

Sweet Symposium tackles research, practice and consumer trends in a changing nutrition landscape

Sweet Symposium: a spotlight on fructose and sugar-sweetened beverage trends” was held in Sydney on 2nd December 2013.

Bringing together international and local nutrition experts, the symposium explored the current evidence on fructose-containing sugars, trends in sales of sugar-sweetened and non-sugar water based beverages, and discussed these issues in the context of the changing consumer landscape. The event was hosted by Coca-Cola South Pacific in conjunction with the Nutrition Society of Australia (Sydney Branch).



The Symposium was chaired by Dr Kim Bell-Anderson (second right), Chair of Nutrition Society of Australia (Sydney Branch), with key presenters Dr John Sievenpiper (second left), Knowledge Synthesis Lead of the Toronto 3D Knowledge Synthesis and Clinical Trials Unit at St Michael's Hospital, University of Toronto, Dr Gina Levy (third left), Principal Nutrition Consultant, Food Logic, and Dr Rebecca Huntley (third right), Executive Director, The Mind and Mood Report.

The speakers were joined for a panel discussion by international guest Dr Cyril Kendall (far left), Research Associate in the Department of Nutritional Sciences, University of Toronto, and Dr Joanna McMillan (far right), Director, Dr Joanna.

Symposium snapshot

- Addressing the fructose debate requires an examination of the best available level of evidence, randomised controlled trials, not ecological studies
- The metabolic effects associated with fructose consumption appear more attributable to excess energy in the diet than the fructose itself
- In trials controlled to account for energy intake, fructose at low to moderate intakes did not harm body weight, blood lipids, uric acid levels or liver function
- Dietary patterns have the greatest influence on weight gain and cardiometabolic risk and represent the best opportunity for successful interventions
- There has been a fundamental shift from the consumption of sugar-sweetened to non-sugar sweetened beverages over the 15-year period 1997 to 2011. Now, nearly one in two drinks consumed is a non-sugar option
- Consumer insight studies show Australians are constantly seeking *'the secret'* to good health and often look to the next guru or mass media to find it

Learn more: watch the webinar of this event at: www.coca-colajourney.com.au/sweetsymposium

Fructose: toxic or misjudged?

Dr John Sievenpiper



Dr John Sievenpiper is the Knowledge Synthesis Lead of the Toronto 3D Knowledge Synthesis and Clinical Trials Unit at St Michael's Hospital, University of Toronto and a Resident Physician in the department of Pathology and Molecular Medicine at McMaster University.

He uses met-analytical techniques and randomised trials to investigate the effect of diet on cardiometabolic risk, and he discussed the role of fructose in this context.

The fructose debate

At the start of the great sugar debate, which dates back to the 1970s, fructose was viewed favourably, with some research linking fructose to improved glucose handling.¹ Views changed in 2004 when George Bray showed an ecological relationship between total fructose and high-fructose corn syrup consumption and prevalence of overweight and obesity.²

Dr Sievenpiper emphasised the importance of examining the best available level of evidence, which are randomised controlled trials, followed by well-designed and controlled prospective studies. Ecological studies merely show associations between one factor and another at one point in time without controlling for any confounding factors and are consequently considered a weak level of evidence (see below). While these studies are useful for generating hypotheses, they should not be used as a basis for any dietary recommendations.

Why has a fructose-centric view of cardiometabolic disease emerged?

"Ecological studies have been given so much attention because there is a biologically plausible mechanism linking fructose to cardiometabolic factors. However, health professionals should be careful with how they interpret data," he said.

The plausibility of this hypothesis has been explored in animal studies; however, there are big differences in how fructose is metabolised in animals versus humans. In humans, only 3% of fructose gets converted to fat when consumed in excess; in animals it's 60%. Further, confounding factor such as excess energy, are not addressed in some studies.³

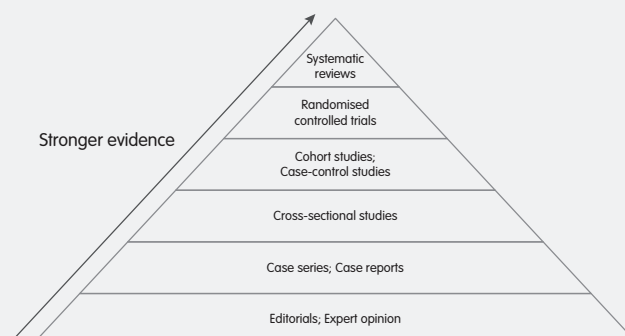
"It's important to understand the limitations of ecological studies linking fructose to cardiometabolic factors. These... studies... are mere associations relating two independent factors together. They are generally considered a weak level evidence', but are necessary for hypotheses to be generated."

Dr John Sievenpiper

What is the evidence?

Not all evidence is considered equal; there are hierarchies of research design that are evaluated to have different strengths and different levels of value.

Hierarchy of evidence in evidence-based medicine



Prospective cohort studies show a significant positive association between sugar-sweetened beverages (SSBs) and incident obesity, diabetes, gout, coronary heart disease and stroke. Dr Sievenpiper posed three possible theories to explain this:

- i. energy from SSBs is poorly compensated for
- ii. fructose is the culprit
- iii. SSB consumption is associated with unhealthy lifestyles.

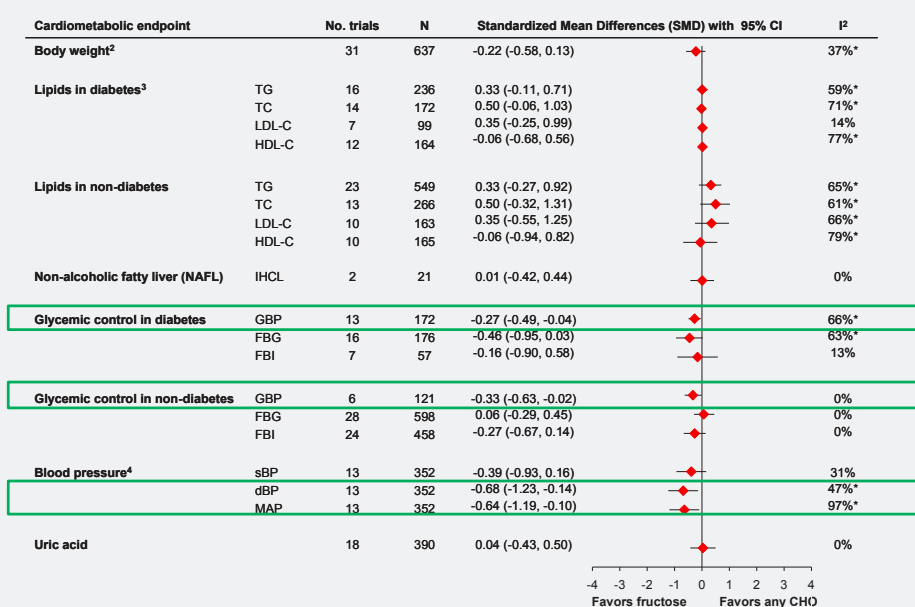
Dr Sievenpiper's group recently completed a systematic review of the prospective cohort evidence examining the relationship between fructose and various diseases. He reported that these associations were only significant when comparing the highest with the lowest levels of intake and do not hold when modelling total fructose or fructose-containing sugar (with the exception of gout). Further, he explained these data are limited by confounding factors (e.g. physical activity).

Energy intake is a crucial factor

When looking at results from controlled trials (a higher level of evidence), it is important to ensure that energy intake has been factored into the trial design.

An analysis of these data show that the metabolic effects are related to the additional energy content of the diet, irrespective of carbohydrate source, rather than fructose itself.

Lack of harm in isocaloric comparisons:
>50 trials in >1000 participants



In short, Dr Sievenpiper stressed the importance of taking into account the overall energy intake of the diet, since it is very difficult to isolate fructose as a culprit in obesity and cardiometabolic disease.

When asked how he would discriminate carbohydrate-rich foods based on nutritional quality, Dr Sievenpiper advised using the glycaemic index; however, "it is important to look at the whole diet and provide individualised nutrition therapy," he concluded.

References

1. Hawkins M et al. Diabetes 2002; 51:606–614.
2. Bray GA et al. Am J Clin Nutr 2004; 79(4):537–43.
3. Sievenpiper JL et al. Ann Intern Med 2012; 156:291–304.

Key Messages

- In combating the epidemic of obesity and cardiometabolic disease, it is difficult to separate the contribution of fructose-containing sugars from that of other factors owing to the small effect sizes and lack of demonstrated harm compared to other sources of excess energy in the diet
- Dietary patterns have the greatest influence on weight gain and cardiometabolic risk and represent the best opportunity for successful interventions
- Attention to focus on reducing overconsumption of all caloric foods and beverages, (including sugary beverages and foods), and promoting greater physical activity

Australian beverage consumption – has anything changed in 15 years?

Dr Gina Levy



Dr Gina Levy, Principal Nutrition Consultant at Food Logic, presented key findings from her recently published research, 'Quenching Australia's thirst,' which looked at trends in sales of sugar-sweetened and non-sugar water-based beverages in Australia over a 15-year period (1997 to 2011).¹

This research was commissioned by the Australian Beverage Council Ltd.

Dr Levy's new research provided information on long-term trends based on actual sales data, with the report providing an important update to earlier published findings on the purchasing patterns of non-alcohol, water-based beverages for the period 1997–2006.²

To conduct the analysis, AC Nielsen Scan Track Grocery Volume Sales data from 1997–2011 was adjusted to yield total market sales for all water-based beverages. This included food service data from vending machines, convenience stores and dining.

What are water-based beverages?

Sugar-sweetened beverages:

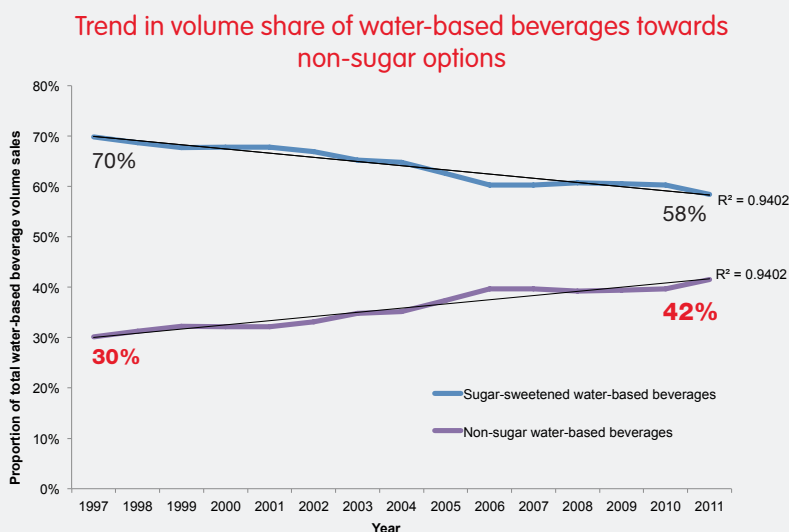
- Carbonated soft drinks
- Flavoured still water
- Flavoured mineral water
- Mixers (e.g. tonic water and ginger beer)
- Energy drinks
- Sport drinks
- Iced tea

Non-sugar beverages included all diet varieties and plain non-flavoured mineral and still waters.

Data for fruit juice were not available to the researchers so were not included in the analysis. Cordial, syrup-based carbonated soft drinks, tap water, milk-based beverages and alcohol beverages were also not included.

Shift to non-sugar beverages

The study found there has been a fundamental shift from sugar-sweetened to non-sugar beverage consumption by Australians over the 15-year period examined with nearly one in two drinks consumed being of non-sugar varieties (42% volume share in 2011 compared to 30% in 1997). According to Dr Levy, this change has been driven by increased sales of non-flavoured still water and low-kilojoule soft drinks.



Sugar-sweetened carbonated soft drinks are on the decline

While there was an overall increase by 5% of sugar-sweetened beverages in volume sales over the 15-year time period, this equated to a decrease in the volume purchased by almost 11 litres per person since 1997 when adjusting for population growth. In addition to a decline in sugar-sweetened beverages overall, there was a substantial decline in the proportion of sugar-sweetened carbonated soft drinks, which fell from 64% to 45% of water-based beverages sales between 1997 and 2011. One in three carbonated soft drinks consumed is now non-sugar (33% of total soft drink sales, 2011).

What does this mean in terms of sugar contribution to the diet?

Per capita sugar contribution from total water-based beverages declined by 17% between 1997 and 2011. Within the category, increases in sugar contribution from beverages like sports drinks and energy drinks were overwhelmed by the 26% drop in per capita sugar contribution from carbonated soft drinks over this period.

"There was a 26% drop in per capita sugar contribution from carbonated soft drinks since 1997".

Dr Gina Levy

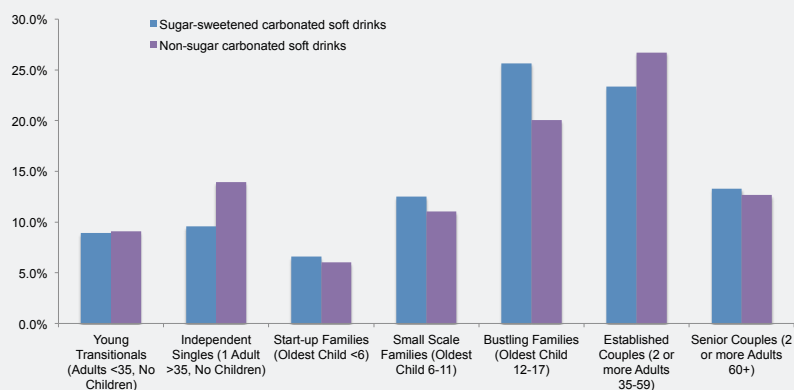
Who is consuming what?

The study also looked at how beverage habits changed according to life-stage and household structure using AC Nielsen Home Scan Consumer Panel data from 2007 to 2011. This data were collected from a survey of 10,000 households, demographically representative of the Australian population.

It found:

- teenage girls were the biggest consumers of still unflavoured water
- teenage boys were the biggest consumers of carbonated soft drinks, energy drinks, sports drinks and iced tea
- Older Australians (50+ years) were the biggest consumers of mixers, but the smallest consumers of carbonated soft drinks, energy drinks and still unflavoured water
- families with teenage children purchased the largest share of carbonated soft drinks (both regular and non-sugar)
- families with young children and young adults under 35 years purchased the lowest share of carbonated soft drinks.

Penetration of carbonated soft drinks according to household structure



References:

1. Levy GS, Shrapnel WS. Nutr Diet 2014; doi:10.1111/1747-0080.12108.
2. Levy GS, Tapsell LC. Nutr Diet 2007; 64:268-279.

Key Messages

- Sugar consumption from carbonated soft drinks declined substantially between 1997 and 2011
- There is strong evidence of a shift in consumer choice towards more non-sugar and functional beverages
- Nearly one in two drinks consumed is a non-sugar option
- Consumer beverage preferences appear to change and evolve by life-stage
- The beverage industry is urged to continue to offer healthier choices to suit consumer needs

Consumer Insights: why we're changing

Dr Rebecca Huntley



Dr Rebecca Huntley is a researcher, author and the Executive Director of The Mind & Mood Report.

She is one of Australia's foremost commentators on social and consumer trends.

Dr Rebecca Huntley provided insight into the mind of the consumer when it comes to sugar and health. She revealed that consumers are always searching for the next health secret, which makes the latest health news of special interest.

She explained that the cycles of a new secret emerging and receding will occur more quickly and become more intense as people become confused what they are told about what they should and should not consume.

She noted that consumers do not know who to trust, so they look to health gurus for advice, although they mainly source information from nutrition packaging and labels.

Dr Huntley's research found a disparity between people who use health advocates as a source of information (24%) and people who trust them (14%).

"We're not sure who we can trust, partly because there has been a history of too many disagreements between experts. We rely heavily on the mass media for health information."

– Quote from Dr Rebecca Huntley's research

Key messages

- Obesity and ageing are perceived as the two biggest challenges that we will face as a society
- 6% of respondents rated reducing sugar intake as their top priority for the year ahead
- 73% of people surveyed rated avoiding fat, sugar and salt as a priority in their lives

Reference: 1. The Mind and Mood Report (qualitative health trends).
The Food – Health Report (quantitative).

Sweet Symposium panel discussion

Dr Cyril Kendall and Dr Joanna McMillan joined the speakers in a panel discussion to conclude the event.

Key Messages

- Look at carbohydrates in the context of a healthy dietary pattern
- We are repeating the mistakes of the past and vilifying individual components of the diet rather than looking at the diet as a whole
- We must encourage media dialogue to take a more holistic approach when talking about diet and health
- Prescriptive 'no's' are confusing to the consumer who may be replacing unhealthy choices with foods that may not necessarily be much better for them
- Encouraging healthy eating through direct positive messages may promote a reduction in saturated fat, sugar and sodium intakes over the long-term

"It is extremely unfortunate that carbohydrates are being demonised, and blaming fructose is extremely dangerous."

Dr Cyril Kendall

"We need to learn to do the maths in our head; if you have a soft drink with dinner, skip dessert, if you love dessert, have water with dinner."

Dr John Sievenpiper

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Co-hosted by NSA (Sydney Branch) as a continuing education symposium for nutrition professionals.



These communications are part of the Coca-Cola Company's commitment to providing and informing health professionals on evidence-based science to advance knowledge and understanding of beverages and beverage ingredients.



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