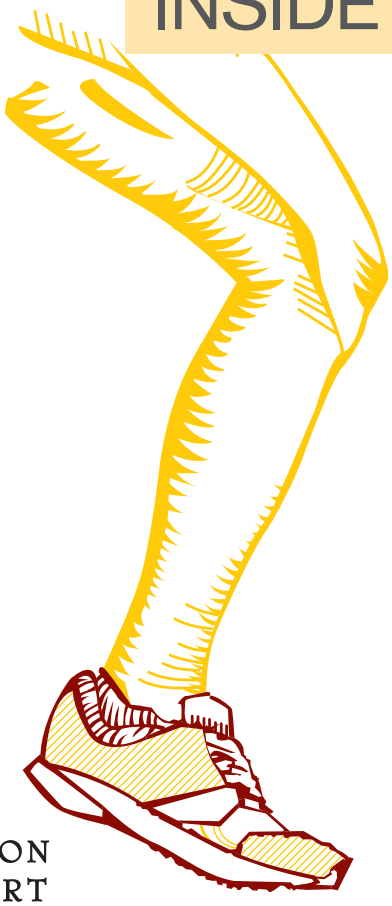
WHAT IS PAD?

PERIPHERAL ARTERY DISEASE

Questions & ANSWERS INSIDE



JACKSON HEART

Be Informed.

This brochure has been developed by Jackson Heart Clinic to help you understand **Peripheral Artery Disease (PAD).** The cardiologists and staff know that as an informed patient, you can better participate in decisions that impact your health care. Working together, we can better diagnose problems and start treatments that will prevent serious complications.

Peripheral Artery Disease (PAD)

What is it?

To understand **Peripheral Artery Disease** or **PAD**, it is important to remember how much we depend on the cardiovascular system to support life. This system consists of the heart and the blood vessels. The **heart** is the pump that keeps the blood moving throughout the body. The **blood vessels** are the pipes that carry the blood to and from the heart. **Arteries** carry blood away from the heart. **Veins** carry blood back to the heart. The whole purpose of this system is to carry fresh blood that is full of oxygen and nutrients to the entire body. It then brings oxygen-depleted blood back to the lungs to start the cycle all over again.

When your circulation is impaired for any reason, your body simply cannot get the oxygen and nourishment that it needs.

Peripheral Vascular Disease (PVD) is a broad term that describes any disease or disorder of the blood vessels that are outside of the heart. There are many types of PVD. The focus of this brochure will be to discuss Peripheral Artery Disease (PAD).

Peripheral Artery Disease (PAD) is a narrowing of the peripheral arteries that bring blood to the body. It is a very common problem affecting one of every twenty Americans over the age of 50. Up to 75% of patients that have PAD will have no symptoms. The diagnosis of PAD also increases the likelihood of a heart attack or stroke.

Research shows that people are not well informed about PAD. It is increasingly common among our patient population. Women, in particular, are increasingly diagnosed with PAD. This parallels the increase rates of obesity among women.

Up to eight million people are affected by PAD. Many times patients have minimal symptoms. Unfortunately, the disease may lead to loss of limb, life, or cause significant disability, such as having a stroke, if it is not detected and treated in a timely manner.

-William H. Crowder, M.D.

Why is it important to know if I have PAD?

PAD can cause significant problems by itself, but it can also be a sign of more extensive cardiovascular disease that could increase your risk of a heart attack or stroke.

According to research, 50–75% of people with PAD are undiagnosed.

-J. Gray Bennett, M.D.

Is PAD dangerous?

If PAD is not treated it can become dangerous and even become life-threatening. Disease of blood vessels leading to the brain can cause stroke. Blockage in the blood vessels to the limbs can cause significant pain and lifestyle limitations. It ultimately can lead to amputation. Tissue without adequate blood flow can die.

The good news is that PAD can be managed or even reversed with proper care! That is why it is vitally important to understand the disease process and have an adequate diagnosis.

What causes PAD?

Atherosclerosis is the main cause of peripheral vascular disease. Atherosclerosis is the build-up of plaque in blood vessels. This causes the opening in the blood vessels to become progressively narrowed until the blood has difficulty passing. They may become completely blocked resulting in severe limitations of blood flow. These severe blockages are often the cause of a heart attack, stroke, and limb loss.

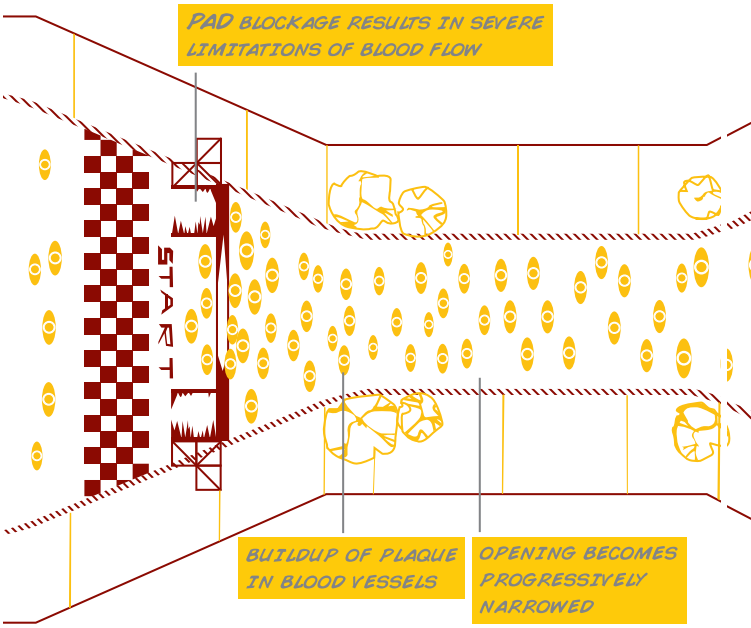
Other less common causes of PAD include injury, an irregular anatomy (abnormal structure) of muscles or ligaments, infection, previous radiation exposure, various connective tissue disorders, and aneurysm. All of these can damage vessels or disrupt blood supply.

What are the symptoms of PAD?

Many people do not have any symptoms related to PAD. Those that do, however, most commonly experience pain in the affected extremity. We mostly think about the lower extremities, but this can also affect the hands and arms. Pain can be associated with a tired, weak, heavy, or numb feeling. In severe cases the pain may be ongoing and occur at rest. Tissue lacking blood flow may develop wounds and ulcers. This can lead to amputation. Pain can be minor to severe.

> Symptomatic PAD carries with it a 5 year mortality rate of 30%.
>
> -J. Gray Bennett, M.D.

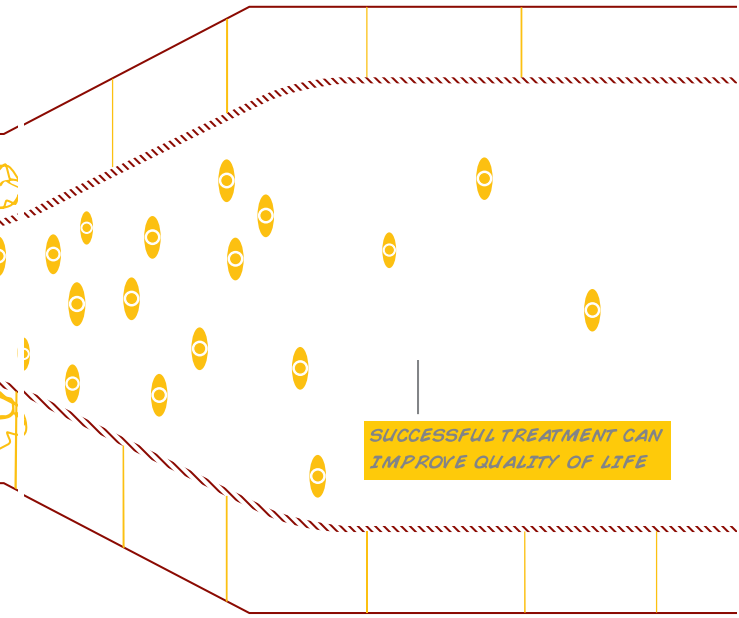
Claudication is pain that occurs in the buttocks, thigh, or calf of the leg with exercise and typically goes away within five minutes after exercise is stopped. The pain may occur off and on, like cramps (intermittent claudication). This is usually a classic symptom associated with PAD of the lower extremities.



Other symptoms of PAD may include:

- Skin changes: cooler skin temperature or thin, shiny skin on legs or feet
- Changes in pulse: weaker pulses in legs and feet
- Hair loss on legs
- Loss of leg muscle mass
- Erectile dysfunction in men (sexual function impaired from lack of blood flow)
- Slow healing or non-healing of wounds
- Sores on heels or ankles or other pressure areas that do not heal
- Gangrene (death of tissue due to lack of blood flow)
- Pain, aching or burning in toes when at rest or when lying flat
- Toenails that are thick and opaque or toenails that are growing more slowly
- Difficulty moving

> Peripheral artery disease doesn't always present with leg pain. Sometimes it may be associated with numbness and coolness of an extremity. Sometimes the first sign of PAD is an ulceration or wound on the ankle or foot that doesn't heal in a timely fashion.
>
> -William H. Crowder, M.D.



How is PAD diagnosed?

Ankle-Brachial Index (ABI): This is a noninvasive test that involves the use of blood pressure measurements to determine blood flow and pressure differences between the arms and legs. The pressures are supposed to be the same in your arms and legs. If the leg pressure is a lot less, it means that there may be a blockage in the arteries of the legs.

> An abnormal ABI (screening) is more indicative of possible heart attack and stroke than an abnormal EKG.
>
> -William H. Crowder, M.D.

Doppler/ultrasound studies: This noninvasive exam measures blood flow within blood vessels, tissues, and organs by looking directly at the vessels with an ultrasound probe. It can directly visualize the blockage or more commonly, estimate blockage based on the speed in which blood is flowing through a vessel.

Angiograms and Computed Tomographic Angiography (CTA): An angiogram involves injecting a dye into an artery and then taking X-rays that will show whether or not there is a blockage or a narrowing. CTA can be used to examine any arterial system in a noninvasive way. The direct angiograms involve placing a tube directly into the artery to be studied.

What are the treatments for PAD?

The first and foremost treatment for any vascular disease is modification of existing risk factors.

What are the risk factors?

- Age: Those over 50 are at greater risk
- Personal history of heart disease
- Diabetes mellitus (medically controlled or requiring insulin)
- Smoking or tobacco use of any kind

> Diabetics are four times more likely to have PAD. This is increased even more for those who have a history of smoking.
>
> -J. Gray Bennett, M.D.

- Family history of PAD
- Family history of cardiovascular disease
- High blood pressure
- High cholesterol levels

Your cardiologist will address your risk factors and will develop a treatment plan especially designed for you. Risk factors can be reduced by making lifestyle changes. However, often a medication will be needed to reduce levels of cholesterol and help keep the blood flowing. If you need help with these changes, your cardiologist will offer more detail and support. In addition to slowing the progression of the disease, treatment is also aimed at lowering your risk of a heart attack, stroke and other serious complications of vascular disease.

The treatment recommended by your cardiologist depends on your age and overall health, the severity of your PAD, and most importantly, the symptoms that you are suffering from.

Treatment of PAD may include one or more of the following:

1. Lifestyle changes: Symptoms of PAD will often decrease with certain life style changes. When such changes are made, it may also keep the disease from becoming worse.

- **If you smoke, quit!** Blood vessels constrict when any type of nicotine is used. Blood vessels that are dysfunctional are more likely to develop blockage. If you need help with this, ask your doctor for recommendations.
- **Exercise:** Since a major symptom of PAD is pain during exercise, a gradual improvement is a great goal. Exercise is a major part of treatment since it conditions muscles toward better use of oxygen. An exercise or rehabilitation plan may be ordered by your cardiologist to improve your symptoms of PAD.
- **Your diet:** A heart-healthy diet that is low in saturated fat and high in essential nutrients can help slow down the progress of PAD. If started young in life it can even act to prevent PAD. Your cardiologist can provide additional information about a healthy diet.
- **Weight loss:** If you need to lose weight, the heart-healthy diet and exercise program will help significantly.

The same risk factors associated with heart disease (diabetes, smoking, family history, etc.) are also associated with the development of PAD. And, modification of risk factors is always an important first step in the treatment of PAD.

- William H. Crowder, M.D.

2. Medication: Your cardiologist may prescribe different types of medications for:

- Treatment of hypertension
- Treatment of high cholesterol
- Treatment of claudication

Treating PAD can increase a patient's quality of life and functional status and possibly reduce his/her risk of death.

- J. Gray Bennett, M.D.

3. Revascularization & surgery:

Percutaneous intervention (PCI): The goal of PCI is to improve the flow of blood within a blood vessel in a minimally invasive manner. This is done by inserting a catheter in the artery to be treated and then threading an instrument into the narrowed blood vessel. Angioplasty opens the vessel by inflating and deflating a tiny balloon. Atherectomy involves removal of the atherosclerotic plaque from the body. Stenting involves the insertion of a tiny wire mesh expandable tube (stent) that helps to prop open a blockage.

Generally, surgery is not needed to treat PAD, except in very advanced cases. Surgery to improve blood flow is commonly known as a bypass and involves taking a graft (usually a vein or sometimes an artificial tissue) and using it to literally bypass a blocked blood vessel. The cardiologist considers many different options before recommending a procedure.

Patients can have a dramatic improvement in their quality of life with revascularization therapy.

- J. Gray Bennett, M.D.

Foot care… A must for those with PAD!

Those with PAD must be especially careful about caring for their feet. When circulation in your feet is poor, you are more prone to infection and sores that do not heal well. Good foot care can prevent complications like gangrene and amputation.

Tips for foot care include:

- Washing and drying feet carefully, daily.
- Moisturizing after washing and drying can help prevent drying and cracking of skin, but avoid moisturizing between toes to avoid fungal growth.
- Making sure shoes fit well and are worn with thick, dry socks.
- If you have a fungus, sore, injury or signs of infection, seek treatment right away.
- Caution should be used when trimming toenails, to avoid cuts.
- Avoid going barefoot.
- Ask your cardiologist for a referral to a podiatrist (foot doctor) if you have bunions, corns or calluses that need attention.

Remember these important facts!

- Symptoms of PAD are often mistaken for something else.
- PAD is under diagnosed by healthcare professionals.
- If you have PAD, your risk of heart attack or stroke is four to five times greater than those who do not have this problem.
- Don't underestimate the importance of treatment! Untreated PAD can lead to gangrene and amputation.
- You can reduce your risk! Take control with a healthy lifestyle; taking prescribed medications if needed and following the advice of your cardiologist.
- Spread the word! If you have PAD, blood relatives are at higher risk of having PAD.
- PAD can be diagnosed easily through simple painless tests.
- Call your doctor if you see signs of worsening circulation, such as cooler, pale skin, numbness, or severe pain.

In Summary

This brochure has provided thorough information about PAD symptoms, diagnosis, and treatment. Although PAD can be serious and even life-threatening, it can be treated so that your symptoms are manageable and the progress of the disease lessened. With your new knowledge of the problem, you can work with your cardiologist at Jackson Heart Clinic to develop a plan that works best for you and your unique needs. It is our goal for you to have the highest possible level of cardiovascular health!

Patient Resources:

Explore these resources for more information about PAD.

American Heart Association (Local)
4830 McWillie Circle Jackson, MS 39206 Phone: (601) 321-1200
Fax: (601) 321-1201

American Heart Association (National)
Customer Service
1-800-AHA-USA-1
1-800-242-8721
www.heart.org/pad

Center for Disease Control (CDC)
Division for Heart Disease and Stroke Prevention

For Peripheral Artery Disease Fact Sheet
http://www.cdc.gov/DHDSP/data_statistics/fact_sheets/fs_PAD.htm

For General information: cdcinfo@cdc.gov
CDC/NCCDPHP/DHDSP 4770 Buford Hwy, NE Mail Stop F-72
Atlanta, GA 30341-3717
Call: 800-CDC-INFO Fax: 770-488-8151

American College of Cardiology: Cardio smart
www.cardiosmart.org
http://assets.cardiosource.com/cardiosmart/csp/english/zx1311.pdf

National Institutes of Health
National Heart, Lung, and Blood Institute, National Institutes of Health – NHLBI At this website you will find links to information about every aspect of PAD. You can also write or call for hard copy of the information.
nhlbiinfo@nhlbi.nih.gov www.nhlbi.nih.gov/

Other Contact Information: Building 31, Room 5A52,
31 Center Drive MSC 2486 Bethesda, MD 20892-2470
301-592-8573 (Voice, Information Center)
301-592-8563 (FAX, Information Center)

The P.A.D. Coalition:
This site is provided by an alliance of leading health organizations, vascular professional societies and government agencies to raise awareness of PAD. It offers many resources.

PAD Coalition
c/o Vascular Disease Foundation 8206 Leesburg Pike Suite 301
Vienna, VA 22182 888.833.4463

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