CARDIAC & VASCULAR ASSOCIATES

Chattanooga Heart, Lung and Vascular Center
1032 McCallie Avenue
Chattanooga, TN 37403-2815

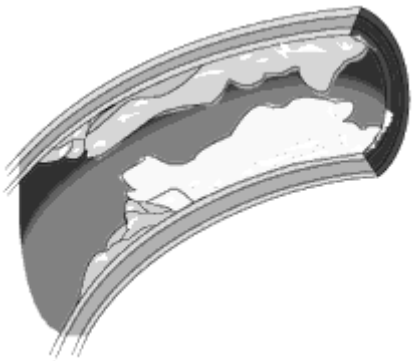
Telephone: (423) 693-2400
Facsimile: (423) 693-2499
CardiacAndVascular.com

FACTS ABOUT PERIPHERAL VASCULAR DISEASE (PVD OR PAD)

What is Peripheral Vascular Disease?
Peripheral Vascular Disease or PVD (also called Peripheral Arterial Disease or PAD) refers to the narrowing, clogging and hardening of the arteries in your extremities. This results in slowed or stopped blood flow to your extremities, which can cause pain, numbness, and eventually tissue death in your extremities. The disease frequently affects your legs, but can occur in the vessels that supply blood to your arms, brain, and kidneys.

There are many things you can do to reduce your risk of Peripheral Vascular Disease, and to treat the disorder and symptoms if it occurs. Pain and numbness in your extremities is not a normal part of the aging process, and should be addressed.

What Causes Peripheral Vascular Disease?
Atherosclerosis is caused when cholesterol and scar tissue, (sometimes called "plaque"), build up inside the artery walls over time and create a blockage that restricts blood flow. The vessel walls become less elastic and cannot dilate to allow greater blood flow when needed (such as during exercise). Deposits of calcium in the walls of the arteries contribute to the narrowing and stiffness; this calcification may be visible on plain X-rays (this is the origin of the term “hardening of the arteries”). Symptoms of Peripheral Vascular Disease also can develop when a blood clot forms in the artery.



Who is at Risk for Peripheral Vascular Disease?
Peripheral Vascular Disease is a common disorder. It affects men more often than women. It occurs most often in people who are over fifty. However, anyone can develop the disorder. If you smoke, are overweight, or have high blood pressure, diabetes, high cholesterol, or a family history of heart or vascular disease, your risk of developing Peripheral Vascular Disease increases.

Symptoms of Peripheral Vascular Disease
The most common symptom of Peripheral Vascular Disease is called "claudication", or leg pain. If the pain occurs when walking or exercising and goes away after a few minutes of rest, it is called "intermittent claudication". This occurs because the muscles in your extremities are not receiving enough oxygen - a direct result of the blockage of the arteries in your extremities. Often, numbness and tingling in the legs and feet occur as well. Other symptoms that might occur include:

- weak or absent pulse in the extremities
- coldness in the lower legs and feet
- paleness and/or blue or red discoloration of the feet and/or toes (cyanosis)
- loss of hair on the lower extremities
- dry, fragile or shiny skin
- ulcers or sores on the legs and feet that don't heal
- gangrene (tissue death)

Foot care is particularly important if diabetes mellitus is also present. Wear shoes that fit properly. Pay attention to any cuts, scrapes, or injury - the tissues heal slowly when there is decreased circulation, and they are prone to infection.

Symptoms of Peripheral Vascular Disease in the carotid arteries include: sudden, temporary weakness or numbness of the face, arm and/or leg on one side of the body; temporary loss of speech or trouble speaking or understanding speech; temporary dimness or loss of vision, particularly in one eye; and unexplained dizziness, unsteadiness or sudden falls. Transient ischemic attacks (TIA'S) are mini-strokes and cause the same symptoms named above except they are temporary.

Symptoms of Peripheral Vascular Disease in the renal arteries include hypertension (high blood pressure-consistently higher than 140/90) and abnormal kidney function blood tests (see Renal Artery Stenosis patient education flyer).

Can Peripheral Vascular Disease be Prevented?
If you smoke, STOP SMOKING IMMEDIATELY! Exercise can help prevent or control Peripheral Vascular Disease. Modifying your diet to lose weight and lower blood cholesterol can help prevent or control the disorder. If you have high blood pressure, follow the necessary steps to treat that condition.

How is Peripheral Vascular Disease Diagnosed?
Doctors Stratienko will take your personal history and perform a physical examination. An examination with a stethoscope may show arterial bruits (whooshing sound heard over the artery), decreased or absent pulse in the extremities, or decreased blood pressure in the affected

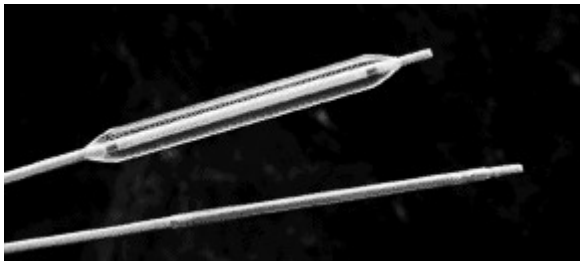
extremity. Certain diagnostic tests and/or imaging methods are useful in diagnosing Peripheral Vascular Disease. They include:

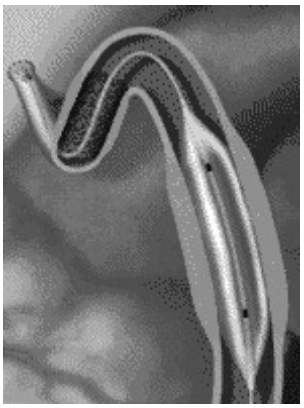
- Doppler ultrasound, segmental pressures
- Angiography
- Lipid profile
- MRI

How is Peripheral Vascular Disease Treated?
The treatment alternatives for Peripheral Vascular Disease depend upon several factors including your health, the location of the blockage, and the severity of the blockage.

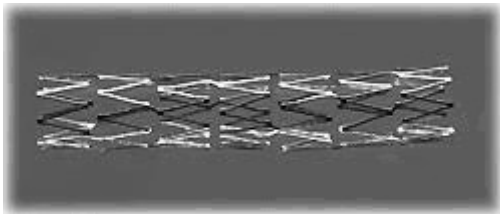
Dr. Stratienko may recommend an "interventional" procedure to treat your Peripheral Vascular Disease. These procedures are all based on accessing the diseased area(s) of your arteries and attempting to improve blood flow without surgery. A doctor who specializes in interventional procedures will perform the procedure. The procedures involve making a puncture in one of your peripheral vascular arteries (usually in your thigh), then placing a small wire into your artery. The wire will be moved past the diseased portion of your artery. The doctor uses this wire to slide into place the various tools he or she might use to treat your Peripheral Vascular Disease. A description of the most common interventional techniques are as follows:

Balloon Angioplasty (PTA or Percutaneous Transluminal Angioplasty)
The method by which a small balloon tipped catheter is placed over a guide wire into the narrow segment of the diseased artery. The balloon is then inflated several times, compressing the fatty material (plaque) against the wall of the artery. This opens the narrowed section increasing blood flow to the extremity.





Stent Implantation
The method by which a small metal slotted or coil tube is placed against the artery wall to hold the artery open. Balloon angioplasty is usually done before and after the stent is placed. The stent is a permanent implant that stays in the artery. Having been trained by the inventor of the stent, Dr. Stratienko performed the first peripheral stent procedure in the Chattanooga region in 1993.



Atherectomy
Rotational Atherectomy (Rotablator) uses an abrasive diamond coated burr at the tip of the catheter. The catheter is rotated rapidly (like a dental drill) to grind or sand the plaque into tiny particles that float away in the blood stream. Balloon angioplasty and/or stenting may be performed after atherectomy.

Intravascular Ultrasound
The method by which a sonogram (ultrasound) catheter is placed in the diseased artery. As the catheter is pulled back, sonogram pictures are taken. This is used to determine the level of blockage and the size of the artery.

Conclusions
Most interventional procedures are done on an outpatient basis or may require a one-night stay in the hospital. Patients recover quickly and can resume normal activities sooner than with traditional surgery.

If the blockage is extremely long or has become very hard and calcified with time, it may be resistant to any of these interventions. In these cases, surgery may be required. Surgery typically consists of either a "bypass" procedure (which uses a section of blood vessel taken from elsewhere in the body, then sewn into place to "bypass" the blocked portion of artery), "grafting" (repair or replacement of the vessel), or "endarterectomy" (removal of the lining of the artery, which removes the plaque). Surgery is usually performed only on severe cases where the ability to work or pursue essential activities is affected.

Medications may be required to control the disorder, including analgesics to control pain, cilostazol (Pletal), and medications such as "statin" drugs to reduce total cholesterol levels.

Exercise is an important part of your treatment and recovery. Your doctor will provide you with specific instructions on exercise following your procedure. Over time, circulation improves because of the development of collateral (new, small) blood vessels.