WN *Commentary*

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Sugar. Action on Sugar
How much is too much?

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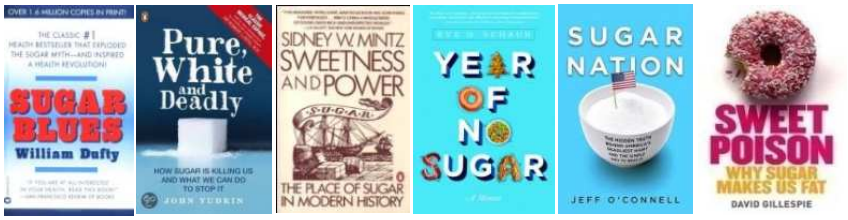

The paradigm is shifting, the point is tipping. Classic books warning against sugar are now best sellers, and new books, some extreme, pour on to the market, with vehement articles and blogs

Introduction

The World Health Organization 'NUGAG' report, with its recommendations on maximum consumption of added sugars, is now being internally reviewed for later publication – date not yet known. The review follows the consultative period that ended on 31 March, during which organisations and people have been invited to comment. Some of these comments have been open, and below *WN* publishes extracts from the submission by the UK-based organisation Action on Sugar. Links are made to other submissions, by the Centre for Science in the Public Interest; The International Baby Food Action Network; and by Philip James and Aubrey Sheiham. A link is also made to the submission by the World Sugar Research Organization, which represents sugar manufacturers and producers, and also of food and drink product manufacturers whose products depend on use of sugar. Links to *WN* contributions on sugar so far in 2014 are shown above. *WN* will continue to cover what now seems to be a great shift of expert and public mood against sugar, and sugared ultra-processed food and drink products.

Editor's note

Below is a shortened version of the submission made by Action on Sugar to the World Health Organization, in response to the invitation by WHO to comment on the *draft report of its expert advisory NUGAG committee*, on added sugars. Most comments that have been seen, focus on the recommendation that consumption of added sugars should 'not exceed' 10 per cent of total energy intake'. Submissions from the *International Baby Food Action Coalition*, the *Center for Science in the Public Interest*, and from *Philip James and Aubrey Sheiham*, support a limit of under 5 per cent. The view of the *World Sugar Research Organization*, representing industry, is that evidence does not support an upper limit.

Summary

As stated above, this commentary is a shortened version of the submission by the UK-based organisation Action on Sugar to WHO on the topic of added sugars. Action on Sugar is chaired by Graham MacGregor, and its campaigns director is Katharine Jenner.

We congratulate the WHO on this much needed report. Our comments centre on its main recommendations on added sugars. These are (strong recommendation) that 'in both adults and children, WHO recommends that intake of free sugars not exceed 10% of total energy', together with the suggestion (conditional recommendation) of 'further reduction to below 5%'.

There is no biochemical requirement for humans to consume any free sugars. The report highlights the importance of reducing the current high levels of free sugars, which we strongly support. But it does not emphasise the fact that free or added sugars are not a normal part of the human diet. In history, free sugars have only recently been added in large amounts to food supplies (predominately to processed food and drink products), since extraction of sugar from cane and beet, and enzymatic conversion of corn into syrup, made sugar cheap and widely available.

High consumption of products containing a lot of free sugars is strongly associated with overweight and obesity, dental caries, chronic non-communicable diseases, and malnutrition. This is in part through negative effects of sugar on metabolic pathways, and in part through displacement of more nutritious foods. Dental caries does not develop unless dietary free sugars are consumed.

Evidence

Body weight. Epidemiological studies and common sense have shown that energy-dense dietary patterns, characterised by consumption of ultra-processed foods and

drinks that are very high in fat, sugar or salt, and very low in nutrients and fibre, are the direct cause of the obesity pandemic (1). There is no evidence whatsoever that any free sugars, let alone more than 5 per cent free sugars, could be beneficial. A reduction in free sugars to less than 5 per cent of total dietary energy will act as a major factor in reducing calorie intake in a population, and will help, or even indeed prevent, the development of obesity and associated type 2 diabetes, and other chronic non-communicable diseases.

Dental caries. The evidence strongly suggests that sugar intake should be reduced to less than 10 per cent to have a maximum impact on dental caries. We can see no argument against this. A reduction in free sugars to less than 5 per cent would have a further big impact on both social costs and financial expenditures.

Recommendations

WHO recommends reduced intake of free sugars throughout the life-course (strong recommendation)

We strongly agree with this recommendation, primarily because it will reduce dietary energy intake, which will help to prevent obesity and at the same time reduce dental caries. The evidence for this is overwhelming in our view.

In both adults and children, WHO recommends that intake of free sugars not exceed 10% of total energy (strong recommendation).

While we agree with this recommendation, we do not agree it should be 10 per cent. It needs to be reduced to less than 5 per cent. This will put the onus on food manufacturers to take the lead in reformulating their products.

WHO suggests further reduction to below 5% of total energy (conditional recommendation).

This is the recommendation that should be supported by WHO. It should not be conditional. It is in our view a very strong recommendation, on the basis of the best quantitative data that the unique cause of dental caries is free sugars. All of the evidence in the NUGAG report strongly suggests that the greatest benefit would be if energy intake from free sugars is reduced to less than 5 per cent of total dietary energy. Further, there is no medical, biochemical, or social harm associated with reducing the intake of free sugars to less than 5 per cent. We do not understand why the report is not making this its sole recommendation, for it states: 'There were no strong disagreements among the NUGAG members on any aspect of the guideline'. NUGAG is recommending less than 5 per cent intake of energy from free sugars to prevent tooth decay and obesity. But the obesity crisis is compelling enough to warrant reduction to less than 5 per cent to safeguard future populations from a further increase in obesity and chronic non-communicable diseases.

It is up to WHO finally to make a strong and independent recommendation, free of bias or influence from either governments or industry. Previous efforts by WHO to promote reduction in intakes of refined sugars have been vehemently challenged by vested interests (2). Current efforts to reduce intake of refined sugars are likely again to be stridently opposed by commercial vested interests. If the final recommendation is not for less than 5 per cent, we would expect a rigorous and transparent investigation as to why this has occurred, as we see no evidence to the contrary.

Remarks

Free sugars include monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit concentrates.

We strongly agree with this. Furthermore, a clearer labelling system is needed, worldwide. Many products are labelled as sugar-free when they are not. This is deception and indeed could be regarded as fraudulent. The more socially deprived people unknowingly eat more free sugars, as these are hidden in processed foods and drinks. Surveys show that consumers are largely unaware of the very large amount of added sugar in products, and particularly hidden sugars. For example, some sugar-sweetened soft drinks have 35 grams of sugar in a 330 millilitre can; yoghurts, particularly low-fat yoghurts, can have up to 18 grams in a 125 gram pot; and some canned soups contain up to 15 grams of sugar.

For countries with low free sugars intake, levels should not be increased. Higher intakes of free sugars threaten the nutrient quality of diets by providing significant energy without specific nutrients

We agree with this, and we think this argues strongly that free sugars need to be reduced in countries where it is much higher.

These recommendations were based on the totality of evidence regarding the relationship between free sugars intake, and body weight and dental caries.

We agree that systematic reviews are one way of looking at nutrition evidence, but we strongly feel that other evidence should not be discounted. It is very important in any public health issue to look at the wider determinants of chronic non-communicable diseases, and not just consider systematic reviews.

Increasing or decreasing dietary sugars is associated with parallel changes in bodyweight, and the relationship is present regardless of the level of intake of free sugars. The excess body weight associated with free sugars intake results from excess energy intake.

We agree with this statement based on the evidence provided in the report, and the logic of this is that free sugars must be reduced to less than 5 per cent.

The recommendation to limit free sugars intake to less than 10% of total energy is based on observational studies that use dental caries as an outcome.

The evidence for obesity, based on the studies provided, and the huge need for an international policy to tackle obesity effectively, strongly suggests that a less than 5 per cent recommendation would be beneficial and could prevent obesity developing. It is not sufficient to treat people when they are already obese.

The recommendation to further limit free sugars intake to less than 5% of total energy is based on ecological studies in which a linear relationship between sugars intake and dental caries was observed.

We feel these types of studies could be replicated for sugar and obesity, and would be likely to show that a reduction to less than 5 per cent would be beneficial for reducing obesity as well as for dental caries. But this should not delay WHO from making the less than 5 per cent recommendation.

The recommendation to further limit free sugars intake to less than 5% of total energy is further based on the recognition that dental caries tracks from childhood to adulthood; in order to minimise lifelong risk of dental caries, the consumption of free sugars should be as low as possible

We agree with this statement, and it applies to obesity as well. Overweight and obese children are likely to become overweight and obese adults and at increased risk of developing chronic non-communicable diseases. Furthermore, studies show that taste preferences are set early in infancy and childhood. Therefore, reducing sugar as a percent of the diet in this age group may have marked preventive power.

Research

Free sugars play a very important role in causing obesity and type 2 diabetes. This is not the time to wait for outcome trials, which are likely anyway not to be carried out due to expense, adherence, and legality. Now action, not research, is needed.

The UK National Institute of Clinical Excellence states that public policy making should not rely on double blind trials. These trials are suitable for drug devices and pharmaceutical testing but not for dietary measures in public policy making. The call for double blind trials, or for other outcome or systematic reviews, is a delaying tactic particularly favoured by organisations backed (sometimes surreptitiously) by industry. The evidence is already overwhelming. It is impossible to keep people on different diets for long periods of time, plus the numbers of people needed to show a significant difference in outcome are so great and costly, that these studies will never be done. Calling for such studies, in the vernacular, is akin to 'moving the goalposts'; as reducing the intake of refined sugars will be stridently opposed by commercial vested interests.

However, we see the merit in encouraging research into the following areas, if they are conducted concurrently with implementation of any current evidence-based action, and do not delay a decision on the less than 5 per cent recommendation:

- Further ecological or population studies on different sugar intakes based on national sugar consumption data and prevalence of obesity, heart disease, and type 2 diabetes. Where countries are setting up sugar reduction programmes, particularly based on reformulation, as with salt, careful measurements of what sugar intake was before are needed, together with some measure of obesity, and monitoring of the reduction of sugar intake, both in products that are sold to consumers and on nutritional surveys

- An index of the prevalence of caries, particularly in children

- A systematic review to assess the effects of increasing or decreasing intake of free sugars on the risk of type 2 diabetes and cardiovascular disease.

- Translating the less than 5 per cent target into action may require further research into assessing the impact of a variety of policies on free sugar consumption. These include fiscal policies such as taxes, trade policies, trade and investment policies, agriculture policies, policies related to the marketing of foods high in free or added sugars. Furthermore, data on substitution by non-caloric sweeteners and negative health effects must also be initiated.

- We also welcome the expansion of the WHO Global Database on the Implementation of Nutrition Action (GINA) to monitor and capture country progress on translating the guidelines into action.

Action

Public health responses should not be cautious. Implementation of sugar reduction, even to get intakes below 10 per cent, requires a much stronger recommendation. With that in mind, *AoS has proposed a plan of action* for reducing sugar that replicates the successful and WHO-endorsed programme for salt reduction (3).

The huge amounts of sugar in soft drinks and food can easily be reduced. Taste receptors adjust, just like they do for salt. There are many similarities between sugar and salt. Palates adjust to the lower levels of intake allowing for the gradual reduction and reformulation. This has occurred with salt very successfully in the UK. Therefore the same programme could be applied to sugar and it would be an easy way to reduce dietary energy and at the same time would reduce caries. In the UK, since there has been a gradual, progressive reduction in salt, the population has adjusted to the taste

of lower salt concentrations, and there has been no loss of sales or switching between products as a result of salt reduction, or increasing addition of salt at the table. Reformulation in drinks would not result in reduction in volume or weight, and should be implemented immediately. In solid foods where sugar is reduced, it would result in a proportion in portion size. There should be no substitution with other refined carbohydrates or fat, particularly fat as this is likely to increase dietary energy intake even more. Many alternatives are available to added sugars, including whole foods such as fruits, vegetables, nuts, pulses and whole grains. Also, non-starch polysaccharide is not absorbed and therefore would not contribute to energy intake.

Given the progress made with the salt reduction programme in the UK, Action on Sugar proposes that sugar intake could also be reduced slowly so that people's taste receptors can adjust to the taste of foods with less sugar.

Conclusion

Excess weight gain is the third most important cause of the burden of disease and early deaths in affluent societies and is fifth most important for all world health issues (WHO Global Health Risks 2009). In the UK about 25 per cent of adults were obese in 2012, and obesity costs the National Health Service more than £5 billion every year, with an overall cost to society and the economy of almost £16 billion in 2007. If obesity rates were to continue unchecked, 60 per cent of adult men, 50 per cent of adult women, and 25 per cent of children in the UK could be obese by 2050 with a potential annual cost of just under £50 billion.

The majority of people in the UK and very many other countries consume more dietary energy than they need. There is no evidence of inadequate energy intake at the population level. People in the UK generally eat more saturated fat and added sugar than is recommended by either the WHO current guidelines or by the UK Scientific Advisory Committee on Nutrition. Consumption of high fat, high sugar foods and drinks can contribute to excess energy intake which increases the risk of weight gain and obesity.

Tooth decay is the major cause of pain and suffering both in children, and importantly, continuing into adulthood, as a major source of loss of self-esteem and embarrassment in cases of severe tooth decay. Dental caries caused specifically by free sugars affect 3.9 billion people worldwide. Untreated caries is the most prevalent of all 291 conditions assessed in the recent Global Burden of Disease study (4), which states: 'Worldwide, oral disease is the fourth most expensive disease to treat; dental caries affects most adults and 60-90% of schoolchildren, leading to millions of lost school days each year, and remains one of the most common chronic diseases'.

In the UK around 31 per cent of children starting school have visible tooth decay and this continues later on in the later years of childhood. The National Health Service in the UK spends around £2.25 billion on dental treatment a year and patients only pay £550 million of this. The citing of adult caries in the NUGAG report and the WHO media release is valuable but underplayed: it is exceptionally important that this is highlighted as adult caries accounts for about 80 cent of the dental care costs relating to caries.

We call on the World Health Organization to start setting targets now, so that reductions can be made to the amounts of sugar that are added to food products. This will help to curb obesity, type 2 diabetes and dental caries. If WHO and the food and soft drink industry fail in this task, then regulation, legislation, or a punitive sugar tax must be introduced, to reduce the large and unnecessary amounts of sugar that are added to food supplies and thus to diets worldwide.

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