



What Is Peripheral Vascular Disease?

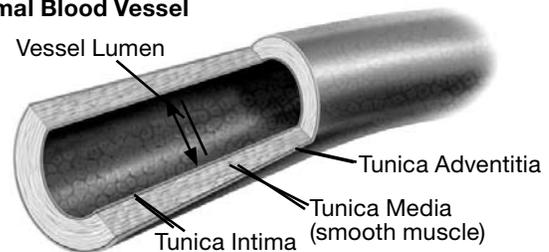
Peripheral vascular disease (PVD) refers to diseases of blood vessels outside the heart and brain. It's often a narrowing of vessels that carry blood to the legs, arms, stomach or kidneys.

There are two types of these circulation disorders:

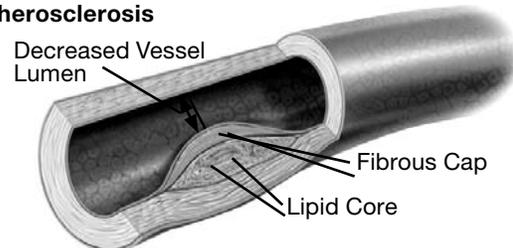
- **Functional** peripheral vascular diseases don't have an organic cause. That means they don't involve defects in blood vessels' structure. (The blood vessels aren't physically damaged in some way.) These diseases often have symptoms related to spasm that may come and go. Raynaud's disease is an example. In Raynaud's disease, restricted circulation can be triggered by cold temperatures, emotional stress, working with vibrating machinery or smoking.
- **Organic** peripheral vascular diseases are caused by structural changes in the blood vessels. Examples could include inflammation and tissue damage. Peripheral artery disease

(PAD) is a type of organic PVD. It's caused by fatty buildups (atherosclerosis) in the inner walls of arteries; these deposits block normal blood flow.

Normal Blood Vessel



Atherosclerosis



Is peripheral artery disease dangerous?

Yes. PAD is a condition similar to coronary artery disease and carotid artery disease. (Coronary artery disease is the name for fatty buildups in the arteries that supply the heart muscle with blood and nourishment. Carotid artery disease is the name for fatty buildups in the neck artery that brings blood to the brain.)

In PAD, fatty deposits build up in the inner lining of artery walls. These blockages restrict blood circulation, mainly in arteries leading to the

kidneys, stomach, arms, legs and feet. Left untreated, PAD can lead to gangrene and amputation of limbs. People with PAD often have fatty buildups in the arteries of the heart and brain, but PAD may be their first sign. Most people with PAD have a higher risk of death from stroke and heart attack. If a blood clot forms and blocks a narrowed artery to the heart, a heart attack results. If the clot blocks an artery to the brain, a stroke results.

What are the symptoms?

In its early stages, common symptoms of poor leg circulation are cramping, fatigue, heaviness, pain or discomfort in the legs and buttocks during activity. This usually subsides when the activity stops. It's called "intermittent claudication".

Symptoms of poor kidney circulation include sudden high blood pressure, or blood pressure that is hard or impossible to control with medications. Severe blockage of the kidney arteries may result in loss of kidney function or failure.

How is PAD diagnosed?

Diagnosing PAD begins with a medical history and physical exam. In the exam, your doctor can do a simple test called the ABI (ankle brachial index). After that, other tests may be done. They include:

- Doppler and duplex ultrasound imaging
- magnetic resonance angiogram (MRA)
- CT angiogram
- regular (catheter-based) angiogram

How is PAD treated?

Most people with PAD can be treated with lifestyle changes, medicines or both. Lifestyle changes to lower your risk include:

- Stop smoking. (Smokers are 2 to 25 times more likely to get PAD and experience symptoms of PAD 10 years earlier than nonsmokers.)
 - Control diabetes.
 - Control blood pressure.
 - Be physically active (including a supervised exercise program).
 - Eat a low-saturated-fat, low-cholesterol diet
- PAD may require drug treatment, including:
- Medicines (cilostazol and pentoxifylline) to help improve walking distance
 - Antiplatelet agents to keep the platelets from sticking together and triggering a blood clot
 - Cholesterol-lowering agents (statins)

Lifestyle modifications (including an exercise program) usually improve symptoms or keep them from getting worse. In a minority of patients, lifestyle changes alone aren't sufficient. Then angioplasty or surgery may be needed.

Angioplasty is a non-surgical procedure that widens narrowed or blocked arteries. A thin tube called a catheter with a deflated balloon on its tip is passed into the narrowed artery segment. Then the balloon is inflated. This pushes open the narrowed segment. Then the balloon is deflated and the catheter is withdrawn.

Often a stent — a wire mesh tube — is placed in the narrowed artery with a catheter. There the stent expands and locks open. It stays in that spot, keeping the diseased artery open.

If a long part of an artery is narrowed, surgery may be needed. A vein from another part of the body or a synthetic blood vessel is attached above and below the blocked area to detour blood around the blocked spot.

How can I learn more?

1. Talk to your doctor, nurse or other health-care professionals. If you have heart disease or have had a stroke, members of your family also may be at higher risk. It's very important for them to make changes now to lower their risk.
2. Call 1-800-AHA-USA1 (1-800-242-8721) or visit americanheart.org to learn more about heart disease.

3. For information on stroke, call 1-888-4-STROKE (1-888-478-7653) or visit StrokeAssociation.org.

We have many other fact sheets and educational booklets to help you make healthier choices to reduce your risk, manage disease or care for a loved one.

Knowledge is power, so *Learn and Live!*

Do you have questions or comments for your doctor?

Take a few minutes to write your own questions for the next time you see your healthcare provider. For example:

Should I be checked for PVD?

Your contribution to the American Heart Association supports research that helps make publications like this possible.

The statistics in this sheet were up to date at publication. For the latest statistics, see the *Heart Disease and Stroke Statistics Update* at americanheart.org/statistics.

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