

WHAT YOU NEED TO KNOW ABOUT

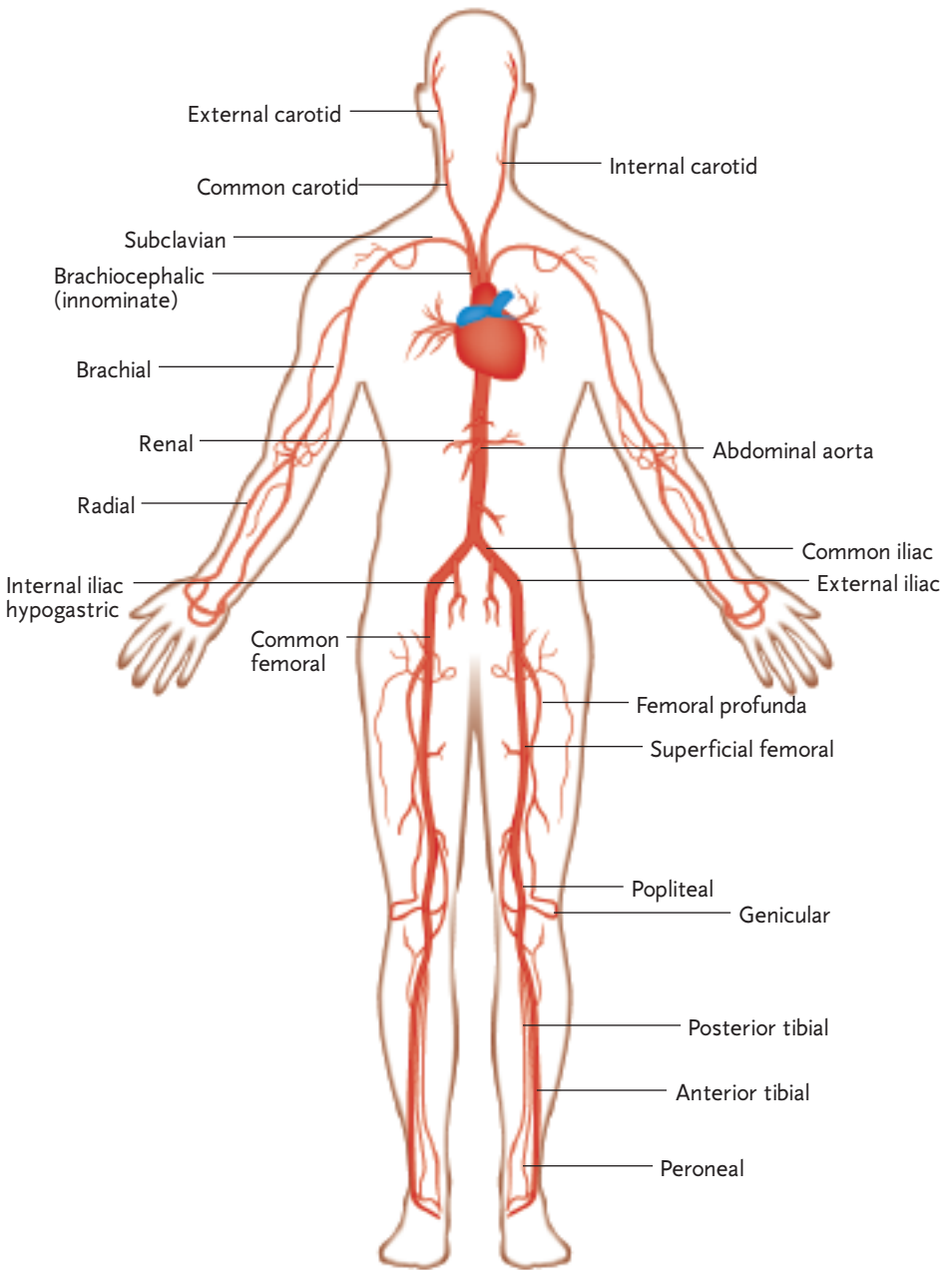


PERIPHERAL VASCULAR DISEASE (PVD)

TABLE OF CONTENTS

Introduction.....	1
What is peripheral vascular disease (PVD)?.....	2
What are the symptoms of PVD?.....	2
What causes PVD?.....	3
How many people are afflicted with the disease?.....	3
What are the risk factors?.....	3
Does having PVD put a person at risk for other medical conditions?....	4
Which arteries are typically affected by PVD?.....	4
Renal artery stenosis (RAS).....	4
<i>Symptoms of RAS</i>	4
Carotid artery disease (CAD).....	5
<i>Symptoms of CAD</i>	5
Infringuinal disease.....	6
<i>Symptoms of infringuinal disease</i>	6
How is PVD treated?.....	7
Lifestyle changes.....	7
Medication.....	7
Endovascular intervention.....	7
<i>Angioplasty</i>	7
<i>Stenting</i>	8
Surgery.....	8
<i>Endarterectomy</i>	9
<i>Bypass</i>	9
How can I find out if I have PVD?.....	10
Glossary.....	11
For more information.....	Inside back cover

ARTERIAL ANATOMY



INTRODUCTION

You may not be familiar with the term peripheral vascular disease (PVD), but chances are you know someone who has the condition. Millions of people around the world suffer from PVD in some form, many without knowing it.

The information in this brochure will help you learn about PVD, including:

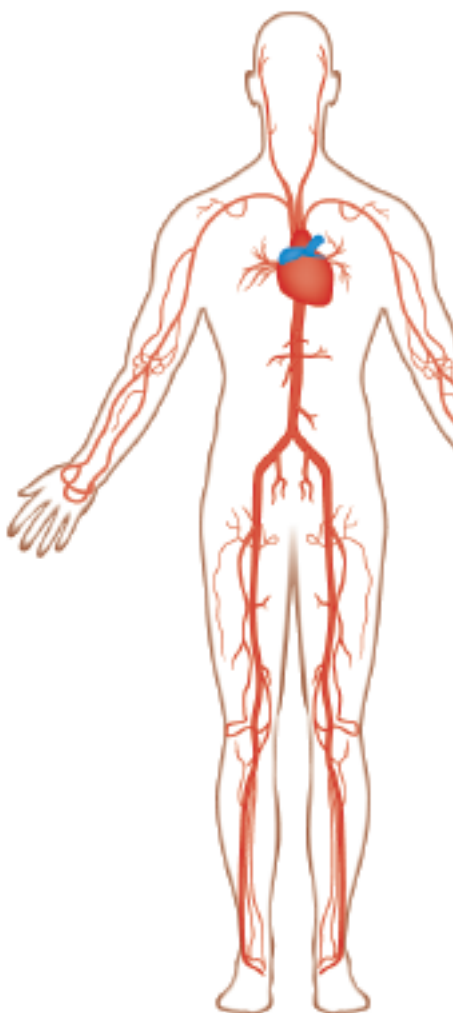
- > What PVD is
- > What causes PVD
- > Risk factors
- > Types of PVD
- > Symptoms
- > How PVD is treated
- > How you can find out whether you have PVD
- > Where you can go for more information



After reading this brochure, talk with your doctor about any questions you may have, as well as whether you need to be screened for PVD.

WHAT IS PERIPHERAL VASCULAR DISEASE (PVD)?

Peripheral vascular disease is a condition that is characterized by the narrowing of a person's arteries—the blood vessels that carry blood from the heart to the rest of the body. When arteries become narrower, blood flow to the extremities and organs may be reduced.



What are the symptoms of PVD?

Many people experience no detectable symptoms. When there are symptoms, they vary depending on which arteries are affected by the disease (see pages 4–6).

WHAT CAUSES PVD?

PVD is caused by atherosclerosis, a condition where the inner walls of the arteries become narrowed by cholesterol-containing deposits (known as “plaque”) that build up and harden. Hence atherosclerosis is more commonly known as “hardening of the arteries.”



Plaque accumulation within a vessel

HOW MANY PEOPLE ARE AFFLICTED WITH THE DISEASE?

In the United States, PVD affects about 10 million people. Many who suffer from the disease are either never diagnosed or go untreated.

WHAT ARE THE RISK FACTORS?

The following factors can put a person at higher risk for developing PVD:

- > Smoking
- > High blood pressure (hypertension)
- > High cholesterol levels
- > Diabetes
- > Family history of heart or vascular disease
- > Obesity
- > Lack of exercise or physical activity
- > Stress
- > Being over 50 years old

DOES HAVING PVD PUT A PERSON AT RISK FOR OTHER MEDICAL CONDITIONS?

Yes. In addition to having atherosclerosis, individuals with PVD are also at high risk for suffering a heart attack or stroke.

WHICH ARTERIES ARE TYPICALLY AFFECTED BY PVD?

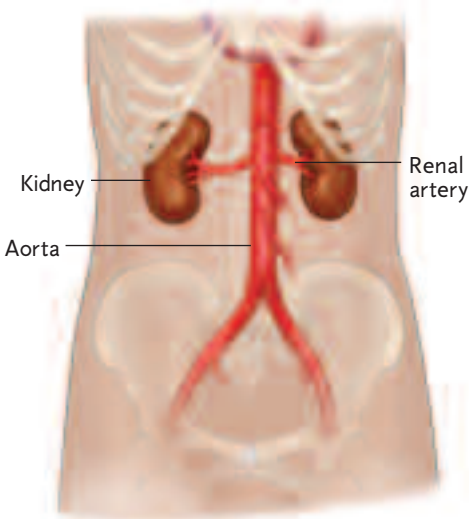
PVD most commonly affects the arteries that supply blood to the kidneys, as well as those found in the neck and legs. These conditions are called:

- > Renal artery stenosis (RAS)
- > Carotid artery disease (CAD)
- > Infrainguinal disease

Renal Artery Stenosis (RAS)

Renal artery stenosis is the narrowing or blockage of the arteries that supply blood to the kidneys.

As atherosclerotic plaque narrows the inner diameter of the artery, blood flow to the kidneys is decreased. Eventually the kidney and its ability to function may become compromised. RAS is a major cause of renal hypertension (high blood pressure) and has been increasingly recognized as an important cause of impaired kidney (renal) function as well as end-stage kidney (renal) disease.



The symptoms of RAS include:

Uncontrolled high blood pressure (hypertension)

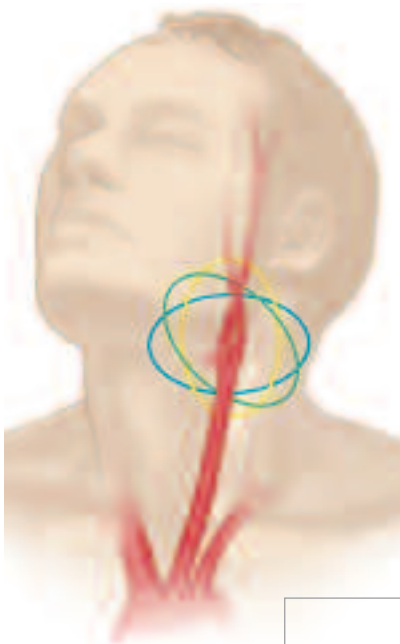
Sudden kidney (renal) failure or insufficient functioning of the kidneys

Carotid Artery Disease (CAD)

Carotid artery disease is the narrowing of the carotid arteries. The carotid arteries are the large blood vessels that are located in each side of the neck and supply the brain with blood.

As the disease progresses, clots can form within the artery—or artery-blocking plaque can fragment, break off, and travel downstream where it can block smaller vessels (known as “embolization”).

As these blockages slow blood flow, they starve the brain of oxygen and glucose (blood sugar). This may lead to the “death” of the affected part of the brain—and can lead to stroke, paralysis, memory loss, difficulty with language and vision, or death.



The symptoms of CAD include:

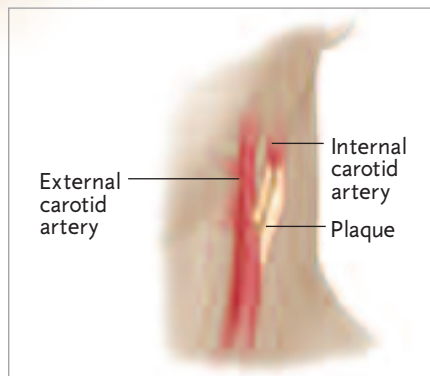
Sudden weakness or numbness of the face or extremities

Sudden difficulty in speaking or understanding

Sudden trouble with vision

Sudden dizziness or trouble walking

Sudden headaches



Infrainguinal Disease

Infrainguinal disease is the narrowing or blockage of the arteries that supply blood to muscles in the legs. Two of the arteries most commonly blocked are the Iliac and the superficial femoral artery (known as "SFA").

When the main arteries in the legs become blocked by plaque, smaller arteries, known as "collateral pathways," become the main supply of blood to the leg muscles.

The collateral pathways can often adequately supply the muscles with blood when a person is at rest, but are unable to do a sufficient job during periods of physical activity when the leg muscles need for blood and oxygen increases. As the disease worsens, blood flow may become insufficient even at rest. This impaired blood flow may cause pain that persists even when a person is inactive.

The symptoms of infrainguinal disease include:

Pain or fatigue in the lower extremities (known as "claudication")

Buttock pain

Burning or tingling in the feet

Sores or ulceration of the legs and feet

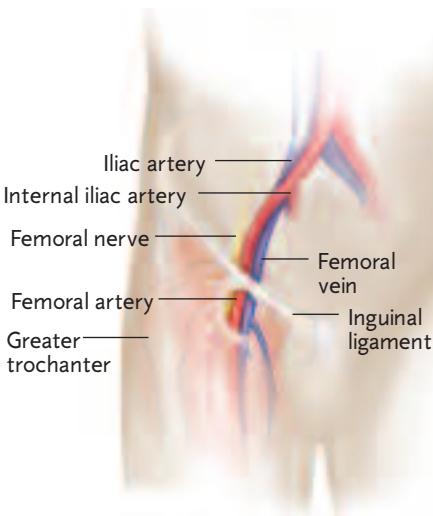
Loss of hair on the feet or toes

Aching in the feet or toes when at rest

Changes in skin color (reddish, bluish or pale discoloration)

Decrease in skin temperature

Impotence



HOW IS PVD TREATED?

Treatment options for PVD include:

- > Lifestyle changes
- > Medication
- > Endovascular intervention
- > Surgery

The physician will prescribe the treatment that is right for the person's specific condition as well as other health factors.

Lifestyle Changes

PVD is common among smokers and diabetics. It is important for smokers to quit smoking and for diabetics to control their blood sugar. It is also critical for those who suffer from diabetes and PVD to monitor and protect their feet from injury. Proper exercise and dietary changes are other key lifestyle modifications that help control PVD.

Medication

Medication, along with lifestyle changes, may be prescribed to control cholesterol or blood pressure. Other medications can also be prescribed that can help prevent clots from forming within plaque-laden blood vessels.

Endovascular Intervention

Endovascular intervention refers to treatments that are delivered through the arteries directly to the blockage using small tubes known as "catheters." These types of treatment are generally less invasive than having what is known as "open surgery"—and also result in a faster recovery time. Several of the most common endovascular treatments are explained below.

Angioplasty

Angioplasty, or percutaneous transluminal angioplasty (PTA), is a technique used to increase the inner diameter of an artery that has been narrowed by atherosclerosis ("hardening of the arteries"). When a physician performs an angioplasty procedure, he or she inserts a

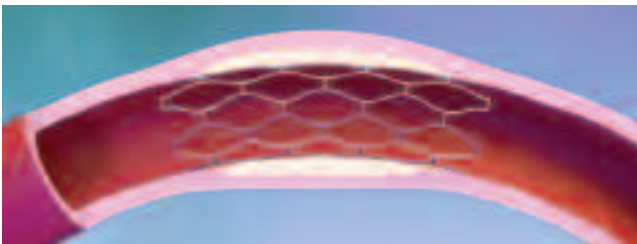
specially designed tube (called a "catheter") with a small balloon tip into an artery and guides it to the point where the artery has narrowed. Once the balloon is in place, it is inflated to compress the plaque against the artery wall, thereby widening the inner diameter of the artery and increasing blood flow.



Angioplasty procedure

Stenting

One of the main difficulties with angioplasty is called "restenosis." Restenosis refers to the vessel's tendency to want to repair itself from the injury caused by the balloon and to renarrow. To keep this from happening, a small metallic mesh tube, known as a "stent," is inserted to act as a scaffold at the point where the artery has narrowed. The stent will remain inside the artery after the procedure is completed to hold the artery open and allow proper blood flow.



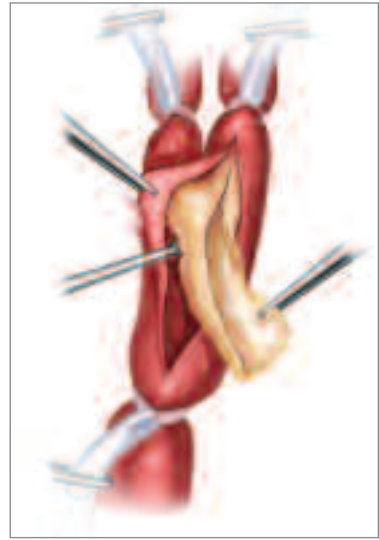
Stenting procedure

Surgery

There are several types of surgery (often known as "open surgery") that may be used to treat PVD.

Endarterectomy

To perform an endarterectomy, the surgeon makes an incision into the diseased artery, exposing the atherosclerotic plaque. The end of the plaque is cut free, and the plaque can then be removed. The artery, as well as the initial incision, are then stitched closed.



Endarterectomy procedure

Bypass

In severe cases of PVD where blockages are extremely rigid, or “calcified,” the physician may choose to perform a bypass. This technique utilizes either a healthy blood vessel from somewhere else in the body or a man-made graft that is sewn to the healthy sections of the artery both upstream and downstream from the blockage, allowing blood to flow around the blockage.



Bypass procedure

HOW CAN I FIND OUT IF I HAVE PVD?

Talk with your doctor. If your doctor suspects that you may be suffering from PVD, there are several diagnostic methods that can be used to determine whether you have the disease—ranging from ultrasound imaging and magnetic resonance imaging (MRI) to angiography.

One very common test used to diagnose PVD in the lower regions of the body is called the ankle-brachial index test. This test compares blood pressure in both arms and legs.



GLOSSARY

Angioplasty: A procedure used to dilate (widen) narrow arteries using a small balloon-tipped catheter.

Aorta: The main trunk of the arterial system of the body.

Artery: A blood vessel that carries blood away from the heart to the rest of the body.

Atherosclerosis: A disease characterized by the narrowing or blockage of the arteries.

Bypass: A surgical operation that redirects the blood, either via a man-made graft or a blood vessel taken from another part of the body, around a blockage in a blood vessel.

Calcifications: Hardened deposits that form on the inside of a blood vessel.

Carotid arteries: Blood vessels that are located in each side of the neck and supply the brain with blood.

Carotid artery disease (CAD): A disease characterized by the narrowing or blockage of the arteries that supply blood to the brain.

Catheter: A thin, flexible tube that is inserted through a small opening in the body.

Collateral pathways: Smaller arteries that become the main supply of blood when the main arteries become narrowed or blocked.

Diabetes: A chronic health condition where the body is unable to produce insulin and properly break down sugar (glucose) in the blood. Symptoms may include hunger, thirst, excessive urination, dehydration and weight loss.

Endarterectomy: A surgical procedure intended to clean out the plaque in an artery.

Endovascular: Within or inside the blood vessels.

Glucose: Blood sugar.

Iliac artery: A main artery found near the pelvis.

Infrainguinal disease: A disease characterized by the narrowing or blockage of the arteries that supply blood to the legs.

Magnetic resonance imaging (MRI): An imaging technique that uses electromagnetic radiation to obtain images of the body's internal organs for diagnosing certain diseases.

Peripheral vascular disease (PVD): A disease characterized by the narrowing or blockage of the arteries (also known as peripheral artery disease).

Plaque: Cholesterol-containing deposits that build up and harden (calcify) inside the arteries.

Renal: Relating to or affecting the kidneys.

Renal artery stenosis (RAS): A disease characterized by the narrowing or blockage of the arteries that supply blood to the kidneys.

Restenosis: The abnormal re-narrowing of an artery after intervention.

Stent: A small metallic mesh tube that acts as a scaffold to keep a blood vessel open.

Superficial femoral artery (SFA): A main artery found in the legs.

Ultrasound imaging: An image that is created through the use of high-frequency sound waves and used when diagnosing certain medical conditions.

Vein: A blood vessel that returns blood from the body's extremities and microvasculature to the heart.

FOR MORE INFORMATION

In addition to talking with your doctor, the following resources can provide you with more information about PVD.

American Heart Association

7272 Greenville Avenue

Dallas, TX 75231

Tel: 800.242.8721

www.amhrt.org

Society for Vascular Surgery

633 N. St. Clair, 24th Floor

Chicago, IL 60611

Tel: 800.258.7188

www.vascularweb.org

Society of Interventional Radiology

3975 Fair Ridge Drive

Suite 400 North

Fairfax, VA 22033

Tel: 800.488.7284

www.sirweb.org

The American College of Cardiology

Heart House

9111 Old Georgetown Road

Bethesda, MD 20814

Tel: 800.253.4636

www.acc.org



**Business card outline and slits
DO NOT PRINT!**



**Business card outline and slits
DO NOT PRINT!**

Medtronic Vascular

3576 Unocal Place
Santa Rosa, CA 95403
USA

Tel: 707.525.0111

www.Medtronic.com

Product Services

Tel: 888.283.7868

Fax: 800.838.3103

For distribution in the USA only. © 2005 Medtronic, Inc. All rights reserved. Printed in USA. UCZ00601679EN 11/05

