

Plenary Session RTD Line 5

Metabolic insights behind the sensory experience of fat

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Abstract

Obesity may in some respects be the result of the passive over-consumption of fatty foods due to the relatively poor satiating effects of fat compared with other nutrients in addition to the hedonic rewards associated with high-fat foods. Fatty foods taste nice. Not surprisingly, over-consumption of foods will impact not only on energy balance leading to obesity but also directly on pre- and post-ingestive metabolism.

The postprandial response to macronutrients in the diet, particularly fats, underpins the detrimental changes in metabolism (impaired glucose tolerance or postprandial hyperlipaemia) and later pathology (insulin resistance, type 2 diabetes or atherosclerosis) associated with Westernised diets. Research has shown that in addition to what and how much fat we eat, eating behaviour in itself may be implicated in postprandial regulation. The process of ingestion stimulates cholinergic-vagal activity, irrespective of what is eaten, important in determining both the absorption and subsequent utilisation of nutrients but also potentially food intake through effects on hunger and satiety. However, not all nutrients are equal in this respect, the importance of fatty acid sensing during ingestion or the so-called "taste of fat" is less well known than other aspects of gastrointestinal physiology, but has shown to impact on gastrointestinal motility, postprandial lipaemia, energy metabolism and satiety, by mechanisms which may be specific for certain classes of fatty acids.