



Focus on the Ankle-Brachial Index

What Is the ABI?

The **ankle-brachial index (ABI)** is a simple, low-cost test for diagnosing peripheral artery disease (PAD). You can get this test in a doctor's office or lab. The technician will measure the blood pressure in your arms and ankles using a **Doppler**—a pencil-shaped ultrasound device that creates sound waves, not X-rays. ABI exams are noninvasive. They do not use needles or catheters.

In addition to diagnosing PAD, the ABI exam can also:

- Show if PAD is getting worse
- Predict your risk of having a future heart attack or stroke
- Check how much plaque buildup (or **atherosclerosis**) is in your blood vessels
- Evaluate your risk for leg problems and if you'll need surgery or amputation

What Happens During the Exam?

1. You will be asked to lie down on your back.
2. The technician will put blood pressure cuffs around your ankles and arms.

3. They will inflate the cuffs above your normal **systolic blood pressure** (the top number on your blood pressure reading).
4. Once the cuffs deflate, the technician will measure your blood pressure using a Doppler instrument. They will record your arm and ankle systolic blood pressure numbers.
5. To calculate the ABI measurement for each leg, the technician will divide the highest ankle systolic pressure by the highest arm pressure.

If you have symptoms of PAD, you may be asked to walk on a treadmill or down the hallway after your first ABI test. Then, the technician will measure your ankle pressure again to see if it has changed.

How Reliable Is It?

The ABI test is very accurate for most patients, but not for all. For example, some people with long-term diabetes or kidney disease may have rigid, or hardened, blood vessels, which can affect test results. For those with rigid ankle blood vessels, toe pressure measurements may be taken

instead. Toe arteries are rarely rigid. This examination is called a **toe brachial index (TBI)**. The calculation is based on the systolic blood pressures of the arm and the systolic blood pressures of the toes. The TBI test is similar to the ABI, except that it uses an infrared light sensor and a very small blood pressure cuff placed around the toe. A TBI of 0.8 or greater is considered normal. Another test option is a leg arterial ultrasound.

Interpreting the ABI

The ABI range that is generally considered normal is 1.00 to 1.30.

> 1.30	Noncompressible
1.00–1.30	Normal
0.91–0.99	Borderline
0.41–0.90	Mild to moderate PAD
0.00–0.40	Severe PAD

For more information, review this related flyer:

- What Is Peripheral Artery Disease?

WHO IS AT RISK?

More than 9 million Americans are affected by PAD, but many do not know they have it. You may be at risk for PAD if you:



Smoke



Have high cholesterol



Have high blood pressure



Are older than 50 years old



Have a family history of heart disease



Have diabetes



Have pain in your legs when you walk that goes away with rest

About PAD

Peripheral artery disease (PAD) is sometimes also known as **peripheral vascular disease (PVD)**. In PAD, arteries slowly become narrowed or blocked due to plaque buildup and poor circulation. Poor circulation can be caused by:

- Age
- Smoking
- Medical conditions such as high blood pressure or diabetes

PAD is a problem because there isn't enough blood getting to the muscles in the legs. This can lead to leg pain and other serious issues. Individuals with the most severe blockages can develop skin ulcers, wounds that won't heal, or even gangrene.

What Are the Symptoms?

About half of individuals with PAD do not have symptoms. The most common symptom is a burning pain or ache in one or both legs that quickly goes away when you rest. It starts every time you walk about the same distance. This is known as **intermittent claudication**.

The leg pain can be so bad that you don't want to go on walks anymore. Some people will not have cramping or pain, but they might feel a numbness, weakness, or heaviness in the muscles instead.

What Are the Treatments?

While there is no cure for PAD, there are many ways to prevent the disease from getting worse.

Following a healthier lifestyle, being active every day, and taking medications can all decrease leg pain. Starting treatment right away can relieve discomfort and help avoid amputation. Good health practices—such as eating a healthy diet, exercising, and not smoking—will slow the progress of the disease. Walking specifically has been shown to reduce symptoms of PAD.

Treatment options vary and depend on your overall health and the severity of the disease. *If you think you have PAD, discuss your symptoms with your health care provider to see if an ABI test is right for you.*

For more information on lifestyle management and ways to manage PAD symptoms, visit: www.vascularcures.org.

Questions for Your Doctor



It is important to work closely with your health care provider about your diagnosis and treatment. You can bring this form with you to help talk to your medical provider about any questions and concerns you may have.

