

Is sugar really toxic?



In recent years, there has been a barrage of books and media reports telling us that sugar is 'toxic' and should be avoided. But what do we mean by 'toxic'? And what does the scientific evidence tell us?

DID YOU KNOW?

That sugar is naturally present in many foods, including fruits (which contain mainly fructose) and vegetables. Sugar can be safely included in a balanced diet and active lifestyle.



Why do some people say sugar is 'toxic'?

When we think of something that's 'toxic', many of us will imagine a substance that's poisonous or even deadly. But do we think of sugar? For most of us, the answer will be 'no'.

Sugars are present in nature, and are made by plants during photosynthesis. Then how can they be toxic to the body?

Sugar has been looked at by scientists a lot over the years. They have a long history of safe use in food and drink.



The fructose factor

The link between sugar and toxicity is often driven by studies on fructose.

Fructose is a type of sugar which together with glucose makes up sucrose, more commonly known as table sugar. Fructose is the naturally occurring sugar found in fruits, honey and some vegetables. Fructose is nearly twice as sweet and provides slightly less kilojoules per gram than sucrose.

Based on the way the body processes different sugars, concerns have been raised about high levels of fructose having a harmful effect on the liver, causing high cholesterol, obesity and insulin sensitivity resulting in diabetes. However, the research being used to support the "toxicity" argument is based mainly on animal studies where unrealistically high doses of pure fructose have been used. In the real world, this is not how fructose is consumed – in fact, if we were to try and replicate this research in humans, we would need to eat half of all our daily kilojoules as table sugar!





Do we eat 'toxic' levels of sugar?

All the hype would have us believe that we eat 'toxic' levels of sugar, that is, so much that it's killing us.

But is it reasonable to claim that too much sugar kills? Current levels of sugar consumption in Australia and New Zealand are not 'toxic' and have actually decreased since the mid-nineties. Recent consumption data shows that our mean usual intake is almost in line with the new World Health Organisation recommendation, i.e. to limit intake of free sugars to less than 10% of total energy intake.

To put it simply – eating too many kilojoules from whatever source – bread, apples, sweets, cheese – will lead to weight gain over time, and this may negatively impact our health. As such, we are encouraged to keep an eye on our overall kilojoule intake and enjoy food and drinks containing sugar in moderation.

What does the research say?

Studies have shown that high doses of pure added fructose may increase body weight, however the scientists involved concluded that this was probably due to the extra kilojoules being added to the diet, not specifically fructose.

A global body of evidence indicates that sugar consumed in typical amounts in the Western diet is not directly responsible for any disease. The only exception is dental health – which can be avoided by decreasing the frequency of sugary food and drink consumption throughout the day and practicing good oral hygiene which includes brushing twice a day with fluoridated toothpaste.

It has been concluded by a number of major expert committees that there is no evidence of direct harm 'caused by current average sugar consumption levels.'

What is high fructose corn syrup (HFCS)?

High fructose corn syrup is a sugar syrup derived from corn. It is used in the US, where corn is grown in abundance, however it is not commonly used or found in Australian or New Zealand food and beverages.

Despite the name, high fructose corn syrup is actually not high in fructose and is actually similar to table sugar.

100g Sucrose =	50g fructose
	50g glucose
100g HFCS =	55g fructose
	45g glucose



THE SHORT AND SWEET OF IT

Sugar is not 'toxic'

1. There is no evidence to support that current sugar intake can be 'toxic'
2. When reading media claims about sugar, be sure to understand what they are discussing. Is it table sugar (sucrose) or is it fructose? Did the study involve humans and how much fructose was used?

Sugar can be enjoyed in moderation as part of a healthy, balanced diet like any other food

1. Several major Expert Committees agree that current sugar intake has no direct harmful effects.
2. Government guidelines tell us there's no need to completely cut out enjoyable food or drinks that contain sugar, as long as we watch our overall kilojoule intake.

Information based on an overview of the scientific evidence.
For individual health advice see a qualified health professional.

Further Reading

1. Brand-Miller J, Barclay A. The Australian Paradox [Internet]. Sydney, NSW; 2011. Fructose; 2011 [cited Nov 2016]. Available from: <http://theaustralianparadox.com.au/Fructose.php>
2. Livesey G, Taylor R. Fructose consumption and consequences for glycation, plasma triacylglycerol, and body weight: meta-analyses and meta-regression models of intervention studies. *Am J Clin Nutr* 2008 Nov; 88(5):1419-37
3. Stevenepiper JL. Effect of fructose on body weight in controlled feeding trials: a systematic review and meta-analysis. *Ann Intern Med* 2012;156(4):291-304.
4. Australian Bureau of Statistics. Australian Health Survey: Consumption of Added Sugars, Australia 2011-12. April 2016.
5. Gibson S. The Effects of Sucrose on Metabolic Health: A Systematic Review of Human Intervention Studies in Healthy Adults. *Crit Rev Food Sci Nutr*. 2013; 53 (6): 1-24.
6. National Health and Medical Research Council. Eat for Health: Dietary Guidelines for Australians, Canberra 2013.

More info available at
www.allaboutsugars.com

This resource has been developed by the Australian Sugar Industry Alliance and aims to provide science based information on sugars and health.

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