

Sweet enough? Separating fact from fiction in the sugar debate

January 16 2014, by Chris Forbes-Ewan



The World Health Organisation is considering halving its recommendation that sugars make up 10% of your diet. Credit: Flickr/happy via

Forget lemon detox diets and soup fasts, sugar-free was the fad diet choice of 2013. But while it's wise to limit the foods and drinks you consume that contain added sugars, this doesn't mean you need to eliminate sugars from your diet altogether.

In 2003 the World Health Organisation (WHO) considered recommending limiting intake of "free sugars" to 10% of total [energy intake](#). Free sugars are sugars added to the food by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and fruit juices.

Although this recommendation was based largely on the well-established relationship between sugars and dental health, the evidence available in 2003 suggested that, at least when consumed in liquid foods, sugars may also contribute to obesity.

The US [sugar](#) lobby argued tenaciously against the recommendation, to the point where it was [accused](#) of adopting similar tactics to those used by the tobacco lobby a few decades previously. To its credit, the WHO held firm and the 10% limit was recommended.

A [recent report](#) in the UK press suggests that the WHO is considering halving its recommended maximum intake of free sugars to 5% of total energy. This is based on recent evidence that, it is claimed, implicates sugars in the onset of heart disease and strengthens the link with obesity, in addition to the previously demonstrated association with tooth decay.

So, how strong is the evidence that consumption of sugars causes (or is at least a major contributor to) obesity and heart disease?

In preparation for the proposed update, the World Health Organisation published a [review](#) of the effects of sugars on obesity was published last year.

In summary, the report found that increasing intake is associated with a small, but statistically significant (around 0.8 kg) weight gain, while decreasing intake is associated with a similar level of weight loss. It also concluded that consumption of sugar-sweetened beverages is particularly

likely to lead to increased body weight.

Sugars in liquid form are often attributed as a main cause of obesity and related chronic diseases. One study, for example, was reported to have found a direct link between consumption of sugary drinks and 180,000 deaths annually worldwide.

The relationship between consumption of sugars in liquid form and adverse health effects is reflected in the Australian Dietary Guidelines, which were revised by the National Health and Medical Research Council (NHMRC) last year. The new sugar guideline emphasises the importance of limiting intake of:

... sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.

However, although the strength of the evidence that sugar-sweetened drinks are associated with weight gain was regarded by the NHMRC as grade B (meaning it can probably be trusted, but is not entirely convincing), no evidence of a direct link between intake of sugars and heart disease was found.

Even so, the NHMRC suggested a possible indirect link with heart disease through an association of consumption of sugar-sweetened drinks with type 2 diabetes and "metabolic syndrome", a set of conditions that predisposes to both heart disease and diabetes.

In 2009 the American Heart Association (AHA) concluded that:

Excessive consumption of sugars has been linked with several metabolic abnormalities and adverse health conditions ... evidence from observational studies indicates that a higher intake of soft drinks is associated with greater energy intake, higher body weight, and lower

intake of essential nutrients.

The AHA report recommended an upper limit of approximately 400 kilojoules (six teaspoons) per day from sugars for a woman, and 600 kilojoules (nine teaspoons) per day for a man. These quantities constitute about 5% of total energy intake and are consistent with the reported potential revised WHO recommendation.

One of the leading proponents of the concept that sugar is the major cause of obesity, heart disease and type 2 diabetes is Robert Lustig, a US professor of pediatrics. In an opinion piece published in *Nature* last year Lustig and colleagues argued that sugar is as dangerous as alcohol and tobacco, and that it's fuelling a global obesity pandemic, contributing to 35 million deaths annually worldwide from diseases such as diabetes, heart disease and cancer.

It is important to note that "sugar" (the crystalline product commonly used to sweeten foods and beverages, and known scientifically as sucrose) consists of two components, glucose and fructose. Lustig (and colleagues) believe that it is the fructose component of sugar that is the culprit, while glucose is an "innocent bystander".

However, other experts in the field remain unconvinced that moderate intakes of fructose-containing sugars (up to about 10% of total energy intake) are major contributors to [heart disease](#) or obesity.

An extensive review of the scientific literature published in 2010 found:

... no evidence that the consumption of normal levels of intake (of fructose) causes biologically relevant changes in triglyceride [a type of fat that is associated with increased risk of heart disease] or body weight in overweight or obese individuals.

John Sievenpiper, a world-renowned expert from the University of Toronto, came to the conclusion that far from being harmful, small doses (up to 36 grams) of fructose per day may reduce the risk of type 2 diabetes, while having no adverse effects on body weight or blood lipids.

This quantity of fructose equates to 72 grams of sucrose, which corresponds to about 10% of total energy intake for a typical man (the current maximum intake recommended by the WHO).

However, some of our ingested fructose should be coming from fruit, so this finding doesn't constitute a suggestion that 10% of energy intake "should" come from sucrose, only that this level of intake may not be harmful.

So what can we conclude – from the current state of evidence – about the appropriateness of the reported proposal by the WHO to reduce recommended maximum sugar intake from 10% to 5% of total energy intake?

One prediction I can confidently make is that the sugar lobby will strenuously oppose any recommendation to further reduce sugar intake, as it did for the 2003 WHO recommendation.

I also believe that there will be little or no harm done if the recommended maximum level is decreased, while some good may come from such a revision.

However, it still remains to be seen if the WHO will go ahead with this recommendation.

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