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AMERICAN COLLEGE OF PHYSICIANS
INTERNAL MEDICINE | Doctors for Adults

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ACP SPECIAL REPORT

Learning About Peripheral Artery Disease



What Is Peripheral Artery Disease?



Peripheral artery disease (PAD) is a form of atherosclerosis—the hardening and narrowing of the arteries, caused by the gradual buildup of fatty deposits and other substances. The term “PAD” includes all disorders that affect the arteries outside the heart. This pamphlet, however, will focus on the most common form of PAD, in which the flow of blood is restricted mainly in the arteries that lead to the legs.

Many people with PAD (often called PVD, or peripheral vascular disease) have no symptoms, but others have pain, for instance, in their legs while they walk. The pain goes away when they rest. Whether or not they have symptoms, people with clogged arteries often have damaged blood vessels in other parts of their bodies too, putting them at a higher risk for heart attack and stroke.

By working with your doctor, you can learn about your risks, how to reduce them through lifestyle changes and what to do when you have symptoms of PAD. Read on to learn more.

Talk to your doctor, use this guide, call **1-800-AHA-USA1** or go to **www.americanheart.org** or **www.vascularfoundation.com** to learn more about peripheral artery disease.

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Who Is Likely to Get It?

The risks for **peripheral artery disease** are similar to those associated with other cardiovascular diseases.

PAD affects 8 million to 12 million people in the United States, including 12 percent to 20 percent of those over age 65. By age 70, almost 20 percent of the population is affected. It occurs in both men and women.

Answering the questions at right will help you know if you are at risk. The more “yes” answers you have, the more important it is to see your doctor.



Are you at risk for PAD?

- Do you smoke?
- Do you have diabetes?
- Do you have high cholesterol?
- Do you have high blood pressure?
- Are you over age 50, with a history of smoking and/or diabetes?
- Are you over age 70?
- Do you have a family history of PAD, cardiovascular disease or stroke (immediate family such as parent, sister or brother)?
- Do you have muscle discomfort, cramping or pain in your legs when you walk that is always relieved by rest?
- Do you have any ulcers or sores on your legs or feet that are slow to heal?
- Do you have a history of coronary artery disease (a heart attack, angina, angioplasty or bypass surgery) or stroke?



What are the **SIGNS?**

Looking for Symptoms and Signs

Leg Pain or Discomfort

Common symptoms in people who have early-stage peripheral artery disease are cramping, fatigue, heaviness, pain or discomfort in the thighs, calves or hips during activity. Such leg muscle cramping is called “intermittent claudication” and always subsides when the activity stops.

Diagnosing PAD

Diagnosis of PAD begins with a medical history and physical exam. The doctor may detect weak pulses in the legs with a special “stethoscope” called a Doppler device. The doctor may order a Doppler ultrasound test, also known as ABI (ankle-brachial index), which uses sound waves to detect reduced blood flow in arteries; or a duplex ultrasound, magnetic resonance angiogram, CT angiogram or regular catheter-based angiogram, which can determine how narrow the artery is.

Lack of symptoms can keep PAD victims in the dark while the disease develops.

But many people with the disease have no symptoms at all, and only about a third have any leg symptoms. The disease often goes undiagnosed because of a lack of symptoms, especially during the early stages, or because people mistakenly think the symptoms are a normal part of aging or related to arthritis.

By the time many people feel leg discomfort or pain, the arteries may already be severely blocked. If you believe you may have PAD symptoms, ask your doctor to check your leg arteries.

Signs of Severe PAD

- Foot pain at rest
- Non-healing foot or toe wounds
- Gangrene



Stemming the Flow

When arteries narrow, lack of blood can starve the tissues surrounding them.

Arteries Thicken

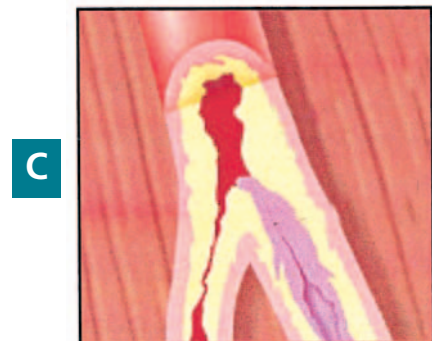
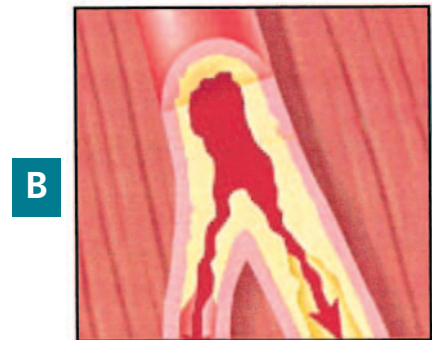
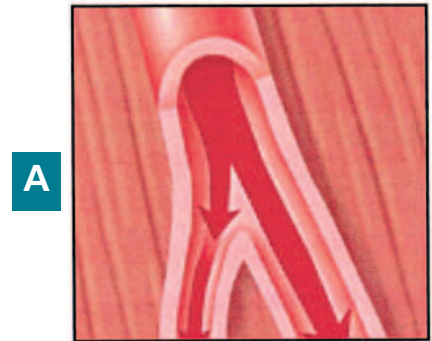
PAD is caused by a thickening of the walls of the arteries. These thickened areas, called plaques, create a condition called atherosclerosis, or hardening of the arteries. The space through which blood can flow becomes smaller, decreasing the supply of oxygen and nutrients to the leg muscles. This condition can cause damage to the tissues around the arteries.

Atherosclerosis

Atherosclerosis usually occurs when a person has high levels of cholesterol, a fat-like substance, in the blood. Other factors contributing to its cause include smoking, diabetes, high blood pressure and high blood cholesterol. Cholesterol and fat circulating in the blood can build up on the inside walls of the arteries. When the cholesterol level is high, the chance that it will be deposited onto artery walls is higher.

Tissue Death

Over time, the artery can become so narrow the person has pain at rest (B). When the artery becomes narrow enough or blocked (C), too little oxygen gets through and tissue death can set in, resulting in infection or gangrene, and possibly amputation.



Gaining Control

As in other artery-related diseases, lifestyle changes can go a long way toward preventing and treating PAD.



Not surprisingly, the steps taken to help prevent PAD are the same as those taken to control it.

Smoking

Smoking tobacco is a major risk factor for PAD. Smokers, on average, are diagnosed with PAD up to 10 years earlier than are non-smokers. Quitting smoking—or never starting—is the most important thing you can do to prevent PAD or slow it down.

Diabetes

People with diabetes may be more likely to develop vascular diseases. If you are diabetic, you should be under medical care. You also need to keep your blood pressure and cholesterol under tight control to avoid cardiovascular complications.

High Blood Pressure

High blood pressure is another condition that can damage the arteries. Blood pressure can often be reduced enough by diet and exercise. If this does not lower it adequately, medication can also be added. It is important to lower blood pressure if it is too high.

Exercise

Studies have shown that exercise produces significant increases in the distances PAD patients can walk without pain. Walking and regular leg exercises using a motorized treadmill three to four times a week, ideally in a program of supervised rehabilitation, are proven to be effective to decrease claudication symptoms.

Diet

Since people who have PAD usually have high cholesterol as well, a low-cholesterol, low-saturated-fat diet and other strategies to lower cholesterol should be adopted.

Talk to your doctor before undertaking any exercise or treatment program.

Taking Action

Most people with PAD will be able to be managed with risk factor modification, exercise and claudication medications.

Lifestyle, Medication

Your doctor may create a program that includes an exercise program and a low-saturated-fat, low-cholesterol diet. For those with claudication, a program of supervised exercise training typically consists of 30- to 45-minute sessions three to four times a week. This will help to increase the distance they can walk without discomfort or pain. Medications prescribed to help improve walking distance in patients with claudication include cilostazol and pentoxifylline. Other medications that may be prescribed include antiplatelet agents (including aspirin and clopidogrel) to reduce the risk of heart attack or stroke, and medicines to lower cholesterol or reduce high blood pressure.

For the minority of patients for whom lifestyle modification, an exercise program and medications are not enough, angioplasty or surgery may be warranted.



Angioplasty and Stents

Angioplasty is a procedure in which a thin tube—a catheter—with a balloon on the tip is inserted through the skin into the blocked artery and the balloon is inflated. The reopening of the artery allows the blood to flow. A stent is a tiny wire mesh cylinder that can be implanted into the clogged artery at the time of angioplasty using the catheter. The stent acts like a scaffolding and holds the artery open.

Surgery

Surgery may be necessary to treat severe narrowing of the arteries. A vein from another part of the body or a synthetic blood vessel is used to bypass the narrowed area of the artery.

For most people, exercise, medication and changes in lifestyle are enough to slow the progression and even improve the symptoms of PAD.

The American Heart Association spent about \$389 million during fiscal year 2001-02 on research support, public and professional education and community programs. The organization includes more than 22.5 million volunteers and supporters who carry out its mission in communities across the country. The association is the largest nonprofit voluntary health organization fighting heart disease, stroke and other cardiovascular diseases, which annually kill more than 931,000 Americans. For more information about heart disease and stroke, call **1-800-AHA-USA1** or visit **www.americanheart.org**.

What is the American College of Physicians?

The American College of Physicians (ACP) is the largest medical specialty society and second-largest physician group in the United States. Its membership includes more than 115,000 internal medicine physicians, related subspecialists, and medical students. Internists treat the majority of adults in the United States. ACP's mission is to enhance the quality and effectiveness of health care by fostering excellence and professionalism in the practice of medicine.

What is a doctor of internal medicine?

Doctors of internal medicine, often called “internists,” focus on adult medicine. They care for their patients for life—from the teen years through old age. Internists have had special training that focuses on the prevention and treatment of adult diseases. At least three of their seven or more years of training are dedicated to learning how to prevent, diagnose and treat diseases that affect adults. Some internists take additional training to “subspecialize” in one of 13 areas of internal medicine, such as cardiology or geriatrics. Internists are often called upon to act as consultants to other physicians to help solve puzzling diagnostic problems.



What's an “FACP”?

The letters “FACP” after a physician's name means he or she is a Fellow of the American College of Physicians, a mark of distinction for an internist. ACP Fellowship is an honorary designation that recognizes service and contributions to the practice of medicine—it says that the doctor is committed to providing the best health care possible.

Why choose an internist for your health care?

An internist, just like a family practice or general practice doctor, can serve as your primary care doctor. But internists are unique because they focus on adult medicine. Internists don't deliver babies, they don't treat children and they don't do surgery. They do, however, have wide-ranging knowledge of complex diseases that affect adults. With in-depth training in adult medicine, an internist is your best choice to help you navigate the increasingly complex world of medical care.

An internist can treat you for something as routine as the flu, or provide in-depth care for diseases such as diabetes, cancer or heart disease. Internists often coordinate the many subspecialists a patient might see in the process of treating an illness. Internists' patients like knowing that they have a relationship with a physician who is equipped to deal with whatever problem the patient brings—no matter how common or rare, or how simple or complex.

For more information about internists and internal medicine, visit www.doctorsforadults.com.

This Special Report courtesy of:

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