

Xylitol and Heart Disease

What an observational study of blood levels means for the person buying the gum

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In late August 2026, headlines announced that xylitol, a sugar substitute in gum, candy, and baked goods, is "linked to higher risk of heart attack and stroke." The study behind them, presented at the European Society of Cardiology Congress in Munich, measured blood levels of xylitol in about 17,700 people and found that people with the highest levels had more heart attacks and strokes than people with the lowest.

A real claim rarely comes one fault at a time. This one has three. The numbers are percentages with no underlying data. The study sorts people into bins and compares only the extremes. And the headline says xylitol causes something the data only noticed alongside it. Together, the three faults leave the study with no bearing on the person buying the gum or the company making it.

The study

Witkowski and colleagues looked at two large groups of people followed over time: one Canadian (about 11,000 people, tracked for 6 years) and one British (about 6,700 people, tracked for 30 years). They measured xylitol levels in the blood and counted who later had a heart attack, stroke, or died of heart disease.

They sorted people into four groups by blood xylitol level. In the Canadian group, people in the top quarter had 57% more heart attacks and strokes than people in the bottom quarter. In the British group, the figure was 18%. The researchers adjusted for age, sex, smoking, cholesterol, diabetes, high blood pressure, and weight.

Witkowski M et al. The association of Xylitol and incident cardiovascular events: the CLSA and EPIC-Norfolk cohort studies. Presented at ESC Congress 2026, Munich, 29 August 2026. Not yet published in a peer-reviewed journal.

Earlier work on a high-risk clinical population: Witkowski M et al. Xylitol is prothrombotic and associated with cardiovascular risk. Eur Heart J 2024;45:2439–2452.

Claim 1. Xylitol raises cardiovascular risk by 57%

The fault: relative reporting. The percentage sounds large. The number of people behind it is missing.

The 57% is a percentage. Neither the study nor any news story tells you how many people actually had heart attacks or strokes. Without that starting number, the percentage means nothing.

Suppose 3 out of 100 people in the low group had an event. Then 57% more is about 5 out of 100. That is 2 extra people. Now suppose the starting number is 1 out of 100. Then 57% more is fewer than 2 out of 100. Less than 1 extra person. A 57% increase of a small number is a small number. No one told you which it is.

The two groups make the point on their own. The Canadian group reports 57% over 6 years. The British group reports 18% over 30 years. If xylitol were causing heart attacks, a longer study should find more of them, not fewer. The fact that the shorter study found the bigger number is a sign that something else is going on.

57% of what? Without a baseline, the number is not yet a fact.

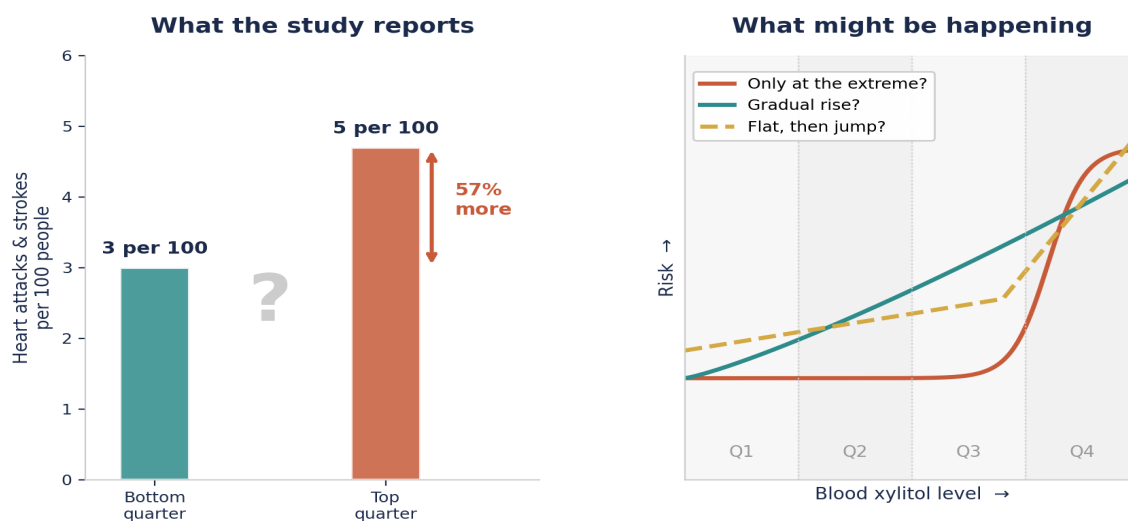
Claim 2. People in the highest quartile are at greater risk

The fault: arbitrary categories. A sliding scale has been cut into boxes.

Blood xylitol levels fall on a scale. The study chopped that scale into four bins and compared only the top bin against the bottom. Does risk climb gradually as the level rises? Does it jump at some point? Does all the trouble sit at the very top of the range? The study does not say. The 57% and the 18% each describe the gap between two boxes. They say nothing about the shape in between.

Blood pressure works the same way. One point moved a patient from "normal" to "elevated" without changing her actual risk, because the risk rises smoothly and does nothing special at the boundary. One unit of blood xylitol moves a person from the third bin to the fourth. That tells you which box she is in. It does not tell you how much danger she is in.

Ask where you sit on the curve, not which side of the line you are on.



The study reports only the gap between the ends. The shape of the curve is unknown.

Claim 3. Xylitol causes heart attacks and strokes

The fault: the causal leap. The headline draws an arrow the data cannot support.

The study measured xylitol in the blood. It did not measure how much xylitol anyone ate. That matters because xylitol is not only a food additive. Your body makes it on its own, as a normal part of processing sugar. People whose metabolism is off, who have insulin resistance, or whose blood sugar runs high may produce more of it without eating any.

Picture a fork in the road. At the top sits metabolic trouble. One road leads to higher blood xylitol. The other leads to heart attacks and strokes. The xylitol and the heart attacks travel together, but one

does not cause the other. The metabolic trouble causes both. The data cannot tell these apart. The headline picked one road and called it the cause.

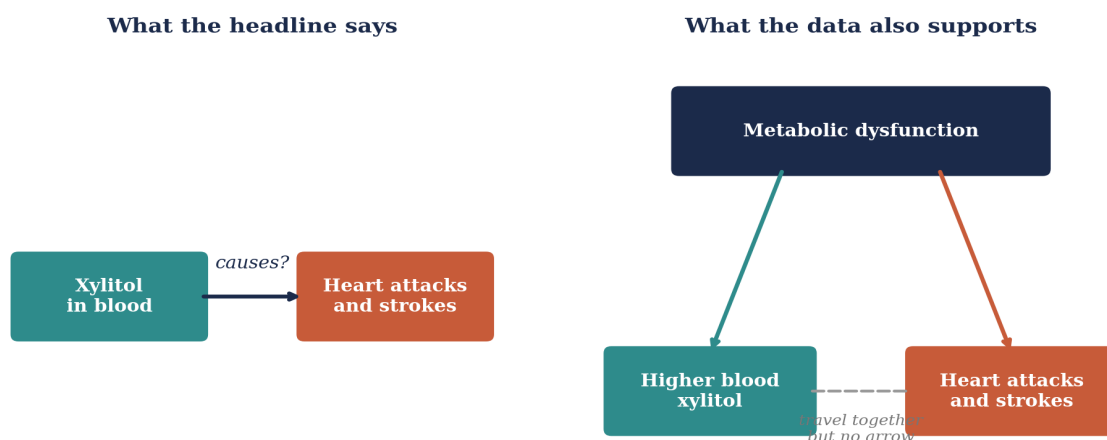
Think about who has high blood xylitol. People whose metabolism works differently. People who eat sugar substitutes because they are already watching their weight or managing diabetes. People whose bodies just make more of it. The researchers tried to account for some of these differences. But accounting is not the same as a controlled experiment. If the underlying metabolic problem drives both the xylitol level and the heart risk, the link between xylitol and heart attacks will show up in the data even though xylitol is not doing anything.

The conference's own commentator, Professor Dan Atar, said it plainly: "As with all observational studies, causalities are difficult to infer." To prove that eating xylitol causes heart attacks, you would need to give some people xylitol and others a placebo, then count who gets sick. No one has done that.

Atar D. Discussant commentary on Witkowski et al. ESC Congress 2026, Munich, 29 August 2026.

There is an even earlier question. How much does eating xylitol, in the amounts found in gum or candy, actually raise the blood level? Your body already makes xylitol on its own. If the xylitol from a stick of gum barely moves the needle above what your liver is already producing, then the whole study is about your metabolism. It is not about your gum.

The study cannot distinguish "xylitol causes events" from "the metabolic state that raises blood xylitol also raises events."



The study cannot tell these two pictures apart. The headline picked the left one.

What the study does not support

For the person buying the gum, the study gives no reason to stop. It did not track what happens when someone starts or stops eating xylitol. It cannot tell you how much of the xylitol in your blood came from food and how much your body made on its own. The 57% compares people whose blood happened to contain more of a substance their bodies produce naturally against people whose blood contained less. That is not a warning about a food product.

For the company making the gum, the question is whether putting xylitol in a product causes harm. To answer that, you would need to show two things: that eating xylitol raises blood levels into

the range the study flagged, and that those blood levels cause heart attacks rather than just appearing alongside them. Neither has been shown. Nothing in this study calls for changing a recipe.

Summary

Claim	Fault	What the evidence shows
Xylitol raises cardiovascular risk by 57%	Relative reporting	A percentage with no starting number. The two groups disagree on how big the effect is.
The highest quartile is at greater risk	Arbitrary categories	A gap between two bins. What happens in between is not reported.
Xylitol causes heart attacks and strokes	The causal leap	Metabolic trouble at the top of a fork fits the data just as well. The study measured a substance the body produces, not how much anyone ate. No controlled trial exists.

The bottom line

This study is irrelevant to anyone outside the academic community. It gives consumers no reason to change what they buy. It gives a food company no reason to reformulate. A regulator has nothing to act on. The headlines can be safely ignored.