

About your Bypass Surgery

Why do I need bypass surgery?

If you have coronary artery disease that means one or more of the arteries that supply your heart muscle with blood is blocked. Your doctor may suggest coronary artery bypass graft surgery to improve blood flow to your heart. More blood flow to your heart should eliminate chest pain due to coronary artery disease (angina pectoris), reduce fatigue and the need for medication, increase your ability to be physically active, and restore a sense of well-being. It also may add years to your life.

What is coronary artery disease?

The coronary arteries are the large blood vessels that bring blood to the heart muscle. Coronary artery disease is the narrowing of these arteries due to buildups of fatty deposits called plaque. These deposits form in the inner wall of the vessel and can restrict blood flow. Plaque can tear (rupture) in the vessel and cause a blood clot to form. If the clot blocks a coronary artery, a heart attack can result.

What are the effects of coronary artery disease?

When the coronary arteries are narrowed by plaque, less blood reaches the heart muscle. Exercise and emotional stress cause the heart to need more blood. When the heart doesn't get the blood it needs, symptoms such as fatigue, tightness in the chest, or a peculiar crushing type chest pain called angina pectoris may result. Rest may relieve the symptoms. Still, chest pain signals a problem and should be evaluated by a doctor.

Without bypass surgery or other treatment, coronary artery disease can be deadly. If blood flow through a coronary artery suddenly stops (usually because of a blood clot), part of the heart muscle may be permanently damaged.

This is a heart attack. A heart attack is often accompanied by severe chest pain that won't go away or that goes away and comes back. (See the back of this brochure for the warning signs of a heart attack.)

What can be done to relieve blockages in the coronary arteries?

Plaque that blocks the coronary arteries usually occurs only in portions of the arteries. The part of the artery beyond the narrowing or closure often isn't blocked.

When the disease is only in one or two arteries, stretching or dilating the vessel sometimes can open the blockage. This is done with a procedure called PTCA, which is short for percutaneous transluminal coronary angioplasty. In this procedure, a catheter with a deflated balloon on its tip is passed into the narrowed artery segment. Then the balloon is inflated, and the narrowed segment is widened.

When the blockages are more complicated and involve more coronary arteries, the doctor will usually recommend coronary artery bypass graft surgery. This operation will establish new pathways to carry the blood around the blockages.

What is coronary artery bypass graft surgery?

In this surgery, arteries or veins are taken from another part of your body. These vessels are connected directly to the coronary arteries on the surface of your heart beyond the blockages. This way blood can flow through them to bypass the narrowed or closed points. That channels more blood to the heart muscle.

The arteries or veins used in the operation are expendable. Removing them doesn't significantly affect the blood flow where they're taken.

Usually the arteries used are on the inside of the chest along the breastbone (internal mammary/thoracic artery). If a vein is used, most often it comes from just beneath the skin on the inside of the leg (saphenous vein). Sometimes veins may be taken from the back of the legs or arms, and some arteries in the abdominal cavity can be used. Rarely, a vein from a donor or an artificial blood vessel may be needed. This only happens when a patient's own arteries or veins can't be used.

Coronary artery bypass operations are done using a heart-lung machine. This machine makes it possible to stop the beating of the heart during surgery. Then the grafts are precisely connected to the coronary arteries.

Preparing for Surgery

It's natural to feel anxious once you've made the decision to have coronary artery bypass graft surgery. You may feel less worried once you understand why you need the operation, meet the members of your medical team and have your questions answered. Hospital procedures vary, so be sure to find out about blood donation, visiting hours, conferences with doctors, etc.

When will I be admitted to the hospital?

You may be admitted before your operation date so diagnostic tests can be done. These routinely include blood and urine tests, a graphic record of electrical impulses produced by the heart (an electrocardiogram, often shortened to ECG or EKG), chest X-ray and other tests and procedures. Cardiac catheterization with coronary angiograms is done at this time unless it's been done before. (A cardiac catheterization is the process of examining the heart by introducing a thin tube [catheter] into a vein or artery and passing it into the heart. An angiogram is a series of X-ray pictures made of the blood vessels or the heart's chambers by tracing a special dye that's been injected into the bloodstream.) If these tests have already been done, you'll be admitted directly for the operation.

Who will visit before my operation?

The surgical staff will visit to examine you, discuss the details of your operation and answer questions. The nursing staff will also evaluate your needs, make you as comfortable as possible, give you information and answer questions. In addition, the anesthesiologist will evaluate you and discuss details related to anesthesia and plans to care for vital body functions during your operation. Other members of the technical staff may come to draw blood, insert intravenous catheters (IVs), and tell you how to breathe and care for your lungs after your operation.

Someone will tell you when your operation is scheduled. Heart operations are usually scheduled in advance and begin on time. Occasionally an operation may be delayed because other patients have emergency needs. If this happens, your operation will be rescheduled as soon as possible.

What will be done before the operation?

Before your operation, much of your body hair will be shaved off, especially from your chest (if you're a man) and legs. You'll probably be asked to shower and wash with antiseptic soap to remove bacteria from your skin. This reduces the chance of infection.

You should remove personal items such as glasses, contact lenses, dentures or detachable bridge work, watches and jewelry and give them to family members for safekeeping.

You'll probably be able to take your usual medications on schedule, but ask your doctor first. About an hour before your operation, you'll be given medications that will make you relaxed and drowsy. Attendants will wheel you to the operating room on a rolling bed. After you're in the operating room, the anesthesiologist will give you an anesthetic that brings sleep and freedom from pain during the operation. Then the surgeon will operate.

How long will the operations last?

Bypass surgery usually lasts from three to six hours. The length of time depends upon what has to be done. The doctor can estimate how long your operation may last, but the actual time could be different.

What arrangements can be made for my family during the operation?

Hospitals have places where your family and friends can wait during surgery. Be sure the surgeon knows where they will be waiting. Then he or she will know where to reach them when your surgery is over.

After your operation

Where will I go after my operation?

You'll be taken to a recovery area or intensive care unit (ICU). Here you'll regain consciousness after the anesthetic wears off. You may not be able to move your legs or arms when you first wake up, but in a short time your body and mind will again be coordinated.

How soon after my operation may my family visit?

Your family may visit briefly in the recovery room or ICU within an hour or two after your operation. You'll probably still be asleep then.

Will I have pain?

You'll have some discomfort where the incision was made to reach your heart. Usually there will be one or more incisions in your leg if a vein was removed to use

for the bypass. These incisions also may hurt. You'll be given medication to relieve pain.

Most patients complain of soreness but don't have severe pain. The soreness comes from the surgical incisions and muscle spasms. Often good posture and moving your arms and shoulders will help this. If you have severe pain, the nurse will give you medicine if you ask. Severe pain seldom lasts more than three days.

Why are tubes and wires connected to my body?

After your surgery, you'll have tubes and wires attached to parts of your body. They provide for safe, efficient recovery. Catheters, which are small tubes, will be in place, usually in your arm. They're used to help the hospital staff give you drugs and fluids, withdraw blood samples and continuously monitor your blood pressure. One or more tubes in your chest will drain off fluid that usually accumulates during and after the operation. Small patches or electrodes on your chest are attached to an oscilloscope. They let the nursing staff monitor the ECG for heart rhythm and rate. Small wires may be attached to your lower chest. They permit pacing of your heart if needed.

A breathing tube (endotracheal tube) in your mouth goes by your vocal chords into your windpipe. It won't hurt but will keep you from talking. The nurse will help you find other ways to communicate. The breathing tube will be removed when you no longer need help breathing. It's usually taken out within 24 hours after the operation.

What should I expect in the ICU?

It's hard to keep track of time in an area where the lights are on 24 hours a day and where there's constant activity. Consequently, you may become disoriented and confused, particularly at night.

Pain medicines also may make you feel confused. Temporary confusion isn't serious and will go away within a day or two after you're moved to a quieter, less-intensive nursing unit. As you're able to rest, normal patterns of sleep, wakefulness and thought processes will return.

Is fever common?

Most people have a fever after an operation. It may cause heavy perspiration during the night or even during the day. Medication to relieve fever will be given. Don't be alarmed if fever continues for three or four days.

What will help my recovery?

Deep-breathing exercises and coughing are important to help speed recovery. Coughing reduces the chances of pneumonia and fever and won't harm the incision or bypass grafts. Most patients are afraid of pain or discomfort and don't like to cough after an operation. Still, coughing is essential. You may find it easier to cough if a pillow supports your chest. You also can help your recovery by changing positions in bed often.

When can I eat and drink?

Once your breathing tube is removed, you'll be able to swallow liquids. How quickly you can progress from liquids to a regular diet depends on your own digestive system.

When can I get out of bed?

You may get out of bed and sit in a chair or walk around the room as soon as you can, usually within a day or two. Later you can take short walks in the hall. Eventually you can climb stairs and take brisk, longer walks to prepare for going home.

What about bathing?

You can have sponge baths right away. In a few days you'll be allowed to have a shower and shampoo.

Is one position better than another for sleeping?

It's best to try to lie on your side at least part of the time, moving every few hours if you can. Lying on your back for a long time isn't good for your lungs.

What about the healing of my incisions?

Soon after your operation, your chest wound will be exposed to the air. That lets it dry. After a few days, washing it with soap and water is a good idea.

The number and length of leg incisions varies from patient to patient. It depends on how many vein grafts the surgeon must make. Some patients have an incision in just one leg while others have incisions in both. Later these incisions will be washed gently with soap and water.

Your ankles may swell. You may also feel a burning sensation when standing up on the leg where the graft was taken. Elastic support stockings help circulation and reduce swelling. Walking helps blood circulate in your legs and also helps your heart.

External stitches or staples will be removed from your chest about a week after your operation. A few days later they'll be removed from your legs. If strips of tape are placed over an incision that's been closed by absorbable stitches under the skin, the strips should stay on for about as long as regular stitches (since these tapes are a substitute for stitches).

These wounds require about six weeks to heal completely. It's smart to avoid lifting heavy objects during this time. The wound color will gradually change from purple to red to pink, returning to normal after several months.

How long will I stay in the hospital?

The usual hospital stay after bypass surgery averages about four to six days, but it depends on whether there are other complications. During that period, and beyond, most patients have "good days" and "bad days" with overall progress and a gain in strength.

Returning home

Can leaving the hospital cause mixed feelings?

It's not unusual to feel nervous or depressed about returning home. Sometimes these feelings are prompted by concerns about leaving the security of the hospital, with its expert medical team and equipment. Home care, by comparison, may seem uncertain. Have confidence that your doctor won't send you home until he or she thinks you're ready.

Should I make special plans for getting transportation home?

Patients are usually driven home by their families. If you must travel by bus, train or airplane, special arrangements can be made to board before other passengers. If needed, make arrangements for a wheelchair in advance by contacting the carrier's passenger service personnel.

What about a special diet?

The doctor, dietitian or nursing staff will explain how to modify your eating style. It's wise to reduce your coronary risk factors as much as you can by reducing saturated fats, cholesterol and salt in your diet. It's also important to avoid being overweight. Moderation and common sense usually are the best guides in both eating and drinking.

What will I feel after returning home?

It's common to feel weak when you get home. A healthy college student put to bed for just one week loses about 15 percent of muscle strength. It's no surprise, then, that after a hospital stay you may feel tired and weak when trying to resume the routine of home life.

The healing of your incisions takes a tremendous amount of energy. That also depletes body strength. This demand for energy drops significantly about three to four weeks after the operation.

Exercising is a good way to regain your strength. Walking is especially beneficial after bypass surgery.

Is depression normal?

Depression is common in patients when they first return home. The emotional letdown after any operation may cause such feelings. Progress may not seem fast enough, and time may seem to stand still. The best way to work through depression is to be physically active and talk about it with your spouse, family or close friends. Family members should be careful not to add to the depression.

Patients and their families also commonly feel angry and frustrated. These feelings usually subside as people resume their normal activities.

What medicine should I take?

Only take medicines your doctors have prescribed for you. Don't keep taking medicines you took before the operation unless they're specifically prescribed. Don't use even over-the-counter (nonprescription) drugs like aspirin or ibuprofen without first asking your doctor.

When should I contact my doctor?

Call your doctor if you have any sign of infection (redness or drainage at the incision), fever, chills, increased fatigue, shortness of breath, swollen ankles, weight gain over five pounds in a few days, change in heart rate or rhythm, or any other sign or symptom that seems unusual.

How long should I wait before returning to work?

Sedentary workers can go back to work in four to six weeks on average. People who perform heavy work may need to wait six weeks or longer.

What should my home routine be?

Try to follow these guidelines:

1. Get up at a normal hour.
2. Bathe or shower if possible.
3. Always dress in regular clothes. (Don't stay in sleeping clothes during the day!)
4. Take time to rest in the mid-morning and mid-afternoon or after periods of activity.

Rest periods after activity are helpful. After a morning walk of a few blocks, take a short nap when you get home. The ability to do more comes with time, and walking is one of the healthiest and best activities.

Because of your chest incision, your doctor won't want you to lift any objects weighing five pounds or more. Ask your doctor for tips on strength training as part of your recovery after your incision has healed.

You should have no problem doing any of these activities: helping with light work around the house: going to the theater, restaurant, store or church; visiting friends: going for a ride in the car; or climbing stairs. Your doctor may prescribe participation in a cardiac rehabilitation program that includes diet and exercise.

Sticking to this program usually allows most patients to walk two or three miles a day within a few weeks after their operation. Such distances usually require outside walking.

If it's very hot or very cold, try walking in an enclosed shopping mall or on a treadmill. Temperature extremes force your body to work harder. It's unwise to force yourself to walk great distances outdoors when it's too hot or too cold.

What about sexual relations?

You may resume sexual relations when you feel ready. If you have questions, ask your doctor.

Will I be able to drive?

You may begin driving any time you feel physically able to operate the vehicle safely. It's usually best to wait a few weeks after leaving the hospital before you try to drive.

When should I schedule return appointments to see the doctor?

Routines for postoperative visits vary depending on a patient's needs and the wishes of each doctor. Patients usually are advised about future appointments when they're discharged from the hospital. Make an appointment with your personal or family physician soon after returning home.

What about dental treatment?

You won't need any special precautions during dental treatment unless you also have another heart problem. If you're taking aspirin or persantine, be sure to tell your dentist.

Planning for the future

What changes should I make in my lifestyle?

Bypass surgery is done to restore a person to an active and full life. This includes making it possible to have a sense of well-being, return to work or active retirement, be physically active, enjoy hobbies, etc.

You may need to change some aspects of your lifestyle or habits. Only you can make that decision. It makes sense to reduce the risk factors of heart attack that you can control. This means ...

- Don't smoke. and avoid others' tobacco smoke.
- Keep your blood pressure in a healthy range (Below 140/90 mm Hg) or even lower if you have diabetes, heart failure or certain kidney problems.
- Keep your blood cholesterol below 200 mg/dL by eating less saturated fat and cholesterol.
- Be physically active by gradually building up to a total of 30-60 minutes of exercise on most (and ideally all) days of the week.
- Keep your weight at a healthy level. (Avoid being overweight or obese.)
- Manage diabetes (if you have it).
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If you need to, you can ask your doctor or other healthcare professional for help in achieving these goals.

Some doctors recommend that heart patients avoid internal or external time pressures and situations that regularly make them angry or hostile. Sometimes you can diminish the sense of time urgency by consciously deciding to slow down and

increasing your leisure time. If you know a situation may anger you, try to avoid it - and if possible, talk about it with those involved.