

High sugar consumption linked to increased risk of premature aging in childhood cancer survivors

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Survivors of childhood cancer who consumed more total sugar, added sugar, and sugar-sweetened beverages had more aging-related health

conditions than survivors who consumed less sugar, according to results presented at the [AACR Special Conference: Aging and Cancer](#), held November 17–20.

Children with [cancer](#) are often treated with harsh regimens such as chemotherapy and radiation, which can damage growing tissues and cause [health problems](#) later in a [survivor](#)'s life. One pattern that researchers have recognized is the propensity for [childhood cancer survivors](#) to develop aging-related [health](#) conditions at a younger age than the general population.

"Childhood cancer used to be a fatal disease, but with recent advances in treatment, [childhood](#) cancer survivors live much longer than they used to," explained Yikyung Park, ScD, an associate professor of surgery at the Alvin J. Siteman Cancer Center of the Washington University School of Medicine and senior author of the study.

"They develop aging-related health conditions at a much earlier age and a much higher rate," Park continued. "We wanted to understand if there are any modifiable factors we can target to delay this significant problem."

High consumption of [sugar](#) has been linked to a variety of health problems, including obesity, cardiovascular disease, and diabetes, which pose increased risks as individuals age. Researchers have also found signs that sugar can accelerate mechanisms of aging, such as inflammation.

"Childhood cancer survivors are a very vulnerable population," said Tuo Lan, Ph.D., a postdoctoral research associate at Siteman Cancer Center, who will present the study. "We were interested in seeing whether sugar intake had the same effect or a more severe effect on premature aging in childhood cancer survivors compared with the [general population](#)."

Lan and colleagues identified 3,322 patients from the St. Jude Lifetime Cohort—a research study that monitors childhood cancer survivors throughout adulthood—who provided information about their typical diet using a food frequency questionnaire. The researchers extracted data about survivors' daily intake of total sugar, added sugar, and [sugar-sweetened beverages](#).

They assessed the survivors' risk of premature aging using the Deficit Accumulation Index (DAI), a collection of 45 aging-related health conditions such as heart attack, stroke, and arthritis. DAI score was assessed as the ratio of existing health conditions to the number of conditions included in the index; survivors with a DAI less than 0.2 were considered low-risk, survivors with a DAI of 0.2–0.34 were considered intermediate-risk, and survivors with a DAI greater than or equal to 0.35 were considered high-risk.

For each 25 grams of sugar consumed per day, survivors in the intermediate-risk group had a 24% increased risk of premature aging, and survivors in the high-risk group had a 30% increased risk of premature aging. Each 25 grams of added sugar increased intermediate-risk survivors' risk by 19% and high-risk survivors' risk by 23%.

The impact of sugar-sweetened beverages on premature aging risk was especially strong for high-risk individuals; those who consumed two or more drinks per day had a 6.71-fold higher risk of premature aging compared to those who consumed less than one drink per week. The increased risk related to sugar-sweetened beverages was 54% among intermediate-risk individuals.

Lan and Park hope that this research will set the stage for future studies into the mechanisms by which sugar contributes to premature aging risk, as well as how those processes are potentially accelerated in childhood cancer survivors.

"Everyone should limit their sugar intake. Considering cancer survivors are more vulnerable, they should especially limit their sugar intake," Lan said.

"Cutting down sugar is not always easy," Park said. "We need to find a way to help cancer survivors maintain healthier dietary habits to support their overall health."

Limitations of this study include the cross-sectional nature of the analysis, which obscures whether sugar intake caused the increase in premature aging risk or vice versa.

At the conference, Park will present a related study, using the same cohort, about the effects of dietary habits beyond [sugar intake](#) on the risk of premature aging. In this study, she and her colleagues found that childhood cancer survivors who regularly consumed a so-called "fast food" diet—including a high intake of sugar—had a higher risk of [premature aging](#) than [childhood cancer](#) survivors who ate a more plant-based diet.

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