

SUGAR

:the demonisation of a product or fair culprit?

It's in our food and it's now all over the news. So we ask what is the deal with sugar?

It seems every day there's another story in the press calling out sugar as the root of all evil in society. Or at least that's how it feels. Things were exacerbated by NHS England's Chief Executive Simon Stevens labelling sugar as a 'poison' on his most recent appearance on *the Andrew Marr Show*, and it got me thinking. Are we unfairly demonising sugar and turning a blind eye to our shocking dietary habits, or are some of the measures being discussed – sugar tax, sugary drinks duty – the right way to eliminating sugar and turning round the titanic that is childhood caries? We asked two leading organisations on their views.

Dr Alison Boyd became Director of Sugar Nutrition UK in 2007, having been Research Director for 6 years. She was educated at the University of Ulster and gained a PhD in Diabetes. Alison is a registered Dietitian and before joining Sugar Nutrition, held a clinical role as a Senior Dietitian at The Royal Hospitals Trust in Belfast. Dr Boyd is a member of the British Dietetic Association, Nutrition Society and the European Association for the Study of Diabetes.

Sugar Nutrition UK

By Dr Alison Boyd, Director, Sugar Nutrition UK, RD, RNutr, MBDA*

Sugar is undoubtedly in the spotlight. Over the last 18 months, we've seen numerous headlines linking sugar with all manner of ills from obesity to cancer; with claims of sugar even being 'poisonous'. But is there robust science behind the media hyperbole? And what does this mean for dental health?

Perhaps the first concern is one of definition – the term 'sugar' is continually used in public health discourse, when in fact we should be correctly using the term 'sugars'. 'Sugar' is generally understood to refer to table sugar – sucrose – the type of sugar which people add into their tea or use in baking. The term 'sugars' however, covers the full range of mono- and disaccharide molecules which are relevant to this discussion (for example fructose, sucrose, glucose, lactose and maltose). Sugars are carbohydrates. They occur naturally in fruits, vegetables and dairy, as well as being an ingredient used in a wide range of foods and drinks. This is important, particularly in relation to dental health, as it clarifies a common misunderstanding about the nutritional science of sugars – namely that our body can distinguish between

natural and 'added' sugars.¹ Naturally occurring and 'added' sugars are chemically identical.² Neither your body nor any chemical detection method can distinguish between the two; for example sucrose is broken down in the same way in your body whether it came from table sugar, an apple or tomato soup.

We all know that there is a dynamic relation between sugars and oral health³ and most would agree that levels of dental decay in all age groups remain unacceptably high. We also know that tooth decay can largely be prevented by a combination of approaches.⁴ So should we focus on sugars as the only cause of (all) our oral health problems? Should dental health advice focus on reducing the amount of sugars we consume as opposed to other fermentable carbohydrates for example? The answer to these questions is no – the situation is more complex and there is robust scientific evidence to suggest that other factors need to be considered.

Firstly, all fermentable carbohydrates, can provide the substrate for actions of oral bacteria to produce acid and therefore potentially lead to tooth demineralisation.⁵ While dentists may understand the meaning



of this, many people may not appreciate that eating rice or chomping on crisps can have the same impact on teeth as enjoying some sweets.

Secondly, there is currently strong evidence to show that other dietary factors in addition to the quantity of fermentable carbohydrate consumption is crucial in preventing tooth decay. Current evidence has shown that

The notion that sugar is a poison is misleading and inappropriate – as already outlined sugars are a form of carbohydrate and they occur naturally in a wide range of fruits, vegetables and dairy products. Sugars have been part of our diet for thousands of years.

Scientists and Expert Committees have reviewed the concept of food addiction.

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frequency of consumption of fermentable carbohydrates is more important than the amount.^{3,6} This would strongly indicate that discouraging snacking or grazing between meals – particularly on crisps, fruits and sweets – would have greater dental health benefits than aiming to reduce the overall quantity of sugars in the diet.

Thirdly, and perhaps most importantly, good oral hygiene needs to continue to be emphasised. Since the late 1970s, dental caries has declined substantially in the UK and in many other developed countries.⁷ The latest data from the Children’s Dental Health Survey (2013)⁸ showed that 34% of 12 year olds had evidence of decay, with a mean DMFT of 0.8, compared to 43% in 2003.⁹ While this trend is moving in the right direction, the levels of decay remain far too high. It is agreed by many that increased use of fluoride is the most influential factor.^{10,11} Indeed, the use of fluoride toothpaste and good oral hygiene have been shown repeatedly to be the best measures that can be taken to prevent dental caries.¹²

Of course frequent, excessive consumption of sugars should be discouraged. If following good oral hygiene practices, including brushing teeth twice a day with fluoride toothpaste, teeth can cope with the consumption of any fermentable carbohydrate up to four times daily without an increased risk of decay.¹³ The point is not to deny the role that sugars as a fermentable carbohydrate play in dental caries, but rather focus on solid, scientific evidence of the most effective interventions and behaviours that can be established to improve dental health for everyone.

But are there broader physiological benefits to cutting sugars consumption? After all, we’ve heard sugars are a ‘poison’, ‘addictive’ and cause obesity. The reality is that none of these claims have current robust evidence to support them.

The consensus of the scientific evidence in humans, most recently the NeuroFAST Consensus Statement^{14,15}, is that there is a lack of any credible scientific support for the claim that sugar, or any other food, is addictive.

Pointing the finger at sugars solely increasing obesity may be cited currently, but it is neither supported by current scientific evidence nor helpful to the general public, especially when we know that obesity is such a complex area. The findings of numerous expert scientific bodies^{2,5} for example, the European Food Safety Authority and the Institute of Medicine of the National Academies) have concluded that sugar in itself has no specific causal role in obesity, rather the overconsumption of *all* calories is to blame.

Despite current perceptions, the reality is that average ‘free sugars’ intakes amongst the UK population have been gradually declining for many years. Eating a varied, balanced diet, leading a healthy, active lifestyle and practicing good oral hygiene is the best way to prevent obesity, lifestyle diseases and dental decay.

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Sugar Nutrition UK is a not for profit, scientific organisation that is a leading source of expertise on sugars and health in the UK. Sugar Nutrition UK was established in 1964 and is principally funded by UK sugar manufacturers.



Claire Stevens* of the British Society of Paediatric Dentistry on why sugar isn't so sweet

First it was all about fat, then salt and now it appears that sugar is the latest villain we all need to be concerned about. Everywhere you turn there is a celebrity going sugar-free or promoting their low sugar diet and with Damon Gameau's *'That Sugar Film'*¹⁷ recently released in the UK, sugar is certainly taking centre stage.

So why the sudden fuss? I don't think it is a coincidence that children's oral health and obesity also remain in the media spotlight. When dental decay is the most common

reason for a child aged 5-9 to be admitted to hospital in England,¹⁸ the collective good are out to identify the culprit and sugar is an obvious target. As a society we are always looking to apportion blame. 'It's the parents fault - it's neglect', but to what degree is sugar and the food industry to blame? Well let's start with the facts.

Last year we consumed an average of 230 litres of soft drinks per capita.¹⁹ We are a nation of snackers and grazers, many favour processed food over cooking from scratch and obesity is a national epidemic and costing the NHS millions to treat.

There are four major sources of sugar in the British diet, namely soft drinks, confectionery, baked goods and breakfast cereal. To date, the main focus on tackling obesity and reducing sugar consumption in children has been education, urging consumers to eat healthier foods but this has not been successful. So what can be done? How do we go about reducing childhood sugar consumption?

Improving Food Labelling

Some may argue that clearer labelling would help to stop the rot. How many of the lay public knows the daily reference intake for sugar or who has read the latest recommendations from the Scientific Advisory Committee on Nutrition?²⁰ With a lack of standardised food labelling and indeed the absence of a legal requirement to use a system such as the traffic light system, can we expect the consumer to understand

exactly how much sugar is in their food? We need to help people to make healthy choices by empowering and educating them to read and understand the information provided on food labels. We need to combat the lack of understanding and education. Could we make it any easier?

A bottle of Fridj milkshake contains a whopping 46g of sugar. Would as many parents think about buying this product if there was an image of a teaspoon of sugar saying 'this product contains 11 and a half teaspoons of sugar'? I think not. At the moment there is no incentive for industry to improve their labelling.

Sugar tax or incentivising healthy food?

There has also been talk of a sugar tax but the effects may be small. There have been two theoretical modelling studies on taxation; a 10% tax reduced consumption of sugary drinks by 7.5ml per person and a 20% tax reduced consumption of sugar by only 1g per person.²¹ However, on the back of the success of the sugar tax introduced in Mexico, UK Doctors are now calling for a 20% tax on sugary drinks.²² New taxes are also politically difficult making their adoption unlikely, especially after the notorious 'pasty tax' revolt of 2012. New food laws may be perceived as the 'nanny state' and a penalty for industry, rather than seen as producing the desired consumer protection.

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Making 'healthy' foods cheaper would also make them more appealing to families on tight financial budgets. Research looking at consumer habits during the recession demonstrated a decline in the average nutritional quality of foods purchased, with a move towards processed sweet and savoury food and away from fruit and vegetables which was most pronounced in families with young children.²³ Healthy foods are not being adequately incentivised and this must change.

Instead, many companies are adding extra margin onto healthier products, in the belief that these products are being purchased by more affluent consumers. This is immoral. The consequence is the nutritional exclusion of the poor.²⁴ We need to explore ways of incentivising healthy choices for both consumers and industry.

Re-formulating foods – de-sweetening or use of sweeteners

If people do not choose to eat healthy foods despite decades of education programmes at vast expense, perhaps it is time to focus on improving the nutritional value of the foods they do eat? Urging food manufacturers to adopt voluntary 'nutritional reformulation' of popular products is the principal strategy proposed by the Chief Medical Officer, Dame Sally Davies, in her recent annual report.²⁵

In the case of sugar, one option is the gradual reduction in the amount of sugar added to foods, as urged by the group, 'Action on Sugar'.²⁶ In fact this process is

proven health risks of sugar not outweigh the unproven concerns about sweeteners?

Marketing of foods

But it's not as simple as cutting out the fizzy drinks and sugar-laden snacks. You could argue that if you chose to consume these products you know what you are letting yourself in for. But those marketed as 'healthy' or targeted at children is another matter. As the focus of *'The Sugar Film'*¹⁷ Damon Gameau consumes 40 teaspoons of sugar per day, in line with the average Australian. The catch is that he only eats foods that are commonly perceived as 'healthy' such as baked beans, yoghurts, cereal bars and fruit juices. Inevitably, his weight soars and his general health declines. Gameau believes that some of the packaging is 'deliberately ambiguous' and that parents are 'horribly let down by the lack of integrity in marketing and packaging strategies.' He continues, 'You can put a bee and a sunset and say it's mother nature's bounty and people will believe that and not realise that those products have as much, if not more, sugar in them as perceived junk foods like chocolate bars.'

The role of the government

Campaigns such as *'Change4Life'* have been successful and the Science Advisory Committee is also reviewing the role of sugar-sweetened beverages. Ministers have also pledged to monitor the nutritional content of children's food.

'I'D LIKE CONSISTENT AND CLEAR FOOD LABELLING TO BE MANDATORY ON ALL PRODUCTS'

already underway, although it is not always publicised. For example the children's breakfast cereal, Sugar Puffs contained 49% of sugar in the early 1990s compared to a current 31%. Although this remains a high sugar product, the 37% reduction is significant.²¹ Recently Tesco's announced that it would be reducing the sugar content of its own brand carbonated beverages²⁷ and Sainsbury's have a sugar reduction policy²⁸ as part of their 'Responsibility' pledge.

Another approach is to use sugar substitutes such as aspartame, or new more natural forms, like stevia. Despite persistent controversy, they have been repeatedly tested and found to be safe. Many would say we need to be de-sweetening products without the use of sweeteners or, if we are going to embrace a pro-sweetener approach, then their use should be more widespread. Do the

But each one of these potentially sugar-reducing solutions is not enough in isolation. So what would I like? I'd like consistent and clear food labelling to be mandatory on all products, I'd like us to urgently explore the feasibility of incentivising healthy food and as healthcare professionals I'd like us to continue to educate and support our patients. To tell them that no added sugar does not equal sugar free, to educate and help them understand food labelling and get them used to looking at the back of the packet. We need a collective and committed approach which would see professionals and government working with industry.

At the end of the day, if we, as consumers and professionals unite, and demand product reformulation with increased lower sugar and sugar-free products, industry will be prompted to action. The power is in our hands.

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