

Fructose not responsible for increase in non-alcoholic fatty liver disease

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Non-alcoholic fatty liver disease is the most common chronic liver disease in developed countries, affecting up to 30 per cent of their populations.

Since the disease is closely linked to obesity and Type 2 diabetes, there's a growing debate in the medical community about whether diet plays a role in its development, specifically the consumption of [fructose](#).

The possible link to non-alcoholic [fatty liver disease](#) has become the main criticism against fructose among those who believe there is something unique about the fructose molecule or the way it is metabolized and blame it for the obesity epidemic.

A meta-analysis of all available human trials published today in the *European Journal of Clinical Nutrition* says fructose in and of itself is not to blame for the increase in non-alcoholic fatty [liver disease](#).

But excess consumption of calories can contribute to the disease, regardless of whether those calories came from fructose or other carbohydrates, said the lead author, Dr. John Sievenpiper, a researcher in the Clinical Nutrition and Risk Factor Modification Centre of St. Michael's Hospital.

"The one thing fructose is supposed to do above all else is give you fatty liver disease, which some say is a starting point for metabolic syndrome—a term used to describe a group of conditions that puts

people at higher risk of developing Type 2 diabetes, heart disease and other heart-related problems—and Type 2 diabetes itself," Dr. Sievenpiper said.

"But we found it behaves no differently than glucose or refined starches. It is only when you consume excess calories in the form of fructose that you see a signal for harm but no more harm than if you consume excess calories as glucose."

Fructose, which is naturally found in fruit, vegetables and honey, is a simple sugar that together with glucose forms sucrose, the basis of table sugar. It is also found in sucrose and high-fructose corn syrup, the two most common sweeteners in commercially prepared foods.

Non-alcoholic fatty liver disease is one cause of a fatty liver, occurring when fat is deposited in the liver. Unlike [alcoholic liver disease](#), it is not due to excessive alcohol use.

Previous research by Dr. Sievenpiper has found that fructose by itself does not cause weight gain and does not itself have any impact on an emerging marker for the risk of cardiovascular disease known as postprandial triglycerides when it is substituted for other carbohydrates. It is when fructose is overconsumed providing excess calories that you see the adverse effects on health, but no more than when other carbohydrates are overconsumed.

A study he published in the February issue of *Current Opinion in Lipidology* also found no benefit in replacing fructose with glucose in commercially prepared foods. That research again showed that that when portion sizes and calories are the same, fructose does not cause any more harm than glucose.

"The debate over the role of fructose in obesity, fatty liver and other

metabolic diseases has distracted us from the issue of overconsumption," Dr. Sievenpiper said. "Our data should serve to remind people that the excess calories, whether they are from fructose or other sources, are the issue."

Provided by St. Michael's Hospital

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