



FRUCTOSE AND SWEET POISON

This answer is brought to you by many of the Australian nutrition professionals who regularly contribute to the Nutritionists Network ('Nut-Net'), a nutrition email discussion group.

Date of last Revision: April 2010

A book called *Sweet Poison* includes the claim that a type of sugar called 'fructose' is a poison that is slowly killing us. Is there any truth to this?

In his book *Sweet Poison*, which was published in 2008, and in an ABC Radio National program (Ockham's Razor) that was broadcast in July 2009, David Gillespie claims that the obesity epidemic and many chronic diseases are entirely attributable to the consumption of fructose.

Although we obtain some fructose from fruit, much of the fructose in our diet is derived from sucrose (commonly known as 'sugar') and from foods containing added sucrose. This is because sucrose consists of 50% fructose and 50% glucose. Sucrose and foods sweetened with sugars are described as providing 'added sugars' in the diet. That is, these sugars are not integral components of a food; rather they are added to foods. So sweet foods such as desserts, cakes, chocolate and other confectionery, and sweetened beverages such as carbonated soft drinks, sports drinks and so on, contain large quantities of added fructose. Fruit juice is also high in fructose.

In *Sweet Poison* it is argued that, unlike all other foods, fructose does not satisfy hunger, so we continue to eat even when we have already eaten more than we need. As a result, it is claimed, nearly everyone is putting on weight. The claim is also made that fructose has severe and adverse effects on many aspects of metabolism related to health, leading to the current alarming levels of chronic diseases, including heart disease, type 2 diabetes and even some cancers.

Sweet Poison recognises that, because it is accompanied by dietary fibre, fructose derived from whole fruit is different in its metabolic effects to added fructose. As a result, and consistent with nutritional guidelines in Australia, David Gillespie recommends eating two serves of fruit per day. However, because the fructose in fruit juice is not accompanied by dietary fibre, in *Sweet Poison* fruit juice is considered to have the same deleterious health effects as added fructose.

Sweet Poison concludes that added fructose (and fructose in fruit juice) is a poison at any dose, and in his Ockham's Razor program Gillespie urges regulatory authorities to '... immediately ban added fructose as a food'. To prevent (or treat) obesity and the chronic diseases mentioned above, *Sweet Poison* recommends simply avoiding

all sweet-tasting foods (other than two serves of fruit per day). The statement is also made that there is no need to take part in exercise to overcome obesity: 'Don't exercise if your dominant purpose is to lose weight: let a lack of fructose do that instead'.

Unfortunately, *Sweet Poison* is based on gross misinterpretations of key aspects of the scientific literature, and entirely ignores others. Also, the advice it contains is inconsistent with the Dietary Guidelines for Australians published by the National Health and Medical Research Council (NHMRC), and with the NHMRC guidelines on treatment and prevention of obesity (which stress the importance of physical activity in weight control).

In fact, *Sweet Poison* is replete with errors and dubious claims. Although there is strong evidence that excessive consumption of sucrose (and therefore fructose) is harmful to health, there is no evidence that added fructose is a poison at any dose. All national and international health authorities recognise this by advising people to limit (not avoid) intake of sugars and sweetened foods. As examples, the World Health Organisation advises that added sugars should contribute less than 10% of total energy intake, and an American Dietetic Association position statement includes the advice that '... all foods can fit into healthful diets, even those high in added sugars'.

Although many Australians do eat excessive quantities of sugars—and would do their health (and their waistlines) a favour by reducing their consumption of sweetened foods and drinks—there is no need for total avoidance; it is excessive consumption of fructose that is likely to be harmful to health and to contribute to obesity. There is no evidence to support David Gillespie's claim that 'Every day that fructose remains a part of our diet, is a death sentence for thousands of Australians'.

It seems likely that fructose in beverages is especially undesirable. Consumption of large quantities of sweetened drinks and fruit juices seems to be particularly implicated in obesity, because it appears that people do not always compensate for the added kilojoules they consume in these drinks by reducing their intake of other foods. In 2009 the prestigious *New England Journal of Medicine* published an article written by many leading nutritionists who advocated taxing sugar-sweetened beverages to reduce their intake, and thereby reducing the harm caused by high consumption of these drinks.

In conclusion, *Sweet Poison* is not a reliable source of information about the effects of fructose on body weight and health. Although large intakes of added fructose are almost certainly harmful to health and may be contributing to the obesity epidemic, small quantities in the diet are almost certainly harmless.

To reduce the risk of obesity and to optimise your health, the best advice is to follow the Dietary Guidelines for Australian adults, particularly:

- Eat plenty of vegetables, legumes and fruits
- Eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain
- Limit saturated fat and moderate total fat intake
- Drink plenty of water
- Limit your alcohol intake if you choose to drink

- Consume only moderate amounts of sugars and foods containing added sugars
- Prevent weight gain: be physically active and eat according to your energy needs

With respect to the first guideline, the recommendation of the Australian Department of Health and Ageing is to consume five serves of vegetables and two serves of fruit each day. Note that one 'serve' of vegetables is about 75 g (equal to about half a cup) of cooked vegetables, while one serve of fruit is a medium piece of fruit (e.g. one apple, one orange, one pear) or two small pieces (e.g. two apricots, two kiwifruit, two plums)

Suggested Further Reading

Resources and Fact Sheets: <http://www.nutritionaustralia.org/national/resources>

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