WHAT IS PERIPHERAL ARTERIAL DISEASE?

Peripheral Arterial Disease (PAD) is a serious condition that is associated with heart attack and stroke. PAD results in a narrowing of the arteries that carry blood to the legs and can cause discomfort while walking or standing. This narrowing in the leg arteries is caused by hardening of the arteries, also known as atherosclerosis.

Atherosclerosis develops over time as cholesterol, calcium and fibrous tissue (scar) form a substance called plaque that eventually clogs the arteries. In some cases, blood clots also form and attach themselves to the artery walls. Plaque build-up and blood clots restrict blood flow to the leg arteries. The presence of PAD also suggests that blockage in the arteries that feed the heart and brain may also be present.

Often, people will not experience any symptoms of PAD. However, their risk of suffering from heart attack and stroke is significant. Therefore it is important to be aware of PAD and seek treatment immediately if you believe you’re at risk.

HOW COMMON IS PAD?

Peripheral Arterial Disease affects about 10 million Americans and the number of new cases continues to rise each year. The disease impacts all people, although men are somewhat more likely than women to have PAD. Many people don’t know they have PAD, because its symptoms can be silent or suggestive of other disorders, like arthritis.

- One in 20 people over the age of 50 has PAD
- Only 2.5 million cases are diagnosed
- Half of those with symptoms of PAD seek treatment; only about 25 percent of individuals with PAD overall receive treatment
WHO IS AT RISK FOR PAD?

Some of the risk factors for PAD are:

- Diabetes mellitus
- Tobacco use
- High blood pressure
- High cholesterol
- Being overweight
- Family history of cardiovascular disease

You can minimize your risk of developing Peripheral Arterial Disease by making positive lifestyle adjustments that will also benefit your overall health.

You can help control your risk for Peripheral Arterial Disease by:

- Not smoking
- Managing diabetes mellitus properly
- Maintaining a healthy blood pressure
- Eating a healthy diet to decrease the risk of narrowed arteries
- Controlling your cholesterol level, especially low-density lipoprotein (LDL) cholesterol
- Maintaining a healthy weight
- Exercising regularly
There are risk factors for Peripheral Arterial Disease you can't control. You should be screened by a vascular specialist if you:

- Have a family history of atherosclerosis (artery blockage)
- Are over the age of 50
- Have a history of diabetes

**SIGNS AND SYMPTOMS OF PAD**

PAD is becoming more common, as Americans continue to age, gain weight, continue to smoke, and develop diabetes. Often it’s difficult to feel symptoms of arteries becoming narrowed and as a result, half of people don’t have the classic symptoms. Half experience leg discomfort while walking that disappears when they stop walking. Don’t just assume that leg pain, cramping or numbness is due to aging, arthritis or muscular problems. It may be a sign of Peripheral Arterial Disease.

If you have one or more risk factors or experience leg pain while walking, talk to your doctor immediately. The sooner you are diagnosed with PAD and begin treatment, the lower your risk for heart attack or stroke.

**Symptoms of PAD may include:**

- Leg or hip discomfort while walking, with the symptoms stopping while at rest

**Other symptoms of PAD may include:**

- Numbness, tingling or weakness in the legs
- Burning or aching pain in the feet or toes when at rest
• Sore on leg or foot that won’t heal
• Cold legs or feet
• Skin color change in legs or feet
• Hair loss on legs

**PAD DIAGNOSIS**

If your doctor suspects you may have Peripheral Arterial Disease, he or she will recommend that one or more tests be performed to confirm the diagnosis.

**Painless tests are performed by skilled clinical experts at the Massachusetts General Hospital Vascular Center. They include:**

**Ankle Brachial Index, or ABI** - an exam that uses a special stethoscope to measure blood pressure in the feet and arms. The ABI result will determine whether further tests are needed.

**Duplex Ultrasound** - an exam that uses high frequency ultrasound technology that show images of the body’s tissues. This allows doctors to measure real-time blood flow. Duplex ultrasound measures the speed of blood flow and its dynamics, including the presence of blockages and narrowed arteries.

**Pulse Volume Recording** - similar to a blood pressure test, but measures the volume of blood flow at different points on the legs. The test uses a blood pressure cuff to reveal information about arteries and the presence of plaque.
Magnetic Resonance Angiography (MRA) - an imaging test that utilizes the magnet waves of the MRI scanner to map the leg’s arteries.

CT Scan or CTA - a type of x-ray that shows body tissues, including arteries in 3-dimensional sections.

Arteriography - With dye that shows contrast, thin tubes called catheters are threaded through the arteries to create images that portray the location and severity of atherosclerosis in the arteries.
TREATMENT FOR PAD AT THE MASSACHUSETTS GENERAL HOSPITAL VASCULAR CENTER

OUR TEAM APPROACH TO CARE

The Massachusetts General Hospital Vascular Center has all the needed resources assembled in one place for the diagnosis, treatment and long-term management of Peripheral Arterial Disease. Expertise is available in all medical and surgical specialties for the successful treatment of patients. Treatment plans are created for each individual patient to ensure the best possible outcome.

It’s important to know that treatment for Peripheral Arterial Disease doesn’t stop with initial therapy. Since the risk for arterial disease in other parts of the vascular system is higher in these patients than in the general population, long-term management and medical follow-up is critical.

TREATMENT OPTIONS

Depending on the severity of the disease determined by specialists, a complete spectrum of treatment options is available to patients. The goal is to restore circulation to the limbs by minimizing the narrowing in the arteries.
Some treatment options include:

- Antithrombotic therapy, including platelet-blocking medications to help diminish blood clots. These may include aspirin and other prescription medications
- Anti-hypertensive medications to control blood pressure
- Cholesterol-lowering medications called statins
- Blood sugar controlling medications to control diabetes
- Tobacco cessation strategies
- Medications to improve walking distances
Minimally invasive and innovative surgical options are available and may be recommended by specialists.

They include the following:

- Angioplasty and stent placement, allowing specialists to restore blood flow to the blocked artery with a thin tube called a catheter. Angioplasty has been the gold standard in minimally invasive procedures to relieve clogged arteries.
  - Stents: A stent is a small metal mesh tube used to support the artery following angioplasty.
  - Atherectomy: Using a device that cuts away plaque from the inside of the artery.

In advanced cases, traditional surgical intervention is necessary to help restore patients’ health. Surgical options include:

- Bypass surgery that utilizes a vein in the leg to re-route blood flow around the diseased artery.
- Endarterectomy, complete removal of the plaque buildup in the blocked artery.
FOR MORE INFORMATION ABOUT PAD AND AVAILABLE TREATMENTS

For more information on Peripheral Arterial Disease and the Massachusetts General Hospital Vascular Center, call us at 877-MGH-8346 or visit our website at massgeneral.org/vascular center.

ABOUT THE MASSACHUSETTS GENERAL HOSPITAL VASCULAR CENTER

The Massachusetts General Hospital Vascular Center is a fully integrated, multi-specialty center of excellence created to provide comprehensive diagnosis and management of patients with vascular disorders.

The Vascular Center has assembled all the medical and surgical specialists in one place dedicated to the prevention, diagnosis, management and treatment of all types of vascular disease, including Peripheral Arterial Disease. The multidisciplinary center is comprised of seven clinical disciplines, including cardiology and vascular medicine, cardiac surgery, vascular and endovascular surgery, vascular radiology, neurology, neurosurgery and nephrology. The team closely collaborates to ensure that patients are provided with an unparalleled level of sophistication in managing the entire spectrum of vascular disease.