

OBSERVATIONS

FROM THE HEART

The dietary advice on added sugar needs emergency surgery

Foods that we think of as junk are only half the problem

Aseem Malhotra *interventional cardiology specialist registrar, Royal Free Hospital, London*

Are current guideline daily amounts (GDAs) fit for purpose? With a worsening obesity crisis and increasing prevalence of type 2 diabetes, this is a pertinent question. According to Professor Tom Sanders, head of nutritional sciences at King's College London, "guideline daily amounts enable consumers to make informed choices on balancing their diet by identifying guideline levels for key nutrients and calories consumed each day and how much a portion of a particular food contributes to that allowance." But do they? Before answering this we need to understand the history of our dietary advice.

In 2003, the World Health Organization, responding to increasing concerns over the rising tide of obesity, stated that "added sugars"—specifically non-milk extrinsic sugar—should contribute no more than 10% of total energy intake.¹ This was in line with the UK government's Committee on Medical Aspects of Food and Nutrition Policy (COMA) recommendations in 1991.² COMA also recommended that consumption of fruit, vegetables, potatoes, and bread (containing intrinsic sugars) should increase by 50%. Consequently, Rayner et al, although maintaining that "added sugars" contribute no more than 10% of total energy, suggested that total sugars should contribute to 20% of guideline daily amounts.³

This nutritional advice has formed the basis of UK food labelling since 2003 and subsequently influenced European legislation. I believe that not only has this advice been manipulated by the food industry for profit but that added sugar is a risk factor for obesity and diet related disease.

In 2009, the American Heart Association published a scientific statement in *Circulation* entitled "Dietary sugar intake and cardiovascular health."⁴ The article noted that excessive consumption of sugar had been linked to several metabolic abnormalities and adverse health conditions combined with shortfalls in essential nutrients. Acknowledging that the average US citizen was consuming a staggering 22 teaspoons of added sugar a day, greatly exceeding discretionary calorie allowances, the paper stressed an upper limit of 100 kilocalories a day from added sugar for a woman (six teaspoons) and 150 kcal a day for a man (nine teaspoons). The typical calorie allowance for a 4-8 year old child should be a maximum of three teaspoons a

day. Although a well balanced diet may contain intrinsic sugars in the form of whole fruit, vegetables, dairy products, and many grains, the body does not require any carbohydrate from added sugar. Since the American Heart Association publication, almost four years ago, several randomised controlled trials and observational studies have implicated sugar consumption with increasing rates of obesity and type 2 diabetes.

Despite the American Heart Association's statement and the supportive scientific evidence, the food industry continues to adopt strategies to deny sugar's role as a major causative factor in what now represents the greatest threat to our health worldwide: diet related disease. It took 50 years from the first publication (in the *BMJ*) linking smoking to lung cancer before the introduction of any effective legislation because Big Tobacco successfully adopted a strategy of denial, planting doubt, confusing the public, and even buying the loyalty of scientists, all at the cost of millions of lives. The same "corporate playbook" has been adopted by Big Food.⁵

A recent European study concluded that the consumption of just one sugar-sweetened drink a day increased the risk of type 2 diabetes by 22%.⁶ The chief spokesperson for the British Soft Drinks Association, instead of constructively acknowledging the study's implications, downplayed its results by suggesting that it hadn't taken into account family history and, unsurprisingly, suggested that soft drinks were safe to consume in moderation. A spokesperson for Diabetes UK stressed that the findings were not "definitive" and suggested that maintaining a healthy weight was the most effective way to prevent type 2 diabetes. However, the study's authors had stressed that the findings were not necessarily brought on by obesity but by the high sugar content of the beverage.⁷ A recent longitudinal cohort study involving 175 countries showed that, for every additional 150 sugar based kilocalories consumed daily (typical of a can of cola), there was a massive 11-fold increase in the risk of developing type 2 diabetes independent of body mass index and physical activity levels.⁸

Diabetes UK's corporate partners include Abbott, the parent company of Abbott Nutrition, which produces Isomil Similac, a baby formula that paediatric endocrinologist Robert Lustig

has described as the equivalent of a baby milkshake.⁹ (However, a spokesperson for Diabetes UK has told the *BMJ* that the idea that the organisation might have a conflict of interest because of a relationship with a corporate partner was absurd.) Even the UK's most trusted source of dietary information, the British Dietetic Association (BDA), has failed to acknowledge the adverse effect of excess sugars on health. I was disturbed to learn that its food fact sheet states that the only problem directly linked to sugar is tooth decay, and the association flatly denies that eating too much sugar causes diabetes.¹⁰ Unlike the American Dietetic Association—whose sponsors include Coca Cola, Pepsi-Co, and Kellogg's—the BDA is not so explicit in revealing its corporate partnerships. But in an email exchange with obesity researcher Zoe Harcombe, the BDA's partnerships and sponsorship officer, Jo Lewis, stated that the association had “been delighted to work with the Sugar Bureau.”¹¹

Another tactic that the food industry has effectively deployed to shift the responsibility for obesity on to the individual is exaggerating the emphasis on physical activity. Although it is difficult to deny the many health benefits of exercise, evidence from several studies in adults and children have revealed little if any change in physical activity levels over the past few decades, while the prevalence of obesity has rocketed.¹²⁻¹⁵ The industry even associates junk food with sport, allowing the major food corporations to peddle pathology with impunity. The recent London Olympics was dominated by advertising for junk food and sugary drinks. And the confectioner Mars is the official sponsor of the England football team. A regular sized Mars bar contains almost triple the amount of added sugar for an 8 year old child that would be recommended by the US Department of Health and Human Services dietary guidelines, but represents only 38% of the UK guideline daily amount for total sugars.

Foods that we perceive as junk are only half the problem. In the United States, a third of added sugar consumption comes from sugar sweetened drinks and a sixth comes from food items such as chocolates, ice creams, and biscuits, but half comes from foods that one wouldn't normally associate as having added sugar, such as ketchup, salad dressings, and bread. Just as in the UK and Europe, US food labels contain information on total sugars per serving, but do not differentiate between sugars naturally present and added sugar. (In the US there is no guideline daily amount for sugar as it is not regarded as a nutrient.) It is therefore extremely difficult for consumers to determine the amount of added sugars in foods and beverages. It is concerning that the US Department of Agriculture recently removed a published database for the added sugar content of selected foods stating “no method can analyse for added sugars

so their amounts must be extrapolated or supplied by food companies, many of which are not willing to make public such proprietary information.”¹⁶ One can of regular cola contains nine teaspoons of added sugar, which is triple the 2009 upper limit intake suggested by US Department of Agriculture for an 8 year old child. The UK GDA label describes these nine sugar lumps as 39% of the guideline daily amount. Based on this false reassurance, it would be understandable for parents to believe it is safe for their child to drink two and a half cans a day.

It's time for the UK's Scientific Advisory Committee on Nutrition and the Department of Health to act swiftly as the dietary advice on added sugar is in desperate need of emergency surgery.

Competing interests: I have read and understood the BMJ Group policy on declaration of interests and have no relevant interests to declare.

Provenance and peer review: Commissioned; not externally peer reviewed.

- 1 Bulletin of the World Health Organization. Populations with high sugar consumption are at increased risk of chronic disease, South African researchers report. Press release 28 August 2003. www.who.int/bulletin/releases/2003/PR0803/en/
- 2 Department of Health. *Dietary reference values for food energy and nutrients for the United Kingdom. Report on Health and Social Subjects No 41*. HMSO, 1991.
- 3 Rayner M, Scarborough P, Williams C. The origin of guideline daily amounts and the Food Standards Agency's guidance on what counts as 'a lot' and 'a little.' *Public Health Nutrition* 2003;7:549-56.
- 4 Johnson RK, Appel LJ, Brands M, Howard BV, Lefevre M, Lustig RH, et al. Dietary sugars intake and cardiovascular health: a scientific statement from the American Heart Association. *Circulation* 2009;120:1011-20.
- 5 Brownell KD, Warner KE. The perils of ignoring history: Big Tobacco played dirty and millions died. How similar is Big Food? *Milbank Q* 2009;87:259-94.
- 6 Consumption of sweet beverages and type 2 diabetes incidence in European adults: results from EPIC-InterAct. *Diabetologia* [forthcoming].
- 7 Just one fizzy drink a day raises the risk of developing diabetes by a fifth, scientists claim. *Metro* 2013 Apr 25. <http://metro.co.uk/2013/04/25/one-fizzy-drink-a-day-raises-the-risk-of-diabetes-by-a-fifth-3666005/>.
- 8 Basu S, Yoffe P, Hills N, Lustig RH. The relationship of sugar to population-level diabetes prevalence: an econometric analysis of repeated cross-sectional data. *PLoS One* 2013;8:e57873.
- 9 Sugar: the bitter truth. University of California Television. www.youtube.com/watch?v=dBnniua6-oM.
- 10 British Dietetic Association (BDA). *Food fact sheet: sugar*. www.bda.uk.com/foodfacts/Sugar.pdf
- 11 Harcombe Z. *The obesity epidemic. What caused it? How can we stop it?* Columbus Publishing, 2010.
- 12 French SA, Story M, Jeffery RW. Environmental influences on eating and physical activity. *Annu Rev Public Health* 2001;22:309-35.
- 13 Swinburn B. Increased energy intake alone virtually explains all the increase in body weight in the United States from the 1970s to the 2000s. (Abstract T1:RS3.3.) 2009 European Congress on Obesity; 6-9 May 2009; Amsterdam.
- 14 Hamer M, Fisher A. Are interventions to promote physical activity in children a waste of time? *BMJ* 2012;345:e6320.
- 15 Pontzer H, Raichlen DA, Wood BM, Mabulla AZ, Racette SB, Marlowe FW. Hunter-gatherer energetics and human obesity. *PLoS One* 2012;7:e40503.
- 16 US Department of Agriculture. USDA Database for the Added Sugars Content of Selected Foods, release 1. www.ars.usda.gov/Services/docs.htm?docid=12107.

Cite this as: *BMJ* 2013;346:f3199

© BMJ Publishing Group Ltd 2013