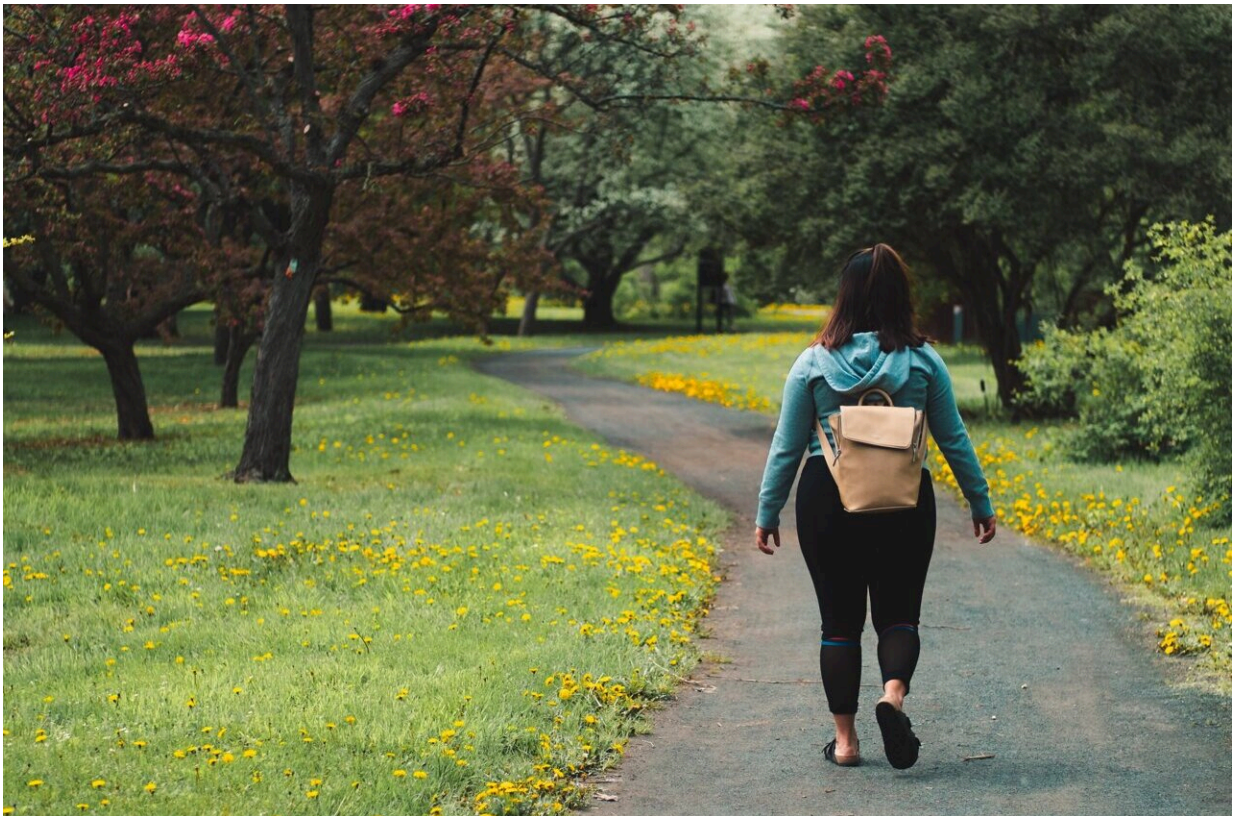


Walkable neighborhoods may pave way to less cardiovascular risk

October 31 2022



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Neighborhood walkability, a measure of how easy and safe it is to walk to reach resources for daily living, such as a grocery store, pharmacy, school, work and church, is associated with lower cardiovascular disease

burden and risk, according to two preliminary studies to be presented at the American Heart Association's Scientific Sessions 2022. The meeting, held in person in Chicago and virtually, Nov. 5-7, 2022, and is a premier global exchange of the latest scientific advancements, research and evidence-based clinical practice updates in cardiovascular science.

Cardiovascular disease is the number one cause of death in the U.S. and globally, according to the American Heart Association's [Heart Disease and Stroke Statistics—2022 Update](#). A key component for achieving optimal cardiovascular health and reducing [cardiovascular risk](#) is [physical activity](#), and less than 1 in 4 U.S. adults have reported achieving the recommended amount of [physical activity](#), according to the 2018 U.S. Department of Health and Human Services' [Physical Activity Guidelines for Americans](#). It recommends adults engage in at least 150 minutes a week of moderate-intensity activity or 75 minutes a week of vigorous-intensity aerobic physical activity for substantial health benefits. Physical activity is one of eight essential components of ideal heart and brain health, according to the American Heart Association's 2022 Presidential Advisory, [Life's Essential 8](#).

"When a person's environment is conducive to walking, there is a greater likelihood of engagement in physical activity such as walking," explained Elizabeth A. Jackson, M.D., M.P.H., FAHA, past chair of the American Heart Association's Committee on Social Determinants of Health.

"Ample data support the cardiovascular benefits of regular physical activity including walking, therefore, designing neighborhoods to be walkable may assist residents in improving their cardiovascular health."

Two new studies, by separate research groups, explored how more [walkable neighborhoods](#) may lower [cardiovascular disease](#) prevalence and [cardiovascular disease risk](#).

Neighborhood walkability and cardiovascular risk in

the United States (Abstract MP91)

In a nationwide study, more than 70,000 U.S. census tracts were analyzed to explore the potential association among neighborhood-level [walkability](#) and cardiovascular disease and cardiovascular disease risk factors.

"The way communities are designed is increasingly recognized to have an important role in cardiovascular disease and its risk factors," said study lead author Issam Motairek, M.D., a research associate at the University Hospital Cleveland Medical Center in Cleveland.

"Walkability is a neighborhood metric reflecting how easy it is to walk in that neighborhood. Whether walking to stores, jobs or local parks, a walkable neighborhood encourages people to be more physically active and helps them stay healthy."

Motairek and colleagues reviewed the Centers for Disease Control and Prevention's (CDC) PLACES dataset, which tracks the prevalence in the U.S. of coronary artery disease and cardiovascular risk factors, such as high blood pressure, high cholesterol, obesity and Type 2 diabetes by census tract. Researchers matched the health information from the PLACES database with data from a census tract walkability index from the Environmental Protection Agency's smart location database to categorize census tracts into four levels of walkability, from the least walkable to the most walkable.

The analysis found:

- Cardiovascular disease prevalence was notably lower, at 5.4%, in the most-walkable neighborhoods compared to 7% in the least-walkable neighborhoods.
- About 36% of adults living in the least-walkable neighborhoods had high blood pressure, high cholesterol or obesity, compared to

about 30% in the most-walkable neighborhoods.

- Type 2 diabetes prevalence was 11.6% in the least-walkable neighborhoods compared to 10.6% in the most-walkable neighborhoods.

"Assessing walkability for each neighborhood from least-walkable to most-walkable, we found that even after considering other factors, such as sex, age, race and social vulnerability of the neighborhood, walkability alone, was associated with about a 0.1% decrease in cardiovascular disease for each one-point increase in walkability score," Motairek said. "It's important that public health officials consider the health implications of urban designs that encourage walkability."

A limitation of this study is it relied on self-reported disease prevalence information from the PLACES data.

Co-authors with Motairek are Mohamed H.E. Makhoulf, M.D.; Khurram Nasir, M.D., M.S.; Salil V. Deo, M.D.; Sanjay Rajagopalan, M.D.; and Sadeer Al-Kindi, M.D.

Favorable neighborhood walkability is associated with lower burden of CV risk factors among patients within an integrated health system: Houston Methodist CVD Learning Health System Registry (Abstract SU3120)

In a study conducted only in Houston, researchers examined the city from the viewpoint of walkability, to examine if a more walkable environment is associated with cardiovascular disease risk factors, regardless of cardiovascular disease burden in a large, diverse population within a health system.

They evaluated health data for more than 900,000 adults (average age 52 years; 59% women; 15% Non-Hispanic Black adults; and 16% Hispanic adults) in the Houston Methodist Cardiovascular Disease Learning Health System Registry from 2016 to 2021. A numerical value was obtained for each neighborhood from the Walk Score, an index that measures the walkability of addresses. The Walk Score ranges were from 0-100, with higher scores representing addresses with better walkability. Walk scores were then categorized into four categories: car dependent for all errands (0-24); car dependent for most errands (25-49); somewhat walkable (50-69); and very walkable (70-100). Depending on the participant's zip code, each was assigned to one of the four walkability categories.

The relationship between neighborhood walkability and burden of cardiovascular risk were analyzed. Low cardiovascular health was defined as having three or more cardiovascular disease risk factors; average health as having one to two cardiovascular disease risk factors; and optimal [health](#) as adults who have no [cardiovascular disease risk factors](#). Cardiovascular disease risk factors considered in this study included [high blood pressure](#), smoking, high cholesterol, obesity and Type 2 diabetes.

The analysis found that for people without cardiovascular disease, living in a walkable neighborhood was associated with being twice as likely to have optimal cardiovascular risk factors, compared to people who live in a car-dependent neighborhood that scored as low walkability. Also, people with cardiovascular disease living in higher walkability areas had 58% higher odds of having an optimal cardiovascular risk profile, compared to people living in lower walkability areas.

"We found that living in a very walkable area may protect against cardiovascular [risk factors](#) among people who have cardiovascular disease and those who do not," said lead study author Omar M. Makram,

M.D., a postdoctoral fellow at Houston Methodist Hospital in Houston. "While analyzing this data, we were surprised to observe that almost half of the population in our registry lives in areas that ranked as the least walkable, completely car-dependent, neighborhoods," he said.

Researchers also call for policymakers to prioritize resources for building more walkable cities that offer close, walkable access to educational, retail, food, recreational and entertainment facilities, to encourage walking as a normal way to get around, according to Makram.

A limitation of this study is that it is a sample population of mostly outpatients who received care at one hospital care system in Houston, which may limit its generalizability to the U.S. population.

Co-authors with Makram are Nwabunie Nwana, Ph.D., M.P.H.; Charlie Nicolas, B.S.; Alan P. Pan, M.S.; Rakesh Gullapelli, M.S.; Budhaditya Bose, M.S.; Kobina Hagan, M.D., M.P.H.; Tarang Parekh, M.D.; Tamer Yahya, M.D.; Zulqarnain Javed, M.D., Ph.D.; Kershaw Patel, M.D.; Sadeer Al-Kindi, M.D.; Garima Sharma, M.D.; Stephen L. Jones, M.D.; Miguel Cainzos-Achirica, M.D., Ph.D., M.P.H.; Jay E. Maddock, Ph.D.; and Khurram Nasir, M.D., M.P.H., M.S.

More information: Abstract MP91: [www.abstractsonline.com/pp8/?& ... 1/presentation/15596](http://www.abstractsonline.com/pp8/?&...1/presentation/15596)

Abstract SU3120: [www.abstractsonline.com/pp8/?& ... 1/presentation/11274](http://www.abstractsonline.com/pp8/?&...1/presentation/11274)

Provided by American Heart Association

Citation: Walkable neighborhoods may pave way to less cardiovascular risk (2022, October 31)

retrieved 10 April 2024 from

<https://medicalxpress.com/news/2022-10-walkable-neighborhoods-pave-cardiovascular.html>

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