Do Artificial Sweeteners Prevent Cancer?

By Alex Berezow, PhD — August 7, 2018

We've officially gone full circle. There was a time when people feared that artificial sweeteners caused cancer. (They don't.) Now, researchers claim that artificial sweeteners prevent cancer. Do they?

It's biologically plausible. Cancer cells undergo what is known as the Warburg effect. Typically, our body cells generate energy through a process known as aerobic respiration, but cancer cells ramp up fermentation, instead. Just like a muscle doing vigorous exercise, cancer gobbles up glucose (a sugar) and spits out lactic acid. Hypothetically, depriving a cancer cell of sugar could remove an important fuel source.

A team of researchers conducted a cohort study that examined the self-reported dietary habits of 1,018 patients during and after chemotherapy for stage III colon cancer. Their main finding was that artificially sweetened beverages lowered the risk of cancer recurrence or death by about 23%. (See figure.)
How believable is this finding?

As stated above, it has biological plausibility. That's important because not all biomedical studies do (such as the ones that find a link between glyphosate and cancer).

It also does not appear as if the authors went on a fishing expedition -- i.e., screen a bunch of foods and find the one that is linked to a decrease in cancer. Those kinds of studies, which are exploratory in nature, often fail to replicate because, by pure chance alone, researchers can find a statistically significant association. Instead, from the way the authors describe their rationale, it reads as if they had a hypothesis about artificial sweeteners prior to collecting their data. That's important, too.

However, the one thing that the authors cannot overcome is the fact that food frequency questionnaires (FFQs) are notoriously unreliable. People regularly underreport how much alcohol they consume, for instance. I barely remember what I ate for lunch, and that was just a few hours ago. There's simply no good way to get around this shortcoming, though the fact that the authors detected something of a dose-response [3] (i.e., the more artificial sweeteners a person consumed, the less likely he or she was to develop cancer) strengthens their case.

Additionally, there is the nagging issue of confounding. People who drink artificially sweetened beverages may have other health habits that are responsible for lowering the recurrence of cancer. Perhaps people who drink more Diet Coke also eat more celery. The authors did their best to adjust for such confounding, but there's always the possibility that something goes undetected.

Overall, I find the result interesting but unconvincing. If artificial sweeteners really do decrease the recurrence of cancer by more than 20%, then they should begin a clinical trial pronto.

Source [3]: Brendan J. Guercio, et al. "Associations of artificially sweetened beverage intake with
disease recurrence and mortality in stage III colon cancer: Results from CALGB 89803 (Alliance).”
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