New report links frequency of diet soda use to waist increases

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Those who drink diet soda thinking it will help them shed unwanted belly fat may see their waistlines expand instead. New analyses from an observational study of San Antonio men and women age 65 and older seem to indicate this.

The San Antonio Longitudinal Study of Aging (SALSA), led by Helen P. Hazuda, Ph.D., professor of medicine in the School of Medicine at The University of Texas Health Science Center at San Antonio, gathered data on health status and lifestyles of 749 Mexican-American and European-American elders, then tracked the health outcomes in 466 survivors for more than nine years. The number of sodas they consumed - and whether they were diet or regular - was recorded by interviews at the beginning of the study and at each of three follow-up visits, where

SALSA personnel measured participants' waist circumferences and other parameters.

Among SALSA participants who reported that they did not consume any diet sodas, waist circumference increased less than 1 inch on average over the total follow-up period, said Sharon P. Fowler, M.P.H., adjunct faculty in the School of Medicine at the Health Science Center. Among participants who reported occasional use - drinking less than one diet soda a day - waist circumference increased almost 2 inches. And among those who consumed diet sodas every day, or more often than once a day, waist circumference increased over 3 inches. With senior author Dr. Hazuda and co-author Ken Williams, M.S., adjunct faculty in the School of Medicine, Fowler is lead author of a paper describing the data in the April issue of the *Journal of the American Geriatrics Society.*

These findings raise a red flag for seniors because fat around the waist - the proverbial tire around the middle - includes not only fat just under the skin but also fat that accumulates around internal organs, known as viscera. Many studies have linked visceral fat with increased inflammation and risk of metabolic disease, diabetes, heart attack, stroke, cancer and mortality. When waistlines expand in older age, visceral fat increases disproportionately, and risk rises.

"Because Dr. Hazuda's study measured waist circumference as well as total weight, we were able to look at what happened to participants' abdominal obesity," Fowler said. "The increases in abdominal fat were more than three times as great in daily diet soda users as in non-users, during the very time in life when increasing waist circumference is associated with increased risk of these serious medical conditions, and mortality itself."

Different from past research

The group's previous related research, published in 2008, looked at the association between total consumption of artificially sweetened drinks - soda plus coffee plus tea - and long-term weight gain among participants in the San Antonio Heart Study, led by Michael Stern, M.D., emeritus professor in the School of Medicine. That study found that, among more than 3,600 25- to 65-year-old Mexican-Americans and European-Americans followed for seven to eight years, body mass index and risk of obesity rose consistently with increases in artificially sweetened beverage intake.

In the current SALSA report, the researchers adjusted statistically for a large number of variables that might have affected the findings, including initial waist size, exercise level and whether the participant had diabetes or smoked. "Even when you adjust for those things, you have this independent effect of diet soda consumption on waist circumference change over time," Dr. Hazuda said.

"There is definitely debate about whether the association between diet soda intake and cardiometabolic risk, which has been detected in several large observational studies, is based on an actual causal relationship," Fowler said. "We are simply reporting the statistical association we found: that, over almost a decade, waist circumference increased significantly, in a dose-response manner, with increasing diet soda intake in this group of older individuals. These results are consistent with findings from a number of other observational studies of increased long-term risk of diabetes, heart attack, stroke and other major medical problems among daily diet soda users."

Although the study cohort is relatively small, with 466 individuals, the results were based on 3,706 person-years of follow-up. The findings were in people age 65 and older; whether they would apply to younger people is not known. The findings were also most pronounced among those who were already overweight or obese at the outset of SALSA. It

is an observational study rather than a randomized, controlled trial design, which is the gold standard in clinical epidemiology.

"In spite of these limitations, however, the evidence, taken together with relevant findings from other studies in both humans and animals, is pretty compelling," Dr. Hazuda said. "We're trying to provide the evidence base for meaningful decision-making to improve both the health of individuals, and the public health."

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