Management & prevention of type 2 diabetes

Taking the sugar (drinks) out of diabetes: A simple and achievable goal

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We all know that despite our "best" education, many people with type 2 diabetes find it hard to lose weight or indeed even remain at a stable weight. The problem arises because most have deep embedded and often "hard-wired" eating habits that are hard to change.

Or are they?

In an editorial well worth reading, Sawyer and Gale (2009) rightly pointed out that "we [the healthcare professional] pretend to offer a diet, and they [our patients] pretend to follow it." Dietary advice given in the clinic is often delivered in too rapid a manner (due to time constraints) and without regard to evidence-base methods. Further, a key aspect not widely recognised or discussed with patients is that dietary changes take time to bed-in; taste buds have to be retrained to enjoy less sugary or fatty foods and this can take several weeks or even months to achieve. In this regard, it appears a very simple message not widely appreciated (or adopted) by our patients is the need to cut *all* sugary drinks from their diets, with exception of those used to treat a hypoglycaemic episode.

The recent article by Bleich and Wang (2011; summarised alongside) shows that in the USA people with diabetes admit to consuming on average 47 g of sugar per day in the form sugar-sweetened beverages – that is 202 calories per day from this source alone. This figure is even higher among younger people with diabetes in this cohort, and among those from more deprived communities. The data presented by Bleich and Wang also suggested that people with undiagnosed diabetes consumed even more sugar-sweetened beverages than people with diagnosed diabetes, a factor clearly hastening their weight gain and progression to complications.

> ***"This simple but important article should prompt all healthcare professionals involved in diabetes care to strongly recommend to their patients with diabetes that they replace sugar-sweetened beverages with diet versions or water ..."***

This simple but important article should prompt all healthcare professionals involved in diabetes care to strongly recommend to their patients with diabetes that they replace sugar-sweetened beverages with diet versions or water, and that (with time) they can enjoy diet drinks as fully as they enjoy sugar-sweetened comparitors. Of course, fruit juices are also rich in sugar and should also be avoided, a fact many people with diabetes (along with many others) still do not appreciate and is so worth mentioning in the same discussion with your patient. In short, it's time to take the sugary drinks out of type 2 diabetes.

Sawyer L, Gale EA (2009) Diet, delusion and diabetes. *Diabetologia* **52**: 1–7

DIABETES CARE

High consumption of sugar-sweetened beverages among those with T2D

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 The authors sought to examine patterns of consumption of sugar-sweetened beverages (SSB) in a USA cohort of adults with between 2003 and 2006.

2 Dietary recall data for a 24-hour period from the National Health and Nutrition Examination Survey between 2003–2006 was assessed to estimate the level of SSB consumption in people aged ≥20 years; level of consumption of diet beverages was also assessed.

3 During the study period, 45% of adults with T2D consumed SSBs (average 202 calories, 47 g sugar) on a given day.

4 People with undiagnosed T2D were found to be significantly more likely to consume SSBs than those with diagnosed T2D ($P<0.001$), and significantly less likely to consume diet beverages than those with diagnosed T2D ($P<0.001$).

5 Gender, ethnicity and socioeconomic status significantly influenced the level of consumption of SSBs, with men consuming significantly more than women, younger adults (aged <45 years) more than older adults, non-Hispanic blacks more than whites and lowest-income individuals (quartile 1) more than highest-income individuals (all $P<0.03$).

6 The authors concluded that SSB consumption was high among people with diabetes, was impacted by most demographic categories and was particularly high among those with undiagnosed T2D in this cohort.

Bleich SN, Wang YC (2011) Consumption of sugar-sweetened beverages among adults with type 2 diabetes. *Diabetes Care* **34**: 551–5

"... non-alcoholic fatty liver disease was an independent and additive risk factor for the development of T2D among those with impaired fasting glucose ..."

DIABETES CARE

Additive effect of NAFLD on T2D development

Readability	✓✓✓
Applicability to practice	✓✓
WOW! factor	✓✓✓

1 To investigate for a difference in the association between non-alcoholic fatty liver disease (NAFLD) and incident diabetes based on the presence of impaired fasting glucose the authors recruited 7849 individuals without T2D.

2 Comprehensive health check-ups were conducted annually for 5 years and participants categorised into four groups by the presence of impaired fasting glucose (IFG) and NAFLD at baseline.

3 Among those with IFG the incidence of diabetes in those with NAFLD group was 9.9% compared with 3.7% in those without NAFLD (hazard ratio, 1.33; 95% confidence interval, 1.07–1.66).

4 The authors concluded that NAFLD was an independent and additive risk factor for the development of T2D among those with IFG in the present cohort.

Bae JC, Rhee EJ, Lee WY et al (2011) Combined effect of nonalcoholic fatty liver disease and impaired fasting glucose on the development of type 2 diabetes: a 4-year retrospective longitudinal study. *Diabetes Care* **34**: 727–9

DIABETES

Genetically high circulating TG levels do not increase the risk of T2D

Readability	✓✓✓✓
Applicability to practice	✓✓
WOW! factor	✓✓✓

1 The authors used Mendelian randomisation to test the hypothesis that genetically raised circulating triglyceride (TG) levels causally influence the risk of T2D and raise normal fasting glucose levels and hepatic insulin resistance.

2 Ten commonly occurring genetic variants known to raise circulating TG levels were assessed against T2D status in 5637 cases and 6860 controls.

3 The authors reported that those carrying more TG-raising alleles had increased circulating triglyceride levels (standard deviation, 0.59; 95% confidence interval [CI], 0.52–0.65) than non-carriers, however there was no evidence that the carriers were at increased risk of T2D (per weighted allele odds ratio, 0.99; 95% CI, 0.97–1.01]; P=0.26).

De Silva NM, Freathy RM, Palmer TM et al (2011) Mendelian randomization studies do not support a role for raised circulating triglyceride levels influencing type 2 diabetes, glucose levels, or insulin resistance. *Diabetes* **60**: 1008–18

DIABETES CARE

High L-FABP a risk factor for progression of nephropathy in T2D

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Urinary liver-type fatty acid-binding protein's (L-FABP's) clinical usefulness as a prognostic biomarker in impaired diabetic nephropathy in T2D was the object of this cross-sectional and longitudinal study.

2 Participants (n=140) with T2D and 412 healthy controls were followed-up for 4 years; progression of diabetic nephropathy was defined as progressive albuminuria, end-stage renal disease or induction of haemodialysis.

3 High urinary L-FABP levels were found to be associated with an increase in albuminuria, progression to end-stage renal disease or induction of hemodialysis, especially among those without renal dysfunction at baseline.

4 The authors concluded that urinary L-FABP accurately reflected the severity of diabetic nephropathy in T2D.

Kamijo-Ikemori A, Sugaya T, Yasuda T et al (2011) Clinical significance of urinary liver-type fatty acid-binding protein in diabetic nephropathy of type 2 diabetic patients. *Diabetes Care* **34**: 691–6

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Fibrate prescriptions have strongly increase in the USA, less so in Canada

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

1 Fibrates have aroused much interest in recent times, especially since the publication of the negative results from the ACCORD (Action to Control Cardiovascular Risk in Diabetes) trial.

2 The authors aimed to examine trends in the use of fibrates – their availability and use of brand-name versus generic formulations and the economic implications – in the USA compared with Canada.

3 Data were generated by a population-level, observational cohort study using IMS Health data on fibrates prescribed between January 2002 and December 2009 and expenditures.

4 An increase in fibrate prescriptions dispensed in the USA from 336 prescriptions/100 000 population in January 2002 to 730 prescriptions/100 000 population in December 2009; representing an increase of 117% (95% confidence interval [CI], 116–118%). Fibrate prescriptions in Canada during the same period increased 18.1% (95% CI, 17.9–18.3%; P<0.001).

5 Fibrate expenditure was 3-fold higher in 2009 in the USA compared with Canada.

6 The authors suggested that fibrate prescriptions in the USA increased during the past decade, while prescription for the drug class in Canada remained stable.

Jackevicius CA, Tu JV, Ross JS et al (2011) Use of fibrates in the United States and Canada. *JAMA* **305**: 1217–24

NEJM

High BMI in adolescence increases risk of CHD in midlife

Readability	✓✓✓✓
Applicability to practice	✓
WOW! factor	✓✓✓✓

1 During 650 000 person-years of follow-up, the realtionship between BMI from adolecence onwards was investigated for its impact on coronary heart disease (CHD) and T2D in the Israeli Army Medical Corps.

2 The authors found risk of T2D to be associated with increased BMI close to the time of diagnosis, while risk of CHD was associated with an elevated BMI in adolescence and adulthood.

Tirosh A, Shai I, Afek A et al (2011) Adolescent BMI trajectory and risk of diabetes versus coronary disease. *N Engl J Med* **364**: 1315–25

DIABETES MEDICINE

Non-recurring gestation diabetes associated with reduced risk of T2D

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓

1 Women with gestational diabetes (GD) have a high risk of developing T2D. Whether GD in a subsequent pregnancy accelerated the progression to T2D was assessed by the authors in the present study.

2 A population-based administrative database was used to identify women in Ontario, Canada, whose first pregnancy (April 2000–March 2007) was complicated by GD (n=16 817).

3 Women were followed-up for a median of 4.5 years for subsequent pregnancies and their GD status and the development of T2D.

4 GD recurred in 41.5% of subsequent pregnancies during follow-up and 16.2% of women developed T2D.

5 Each subsequent GD pregnancy was associated with a modestly increased risk of diabetes (adjusted hazard ratio [AHR], 1.16; 95% confidence interval [CI], 1.01–1.34; P=0.03), while each non-GD pregnancy was associated with a significantly reduced risk of T2D (AHR, 0.34; 95% CI, 0.27–0.41; P<0.0001).

6 The authors concluded that a subsequent pregnancy after a GD pregnancy is not necessarily associated with an increased risk of T2D, but a GD-free pregnancy subsequent to a GD pregnancy may identify a lessened risk of T2D in this high-risk population.

Retnakaran R, Austin PC, Shah BR (2011) Effect of subsequent pregnancies on the risk of developing diabetes following a first pregnancy complicated by gestational diabetes: a population-based study. *Diabet Med* **28**: 287–92

"... a gestational diabetes-free pregnancy subsequent to a gestational diabetes pregnancy may identify a lessened risk of T2D in this high-risk population."