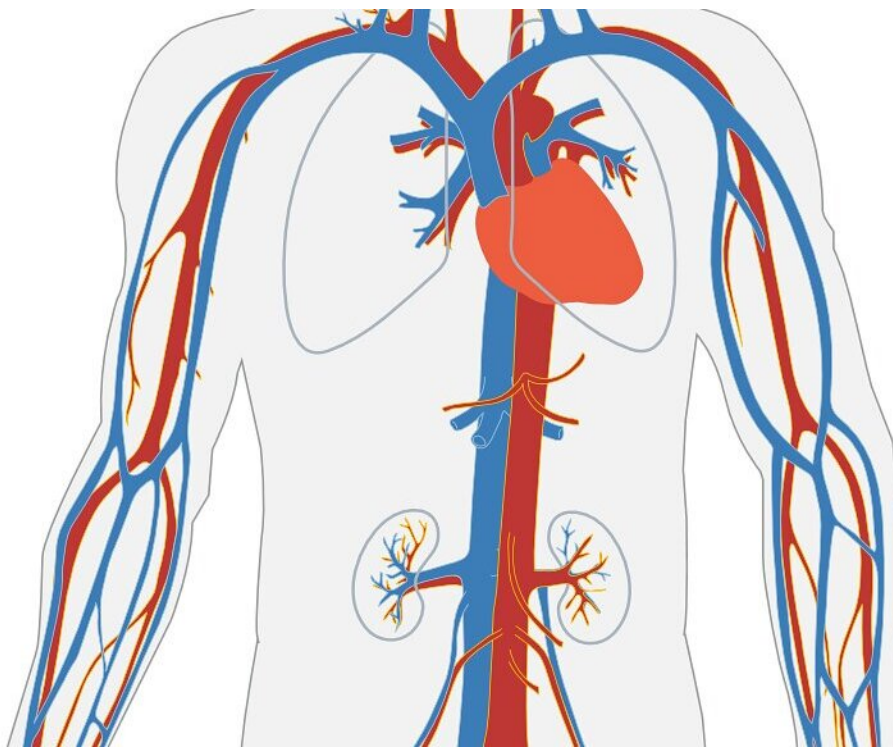


# Peripheral artery disease risk hinges on health factors and demographics, including race

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The lifetime risk of lower-extremity peripheral artery disease (PAD), in which leg arteries narrow abnormally, is about 30 percent for black men and 28 percent for black women, with lower but still-substantial risks for

Hispanics and whites, according to a study led by scientists at the Johns Hopkins Bloomberg School of Public Health.

According to the analysis, being a smoker, having diabetes, and also having a history of coronary heart disease or stroke increases the lifetime risk for PAD by as much as five times that of someone of the same race, age, and sex who doesn't have those risk factors. Importantly, race is another strong factor in PAD risk, contributing as much as some other health-related factors.

The study, published online September 10 in the *Journal of the American Heart Association*, is the first to have quantified the lifetime risk of PAD. The scientists analyzed existing [large datasets](#) that include records of PAD tests and determined that lifetime PAD risk varies considerably by race, sex, age, smoking status, and the presence of other diseases such as diabetes. From their analysis, the researchers developed a risk calculator for identifying [high-risk patients](#) who might benefit from PAD diagnostic screening.

"A key finding in our study is that blacks have a significantly higher PAD risk than whites and Hispanics, even though current clinical guidelines don't list race as a contributing factor," says study lead author Kunihiro Matsushita, MD, Ph.D., associate professor in the Department of Epidemiology at the Bloomberg School. "PAD clinical guidelines recommend considering the assessment of PAD among high-risk individuals, but our study highlights the importance of taking into account race in this context."

PAD involves a chronic reduction of blood flow of leg arteries, typically from atherosclerosis, a buildup of fats along arterial walls. If untreated, PAD can lead to leg pain, poor wound healing, and other more serious outcomes including leg amputation. The U.S. Centers for Disease Control and Prevention estimates that about 8.5 million people in the

U.S. have PAD, though about half have no symptoms. In general, there is little public awareness of PAD compared to the awareness of other vascular conditions such as coronary artery disease and stroke.

The datasets used by Matsushita and colleagues for their analysis came from six community-based cohorts in the U.S. and included 38,154 people. These included well known, long-running studies such as the Atherosclerosis Risk in Communities Study and the Framingham Heart Study. The health records in these datasets included a measurement called the ankle-brachial index (ABI), which is the systolic blood pressure at the ankle divided by the systolic pressure at the arm. An ABI of less than 0.9 is considered diagnostic for PAD.

Analyzing the data from these cohorts along with U.S. vital statistics on births, deaths and population, the researchers generated estimates for PAD lifetime risk by race and sex. Black men had the highest [lifetime risk](#) estimate at 30 percent, followed by almost 28 percent for [black women](#). Hispanic men and women had estimated lifetime PAD risks of about 22 percent, while for white men and women the figures were about 19 percent each. The analysis suggested that about 9 percent of blacks develop PAD by age 60, while whites and Hispanics take another decade on average to reach that level.

Matsushita and colleagues applied further analytical techniques to their datasets to come up with a "calculator" to estimate the chance that someone has PAD based on race, age, sex, and health-related risk factors. Health-related factors again appeared to have an outsized impact on this probability. For example, according to the data, a 45-year-old black man, non-smoking and without diabetes or a history of cardiovascular disease or stroke would have just a 1.2 percent chance of having PAD whereas a 45-year-old black man with all of those [risk factors](#) would have a 10.5 percent chance of having PAD.

"Our PAD risk calculator algorithm can be used to select patients for screening with ABI tests and to guide the selection of treatments based on risk," Matsushita says.

**More information:** Kunihiro Matsushita et al. Lifetime Risk of Lower-Extremity Peripheral Artery Disease Defined by Ankle-Brachial Index in the United States, *Journal of the American Heart Association* (2019). [DOI: 10.1161/JAHA.119.012177](https://doi.org/10.1161/JAHA.119.012177)

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