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Sugar in the diet: is there a sweet spot?

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Abstract
A round-up of insights presented at ILSI SEAR Australasia's symposium, Sugar in the diet: is there a sweet spot? held in Sydney on 30 October 2015.

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The International Life Sciences Institute (ILSI) Australasia held a symposium in Sydney on Thursday, 30 October 2015 on Sugar in the diet: is there a sweet spot? President ILSI Australasia, Ms Kim Tikellis, welcomed more than 85 participants to the seminar to help understand the role of sugar in the diet, identify potential scientific research gaps and understand consumers’ perceptions, attitudes and behaviour. Here are the highlights…

Mr Bill Shrapnel of Shrapnel Nutrition Consulting discussed the evolution of the sugar and health debate. He attributed this to more than 35 years of Australian Dietary Guidelines health messages focused on low fat and relatively high carbohydrate diet, resulting in insufficient emphasis on lowering sugar intake. While sugar has been noted as a risk factor for developing dental caries by Australian and global health organisations, Mr Shrapnel recommended a more comprehensive review of current literature, investigating the health effects of high carbohydrate diets on cardiometabolic health.

Dr Alan Barclay, consultant dietitian and nutritionist, presented the historical perspective of sugars, commencing with honey as our first sweetener, with evidence of consumption during the Stone Age, among the ancient Egyptians and Chinese officials and the Middle Ages.

Dr Barclay explained that high fructose corn syrup was introduced in between 1975 and 1985, replacing sucrose as the preferred sweetener in the USA. Alternate sweeteners such as saccharin, xylitol, aspartame, sucralose and stevia were developed. In 2014, a World Health Organization (WHO) meta-analysis showed that increased sugar intake was associated with weight gain, but no evidence of a dose-response association was found. Dr Barclay noted that Dietary Guidelines have always recommended strategies to eat less added sugar. In 2015, WHO has also recommended a reduction of free sugars to less than 10 per cent of total energy intake with suggested further reduction to below 8% per cent.

Ms Danielle Baird, research project officer from CSIRO Food and Nutrition, looked at data on ‘apparent’ and ‘actual’ Australian sugar consumption. Ms Baird highlighted that defining sugar was complex, with varying terminologies used in research literature and on food labels and reinforced the importance of health professionals providing accurate definitions to alleviate consumer confusion. Data sourced from the Australian Bureau of Statistics (ABS) and McNeill & Shrapnel showed a decline of 13 per cent in apparent sugar consumption from 1939-2011. This trend was also reflected in actual consumption data from the Australian Health Survey 2011-13, which draws on self-reported consumption data from the National Nutrition and Physical Activity Survey 2011/12. Overall, Australians consumed an average 105g of total sugar daily, with males being the larger consumer at 116g total sugar per day compared to females at 94g per day.

Professor Luc Tappy, University of Lausanne in Switzerland, presented on the physiological and pathological effects of sugars, as well as an overview of current global sugar research. Professor Tappy began his presentation by outlining that nutrition recommendations for sugars exist, as sugar is composed of glucose plus fructose, and all body cells can use glucose as an energy substrate. Fructose is converted into lactate, glucose or fatty acids in the liver with ~5% energy loss. Glucose production and oxidation is slower with mixed meals. Some epidemiological studies show a positive association between added sugar and sweetened beverages (SSBs) with body weight, but this depends on adjustment for energy intake.

Presenting an overview of current global sugar research, Professor Tappy explored the epidemiological and short-term studies demonstrating the role that SSBs play in the pathogenesis of metabolic diseases. Although mechanistic and intervention studies suggest high fructose intakes can lead to adverse metabolic effects, no safe upper limit level has been defined.

Studies investigating the hedonic effects of sugar in terms of inducing satiety or appetite stimulation report conflicting results. These studies highlight the complexities of homeostatic responses underlying physiological responses to food intake, such as the influence of taste receptors. Professor Tappy proposed the need to consider various components of the diet such as fibre content, glycaemic load or whole grain foods in seeking appropriate carbohydrate sources to replace sugar.
Ms Megan Cobcroft, food policy analyst with the NSW Department of Health, outlined the steps undertaken by NSW Health to develop a policy position for sugars and implementation recommendations aligned to the NSW Healthy Eating and Active Living Strategy 2013-2018. This includes a review of healthy food provision guidelines for hospitals and schools in NSW using data from the Australian Health Survey 2011/12, and evidence statements from the Australian Dietary Guidelines 2013 (NHMRC). Results were presented from a rapid literature review conducted by the University of Sydney’s Physical Activity, Nutrition and Obesity Research Group (PANORG), focusing on sugar and health outcomes.

There appears to be strong evidence of adverse effects on body weight from consuming SSBs, and sufficient evidence to recommend reducing energy dense, nutrient poor (EDNP) food sources with more than 50 per cent of total and added sugars. To substantiate sugar consumption intake data from the Australian food supply, further analysis of dietary data from the Australian Health Survey, and Health Star Rating (HSR) system will be included in the review process. Ms Cobcroft concluded that future health campaigns would promote reducing consumption of EDNP foods and increasing water intake to replace SSBs, as well as completing a review on utilising the HSR system to support policy implementation.

Ms Sarah Hyland, general manager of commercial services at AIFST (on behalf of Colmar Brunton), presented on consumer attitudes, behaviours and trends, noting that while obesity rates have been increasing globally over time, there is no evidence linking any specific nutrient or food to addictive behaviour. In a French study, participants with high sweet taste preferences were less likely to become obese and were more likely to consume natural sources of sugar. Ms Hyland explained that the spectrum of sugar control ranges from low to high level. Low level acknowledges that sugar is related to weight and reducing intake is good. The middle level, comprised of mostly women, are concerned primarily for children and believe sugar is addictive. They also believe that it may lead to other health problems, and tend to limit fruit and use ‘healthier sweeteners’. At the high level, people tend to follow celebrity influences and may avoid all sugar sources, including fruit.

Ms Hyland concluded that consumers report being confused and many would like to reduce their sugar intake with proper guidance.

Ms Caitlin Reid, dietitian and editor of Health and the City, presented on what dietitians and consumers need to know when it comes to sugar. She explained that consumers turn to celebrities and food bloggers for nutrition and wellness advice, as the messages are relatable and easily understood. Ms Reid proposed that credibility of dietitians has over time declined, due to their association with food companies and that raising awareness of the role of dietitians in the food industry will help increase consumer trust. Ms Reid said consumers need to understand that apart from sugar, foods may contain other nutrients such as fat and salt, while also being educated on the fact that sugar has a number of technical roles in foods, for example enhancing flavour, preservation, fermentation, colour, gelling and increasing softness. She concluded that portion size is key and added sugar can be enjoyed when eaten in moderation and mindfully.

Ms Cinthya Wibisono and Ms Rhoda Ndanuko are PhD Candidates at the School of Medicine at the University of Wollongong, New South Wales.

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