Intercoastal Medical Group Podiatry

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Peripheral Arterial Disease (PAD)

What Is Peripheral Arterial Disease?

Commonly referred to as poor circulation, Peripheral Arterial Disease (PAD) is the restriction of blood flow in the arteries of the leg. When arteries become narrowed by plaque (the accumulation of cholesterol and other materials on the walls of the arteries), the oxygen-rich blood flowing through the arteries cannot reach the legs, feet, and toes. The presence of PAD may be an indication of more widespread arterial disease in the body that can affect the brain, causing stroke, or the heart, causing a heart attack.

Signs & Symptoms

Most people have no symptoms during the early stages of PAD. Often, by the time symptoms are noticed, the arteries are already significantly blocked. Common symptoms of PAD include:

- Leg pain (cramping) occurring while walking (claudication)
- Leg pain (cramping) occurring while lying down (rest pain)
- Leg numbness or weakness
- Cold legs or feet
- Sores or wounds that will not heal on toes, feet or legs
- A change in leg color (pale, purple/blue, or even black)
- Loss of hair on the feet and legs
- Changes in toenail color and thickness

Risk Factors

Because only half of those with PAD actually experience symptoms, it is important that people with known risk factors be screened or tested for PAD. The risk factors include:

- Being over age 50
- Smoking (currently or previously)
- Diabetes
- High blood pressure
- High cholesterol
- Personal or family history of PAD, heart disease, heart attack or stroke
- Sedentary lifestyle (infrequent or no exercise)

PAD Diagnosis

To diagnose PAD, the foot and ankle surgeon obtains a comprehensive medical history of the patient. The surgeon performs a lower extremity physical examination that includes evaluation of pulses, skin condition and foot deformities to determine the patient's risk for PAD. If risk factors are present, the foot and ankle surgeon may order further tests.

Several noninvasive tests are available to assess PAD. The ankle-brachial index (ABI) is a simple test in which blood pressure is measured and compared at the arm and ankle levels. An abnormal ABI is a reliable indicator of underlying PAD and may prompt the foot and ankle surgeon to refer the patient to a vascular specialist for additional testing and treatment as necessary.

General Treatment of PAD

Treatment for PAD involves lifestyle changes, medication and, in some cases, surgery.

- **Lifestyle changes.** These include **smoking cessation**, **regular exercise**, weight loss, and a heart-healthy diet.
- **Medications.** Medicines may be used to improve blood flow, help prevent blood clots or control blood pressure, cholesterol and blood glucose levels. Physicians may use ACE inhibitors, anti-platelets, & lipid lowering medications.
- **Surgery.** In some patients, small incision (endovascular) procedures or open (bypass) surgery of the leg are needed to improve blood flow.

PAD & Foot Problems

Simple foot deformities (hammertoes, bunions, bony prominences) or dermatologic conditions, such as ingrown or thickened fungal nails, often become more serious concerns when PAD is present. Because the legs and feet of someone with PAD do not have normal blood flow—and because blood is necessary for healing—seemingly small problems, such as cuts, blisters or sores, can result in serious complications.

Having both diabetes and PAD further increases the potential for foot complications. People living with diabetes often have neuropathy (nerve damage that can cause numbness in the feet), so they do not feel pain when foot problems occur. When neuropathy occurs in people with PAD, ulcers can develop over foot deformities and may never heal. For this reason, PAD and diabetes are common causes of foot or leg amputations in the United States.

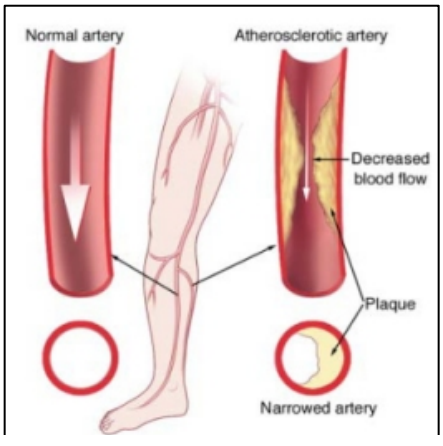
Once detected, PAD may be corrected or at least improved. The foot and ankle surgeon can then correct the underlying foot deformity to prevent future problems should the circulation become seriously restricted again.

Avoiding PAD Complications

Getting regular foot exams—as well as seeking immediate help when you notice changes in the feet—can keep small problems from worsening. PAD requires ongoing attention.

To avoid complications, people with this disease should follow these precautions:

- Wash your feet daily. Use warm (not hot) water and a mild soap. Dry your feet—including between the toes—gently and well.
- Keep the skin soft. For dry skin, apply a thin coat of lotion that does not contain alcohol. Apply over the top and bottom of your feet but not between the toes.
- Trim toenails straight across and file the edges. Keep edges rounded to avoid ingrown toenails, which can cause infections.
- Always wear shoes and socks. To avoid cuts and abrasions, never go barefoot—even indoors.
- Choose the right shoes and socks. When buying new shoes, have an expert make sure they fit well. At first, wear them for just a few hours daily to help prevent blisters and examine the feet afterward to check for areas of irritation. Wear seamless socks to avoid getting sores.
- Check your feet every day. Check all over for sores, cuts, bruises, breaks in the skin, rashes, corns, calluses, blisters, red spots, swelling, ingrown toenails, toenail infections or pain.
- Call your foot and ankle surgeon. If you develop any of the above problems, seek professional help immediately. Do not try to take care of cuts, sores or infections yourself.



The image on the left shows a normal artery. The right shows an artery narrowed by atherosclerosis, causing PAD.

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PAD: Home-Based Exercise Program

Overview:

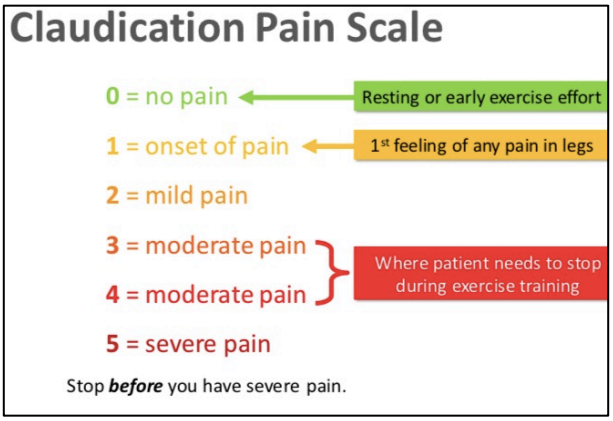
- Exercise training involves **intermittent periods** of walking to achieve **moderate claudication**, which are alternated with periods of rest.
- Successful programs advised patients to walk for exercise **3 to 5 times per week** for **12 weeks**.
- Set goals for walking exercise and use an exercise logs to facilitate self-monitoring.
- Start with as little as 10 minutes of walking exercise per session and increasing walking exercise per session by ≈5 minutes per week until you are walking for exercise **30 to 60 minutes per session** (excluding rest periods).

Warm Up:

- Easy/light movement that prepares muscles for aerobic and/or weight training exercise.

Treadmill Based Instructions:

- Begin at an initial speed (at least 2mph) and incline that brings on claudication (calf pain/cramp) within 2–5 minutes.
- **DO NOT STOP** until you reach **moderate intensity pain** and resume only when pain has completely subsided.
- Continually repeat process for total time of **30 to 60 minutes per session** (excluding rest periods).
- Make **progressive increases** in speed and incline over time as walking duration improves.
    - If you are already walking at 2.2 – 2.5 mph then increase the incline



Cool Down:

- Similar to the warm up; light movement to help bring your heart rate (HR) back to its resting level.

Who & When to Call:

If you have any of these symptoms before or during exercise, stop exercise immediately and contact your physician:

- Chest pain
- Shortness of breath
- Lightheadedness, or
- Anything that feels different than usual.

Always follow the advice of your provider (doctor/nurse practitioner/physician assistant). Instructions above are general and should only be done with their approval.