

# Nearly 1 in 3 Black adults may develop PAD: Disparities in care increase amputation risk

June 15 2023

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Low-cost, routine testing may help to reduce disparities and health care costs for people with peripheral artery disease (PAD), according to a new scientific statement from the American Heart Association,

published today in the journal *Circulation*.

The new scientific statement, "Health Disparities in Peripheral Artery Disease," reviews the latest research, outlines racial and ethnic disparities in PAD diagnosis and treatment, and offers potential solutions to reduce disparities and increase [health equity](#) among people with PAD.

Previous studies have found that PAD and its consequences disproportionately impact individuals who are Black, American Indian or Hispanic. These [demographic groups](#) experience both higher rates of PAD and worse PAD-related outcomes, such as disability, depression, coronary artery disease, cerebrovascular disease and/or limb amputation.

PAD is a narrowing of the arteries that carry blood to the extremities, often leading to reduced [blood supply](#) to the legs. It is the result of fatty plaque buildup in the arteries and causes pain, cramping or weakness in the legs and feet when walking. Approximately 1 in 10 people with PAD may develop chronic limb-threatening ischemia, where people experience pain even when resting, and they are at increased risk for limb amputation and death from cardiovascular disease.

In addition, people with PAD who also have type 2 diabetes have a higher rate of complications, including amputation, compared to people without type 2 diabetes. More than 12 million people in the U.S. and 200 million people worldwide have PAD, and the majority of people living with PAD are ages 40 and older.

The statement advises routine, low-cost preventive screening and monitoring for people with PAD that includes hemoglobin A1c testing (a measure of blood glucose as a 3-month average), ankle-brachial index measurements (a comparative test of blood pressure at the ankle vs. arm to monitor blood flow) and, for those with type 2 diabetes, foot exams to check for ulcerations and neuropathy.

"This debilitating condition has devastating outcomes such as major [limb amputation](#), which often leads to lower quality of life and increased disability, and results in social and [economic burden](#) for individuals and their families, and places an enormous financial burden on the [health care system](#)," said statement writing group member Carlos Mena-Hurtado, M.D, an associate professor of cardiology and director of vascular medicine at Yale New Haven Hospital and Yale University in New Haven, Connecticut. "High-risk patients should routinely receive low-cost preventive measures. Preventing problems before they occur may help to improve quality of life and reduce [health care costs](#) in the long run for people with PAD."

Some of the disparities identified in the statement include:

- Nearly 1 in 3 Black adults may develop PAD, compared to about 1 in 5 Hispanic or white adults.
- When seeking [medical care](#), Black adults are more likely to have more advanced PAD and are more likely to undergo leg or foot amputation in comparison to peers who are white adults.
- Compared to white adults, Black, Hispanic and American Indian adults experience lower survival rates and worse quality of life after amputation. People in these demographic groups are also less likely to use a prosthesis to regain the ability to walk and more likely to live in a nursing home.
- People from underrepresented racial and ethnic groups also have an increased risk of death after amputation, with the rate of death within five years ranging from 45%–60%, depending on the location of the amputation.
- Limited access to health care resources may play a role in differences in outcomes for patients with PAD. Underrepresented, rural and low-income adults are at greater risk of being uninsured and are more likely to seek care at a more advanced stage of the disease compared with white, urban and

higher-income adults, which increases the risk for amputation.

Mena-Hurtado added, "Even after controlling for traditional cardiovascular risk factors, we were surprised to find that higher PAD prevalence persists among Black adults. However, we now know that social determinants of health, such as access to nutritious foods, walkable neighborhoods and structural inequities, have a profound impact on an individual's health status."

## **Disparities in risk factors for PAD**

Smoking is the most important risk factor for PAD. According to the statement, people who are of American Indian and Alaska Native descent have higher rates of smoking than people from other racial and ethnic groups. Although smoking rates have decreased in the U.S. overall, the decline has been lower among Black and American Indian adults.

Other risk factors for PAD include type 2 diabetes, high blood pressure, high cholesterol and obesity. People who are Black or Hispanic have higher rates of obesity compared with white adults in the U.S. In addition, Black adults with PAD also have higher rates of type 2 diabetes, high blood pressure and chronic obstructive pulmonary disease (COPD) than white adults.

Differences in vascular health may also contribute to higher rates of PAD among Black adults. Social determinants of health have been linked to alterations in blood vessel function and increased blood vessel aging and stiffness, which, in turn, increase the risk of PAD. Several studies have found Black adults are more likely to have accelerated vascular aging, reduced endothelial function, increased arterial stiffness and elevated biomarkers of systemic inflammation, which are associated with an increased risk of cardiovascular disease.

## Potential solutions to reduce disparities

The statement suggests opportunities to reduce disparities in PAD care from three perspectives:

- a system-wide approach that integrates PAD screening into routine care;
- improving cultural competence and increasing diversity of clinicians and physicians; and
- improving community education and support programs.

The writing group suggests that emerging advances in telehealth appointments and remote patient monitoring may help to expand access to routine and preventive care. Broader implementation of telehealth and remote monitoring may help to reduce the disproportionately high number of amputations throughout the U.S., in general, and especially among people from diverse racial and ethnic groups.

Community health efforts aimed at increasing public awareness and knowledge about PAD may also help improve patient outcomes. As an example, the statement cites novel approaches to deliver health care and raise awareness among Black men, such as barbershop-based screening and follow-up. Studies have shown that community-based care and support programs are effective to lower blood pressure and raise awareness of PAD.

Quitting smoking, improving diet and exercise therapy are critical to reducing cardiovascular risk, mortality and amputation rates in people with PAD. Interventions that increase access to healthy foods, and ensure sensitivity to diverse cultural eating patterns may help to reduce hospital admissions and health care costs. Examples include programs that partner with food banks and implement community gardens.

For people with established PAD, medications to manage blood pressure, lower cholesterol and reduce blood clotting may be considered to reduce the risk of heart attack, stroke, amputation and cardiovascular death. Surgical revascularization procedures that restore blood flow in blocked arteries, such as lower extremity arterial bypass, were found to be less likely to be offered in certain regions of the U.S., especially among Black, Hispanic and American Indian populations. Greater access to these procedures and follow-up care may also help to reduce disparities.

"It is essential that [health](#) care professionals understand the disparities in PAD prevalence and outcomes in order to provide appropriate, evidence-based care and bridge the gaps in the treatment of this diverse patient population. Health care systems need to optimize cost-effective interventions at every step," Mena-Hurtado.

**More information:** Health Disparities in Peripheral Artery Disease: A Scientific Statement From the American Heart Association, *Circulation* (2023). [DOI: 10.1161/CIR.0000000000001153](https://doi.org/10.1161/CIR.0000000000001153)

Provided by American Heart Association

Citation: Nearly 1 in 3 Black adults may develop PAD: Disparities in care increase amputation risk (2023, June 15) retrieved 27 April 2024 from <https://medicalxpress.com/news/2023-06-black-adults-pad-disparities-amputation.html>

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