

<http://www.webmd.com/news/20091102/diet-sodas-hard-on-the-kidneys>

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The study, "Associations of Sweetened Beverages with Kidney Function Decline", was presented last week at the American Society of Nephrology's annual conference in San Diego, California. November 2, 2009

[SA-PO2751] Associations of Sweetened Beverages with Kidney Function Decline

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Background: Sugar sweetened beverages have been reported to be associated with increased risk for diabetes and albuminuria, but there are currently no data on how sugar or artificially sweetened beverages may affect kidney function decline.

Methods: We identified 3256 women participating in the Nurses' Health Study who had had data on sugar sweetened beverage (SSB) or artificially sweetened soda intake and eGFR change between 1989 and 2000. SSB included soda, fruit juices, punch, and iced tea. This group included 730 diabetic women participating in a sub-study of kidney function. Cumulative average beverage intake was derived from the 1984, 1986, and 1990 food frequency questionnaires. Serving categories included <1/month (referent), 1-4/month, 2-6/week, 1-1.9/day, and ≥ 2 /day. The primary outcome was $\geq 30\%$ decline in eGFR over 11 years as estimated by the 4-variable MDRD equation; we also examined "rapid" eGFR decline defined as ≥ 3 ml/min/1.73 m² per year. Multivariable models were adjusted for age, hypertension, BMI, diabetes, cigarette smoking, physical activity (METS/week),

cardiovascular disease, and caloric intake.

Results: Median age was 67 years, 97% were Caucasian, 54% had HTN, 24% were diabetic, and median eGFR was 85 ml/min/1.73 m² at baseline in 1989. In this group, 372 (11.4%) experienced an eGFR decline $\geq 30\%$; this reflected a median increase in plasma creatinine of 0.33 mg/dl. Multivariable adjusted models revealed that consumption of ≥ 2 servings per day of artificially sweetened soda was independently associated with eGFR decline $\geq 30\%$ (OR 2.02, 95% CI 1.36 to 3.01) and ≥ 3 ml/min/1.73 m² per year (OR 2.20, 95% CI 1.36 to 3.55). No increased risk for eGFR decline was observed for <2 servings/day of artificially sweetened soda. No significant associations were observed with SSB (OR 0.93, 95% CI 0.71 to 1.23) or sugar sweetened soda (OR 1.56, 95% CI 0.84 to 2.91) (ORs for eGFR decline $\geq 30\%$) and either measure of eGFR decline. The results did not vary by diabetes status.

Conclusions: Consumption of ≥ 2 servings per day of artificially sweetened soda is associated with a two-fold increased risk for kidney function decline.

Saturday, October 31, 2009 10:00 AM

Diet Sodas May Be Hard on the Kidneys

Women Who Drink 2 or More Diet Sodas Daily Double Their Risk of Kidney Function Decline, Study Shows

By [Kathleen Doheny](#)

WebMD Health News

Reviewed by [Louise Chang, MD](#)

Nov. 2, 2009 -- Diet soda may help keep your calories in check, but drinking two or more diet sodas a day may double your risk of declining [kidney](#) function, a new study shows.

Women who drank two or more diet sodas a day had a 30% drop in a measure of kidney function during the lengthy study follow-up, according to research presented Saturday at the annual meeting of the American Society of Nephrology in San Diego.

"Thirty percent is considered significant," says researcher Julie Lin, MD, MPH, assistant professor of medicine at Harvard Medical School and a staff physician at Brigham and Women's Hospital in Boston. That's especially true, she says, because most study participants had well-preserved kidney function at the start of the study.

Diet Soda and Kidneys: Study Details

The researchers evaluated 3,256 women already participating in the Nurses' Health Study who had submitted dietary information, including their intake of sugary beverages -- sugar-sweetened drinks, sugar-sweetened soda, and artificially sweetened soda. Sugar-sweetened drinks included soda, fruit juices, punch, and iced tea.

Information was also available on measures of kidney function. Their median age was 67.

Lin's team looked at the cumulative average beverage intake, derived from food questionnaires completed in 1984, 1986, and 1990. The women replied whether they drank the beverages less than once a month, one to four times a month, two to six times weekly, once daily but less than twice, or twice a day or more often.

Diet Soda and Kidneys: Study Results

When the researchers compared kidney function of the women in 1989 and 2000, they found that 11.4% or 372 women had a kidney function decline of 30% or more. When they looked at the diet information, they found that the 30% decline in kidney function was associated with drinking two or more artificially sweetened sodas a day. This was true even after taking into account factors such as age, [high blood pressure](#), [diabetes](#), and [physical activity](#).

Put another way: the women who drank two or more diet sodas a day had a decline in their glomerular filtration rate, a measure of kidney function, of 3 milliliters per minute per year. "With natural aging, kidney function declines about 1 mL per minute per year after age 40," Lin says. No link was found with the other beverages. And less than two sodas a day didn't seem to hurt. "We didn't see any association up to two artificially sweetened beverages a day," Lin says.

"A serving was reported as either a glass, a can, or a bottle of a beverage," Lin tells WebMD. "It was not more specific than that."

"The mechanisms aren't clear," Lin says of the association she found. In another study she presented at the meeting, she found higher salt intake is also associated with faster kidney function decline.

All of the participants were women, so Lin can't say for sure that the association holds for men, although she says there is "no biological reason to think it wouldn't."

About 20 million Americans have some evidence of chronic kidney disease, according to the society. Kidney disease diagnoses have doubled each of the last two decades.

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Diet Soda and Kidney Function: Industry Input

Asked to review the study findings, Maureen Storey, senior vice president of science policy for the American Beverage Association, says in a prepared statement: "It's important to remember that this is an abstract presented at an annual meeting." She notes that the research needs further scrutiny by researchers.

She acknowledges that kidney disease is serious but that diabetes and high blood pressure account for the majority of kidney disease cases, "not consumption of diet soda."

Diet Soda and Kidney Function: Dietitian's View

In reviewing the study, Connie Diekman, RD, director of university [nutrition](#) for Washington University, St. Louis, wonders if the link might have come about because of long-term consumption, as many of the participants were older adults.

The link found, she says, "calls for more studies where actual intake can be assessed, rather than taking the information from food frequency questionnaires, which could be subject to mistakes."

Diet drinks, she says, are "generally low in important health-promoting nutrients, so keeping them as a small part of your eating plan would be a smart step."

Second News Article

<http://www.ajc.com/health/content/shared-auto/healthnews/food/632395.html>

MONDAY, Nov. 2 (HealthDay News) -- A diet high in salt or artificially sweetened drinks increases the risk of kidney function decline, two studies show.

"There are currently limited data on the role of diet in kidney disease," researcher Dr. Julie Lin, of Brigham and Women's Hospital in Boston, said in a news release. "While more study is needed, our research suggests that higher sodium and artificially sweetened soda intake are associated with greater rate of decline in kidney function."

The first study looked at diet and kidney function decline in more than 3,000 women enrolled in the national Nurses' Health Study. The researchers found that "in women with well-preserved kidney function, higher dietary sodium intake was associated with greater kidney function decline, which is consistent with experimental animal data that high sodium intake promotes progressive kidney disease."

The second study looked at the association between sugar- and artificially-sweetened beverages and kidney function decline in the same group of women. The researchers found an association between two or more servings per day of artificially sweetened soda and a two-fold increased risk of faster kidney function decline. There was no connection between sugar-sweetened beverages and kidney function decline.

The association between artificially sweetened beverages and kidney function decline persisted after Lin and colleague Dr. Gary Curhan accounted for other factors, such as age, obesity, high blood pressure, diabetes, smoking, physical activity, caloric intake and cardiovascular disease.

Further study is needed to better understand how artificial sweeteners influence kidney function decline, the researchers said.

The studies were to be presented this week at the annual meeting of the American Society of Nephrology, in San Diego.