

Free weekly produce delivery found to improve blood sugar, food security in low-income adults

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In the first randomized clinical trial of its kind, a six-month produce prescription program significantly improved blood sugar control, food

security and nutrition security among low-income adults enrolled in Medicaid with type 2 diabetes, according to a [preliminary study](#) presented at the American Heart Association's Scientific Sessions 2023, held Nov. 11–13, in Philadelphia.

Cardiometabolic health conditions, such as obesity, type 2 diabetes and [heart disease](#), are leading causes of death in the U.S. As detailed in the Association's [Life's Essential 8](#) metrics, healthy nutrition is one of the eight components for optimal cardiovascular health.

Previous research has confirmed that a lack of healthy nutrition contributes to these health conditions and also affects health disparities and increased health care spending.

"The availability and affordability of fresh foods and vegetables are key social determinants of health for people managing diet-related health conditions. Providing healthy foods and dietary counseling can be an important complement to medical care," said Claudia Nau, Ph.D., co-primary investigator of the study and a research scientist at the Kaiser Permanente Southern California Department of Research & Evaluation.

"Addressing barriers to living healthier lives can help to improve disparities in health among people of different races, ethnicities and [socioeconomic groups](#)."

Produce prescription programs, in which participants receive free produce vouchers or reduced-cost deliveries of fresh fruits and vegetables, have shown promise in addressing these issues and improving health outcomes.

In this randomized controlled trial, researchers investigated the impact of providing six months of free produce deliveries every week on participants' [blood sugar control](#), which was the primary endpoint.

Study participants were randomly assigned to three different groups: control (not receiving free fresh produce), and higher- and lower-dose intervention groups (free weekly produce deliveries). Produce amounts were scaled to meet the participant's household size, and valued at a range from \$90–270 for the higher-dose group and \$90–180 for lower-dose households.

Participants receiving the free produce were also offered free diet and nutrition counseling sessions with Registered Dietitians or nutritionists by telephone. Approximately one fifth (22%) of participants used this tele-health service.

At the end of the six-month study period, participants in both the higher- and lower-level produce groups had improved hemoglobin A1c (HbA1c) compared to the control group that received no fresh fruits and vegetables or nutrition counseling. HbA1C levels were collected at the beginning of the study (within four weeks before enrollment) and at the end of the study (up to 60 days before enrollment and up to 90 days after the end of the free produce deliveries).

When possible, the study used HbA1C results collected during usual care appointments. The research team specifically collected HbA1C tests for study participants who did not have a usual care appointment by the end of the study period.

The analysis found:

- Patients who received both levels of the free produce program had a significant improvement in blood sugar levels, with an overall average HbA1C reduction of 0.32 points, in comparison to participants in the control group.
- Secondary analyses suggest that the reduction in HbA1c was larger while patients were still receiving the produce prescription

- program, and smaller after the intervention ended.
- The higher-dose and lower-dose groups did not have significantly different reductions in HbA1c from each other.
 - Additionally, the study found a large improvement in [food security](#) and nutrition security status: the odds of being food secure increased by about 230% and the odds of being nutrition secure increased by 370% for patients in the intervention group (lower- and higher-dose groups combined) compared to the control group.
 - Details included in the news release, particularly about the secondary analyses, may be confirmed directly with the research authors; this is new information that was not included in the abstract.

"These results support the potential for treatments in health care that provide nourishing food to improve health outcomes for low-income adults with type 2 diabetes," said Dariush Mozaffarian, M.D., Dr.P.H., a co-principal investigator and director of the Food is Medicine Institute at the Friedman School of Nutrition Science & Policy at Tufts University.

"Our secondary analysis suggests that benefits may be greatest when people are receiving healthy food and may wane after the program ends, indicating that, like other treatments for type 2 diabetes, long-term intervention may be important for some patients."

Study background:

- Participants included 450 adults in Southern California with type 2 diabetes enrolled in Medicaid and members of the Kaiser Permanente health system. Medicaid provides health insurance coverage for people with low income, qualified pregnant women and children and people with disabilities.
- Study participants were predominantly Hispanic (85%), female

(65%), with an average age of 59 years.

- Patients were recruited into the higher-dose, lower-dose and control group, with a ratio of 1:1:1 (150 participants in each group).
- Nearly 60% of study participants met the criteria for food insecurity. The U.S. Department of Agriculture defines food insecurity as a lack of consistent access to enough food for every person in a household to live an active, healthy life.
- Participants' average HbA1c level, a measure of blood glucose, was 9.4% at the time of enrollment in the study. Normal HbA1c values are under 5.7%, and type 2 diabetes is diagnosed when HbA1c levels are 6.5% or higher.
- The average BMI was 34. A BMI of 30 or higher is considered obesity.
- About three-fourths of patients had elevated blood pressure or stage 1 or 2 hypertension.

"This study's findings support the notion that when people have regular access to eating healthy foods, health measures improve," said Mitchell S. V. Elkind, M.D., M.S., FAHA, chief clinical science officer of the American Heart Association and a tenured professor of neurology and epidemiology at Columbia University.

"More than 44 million people in the U.S., including 13 million children, experience food insecurity. Imagine the long-term gains in health, quality of life and longevity when more people are able to access healthy foods on a regular basis. The American Heart Association's [Food Is Medicine](#) Initiative is committed to developing a robust evidence base to support programs providing healthy foods as part of patient care to treat, manage and prevent cardiovascular disease and other chronic [health conditions](#)."

Last month, the American Heart Association issued a [presidential](#)

[advisory](#) proposing a coordinated research approach to compare how well nutrition-based health care interventions treat and prevent disease compared to standard medical care. This approach is the foundation of the Association's Food Is Medicine Initiative, announced at the White House Conference on Hunger, Nutrition and Health in September 2022.

More information: ProduceRX Clinical Trial.

[www.abstractsonline.com/pp8/? ... 71/presentation/8962](http://www.abstractsonline.com/pp8/?...71/presentation/8962)

Provided by American Heart Association

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