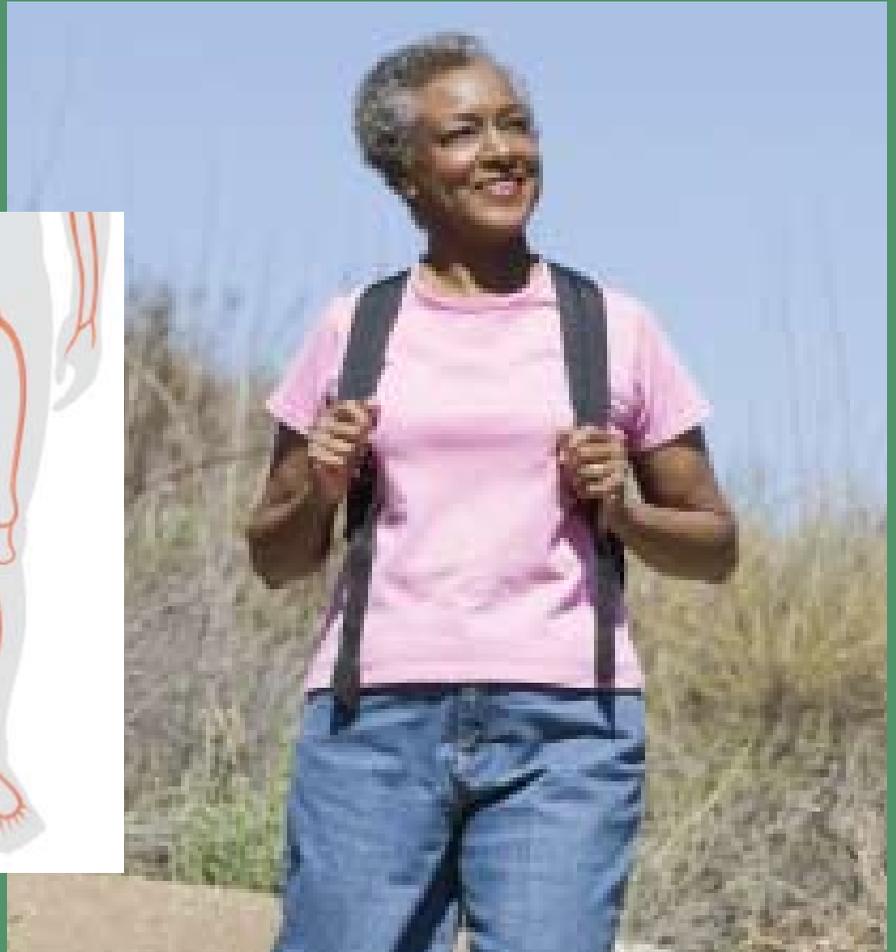


Peripheral Bypass Surgery



What Is Peripheral Artery Disease?

Does your leg muscle cramp after walking just a short distance? Leg pain may mean you have **peripheral artery disease**. The disease occurs when your arteries can't bring enough blood to your leg and foot muscles. Peripheral bypass surgery can relieve your symptoms. Read on to learn more.

What Are the Symptoms?

Peripheral artery disease may cause muscle cramping, fatigue, or discomfort after a short walk. The pain, called **claudication**, goes away when you stop. Or you may feel pain in your leg, foot, toes, or heel while resting. This is called **rest pain**. Peripheral artery disease (also called peripheral vascular disease) often occurs in both legs. But it tends to affect one leg first.



Leg pain can make walking difficult.

Bypass Surgery May Help

Claudication or rest pain may restrict your work or leisure activities. And peripheral artery disease may lead to tissue death if left untreated. Peripheral artery disease can't be cured. But bypass surgery may improve blood flow and control your symptoms.

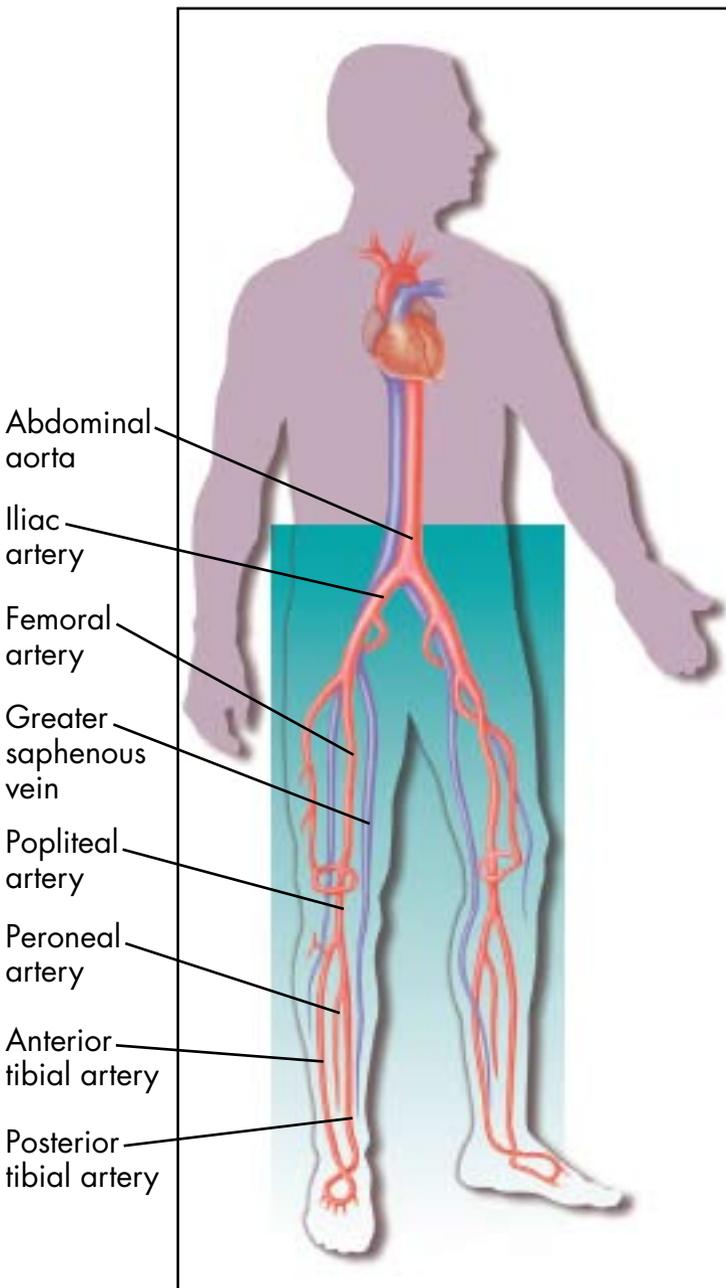
What Is Bypass Surgery?

A bypass is like a detour around a traffic jam. During bypass surgery, your surgeon creates a new path for blood flow. Blood can then pass around the part of an artery that is narrowed or blocked. Bypass surgery relieves symptoms by letting more blood flow to the leg and foot.

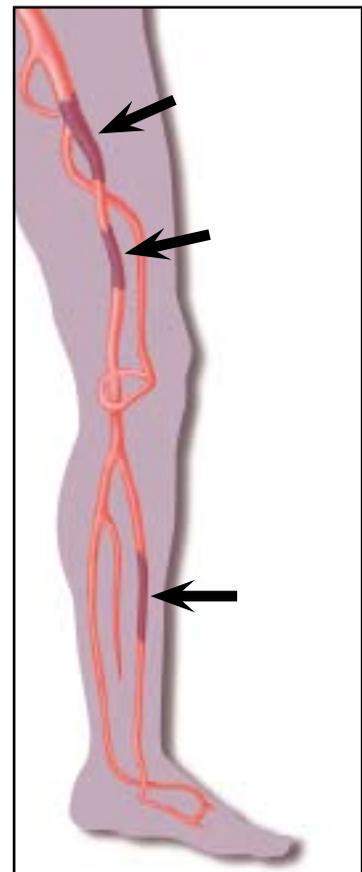


When Circulation Becomes Blocked

Circulation is the constant flow of blood between the heart and the rest of the body. Arteries carry oxygen-rich blood throughout the body. Veins return blood to the heart. Over time, artery walls may thicken with **plaque** (a fatlike substance). As plaque builds up, the arteries narrow and peripheral artery disease can occur.



Common Sites of Blockage



With peripheral artery disease, a leg artery is often blocked in more than one place.

Understanding Circulation

A healthy artery delivers all the oxygen-rich blood the muscle needs to function. But as plaque builds up in an artery, blood flow can be reduced or even blocked.

A Healthy Artery

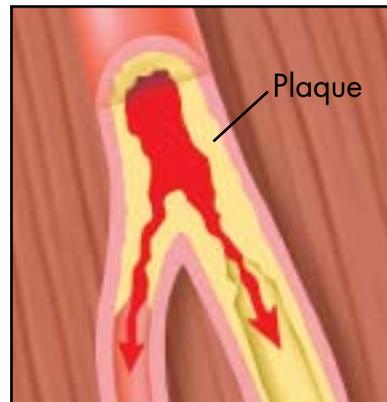
A healthy artery is a muscular tube with smooth inner walls. The artery provides plenty of blood to the muscle. Because of this, the muscle gets enough oxygen during both rest and activity.



A healthy artery lets blood flow easily.

A Narrowed Artery

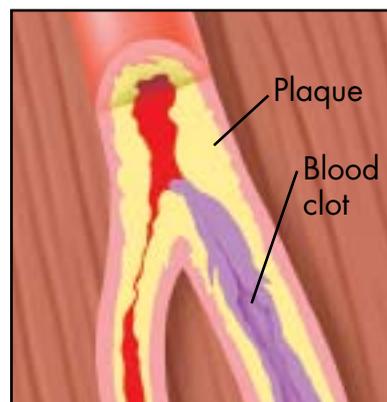
A narrowed artery has thick walls that have become rough with plaque. This problem is called **atherosclerosis**. The artery still provides enough oxygen to the muscle during rest. But the muscle does not get enough oxygen during activity. As a result, the muscle may cramp or feel tired when in use.



As plaque narrows an artery, blood flow is reduced.

A Blocked Artery

An artery can be blocked by plaque or by a blood clot lodged in a narrowed section. A blocked artery cannot deliver oxygen to muscle below the blockage. If small arteries branch around the blockage, they can carry some blood to the muscle. But if these small arteries do not develop, muscle tissue below the blockage will die (**gangrene**).



Plaque or a blood clot can block blood flow in an artery.

Your Medical Evaluation

Tell your doctor if you are having symptoms of peripheral artery disease. He or she will ask about your health history and will examine you. Special tests may also be ordered to help determine your surgery needs.

Your History and Exam

Your doctor will take your health history and ask how active you are. You will be asked about any medications you take and whether you smoke. You will also be asked if you have heart problems or diabetes, and whether any procedures have been done on your blood vessels. During the exam, your doctor will take your blood pressure and listen to pulses in your legs and feet.



Ultrasound Tests

These tests use sound waves to measure blood flow. Ultrasound tests do not use needles, dyes, or x-rays. One type of ultrasound test measures the force of the blood flowing in your leg arteries. This helps to locate narrowed or blocked arteries. Another type of test finds blood vessels that can be used for bypass surgery. The sites of these vessels may be marked on your leg.



Ultrasound tests provide information about your veins and arteries.

Arteriogram

This test is used to plan surgery, if needed. During an arteriogram, a special dye is injected into your artery through a needle. An x-ray is taken that shows the location and degree of a blockage. You'll be awake during the test. But medication will help you relax. You may feel pressure from the needle and a spreading warmth as the dye is released. In most cases, an arteriogram takes an hour or less.

After the Procedure

After the arteriogram, you'll be asked to lie quietly. You can usually go home within hours if your blood pressure is normal and you are not bleeding where the needle was inserted.



An arteriogram shows where an artery may be blocked.

Risks of an Arteriogram

The doctor will discuss the risks of an arteriogram with you before the test. An arteriogram may cause damage to toes, kidneys, or arteries. You may have bruising or bleeding at the injection site.

Your Treatment Plan

After the medical evaluation, your surgeon will discuss your treatment plan with you. He or she may recommend bypass surgery to relieve your symptoms. But surgery can't cure peripheral artery disease. Claudication or rest pain may return after surgery, or it may occur in your other leg.



Preparing for Surgery

If you need bypass surgery, you will be told ahead of time how to prepare for it. Be sure to ask your surgeon any questions you may have. On the day of the surgery, do your best to arrive at the hospital on time.

Planning Ahead

Before the bypass, you may be told to prepare in the following ways:

- At least 4 weeks before surgery, you may choose to donate your own blood. This is in case it's needed during surgery.
- At least 3 weeks before surgery, stop smoking.
- Shortly before surgery, you may have an ECG or EKG (electrocardiogram), a chest x-ray, or a blood test. You may also need to limit certain medications.
- The day before surgery, take any medications your surgeon tells you to. Don't eat or drink anything after the midnight before surgery, or as instructed.



About Your Anesthesia

Anesthesia is a medication that controls pain during surgery. The following types of anesthesia are used for bypass surgery:

- **General** anesthesia lets you sleep, pain-free, during the surgery.
- **Regional** anesthesia (**epidural** or **spinal**) keeps you relaxed, pain-free, and awake.

You may receive one or both types of anesthesia. Regional anesthesia may be used to control pain right after surgery.



Types of Bypass Grafts

During a bypass, your surgeon attaches a **graft** to the blocked artery. A graft is a special tube that reroutes blood around a blockage. The graft can be a blood vessel from your body, or it can be manmade.

A Blood Vessel Graft

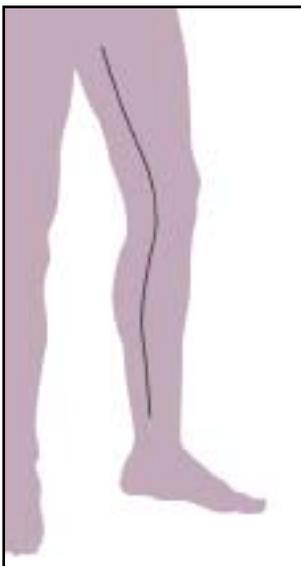
A blood vessel graft often comes from the same leg where you will have the bypass. These grafts are used on arteries above or below the knee. Grafts are removed and prepared at the time of the bypass. In some cases a leg vein is left in place and connected to the artery (an **in situ** procedure). An **angioscope** (a thin tube with a camera attached) is used for an in situ procedure.

A Manmade Graft

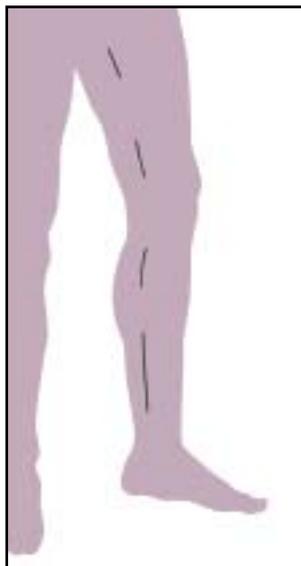
Manmade (**synthetic**) grafts are produced from materials that are easily accepted by your body. These grafts work best on arteries at or above the knee.

Graft Incisions

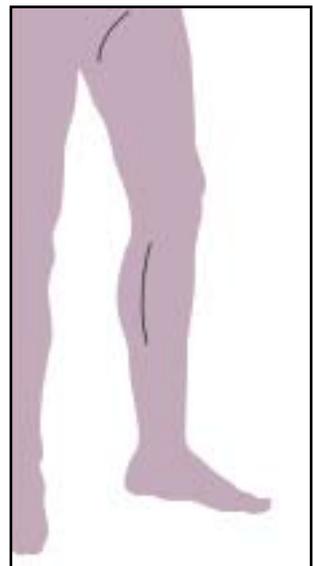
The incision sites will depend on where your blockage is, the type of graft used, and what's best for you. The incisions are made on the inside of your leg. Three common types are shown below.



One long incision may be used to remove and prepare a leg vein.



Several short incisions may be used to remove and prepare a leg vein.



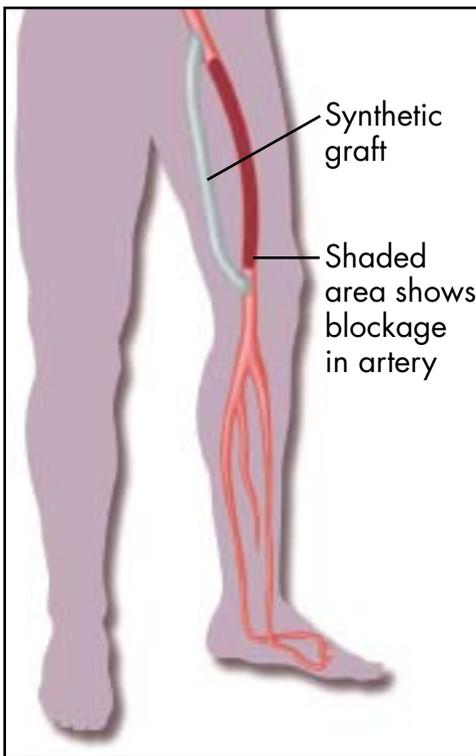
Two incisions may be used with an in situ procedure or a manmade graft.

Your Bypass Surgery

The type of bypass you have depends on where your leg artery is blocked. One of two types of bypasses can be done. During the bypass, you will be closely monitored to ensure the safest possible surgery.

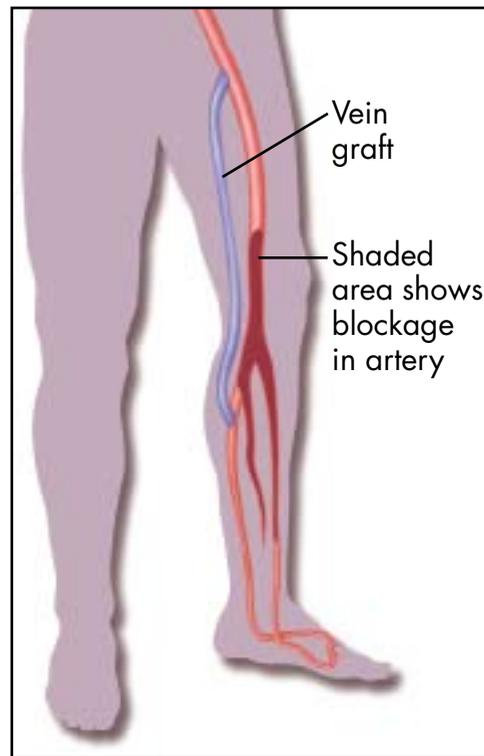
Types of Peripheral Bypasses

Peripheral bypass grafts carry blood from the femoral artery in your thigh to an artery further down your leg. There are two common types of peripheral bypasses. One type is used for the upper part of the leg. The other is used for the lower part. You will receive the type of bypass that fits your needs.



Femoral Popliteal Bypass

Bypasses to the popliteal artery end behind the knee. Either your own vein or a synthetic material may be used for the graft.



Distal Bypass

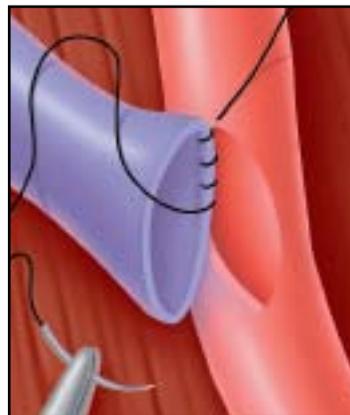
Distal (lower leg) bypasses end below the knee. Either your own vein or a combined graft, made from your vein and a synthetic material, may be used.



Your surgeon, the anesthesiologist, and specially trained nurses will keep you pain-free and as safe as possible during surgery.

Attaching the Graft

During the surgery, a graft is stitched into the artery above and below the blockage. This creates a new passage for blood flow. The blocked section of the artery is usually not removed. After the graft is in place, the incisions are closed with stitches or staples.



Risks and Complications

Every surgery has some risks. Your surgeon will talk with you about the risks of peripheral bypass surgery. They include:

- Bleeding or blood clots
- Heart attack or stroke
- Breathing problems
- Infection
- Need for second bypass or surgery to remove dead tissue (amputation)
- Nerve damage and numbness

Hospital Recovery

Plan on being in the hospital about 3 to 8 days. The length of your stay depends on the type of bypass you have, your health, and your response to surgery.

Right After Surgery

You will be watched closely in the recovery room. From there, you may go to an intensive care unit, if needed. Once you are stable, you will be moved to a regular hospital room. Your leg may swell and be painful. But you will be given medication to control pain and prevent infection.



As You Regain Strength

You will start walking soon. Wear slippers or shoes to protect your feet. Elevate your leg whenever you are sitting. Tell a nurse right away if you have chest pain, foot pain, or shortness of breath. Also let your surgeon know if your incision is draining or if you have constipation. Before going home, you may be taught to take the pulse in your leg.



Why Walk?

Walking is a big part of your early recovery. Walking reduces swelling and helps your incision heal. Walking also helps prevent lung problems, such as pneumonia. And the sooner you recover in the hospital, the sooner you can go home.

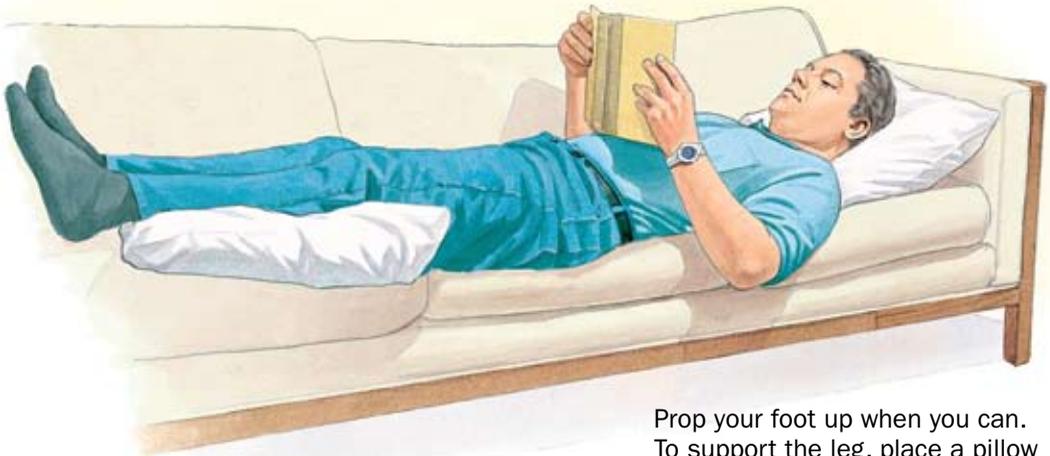
Home Recovery

You can leave the hospital when your surgeon says it is OK. Be sure to have someone drive you. If needed, you may spend time at an intermediate care facility. Once home, you can take action to recover faster.

Helping Yourself Heal

See your surgeon as instructed so he or she can check your leg. Expect to have some leg swelling after surgery. This will lessen over time. To speed your recovery, follow these tips:

- Care for your incision and take any medications as directed.
- Wear slippers or shoes when walking. Avoid skin burns by testing the temperature of bath and shower water before you get in.
- Don't stand or sit with your feet down for long. When you sit, raise your foot as high as you comfortably can.



Prop your foot up when you can. To support the leg, place a pillow under your calf.

Call Your Surgeon If:

- Your incision drains, or it becomes hot, red, or painful
- Either foot shows changes in color, temperature, feeling, or movement
- Your pain increases, or your leg swells and does not improve overnight
- You have a fever

Reducing Your Risks

You can do certain things each day to help improve your blood circulation. Taking action may reduce your risks for a second bypass. It may also prevent other blood flow problems.

Stop Smoking

Each cigarette you smoke damages your arteries. Smoking also decreases circulation and makes a graft more likely to fail. These tips may help you quit smoking:

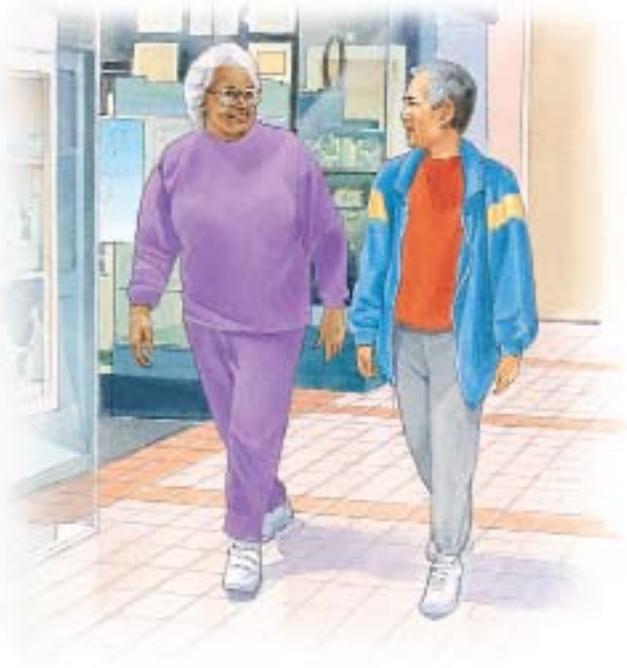
- Cut down slowly on the number of cigarettes you smoke each day.
- Set a date to stop smoking.
- Ask your surgeon about stop-smoking aids. Or ask your local hospital about stop-smoking programs if you need help.



Start Walking

Walking may improve your blood pressure and circulation. It helps your body develop many small artery branches (**collateral arteries**). These small arteries can improve blood flow around blockages. If you have diabetes, walking helps you control your blood sugar. To add walking to your day, follow these guidelines:

- Start small. Walk to do errands close to your home.
- Walk on level ground, such as at a mall. Bring a friend or join a group to keep you going.
- Work up to walking for 30 minutes on most days.



Take Care of Your Feet

Circulation problems can make feet tender and easier to bruise or infect. Take care of your feet. Be sure to:

- Wash and dry your feet carefully.
- Protect your feet with slippers, socks, or shoes.
- Ask a healthcare provider to trim your toenails.



Control High Blood Pressure

High blood pressure can injure your arteries and your graft. You can control your blood pressure. Remember to:

- Take your medications as directed.
- Have your blood pressure checked regularly.
- Exercise often and lose excess weight.



High blood pressure can be linked to diet. Eating healthy may help.

Rethink Your Diet

To stay healthier, look at your eating habits. Extra weight and other health problems can strain your leg arteries. Try these healthy changes:

- Switch to low-fat foods such as low-fat milk and dressings.
- Cook with less fat. Steam, microwave, broil, or bake food.
- Eat fewer eggs. Take the skin off chicken. Use margarine instead of butter.
- Follow diet changes that can help control health problems. Use less salt if you have high blood pressure. Limit sugars if you have diabetes.

Keep a Record

Write down important facts about your surgery. Give a copy to a family member, too. This information will be useful when talking with your healthcare providers in the future. Here's a sample of the important information that you'll want to keep handy.

Type of bypass surgery _____

Type of graft _____

Date of surgery _____

Surgeon and phone number _____

Hospital _____

Medications you are taking _____

Changes in symptoms since recovery _____

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