes) and nationalities.

Conclusion – Young adults recognised the importance of healthy eating however this does not translate into desirable dietary habits and nutrient intakes. Living arrangement and nationality did not have a large influence on the food-related habits and beliefs of university young adults.