Peripheral Artery Disease (PAD)



Peripheral artery disease (PAD) refers to arterial disease that occurs outside of the heart or brain. In PAD, arteries become narrowed or blocked, usually as a result of atherosclerosis or plaque. It most commonly affects the arteries in the legs.

Vascular ultrasound, Doppler ultrasound, catheter angiography, CT angiography (CTA), or MR angiography (MRA) may be used to help evaluate your condition. Your doctor may recommend certain lifestyle changes to treat your condition. Bypass surgery or interventional procedures such as angioplasty, catheter-directed thrombolysis, atherectomy and /or stent placement may be used to help improve blood flow.

What is peripheral artery disease (PAD)?

Peripheral artery (http://www.radiologyinfo.org) disease, or PAD, refers to arterial disease that occurs outside of the heart or brain. In PAD, the arteries that carry oxygenated blood throughout the body become narrowed or even blocked, usually as a result of atherosclerosis (http://www.radiologyinfo.org) , or plaque (http://www.radiologyinfo.org) . PAD most commonly affects the arteries in the legs, but it also can involve arteries that carry blood to the head, arms, kidneys and gastrointestinal (GI) tract.

Many people with PAD have mild or no symptoms; others experience occasional claudication (http://www.radiologyinfo.org) , or leg pain when walking. The severity of intermittent claudication varies from mild to debilitating. Other PAD symptoms include sores or ulcers that don't heal and persistent coldness in the feet and lower legs.

Among the risk factors for PAD are diabetes, smoking, high cholesterol and high blood pressure. Most cases occur in people older than 50.

How is peripheral artery disease diagnosed and evaluated?

Several imaging tests can be used to diagnose PAD:

- Vascular ultrasound (https://www.radiologyinfo.org/en/info/vascularus) . This exam uses sound waves to create pictures of the arteries and locate blockages.
- Doppler ultrasound (http://www.radiologyinfo.org) : Doppler ultrasound is a special ultrasound technique that can help detect areas of restricted blood flow through an artery.
- Catheter angiography (https://www.radiologyinfo.org/en/info/angiocath) *:* This minimally invasive imaging exam relies on a contrast agent and x-rays to show blood flow in the arteries in the legs and to pinpoint any blockages that may be present. The contrast agent is injected through a tube or catheter that is usually placed through a blood vessel in the groin. *See the Radiation Safety (https://www.radiologyinfo.org/en/info/safety-radiation) page for more information about x-rays.*
- *CT angiography (CTA) (https://www.radiologyinfo.org/en/info/angioct) :* CT angiography uses a CT scanner to produce detailed views of the arteries in your abdomen, pelvis and legs. This test is particularly useful in patients with pacemakers (http://www.radiologyinfo.org) or stents (http://www.radiologyinfo.org) . *See the Radiation Safety (https://www.radiologyinfo.org/en/info/safety-radiation) page for more information about CT.*
- MR angiography (MRA) (https://www.radiologyinfo.org/en/info/angiomr) *:* MR angiography is a noninvasive test that gives

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information similar to that of a CT without the ionizing radiation. *See the MRI Safety page (https://www.radiologyinfo.org/en/info/safety-mr) for more information about MRI.*

How is peripheral artery disease treated?

Lifestyle changes such as dietary modifications, exercise and smoking cessation often are the first choices for patients with early-stage PAD. Other interventions may be needed to restore blood flow:

- Angioplasty/stent placement (http://www.radiologyinfo.org) : In an angioplasty procedure, an interventional radiologist threads a catheter through a blood vessel to the affected artery and inflates a small balloon to reopen it. In some cases, the insertion of a stent is required to help keep the artery open. Stents are either balloon-expandable or self-expanding metallic scaffolds that remain permanently in the blood vessel after implantation.
- Bypass surgery: Surgeons perform bypass surgery by grafting a vessel from another part of your body or using a synthetic graft made of fabric, allowing blood to flow around, or bypass, the blocked or narrowed artery.
- Catheter-directed Thrombolysis (https://www.radiologyinfo.org/en/info/thrombo) *:* In this minimally invasive treatment, an interventional radiologist uses a catheter to reach the site of the blockage and injects a drug to dissolve the blood clot. This typically requires an overnight infusion.
- Atherectomy (http://www.radiologyinfo.org) : This minimally invasive procedure uses a catheter to reach the site of the blockage. There, a small blade or laser is deployed to remove the arterial plaque. The catheter captures the collected plaque in a chamber in the tip. The process can be repeated to treat additional plaque.

Which test, procedure or treatment is best for me?

- *Lower Extremity Arterial Revascularization—Post-Therapy Imaging (https://www.radiologyinfo.org/en/info/acs-lower-extremity-arterial-revascularization)*
- *Nonatherosclerotic Peripheral Artery Disease (https://www.radiologyinfo.org/en/info/acs-nonatherosclerotic-pad)*

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