

Management & prevention of type 2 diabetes



Sugar-sweetened beverages firmly in the firing line in the fight against obesity and diabetes

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Surely there can be no doubt that consuming drinks with lots of sugar is a contributing factor to the obesity epidemic and, in turn, to diabetes risk? However, robust evidence to support this notion is not easy to derive, partly because nutritional-type information gathered from individuals relies on their honesty, memory or else careful recording. None of these aspects can be ever be fully assured without locking individuals in a laboratory, and thus many have and continue to question the validity of this type of evidence. Nevertheless, a consistent body of evidence now supports a link between sugar-sweetened beverages (SSBs) and diabetes risk.

In the study by O'Connor and colleagues summarised alongside, the authors carefully examined links between consumption of different types of drinks, ascertained using 7-day food diaries, and future risk of diabetes. The findings broadly suggest that SSBs are linked to a higher risk of diabetes, independent of adiposity, and that if one were to switch to water or unsweetened tea or coffee instead of SSBs, the risk of diabetes would decline. Indeed, in public health terms, the authors calculated that if sweet beverage consumers reduced their intake to below 2% of daily energy (which is realistic for many with a little degree of effort), 15% of incident diabetes cases might be prevented. These are notable effects, if real and accurate, but one must always remember the issue of residual confounding in any such reports. While this paper in isolation cannot influence policy, a considerable amount of evidence in this area from a variety of other sources, as noted before, is directionally concordant, although whether the effects are truly independent of adiposity remains uncertain.

Action is, therefore, needed to reduce SSB intake, and few would argue against this.

Yet it is not clear whether our Government is ignoring the evidence or simply scared to rock the boat with the very powerful drink (and food) industries. Action by celebrities such as Jamie Oliver has helped make relevant arguments to the Government in this respect, and it is hoped that more pressure will lead to sensible and much-needed decisions. We will see shortly when the Government's obesity action plan is revealed. In the meantime, we should cajole as many of our patients as possible to try to cut their consumption of SSBs. We must also remind them that their taste buds will adapt in time (so a few weeks are sometimes needed) to the new taste of diet drinks or tea and coffee without sugar. These are simple changes with real benefits.

This is not to say SSBs should be the only target to reduce obesity risk in society. Action is very much needed to tackle excess fat, not just excess sugar, in many foods; for many people, excess intake of fat may still be the major cause of their obesity. However, SSBs are an easy target to reduce calorie intake, especially since we have many calorie-free or calorie-limited alternatives. Thus, the simple policy of taxing SSBs could lead to important reductions in sugar intake and help the fight against obesity and diabetes. There are preliminary data to support this approach from other countries (Cabrera Escobar et al, 2013).

We must remain hopeful that, eventually, a courageous Government will enact legislation not just on SSBs but also to increase healthier food formulations (less fat, sugar and salt) and decrease the number of unhealthy alternatives. Anything less than this will mean the fight against obesity will never be won. ■

Cabrera Escobar MA, Veerman JL, Tollman SM et al (2013) Evidence that a tax on sugar sweetened beverages reduces the obesity rate: a meta-analysis. *BMC Public Health* **13**: 1072

Diabetologia

Effects of sugary drink consumption on T2D risk

Readability ✓✓✓
Applicability to practice ✓✓✓
WOW! Factor ✓✓✓

- 1 In this study, the association between sweetened drink consumption and T2D risk was assessed in 25 639 adults from the UK.
- 2 Participants recorded all food and drink consumption over a 7-day period and were then followed up for a mean of 10.8 years.
- 3 Over 248 264 person-years, there were 847 incident cases of T2D.
- 4 After adjustment for total energy intake, sociodemographics, family history of diabetes, physical activity, smoking and alcohol consumption, T2D risk was higher by each daily serving of sugar-sweetened beverages (SSBs; hazard ratio [HR], 1.21), sweetened milk drinks (HR, 1.22) and artificially sweetened beverages (ASBs; HR, 1.22).
- 5 Further adjustment for BMI and waist circumference rendered the effects of ASBs non-significant, but the effects of SSBs (HR, 1.14) and sugary milk drinks (HR, 1.27) remained.
- 6 Each 5% increase in total energy intake from sweetened drinks (including ASBs) was associated with an 18% higher risk in T2D incidence.
- 7 Substituting ASBs for SSBs did not significantly reduce T2D risk; however, substitution with unsweetened tea or coffee did (HR, 0.86).
- 8 Substituting water for SSBs (HR, 0.86) and sweetened milk drinks (HR, 0.80) could reduced the risk, as could drinking unsweetened rather than sweetened tea or coffee (HR, 0.96).

O'Connor L, Imamura F, Lentjes MA et al (2015) Prospective associations and population impact of sweet beverage intake and type 2 diabetes, and effects of substitutions with alternative beverages. *Diabetologia* **58**: 1474–83

Diabet Med

Culturally appropriate health education for T2D: Cochrane review

Readability ✓✓✓✓
 Applicability to practice ✓✓✓✓
 WOW! Factor ✓✓

- 1 In this Cochrane systematic review and meta-analysis of studies published up to September 2013, the effects of culturally appropriate diabetes education targeted at specific ethnic groups were evaluated.
- 2 A total of 33 studies with 7453 participants were reviewed, with interventions ranging from a single session to 24 months in duration, conducted either in groups, individually or both. Control arms varied from usual care only to minimal education or culturally neutral education.
- 3 Compared with control groups, culturally appropriate education resulted in significant improvements in HbA_{1c} at 3 months (weighted mean difference [WMD], -5.8 mmol/mol [-0.39%]), and the effect persisted at 2 years (WMD, -3.6 mmol/mol [-0.33%]).
- 4 Improvements in diabetes knowledge scores and participant self-efficacy were also observed. However, meta-analysis results for blood pressure, lipid levels and BMI were not significant.
- 5 Sub-group analysis suggested that longer interventions, use of community health workers and group education were more effective.
- 6 These findings build on the last Cochrane review published 6 years ago and show consistent benefits of culturally appropriate education over a longer follow-up of up to 2 years. However, there is still insufficient data on cost-effectiveness and long-term outcomes such as diabetes complications.

Creamer J, Attridge M, Ramsden M et al (2015) Culturally appropriate health education for type 2 diabetes in ethnic minority groups: an updated Cochrane review of randomized controlled trials. *Diabet Med* 22 Jul [Epub ahead of print]

N Engl J Med

Cardiac troponin T as a CV risk indicator in people with T2D and heart disease

Readability ✓✓✓
 Applicability to practice ✓✓✓
 WOW! Factor ✓✓

- 1 In this subanalysis of the BARI 2D (Bypass Angioplasty Revascularization Investigation in Type 2 Diabetes) study, the authors sought to determine whether a high-sensitivity cardiac troponin T (cTT) assay could predict a high risk of cardiovascular (CV) events in people with T2D and stable ischaemic heart disease.
- 2 A total of 2285 participants were evaluated over a median of 5 years. Of these, 39.3% had abnormally high plasma cTT levels (≥ 14 ng/L).
- 3 The primary endpoint, a composite of CV death, non-fatal myocardial infarction or non-fatal stroke, occurred in 12.9% of people with normal cTT levels at baseline, compared with 27.1% of those with abnormal levels ($P < 0.001$).
- 4 After adjustment for T2D severity and a large number of CV risk factors, abnormal cTT levels remained a significant risk factor for the primary endpoint (hazard ratio, 1.85; 95% confidence interval, 1.48–2.32).
- 5 Participants in BARI 2D were randomised to receive either prompt coronary revascularisation plus intensive medical therapy or intensive medical therapy alone. Overall, revascularisation did not improve the risk of the primary endpoint, and cTT status did not affect these findings.
- 6 The authors conclude that cTT levels are a robust prognostic marker of CV risk in this population, although they cannot be used to identify people who would benefit from prompt coronary revascularisation.

Everett BM, Brooks MM, Vlachos HE et al (2015) Troponin and cardiac events in stable ischemic heart disease and diabetes. *N Engl J Med* 373: 610–20

JAMA Intern Med

Local access to healthy foods and physical activity reduces T2D risk

Readability ✓✓✓✓
 Applicability to practice ✓
 WOW! Factor ✓✓✓

- 1 These authors evaluated local access to healthy food and physical activity, as well as social cohesion and neighbourhood safety, in order to prospectively determine their effect on the incidence of T2D.
- 2 Both surveys of the participants and national data on healthy food stores (supermarkets and grocers) and recreational facilities were used to determine these parameters in a 1-mile diameter around each participant's home.
- 3 A total of 5124 people (mean age, 61 years) in US cities participated, of whom 616 (12%) developed T2D over a median follow-up of 8.9 years.
- 4 In the adjusted models, neighbourhood access to healthy food (hazard ratio [HR], 0.88; 95% confidence interval [CI], 0.79–0.98) and physical activity (HR, 0.79; 95% CI, 0.71–0.88) was associated with significantly lower T2D risk, whereas the social environment had no association.
- 5 The authors conclude that local access to physical activity and healthy food are associated with a lower incidence of T2D and that efforts should be made to improve this access.
- 6 Notably, the data obtained from national records of food stores and recreational centres did not predict T2D risk, while the participant surveys did. This suggests that factors other than geographical proximity to these outlets (e.g. cost and quality of the food sold) are also important.

Christine PJ, Auchincloss AH, Bertoni AG et al (2015) Longitudinal associations between neighborhood physical and social environments and incident type 2 diabetes mellitus: the Multi-Ethnic Study of Atherosclerosis (MESA). *JAMA Intern Med* 175: 1311–20

“Each 5% increase in total energy intake from sweetened drinks (including artificially sweetened beverages) was associated with an 18% higher risk in type 2 diabetes incidence.”