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THE CONVERSATION



Do sweetened drinks really cause heart failure?

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Drinking two or more sweetened drinks a day increases the risk of developing heart failure by 23%, according to a recent study. This sounds very precise and very alarming. The problem with nutrition studies is that they're usually reported with more certainty than they warrant. And the relative dangers of consuming a particular food or drink are usually not that alarming when presented as absolute figures.

The reported 23% increase in risk was calculated as a "hazard ratio", which represents the study participants' risk of having heart failure at any point in time over the average 12-year period they were studied for.

Hazard ratios can be misleading. To make sense of this information we need to know what specific group of people we are discussing, their baseline risk of heart failure and the increase in risk.

Using hypothetical figures: in 50-year-old men, if the baseline risk of having heart failure is 4 in 1000, a 23% increase in risk means one more person in 1000 will die at the age of 50 if they drink two or more sweet drinks a day.

Discussing the risk in absolute terms is much less alarming than the relative risk, but it doesn't make for good headlines.



Absolute figures don't make good headlines
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Fallible memory

Studying nutrition is difficult. The gold standard of trial design is the randomised placebo-controlled trial (RCT). RCTs are great for studying medicines, but they're not so great for studying nutrition – at least, not for long periods of time. They are expensive to run and they lack “ecological validity”. In other words, they don't represent real life very well because they often add a level of control not present in everyday life – people tend to make different choices when they know they are being studied.

Some nutrition studies do use the RCT design, but most are observational studies where people are not randomly assigned to one treatment group or another. These types of studies can usually afford to recruit way more people than RCTs.

But large observational studies come with their own problems. They depend on surprisingly simplistic and naïve data collection methods such as recollection and self-reporting, which produce notoriously unreliable data.

Not only is memory fallible, but people tend to under report what they consume. In this study, data was collected using a “food frequency questionnaire”. Participants were asked: “How many soft drinks or sweetened juice drinks do you drink per day or per week?” It does not take a disciple of science, to realise that this might not be reliable.

Any study that uses self-reported data, such as this latest study from Sweden, should be treated with caution.

Accounting for everything

What an observational study can't do is prove that consuming sweetened drinks causes heart failure. It can only prove that the two things are associated.

Lots of things are associated with heart failure, such as diabetes, high blood pressure, smoking, and body mass index. These “confounders”, and others, were taken into account by the researchers when calculating the hazard ratios.

But what if they missed something out in their analysis? Perhaps people who consume lots of sweetened drinks have worse diets overall. It seems likely that people who consciously choose not to drink sweetened drinks are more health conscious overall.

The predictive power of any observational study is limited by potentially unaccounted for confounders.

Sugar is not a poison

This study doesn't differentiate between drinks that are sweetened with sugar and those that are sweetened with artificial sweeteners, such as aspartame and sucralose, so we can't tell what role – if any – these artificial sweeteners played in increasing the risk of heart disease.

Previous studies have shown that sugar sweetened drinks are associated with a number of health problems, including coronary heart disease and type 2 diabetes. However, even if the people in this study did mainly consume sugar sweetened drinks, we should be careful about linking one aspect of nutrition to a particular health outcome.

Sugar is not intrinsically bad – it is not a poison – but it contributes to surplus energy intake which, in turn, is associated with a range of metabolic problems.

Consumption of sweetened beverages may be associated with increased risk of heart failure, but this needs to be viewed alongside diet as a whole – as well as a person's broader lifestyle. Focusing on one nutrient at a time can be misleading and even counterproductive. It contributes to the seemingly endless controversies about what we should eat and how much we should eat. These controversies might sell newspapers and bogus health products, but they don't do anything to help the consumer make informed choices.



Heart disease

Sugar

soft drinks

Artificial sweetener

heart failure



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