

Conclusions: The removal of unhealthy beverages from display can result in consumers making healthier purchases, while not significantly affecting retailer sales.

References

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16

Import duty of palm oil: A case study of policy making in Fiji



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Background: Non-communicable diseases (NCD) impose a significant burden on Fiji. Food-related policies designed to curb NCDs have been implemented in Fiji, including a 32% increase in palm oil import duty (2012). Studying the development and implementation of such policies should provide valuable insights on policy making process and its effectiveness.

Aim: To analyse the development and implementation of the palm oil import duty policy in Fiji. More specifically, to document the policy process, identify barriers and facilitators during implementation and to examine the impact of the new import duty.

Methods: Based on a case study approach, data were collected through key informant interviews with private stakeholders, government officials and

supermarket managers. Transcripts were analysed thematically. National import data and prices were analysed for the 2010–2014 period.

Results: Facilitators to policy implementation included awareness, preparation of a comprehensive policy briefing paper, and inter-sectorial support and leadership. Barriers included counter lobbying from retailers and the political environment. Import volume abruptly declined after the policy was implemented in 2012. The decrease in availability of palm oil as a result of the price rise was encouraging. However this was counteracted to some extent by industry moves to mislabel the product as vegetable oil.

Discussion: Potential unintended side-effects of policy changes need to be considered and addressed during policy formulation. Whilst the decline in imports probably decreased consumption, further research is needed to determine if this translated to a population wide reduction in NCD risk.

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17

Invited talk: Impact of sugar – Brain, gut and beyond



Margaret Morris

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There is much public debate around the detrimental impact of sugar, particularly in the form of sweetened beverages, to overall health. We investigated the impact of chronic sucrose post-weaning on hippocampal genes related to plasticity, neurogenesis, stress responses and mitochondrial biogenesis. Female rats were provided with chow and 30% sucrose (in addition to water) to drink from weaning, and hippocampus was collected at 13 weeks. Control rats drank water. Sucrose intake was associated with marked reductions in expression of genes related to neurogenesis (*Reln*, *Neurod1*, *Gsk3a*) and mitochondrial biogenesis (*Pgc-1 α* , *Nrf-1*). Expression of markers related to the stress response (*GR*, *Homer 1*) was also downregulated. Thus chronic sucrose consumption impacted an array of genes that govern development, and emotional and other brain functions.

We have shown in rats that both high fat, and high sugar, diets can impair hippocampal dependent behaviours, even after short-term exposure. Similar deficits are seen in young men exposed to poor diet for less than one week. Potential mechanisms underlying the cognitive deficits include neuroinflammation, changes in brain neurotrophic factors,

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.

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18

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



Chris Rayner

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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.

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19

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



Kieron Rooney

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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.

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