What is PAD?
A build up of plaque and resulting stenosis in the arteries which reduces blood flow to the limbs. Blood flow to the region cannot keep up with demand and will cause symptoms such as intermittent claudication, or leg pain triggered by activity. It is typically a sign of more widespread atherosclerosis which can be an even more serious problem.

Some facts:
- Affects 1 in 20 Americans over the age of 50
- 12-20% of Americans age 65 and older
- After age 50 the risk increases greatly

Symptoms
The most common symptom is pain or cramping in the arms or legs with activity such as walking, which disappears after cessation of activity. The pain will be in the area with the most restricted blood flow, commonly the calves.

Other symptoms to look for:
- Leg numbness or weakness
- Decreased temperature in one leg or foot
- Sore on toes or feet that won’t heal – due to decreased nutrition to the area and decreased ability to fight infections
- Change in pigmentation in the legs or feet
- Hair loss on lower legs
- Slow toenail growth
- Diminished or absent pulse in legs or feet

About 20% of all patients with PAD do not have symptoms
Risk Factors

• High Blood Pressure
• Over age 70
• Elevated LDLs or reduced HDLs
• Diabetes
• Cigarette Smoking – increases risk up to 4 times!
• Obesity

• Physical Inactivity
• Male
• Elevated homocysteine, an amino acid in the blood
• Family history of premature atherosclerotic disease

How is it Diagnosed?

• **Ankle-Brachial Index**
  ○ Compares blood pressure in the feet to the blood pressure in the arms

• **Doppler and Ultrasound imaging**
  ○ Looks at blood flow in the major arteries and veins in the limbs. A handheld device is placed on your body and passed back and forth over the affected area. A computer converts sound waves into a picture of blood flow in the arteries and veins. Can show whether a blood vessel is blocked and help show the severity of P.A.D.

• **CT Angiography**
  ○ Non-invasive, looks at arteries in abdomen, pelvis and legs, good for patients with pacemakers or stents.

• **Magnetic Resonance Angiography**
  ○ Non-invasive. Uses magnetic and radio wave energy to take pictures of your blood vessels. Can show the location and severity of a blocked blood vessel. If you have a pacemaker, man-made joint, stent, surgical clips, mechanical heart valve, or other metallic devices in your body, you might not be able to have an MRA.

• **Angiography/Arteriogram**
  ○ Used to find the exact location of a blocked artery. Dye is injected through a catheter into an artery and an x ray is taken, which can show the location, type, and extent of the blockage in the artery. A newer method of arteriogram uses tiny ultrasound cameras that take pictures of the insides of the blood vessels and is called intravascular ultrasound.

Treatment Options:
Focused on slowing or stopping the disease process and decreasing the risk of complications.

• **Bypass Grafting**
  ○ Typically used when blood flow is blocked or nearly blocked. A healthy blood vessel is taken from another area of the body to bypass the diseased artery and increase blood flow to the affected limb.

• **Angioplasty and Stenting**
A balloon is inflated within the artery to push the build up of plaque outward against the artery walls and increase area for blood flow. A stent coated in medicine is then typically placed to keep the artery open after the angioplasty.

- **Atherectomy/Endarterectomy**
  - Removes plaque build-up from the artery. Done with either a small cutting device or a laser that dissolves the build-up.

- **Physical Therapy**
  - A comprehensive outpatient cardiac rehabilitation program will be approximately 36 sessions (3x/week for 12 weeks).
  - A supervised prescription exercise program consisting of interval-training has been proven effective in the distance a patient can walk without pain.
  - Education on lifestyle modifications, including incorporating a healthier diet, stopping smoking and exercising on a regular basis.

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**References:**


