



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?

