



PATIENT GUIDE

Peripheral Arterial Disease



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People take better care of their health when they know what's going on in their bodies. For those with peripheral arterial occlusive disease, this means understanding how the arteries work and what happens when disease affects or damages them. This booklet will help you better understand one of the most common types of circulation problems.



Peripheral Circulation

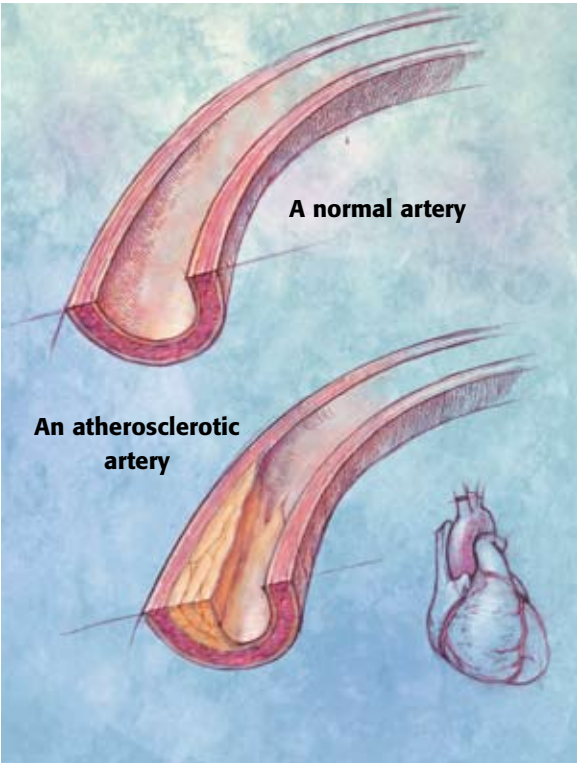
Transportation is the sole function of the circulatory system. Oxygen and nutrients are delivered to the body's cells and organs via the blood supply. The heart pumps the blood, and the arteries serve as conduits for the transportation of the blood away from the heart.

Peripheral refers to the arteries supplying blood to the arms and legs. The arteries must be open to keep the body cells healthy and alive.

Atherosclerosis

Normally the inner wall of an artery is smooth and firm, allowing blood to flow freely. As years go by, the arteries carrying blood to the arms and legs may be affected by atherosclerosis. The inner lining of the artery becomes thickened and rough by a build-up of cholesterol or fatty materials. This build-up, much like rust in a pipe, is called **plaque**.

Plaque may cause the artery to narrow or even close off completely, thus reducing the flow of blood. When this happens blood must flow through other vessels to circulate around the blockages. This type of alternate circulation is called **collateral circulation**. Atherosclerosis occurs in all vessels to some extent, although the arteries of the heart, neck, and legs are most commonly affected.



When faced with an arterial blockage (left) blood will flow through other vessels creating collateral circulation (right).





Decreased blood flow during exercise can lead to temporary pain.

Symptoms

Symptoms of arterial occlusive disease are dependent on the amount of blood getting through the arteries, the amount of collateral circulation (detour arteries which have developed and take over the work of the diseased arteries), and the areas involved.

- ▶ **Claudication (“to limp”).** Pain is produced by ischemic (lacking in blood supply) muscle during exercise. An ache or cramp develops in the calf, thigh, or buttock. Rest, even standing for a short period of time, will result in relief of symptoms.
- ▶ **Rest Pain (pain at rest).** This symptom suggests advanced arterial disease. A severe

and steady aching or pain in the toes, heel, or forefoot may be unbearable and keep you awake at night. Blood flow is influenced by gravity, therefore temporary relief may be obtained by dangling the legs so that they are at a level below that of the heart.

- ▶ **Tissue necrosis (gangrene).** This is the most advanced stage of arterial disease. As the disease progresses, areas of trauma may not heal, and skin breakdown occurs, leading to gangrene (death of tissue).

Risk Factors

We do not understand why atherosclerosis develops in the arteries, but it is more likely to occur in people past age 45. Men are affected more than women. Individuals with peripheral arterial disease share many of the same characteristics:

- ▶ Heart disease
- ▶ High blood pressure
- ▶ Smoking
- ▶ Diabetes
- ▶ Elevated cholesterol levels
- ▶ Family history of vascular disease
- ▶ Lack of exercise
- ▶ Changes in the blood

Reducing Risk Factors

We cannot totally prevent the occurrence of atherosclerosis or alter the part heredity plays in its development. However, many of the risk factors can be controlled by re-evaluating your lifestyle and making necessary changes.

- ▶ **Smoking**—Tobacco causes constriction of the blood vessels, thus decreasing the flow of blood, and exacerbates atherosclerosis. Therefore, all attempts should be made to stop smoking.
- ▶ **Exercise**—Exercise has been known to improve collateral circulation. It is important to gradually increase physical activity and begin an exercise program as directed by your physician.
- ▶ **Diet**—Reduction of cholesterol and saturated fats in the diet and maintenance of normal weight may decrease the risks of atherosclerosis.
- ▶ **Hypertension and diabetes** – Regular check-ups are a necessity. Keeping doctors' appointments and following their instructions cannot be overemphasized.

Diagnosis

If your physician, after a carefully taken history and a thorough physical examination, suspects that you have peripheral arterial occlusive disease, he/she may order tests to confirm the



Keeping active can improve collateral circulation.

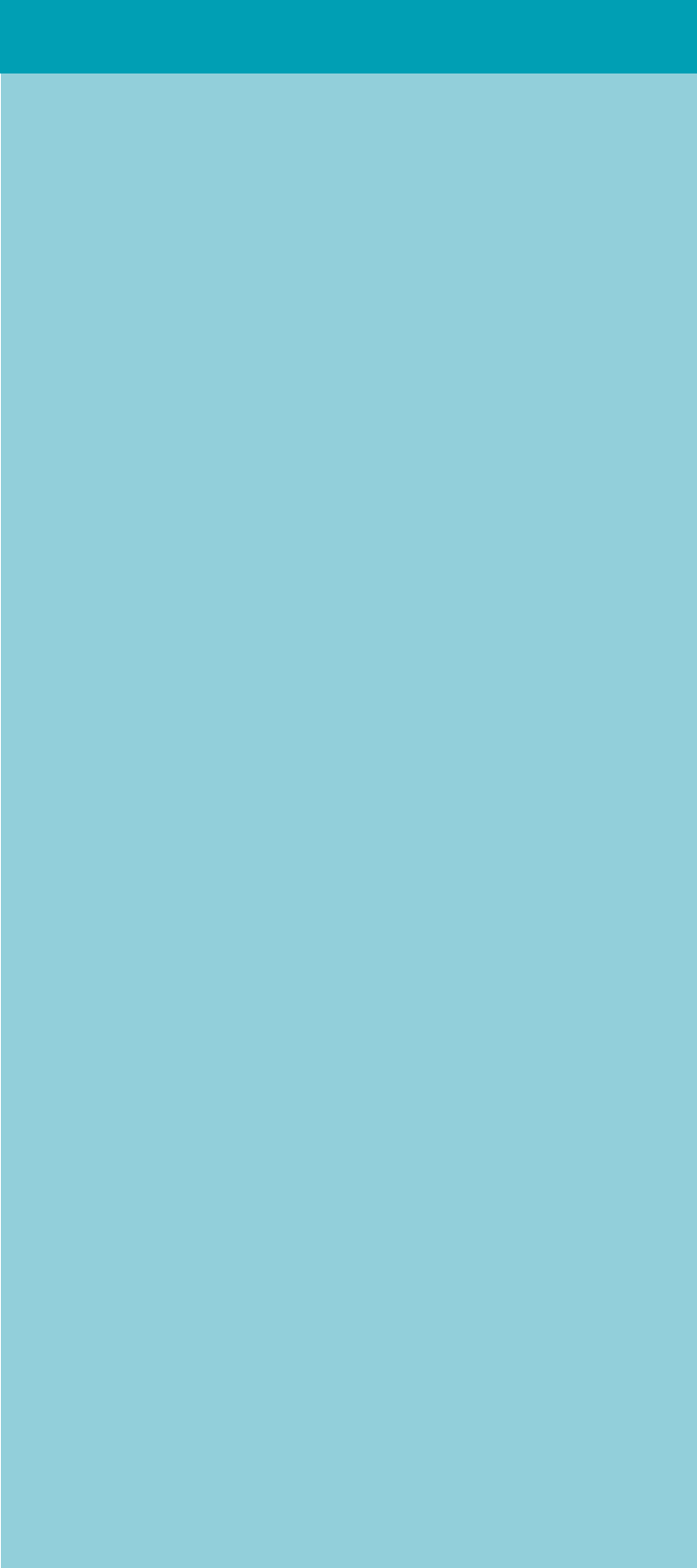
diagnosis. These tests may be noninvasive or invasive procedures.

- ▶ **Noninvasive:** Noninvasive means those that are performed on the outside of the body and do not require the use of needles, catheters, or dye. The tests are painless and without side effects. A variety of noninvasive techniques have been developed and can be performed on an outpatient or inpatient basis. Many of the studies use soundwaves to listen to blood flow (Doppler ultrasound) or image the arteries, special recording devices, or pressures to obtain information about arterial blood flow in the extremities. Exercise may be included in the test to assess the tolerance, limitation, and symptoms experienced with exercise.
- ▶ **Invasive Method:** An arteriogram is an x-ray picture of the artery. It is obtained by putting a contrast material (dye that shows up on x-ray) into the artery and then taking x-ray pictures. The dye is injected via a small tube (catheter) which is inserted into one of the blood vessels. An arteriogram usually requires hospitalization.

Treatment

All the advances in vascular surgery seem to suggest that it is replacing medical treatment. However, this is not entirely true. A large majority of disorders of the peripheral circulation are treated medically. By reducing the risk factors, progression of disease may be reduced, thus limiting the number of patients requiring surgical treatment. Treatment seldom, if ever, consists of only one method. Even if surgery is performed, the underlying atherosclerosis is still present and continuous medical care is required.





Your Next Appointment

The test your physician has scheduled for you is called

it will take approximately:

_____ minutes _____ hours

Report to _____

Address _____

Date _____

Time _____

Special instructions



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