

and diet-related changes in gut microbiota. Even intermittent exposure to an energy-dense, western diet can shift the biota towards that seen in obese rats, with reduced microbial diversity. We compared the effects of added fat plus sugar, or added liquid sugar only, on behaviour and hippocampal gene expression after 2 weeks of diet. When animals drank liquid sugar (10%) for 2 weeks, we observed increased expression of hippocampal proinflammatory cytokines, along with memory deficits (place recognition). Cytokine mRNA expression correlated with blood glucose concentrations. Other work has shown that greater sucrose consumption leads to distinct microbiota profiles, in the absence of weight differences. Examining key underlying processes is an essential step to enable testing of novel interventions in humans to combat diet-related cognitive deficits.

<https://doi.org/10.1016/j.orcp.2016.10.018>

18

Invited talk: Sweet taste in the gut – Implications for diabetes



Chris Rayner

University of Adelaide, Adelaide, SA, Australia

The digestion and absorption of nutrients, and the neuroendocrine signals arising from their interaction with the gut, are fundamental to the regulation of energy intake and blood glucose. Sweet taste receptors, responding to a broad array of sugars and artificial sweeteners, are found not only on the tongue but also in the small intestine. They play a role in the release of gut peptides in response to sugars, and regulate the expression of intestinal glucose transporters. Epidemiological evidence suggests that consumption of artificial sweeteners, as well as sugars, increases the risk of developing type 2 diabetes; the underlying mechanisms are unclear, but could involve the gut. Recent studies investigating the expression and regulation of intestinal sweet taste receptors and glucose transporters in diabetes and obesity are yielding insights into the pathophysiology of these disorders.

<https://doi.org/10.1016/j.orcp.2016.10.019>

19

Invited talk: Sugar free societies: How do we get there and will it be worth it in the end?



Kieron Rooney

University of Sydney, Lidcombe, NSW, Australia

Sugar is out! Haven't you heard? In recent years, the recommendation from national dietary guidelines and the World Health Organisation has been to limit the intake of foods and drinks with added sugars. And while some in the community are yet to be convinced that regulating sugar intake is worth all the fuss, amid the cries of *Nanny Statists* and *Fun Police* momentum gathers for public health to intervene in our sugar sweetened societies.

Sugar sweetened beverages in particular have been targeted on account that they provide no nutritional benefit for an individual, can bring significant risk of harm yet dominate the beverage choices in our environment. But, will public health make the public healthy and can the strategies they have on standby deliver the health outcomes the public may be expecting? A rich collection of evidence from successful population based interventions is building across the globe upon which this question can be answered.

During this talk, two core themes will be explored. In the first instance, the various strategies that could be implemented for the regulation of added sugars in our food supply will be discussed within the context of why we should focus on added sugar. Whether or not weight gain (or obesity) is the strongest platform upon which to build support for sugar regulation will be considered as well as some of the typical arguments encountered opposing those that attempt to make change. Following this the theme of success will be explored in consideration of the evidence from sugar withdrawal studies. Specifically, what outcome (or outcomes) will we base the success of any intervention that seeks to reduce the consumption of added sugars through regulation.

<https://doi.org/10.1016/j.orcp.2016.10.020>