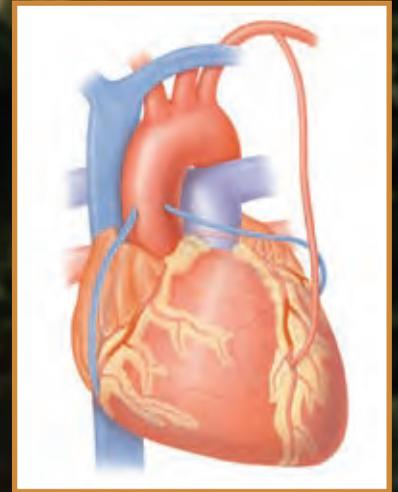


# Understanding Coronary Artery Bypass Surgery



- **Understanding Coronary Artery Disease (CAD)**
- **Before, During, and After Surgery**
- **Making Changes for a Healthier Heart**

# Surgical Treatment for CAD

Coronary artery disease (CAD) is a serious health problem. The arteries that carry blood to your heart become blocked. Left untreated, this can lead to a heart attack. **Coronary artery bypass surgery** (also called CABG) is a treatment that can help. This surgery uses a **graft** (blood vessel from another part of your body) to make a new pathway (bypass) around a blockage. Read on to learn how bypass surgery will put you on the road to a healthier future.

## Risk Factors for CAD

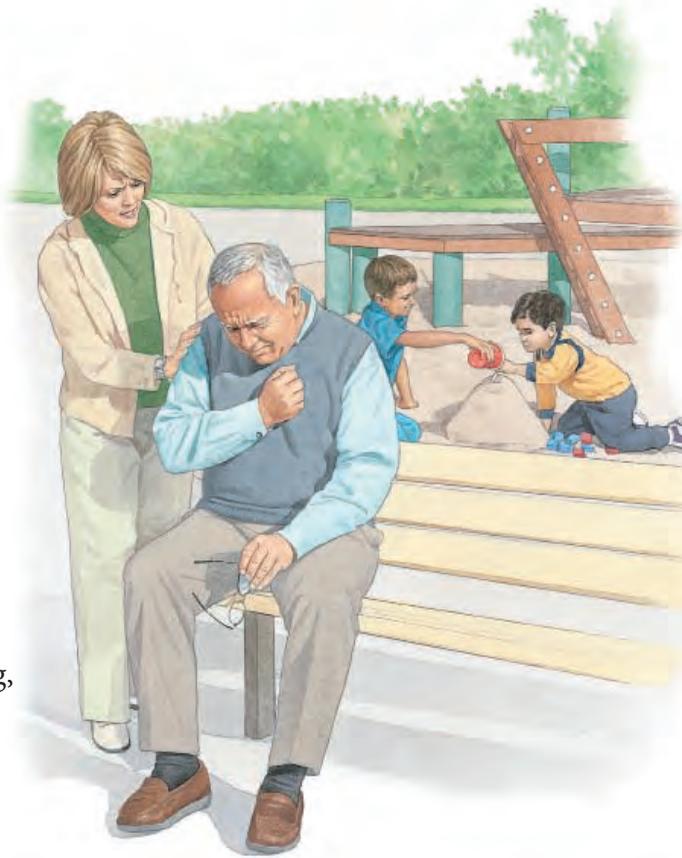
Certain **risk factors** increase your chances of developing CAD. For instance, high blood pressure, high cholesterol, and diabetes all make CAD more likely. Smoking, being overweight, and eating unhealthy foods can increase your risk even more. Risks like these can be controlled to help make your heart healthier. Other risk factors are things you can't change, such as age and a family history of heart problems.

## Symptoms of CAD

When you have CAD, your heart muscle doesn't get enough blood and oxygen. This causes symptoms such as:

- **Angina** (a feeling of pain, pressure, aching, tingling, or burning in the chest, back, neck, throat, jaw, arms, or shoulders)
- Tiredness or lack of energy
- Shortness of breath
- Dizziness
- Nausea

Often, women have different symptoms than men. In some cases, especially in people with diabetes, there may be no obvious symptoms.



Angina is a sign that you are at risk of having a heart attack.

## Why You Need Surgery

Your doctor has determined that bypass surgery is the best treatment for your CAD. Bypass surgery doesn't cure CAD. Still, it's a procedure that could save your life. Without treatment, you could have a heart attack. This can lead to other major problems, even death. Bypass surgery is a serious procedure. It may take you several months to fully recover. But the benefits far outweigh the risks. Bypass surgery will improve blood flow to your heart. This reduces your chances of a heart attack. And once you've had surgery, you can focus on managing your risk factors for CAD. This will decrease your chances of developing new blockages.



Based on the extent of your CAD, your doctor has recommended bypass surgery.

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**For Family and Friends**

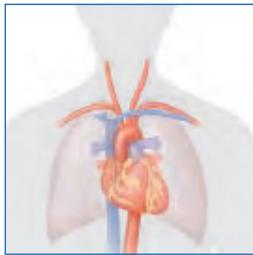
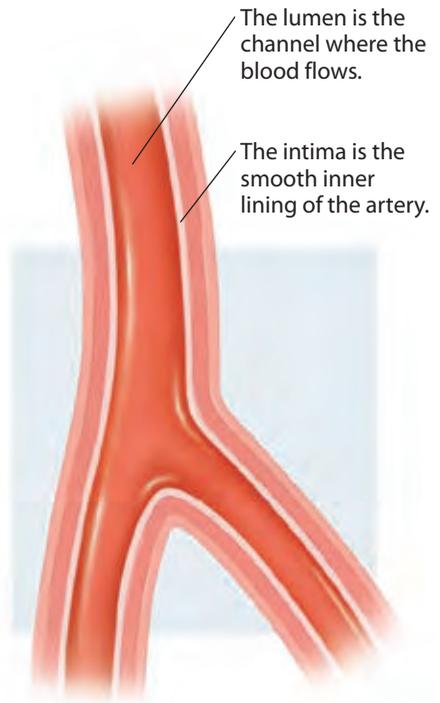
Learning about CAD and bypass surgery can be overwhelming. Going through bypass surgery can also be very emotional—for the patient, as well as for family and friends. This product is for your loved one, but it's also for you. It will help answer many of your questions about what surgery will be like. The information in this booklet will also show you ways to help and support your loved one before and after surgery.

# How Coronary Artery Disease Develops

The heart is a muscle about the size of your fist. It pumps blood throughout the body. Like other muscles, the heart needs a steady supply of oxygen to function. Blood carries oxygen to the heart and the rest of the body through blood vessels called arteries. In the heart, the **coronary arteries** supply blood and oxygen to the heart muscle. If the muscle doesn't get enough oxygen, angina or a heart attack can result.

## Healthy Coronary Arteries

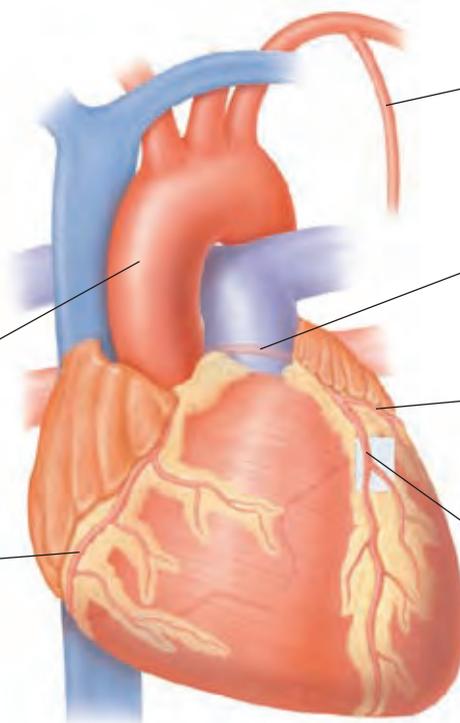
Coronary arteries wrap around the surface of the heart. They supply the heart muscle with oxygen-rich blood. The amount of oxygen the heart needs depends on how hard it's working. For instance, exercise makes the heart beat faster. This increases the muscle's need for oxygen. Healthy arteries can easily meet this need. They have smooth, flexible walls that accommodate changes in blood flow.



The heart is located between the lungs, near the center of the chest

The **aorta** carries blood from the heart to the rest of the body. The coronary arteries branch off the aorta.

The **right coronary artery** supplies blood to the right side and bottom of the heart.



The **internal thoracic (mammory) artery** supplies blood to the chest wall. It may be used as a graft during surgery.

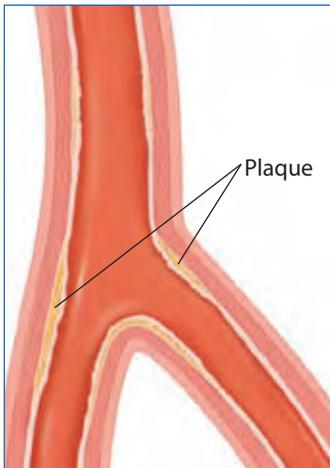
The **left main coronary artery** divides into two branches, described below.

The **circumflex coronary artery** supplies blood to the back, left side, and bottom of the heart.

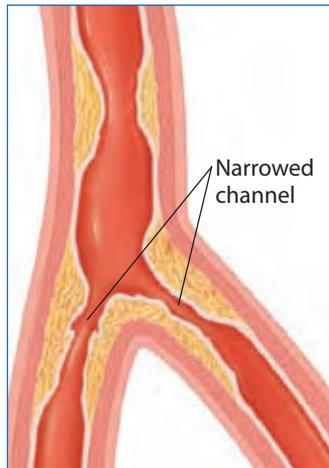
The **left anterior descending coronary artery** supplies blood to the front and left side of the heart.

## Coronary Artery Disease (CAD)

CAD starts when the inner lining of a coronary artery is damaged. This is due to risk factors, such as smoking or high cholesterol. **Plaque** (a fatty material composed of cholesterol and other particles) then builds up within the artery wall. This buildup (called atherosclerosis) narrows the channel inside the artery. It also makes artery walls less able to expand. At times when the heart needs more oxygen, not enough oxygen-rich blood can get through to meet the need. This can lead to angina.



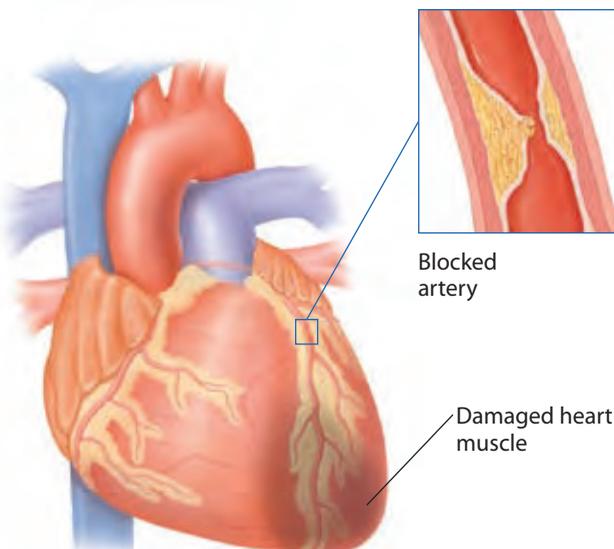
**Plaque forms between layers of the artery wall** when the inner lining of the artery is damaged.



**Plaque narrows the channel** where blood flows. The artery can't meet increased demands for blood.



**Plaque may rupture**, narrowing the artery even more. A blood clot may cut off blood flow in the narrowed artery.



## Heart Attack

A heart attack (myocardial infarction) occurs when a coronary artery is blocked by plaque or a blood clot. When this happens, the heart muscle beyond the blockage doesn't receive enough oxygen. If blood flow isn't restored quickly, that part of the heart muscle dies. This damage cannot be reversed. Though many people survive heart attacks, they can be fatal.

# Your Evaluation

By evaluating your heart, your doctor learns the extent of your CAD. To start, you're asked about your symptoms and health history. Then you have a physical exam and blood tests. These help identify other health problems that may be contributing to your CAD, such as high blood pressure, high cholesterol, or diabetes. Based on what is found during this part of the evaluation, some of the following tests are done. These help determine if bypass surgery is the right treatment for you.

## Electrocardiogram

An electrocardiogram (ECG or EKG) records the way electrical signals travel through your heart. Small pads are placed on your chest, arms, and legs. Wires connect the pads to a machine that records your heart's signals.

- A **stress ECG** is done while you exercise on a treadmill or stationary bike. This shows how your heart responds to exercise. In some cases, medication is used to stress the heart instead.
- A **resting ECG** is done while you sit or lie down. This can show if your heart is receiving too little oxygen. It also shows whether your heart has already been damaged by a heart attack.

## Imaging Tests

These tests may be done during stress or while you're resting. They show how well your heart pumps. They also show if arteries can meet an increased demand for blood.

- An **echocardiogram** uses sound waves to show the structure and movement of the heart.
- **Nuclear imaging** is done by injecting a small amount of radioactive material into a vein. The heart absorbs this material, which allows a scanning camera to take pictures of the heart.

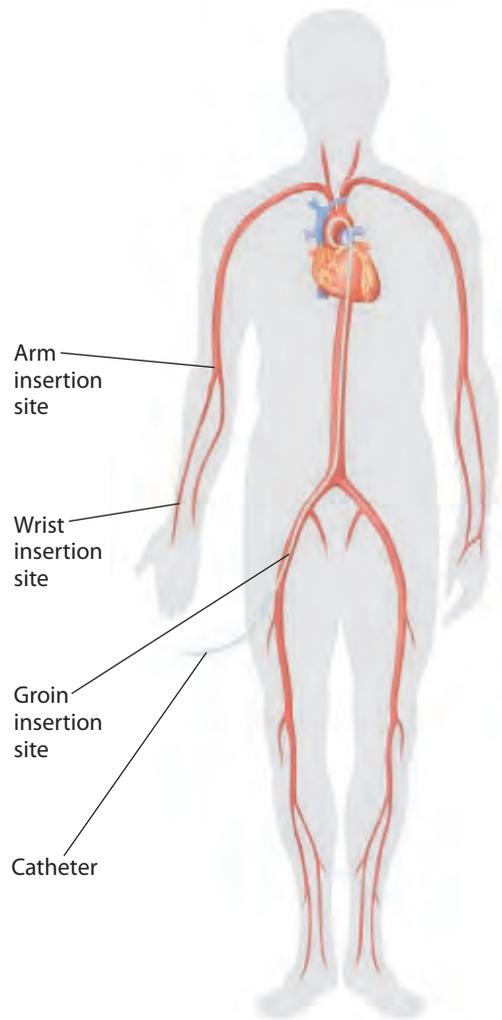


A stress ECG shows your heart's response to an increased demand for blood.

## Cardiac Catheterization

This procedure can pinpoint where coronary arteries are narrowed, damaged, or blocked. It helps your doctor decide on your treatment. During cardiac catheterization, a **catheter** (thin, flexible tube) is inserted into the coronary arteries. Then **angiograms** (x-rays) are taken of the arteries. You'll be awake during the procedure, but you'll receive medication to help you relax. During the procedure:

- The skin in the area of the insertion site is numbed. An introducing sheath (tube) is inserted into a site in the groin, arm, or wrist. The sheath remains in place during the entire procedure.
- A catheter is inserted into the sheath and threaded through the arteries. The catheter is guided to the heart with the help of x-ray monitors.
- X-ray dye (also called contrast) is injected through the catheter. This allows the coronary arteries to show up on angiograms. You may feel a warm flush as the dye is injected.
- Angiograms are taken. These show where blockages are.



Possible catheter insertion sites

## Deciding On Your Treatment

In some cases, blockages can be treated during cardiac catheterization with procedures called angioplasty and stenting. But based on the size, number, and location of the blockages, your doctors may decide that bypass surgery is the best treatment. You may need surgery just after your catheterization. Or surgery may be scheduled for a later date.

# Your Surgical Experience

Surgery may take place very soon after your evaluation. If time permits, you will meet with your doctor a few days before. At this visit, you'll be told how to prepare. It's okay to be nervous. Don't be afraid to share your feelings with your doctor, family, and friends. Doing so can help you get ready emotionally.

## Getting Ready for Surgery

- Your blood and urine may be tested for problems that could affect the surgery. You may also have a chest x-ray.
- You may meet with a doctor to discuss **anesthesia** (the medications that will keep you pain-free and asleep during surgery).
- You should tell your doctor about all prescription and over-the-counter medications you take. This includes herbs and supplements. You may be asked to stop taking some of these.



## If You Smoke, Quit!

Quitting smoking makes you less likely to have lung problems as you recover from surgery. For most people, quitting even a few days before surgery can be helpful.

You won't need your suitcase right away. Ask someone to bring it to the hospital for you.

## Just Before Surgery

Here are some ways to prepare at home:

- Pack a small suitcase with a bathrobe and toiletries, such as a toothbrush. Don't bring any valuables or jewelry (not even your wedding ring).
- Try to get a full night's sleep the night before surgery.
- Don't eat or drink anything after the midnight before surgery. This includes water.
- Shower the night before and the morning of surgery. You may be told to use a special antiseptic soap.

### For Family and Friends

- Encourage your loved one to talk about his or her feelings and fears. This can help both of you cope.
- Join your loved one at doctor's appointments. Feel free to ask any questions you have.

## On the Day of Surgery

Hair may be removed from the chest or other incision sites. You'll receive medication through an IV. This will make you groggy and help you relax. Lines will be connected to your finger, wrist, arm, and neck. These are attached to machines that monitor your oxygen levels, heart rate, blood pressure, and pressures in your veins. Just before surgery starts, anesthesia will be given to prevent pain and keep you asleep. Rest assured, surgery will not start until the anesthesia has taken effect.

## Your Bypass Team

You can feel secure that your surgery is being done by a team of skilled professionals. You'll be introduced to members of this team before surgery starts. The team may include the following people:

- **The heart surgeon and assistants**, who prepare the bypass graft and perform the bypass.
- **Nurses**, who help with the surgery.
- **The anesthesiologist**, who monitors the anesthesia during surgery.
- **The perfusionist**, who operates the machine that keeps your blood circulating during surgery.



## For Family and Friends

- Surgery will take at least 4 to 6 hours. You may choose to wait at the hospital. If so, bring something to do. You can also leave and come back when the surgery is over. Leave a phone number where you can be reached.
- You will most likely be able to see your loved one after surgery that same day. Be prepared to go home at night.

# How Bypass Surgery Is Done

During bypass surgery, blockages are not removed. Rather, a new pathway is created around the blocked part of a coronary artery. First, a healthy blood vessel is taken from another part of the body. This is the bypass graft. The graft is attached to the coronary artery beyond the blockage. This way, blood flows through the graft and bypasses the blocked part of the artery.

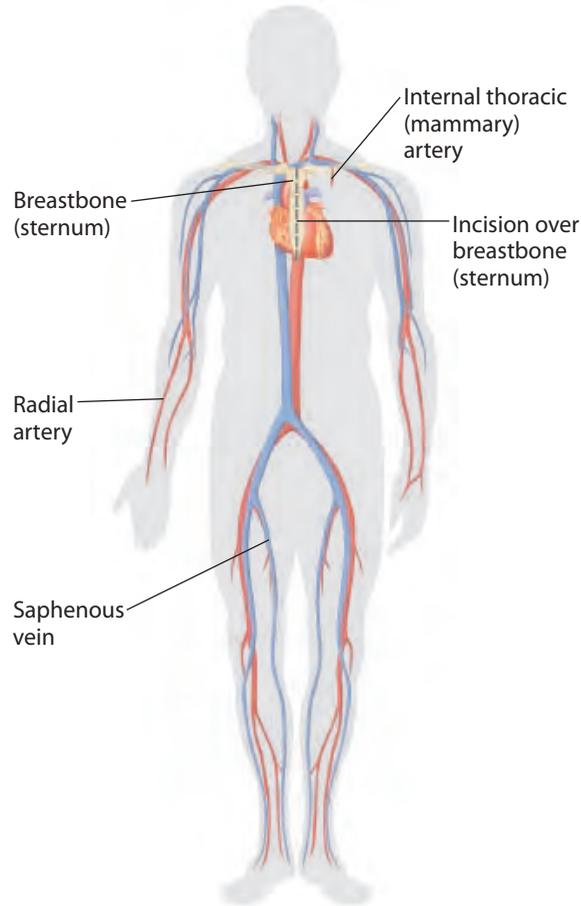
## Preparing the Bypass Graft

The bypass graft is taken from another part of your body. This usually doesn't affect blood flow in that body part. If you have more than one blockage, more than one graft may be needed. One or more of these blood vessels will be used:

- The **saphenous vein**, which is located in the leg.
- The **radial artery**, which is located in the arm.
- The **internal thoracic (mammary) artery**, which is located in the chest wall.

## Reaching the Heart

While one member of the bypass team is getting the graft, another member works to reach your heart. First, an incision is made in the chest. Then the breastbone (sternum) is divided. The breastbone is held open throughout surgery. This puts pressure on the nerves of the chest. You may have soreness and muscle spasms in your chest, shoulders, and back during recovery.



Possible incision and graft sites

## Risks and Complications

Your doctor will explain the possible risks of bypass surgery. These may include:

- Excessive bleeding
- Infection of the incision sites
- Pneumonia (lung infection)
- Fast or irregular heartbeat
- Nerve injury or muscle spasms
- Breathing problems
- Memory problems or confusion
- Heart attack, stroke, or death

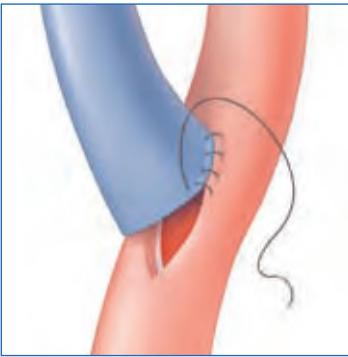
## Using the Heart-Lung Machine

In some cases, a machine does the work of your heart and lungs during surgery. Blood is circulated through this heart-lung machine. The machine supplies the blood with oxygen and pumps it back through the body. This is known as an “on-pump” procedure. In these cases, the heart may be stopped temporarily before the graft is attached. Your own heart and lungs take over after the bypass is completed. In other cases, the heart-lung machine is not used and the heart is not stopped. This is known as an “off-pump” or “beating heart” procedure.

## Attaching the Graft

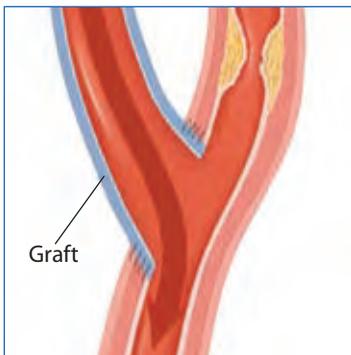
A small opening is made in the coronary artery, below the blockage.

- **If a saphenous vein or radial artery is used**, one end of the graft is sewn onto this opening. The other end is sewn onto the aorta.
- **If the internal thoracic (mammary) artery is used**, one end of the graft is sewn onto this opening. The other end is already attached to a branch of the aorta.

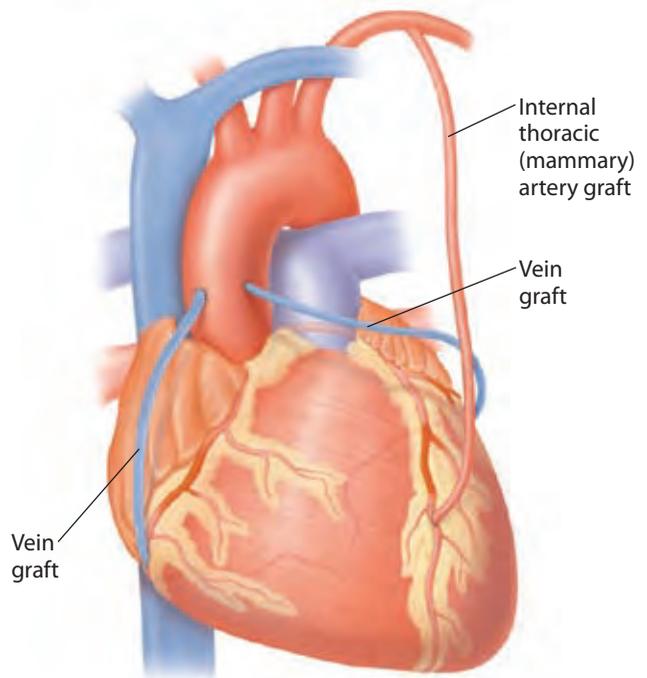


## Finishing Up

Once the graft has been attached, blood will start flowing through this new pathway to bypass the blockage. If you have multiple blockages, more than one bypass may be done. Then your breastbone is rejoined with wires. These wires will stay in your chest permanently. The incision is closed, and you are taken to the intensive care unit to begin your recovery.



Once the bypass graft has been attached, blood can flow around the blockage.



# After Your Surgery

You will be taken to the ICU (intensive care unit). When you wake up, you may be thirsty, groggy, and cold. These sensations are common and won't last long. Dedicated nurses will make sure you have everything you need. When your condition is stable, you will be moved to another part of the hospital. This may happen the same day as surgery, or a day or more later.

## To Help You Breathe

At first, a tube will help you breathe. It is inserted through your mouth and into your throat. This is normal. You won't be able to talk with the breathing tube in. Nurses will ask simple questions so you can respond by nodding or shaking your head. The tube may make your throat sore. There may also be a tube in your nose or mouth, which keeps your stomach empty. As soon as you can breathe on your own, these tubes will be removed. Then you'll likely receive oxygen through a mask or small prongs in your nose.

## To Monitor Your Condition

You'll be connected to tubes and machines that allow your nurses to monitor your health and recovery. The connections will be removed as you become stable. You may have:

- A line in your wrist or neck to monitor blood pressure or other pressures in your heart.
- An IV to provide medications and fluids.
- Drainage tubes to drain fluid from your chest.
- A catheter to drain urine.
- An intraaortic balloon pump to take over some of the heart's pumping function (if needed). This lets the heart relax and recover. You will likely be sedated until this is removed.



## To Manage Pain

You'll receive medication to control pain. You may be given IV or oral medication. Or you may have a PCA (patient controlled analgesia) machine. This machine lets you push a button to give yourself a measured dose of pain medication. Research shows that people recover faster after surgery if pain is kept under control. So, be honest about how much pain you feel. And don't be afraid to ask for pain medication when you need it. Tell your nurse if the medications don't reduce pain or if you suddenly feel worse.

## Preventing Lung Problems

After the breathing tube has been removed, a respiratory therapist or nurse will help you with deep breathing and coughing exercises. These help prevent pneumonia. Your healing breastbone incision may make deep breathing and coughing painful. Still, it's very important to do the exercises. You'll be taught how to do them in a way that lessens the pain.



You may use an incentive spirometer to clear your lungs.

## Reducing Swelling

Your legs may be swollen after surgery, especially if grafts were taken from them. Raising the foot of your bed can help reduce swelling. Your nurse will help with this. You may also be taught to do exercises in bed, such as the ankle exercise described below.



Do ankle exercises as often as recommended.

## Ankle Exercise

- Start with your toes pointed. Flex your foot at the ankle and count to 5. Then relax.
- Repeat 10 times with each foot.

## Getting Out of Bed

A nurse or physical therapist will help you get out of bed. This will happen early in your recovery, maybe even before you leave the ICU. Moving around improves circulation and helps prevent blood clots and pneumonia. You may sit on the edge of the bed with your legs dangling over, or have help getting into a chair. When you're well enough, a staff member will help you walk. Keep in mind that being active, even this soon after surgery, helps move your recovery along.

## For Family and Friends

- Be prepared for your loved one to be pale, puffy, and attached to many tubes. This is normal. He or she may also be groggy or asleep when you first visit.
- Limit your visits to the ICU so your loved one can rest and recover. Although every ICU has a different policy, be prepared to stay only about 10 minutes at a time.
- Your loved one will probably not need his or her suitcase until after leaving the ICU. A member of the healthcare team will let you know when to bring it.

# Getting Ready to Go Home

When you no longer need constant care, you will be moved from the ICU to another part of the hospital. At this point, you'll start playing a more active role in your recovery. Every patient recovers from bypass surgery at a different rate. The length of your hospital stay depends on how well you're doing, your overall health, and your situation at home. Many people stay in the hospital for 3 to 7 days after bypass surgery, but it's not uncommon to stay longer.

## Protecting Your Breastbone

Your breastbone was divided to reach the heart during surgery. The bone will take 6 to 8 weeks to heal. While in the hospital and then at home, you need to take special care of your breastbone. This will reduce pain and aid healing. Avoid motions that strain your arms or chest. This means no pushing, pulling, or lifting heavy objects. Also, avoid reaching behind you or high above your head. You'll be shown ways to move that protect the breastbone, such as the method below for standing.

## Standing Up

When you get out of a chair, it's okay to use your arms for balance. But don't push them against the arms of the chair. To stand:

- Scoot to the very front edge of the chair.
- Rock yourself onto the balls of your feet. Slowly rise to a standing position.
- Use the same method to get out of bed. Don't push your arms against the mattress.



At first, a member of your healthcare team will help you stand up.

## Preparing to Leave the Hospital

Before you leave the hospital, your doctor or nurse will talk to you about the next steps of your recovery. If new medications have been prescribed, you will be told when and how to take them. Make sure you know when your next doctor's appointment will be. You may also talk to a social worker or caseworker about whether you'll need help at home. If needed, arrangements will be made for you to stay at a skilled nursing facility or other medical center as you recover.

## Recovering at Home

You'll receive discharge instructions when you leave the hospital. These tell you how to deal with certain situations as you recover. Do as much as you comfortably can. Staying active will help speed recovery. To protect your healing breastbone, though, you will likely need some help from others.

### Getting Back Into Your Routine

Follow your doctor's guidelines. Here are some general time frames:

- **Showering.** Unless you're told otherwise, you can shower once you get home. Don't use very hot water. (This can make you dizzy.) Have someone nearby in case you need help. Don't take a tub bath until your doctor says it's okay.
- **Daily activities.** Resume activities as you feel comfortable doing so. Within a few days you can return to light activities, such as cooking. Don't do anything strenuous, such as mowing the lawn or vacuuming, for at least 6 weeks.
- **Driving.** Don't drive until your doctor says you can. This will be around 3 to 6 weeks after surgery. This is important for many reasons. Soreness or stiffness may make driving uncomfortable. And you shouldn't drive when you're taking pain medication.
- **Work.** Depending on your job, you may return to work 3 to 12 weeks after surgery.
- **Sexual intercourse.** You may be told to avoid sex for 4 to 6 weeks. When you do have sex, use positions that don't strain your breastbone. Talk to your doctor if you're concerned.

### Caring for Your Incisions

Your incisions may be bruised, itchy, numb, and sore. After a shower, pat them dry (don't rub). Don't use lotion or powder. Be sure to check the incisions every day. This way you'll see any signs of problems early.



To protect your breastbone, ask family members for help reaching high shelves.

### For Family and Friends

- Let your loved one be independent. Make yourself available, but step back and let your loved one do what he or she is able to do. Try not to be overprotective.
- You can help by picking up prescriptions and driving your loved one to appointments.

# Life After Bypass Surgery

Bypass surgery has reduced your risk of a heart attack. But remember that surgery is a treatment, not a cure. You must now maintain an active role in your care to help ensure a healthy future. Pay attention to how you're feeling, physically and emotionally. See your healthcare provider as often as recommended. And get ready to manage CAD by making a few changes to your lifestyle.

## Visits with Your Healthcare Team

As you heal, you will have follow-up visits with your healthcare team. Between visits, don't hesitate to call your doctor's office if you have any questions. Or you can write down your questions and bring the list to your next visit. You'll likely have:

- A visit with your surgeon, so your incisions can be checked.
- A visit with your heart doctor, so your medications can be adjusted.
- Continued visits with your heart doctor or primary care doctor, as often as recommended.



Keep in touch with your healthcare team as you heal.

## As Your Breastbone Heals

Don't be surprised if you feel sharp pains in your chest as your breastbone heals. You may also notice that changes in the weather make your incision hurt. These pains feel different from angina and are most likely not signs of a heart attack. If you have questions about what you're feeling, or if your pain isn't managed by medication, call your healthcare provider.

## When to Call Your Healthcare Provider

These are warning signs of infection and other problems:

- Fever over 100.4°F (38°C)
- Unexplained chills or sweating
- Sudden weight gain (5 pounds or more in 1 week)
- Increasing pain that isn't controlled with medication
- Swelling, redness, oozing, or cloudy discharge at the incision sites
- Unexplained bruising or bleeding
- Continued clicking sounds in your breastbone
- Symptoms of angina, like those you felt before surgery (call your doctor or 911)

## Understanding Your Feelings

It's common to feel down or depressed after bypass surgery. The good news is, you don't have to "just live with" these feelings. Help is available. Coping with your feelings may actually help you recover more quickly and improve your overall health. Here are some things you can do:

- Try not to withdraw from family and friends. Remember that you're not alone. Staying involved and being social can help raise your spirits.
- Talk about your feelings. Also, think about joining a support group. It may be easier to talk to people who know firsthand what you're going through.
- Tell your healthcare provider how you feel. Treatment, such as counseling and medication, may help.
- Keep in mind that forgetfulness and confusion can be side effects of bypass surgery. These can be frustrating. Don't be afraid to ask for help when you need it.



### For Family and Friends

- Encourage your loved one to talk about how he or she is feeling. Try to spend time together, doing things you both enjoy.
- Coping may be hard for you, too. You may want to join your loved one for a support group or counseling. There may even be support groups for family and friends of CAD patients in your area. Ask your loved one's healthcare provider for resources that may help.

# Taking Your Medications

From now on, you will be taking medication to keep your CAD under control. You may also take medications for related health problems. Your medications must be taken as prescribed, or they won't work properly. In most cases, this means they're taken every day. This may be hard at first, but you'll get used to it. Some of the tips below can help.

## Heart Medications

Some of these medications may be prescribed after your bypass surgery:

- **Antiplatelet medications** (such as aspirin) help prevent blood clots. They also reduce your risk of a heart attack.
- **Beta-blockers** reduce the heart rate and the force of the heartbeat. They also lower blood pressure.
- **ACE inhibitors** lower blood pressure and decrease strain on the heart.
- **Lipid-lowering medications** reduce the amount of LDL (“bad”) cholesterol and other fats in the blood. Some medications also improve levels of HDL (“good”) cholesterol.
- **Nitroglycerin** can stop an angina attack. Your healthcare provider will instruct you on when and how to use it.

## Other Medications

Depending on your risk factors, you may also take medications for related conditions:

- If you have high blood pressure, you may take medications such as diuretics and vasodilators. These lower blood pressure, which helps control CAD.
- If you have diabetes, pills or insulin injections can keep blood sugar under control. This reduces the risk of diabetes complications, including CAD.



## Tips for Taking Medications

Taking your medication as prescribed can help you feel better and stay healthy. To get the most benefit:

- Set up a routine. For example, take your medication with the same meal each day, or before you go to bed.
- Give yourself plenty of time to refill a prescription before it runs out. When traveling, be sure you have enough medication to last until you get home.
- Keep a list of all your medications and their dosages. Show this list to any doctor or dentist who treats you. Also show it to your pharmacist before buying any prescription or over-the-counter medication.

# Cardiac Rehabilitation

After your surgery, you'll likely be involved in a cardiac rehabilitation (rehab) program. This program covers many areas to help keep your heart as healthy as possible. You'll work with a team of specialists. These may include doctors, nurses, exercise specialists, dietitians, and counselors. Cardiac rehab can help you get back into your normal routine after surgery. It can reduce your risk of future heart problems. And it can give you tools to improve your overall health for the rest of your life.

## Program Components

A cardiac rehab program can take place in a hospital, a clinic, or a doctor's office. The program includes:

- **Exercise.** You'll learn how to exercise safely. Your program will include exercises to increase fitness, endurance, and strength.
- **Nutrition education.** You'll work with a dietitian to learn the best ways to eat for heart health. You'll also learn ways to use this knowledge when you shop, cook, and eat out.
- **Assistance with managing risk factors.** You'll learn about controlling related conditions such as high blood pressure, high cholesterol, and diabetes.
- **Counseling.** You'll get help dealing with the emotional aspects of CAD and treatment. This may include help with depression and anxiety. It may also include practical advice and support for quitting smoking, losing weight, being physically active, and continuing your sex life.
- **Family education.** Your family can learn with you. That way, they can help you to continue using your new skills and knowledge after you finish the program.



# Exercise for You and Your Heart

Thanks to bypass surgery, your heart has been given a second chance. Now, it needs exercise to get back into shape. Walking is the best way to do this. You don't need any fancy equipment to walk. You don't even need good weather—you can walk indoors, such as at a shopping mall. The information below can help you get started.

## Getting Started

These guidelines will help you get the most out of walking:

- Set realistic goals. Start by walking 5 to 10 minutes a day. Work your way up to 30 minutes a day, most days of the week.
- Wear sturdy shoes with padded soles and arch support.
- At first, walk with someone so you'll have help if you need it. Walking may be more enjoyable when you have someone to talk to!
- Walk on fairly level ground. Avoid big hills. (Small hills are okay.)
- Don't walk too fast. If you're short of breath or can't carry on a conversation, you're pushing yourself too hard.

## How to Walk for Fitness

Start out by walking normally for about 5 minutes. This increases your heart rate slowly. Then walk briskly, taking quick, full strides. Swing your arms easily and take deep breaths. Finally, walk more slowly for about 5 minutes. This safely brings your heartbeat back to its normal rate. You should also stretch before and after your brisk walk. Ask your healthcare provider about stretches that are safe for you.



# Heart-Healthy Eating

Maintaining a heart-healthy diet can improve cholesterol levels and blood pressure. Eating well can also help you lose weight and manage diabetes. You don't have to give up your favorite foods entirely. But you may need to eat smaller portions of some foods, or to save those foods for special occasions.



## Things You Can Do

Following a heart-healthy diet means eating less fat, less salt, and more fresh fruits and vegetables. Try these tips:

- Read food labels when you shop. Talk to your healthcare provider about what you should be looking for.
- Eat fresh or plain frozen vegetables. These have much less salt than canned vegetables. If you use canned vegetables, rinse them well.
- Select lean cuts of meat. Trim off all the fat you can see. Remove and discard the skin from chicken and turkey before eating.
- Broil, bake, steam, or microwave foods instead of frying them.
- Season your food with herbs, lemon juice, flavored vinegar, or salt-free spice mixes, instead of using margarine, butter, or salt. Take the saltshaker off the table.
- Avoid cream, cheese, or butter sauces, which add fat and cholesterol.
- If you're dining out, ask your server for heart-healthy suggestions.

## If You Need to Lose Weight

Your doctor may tell you to lose weight. This helps keep your heart healthy. It can also lower your chances of developing certain risk factors. The keys to losing weight are eating well and exercising. Remember this:

**Eating fewer calories + being more active = losing weight**

# Controlling Risk Factors

To keep CAD under control, you must control as many risk factors as you can. Quitting smoking is one of the most important things you can do. Managing other problems, such as high blood pressure, cholesterol, diabetes, and stress, can also help. Work with your healthcare provider to identify your risk factors and to get them under control.

## Quitting Smoking

Smoking damages the lining of the blood vessels and raises blood pressure. If you smoke, quitting now could save your life. Here are some tips:

- Talk to your doctor about medications or other products that may help, such as nicotine patches or gum.
- Make a list of things that make you want to smoke. Plan ahead how you can avoid or deal with these “triggers.”
- If you don’t succeed at first, keep trying. Many people need to try a few times before they quit smoking for good.



## Managing Related Problems

The related problems listed here can affect CAD. That’s why managing these problems is important:

- **High blood pressure.** Follow any dietary restrictions and exercise guidelines you’re given. And take your prescribed medications. You may also be told to monitor your blood pressure at home.
- **Cholesterol.** Follow your prescribed diet and take your medications as directed. Have your cholesterol and other lipids (blood fats) tested as often as your doctor says to.
- **Diabetes.** Work with your dietitian or diabetes educator to keep your blood sugar under control. This helps control other risk factors, such as high blood pressure and high cholesterol.
- **Stress.** Be aware that stress raises your heartbeat and blood pressure. Protect your heart by learning to relax. For instance, practice deep breathing or meditation.



# On Your Way to a Healthier Heart

Remember that bypass surgery is not a cure. The only way to keep your heart healthy is to control your CAD risk factors. This may seem overwhelming at first. But you don't have to make all of these lifestyle changes at once. Think of the changes you make as slow, steady progress. And feel good knowing you're taking the first steps to a healthier future.

Where Can I Start?	What Else Can I Do?
<p>Start by choosing just one or two changes from the chart below. Once you've mastered them, try making others.</p>	<p>Make a list like this one. Then write down your own ideas for working heart-healthy changes into your lifestyle.</p>
<p><b>Exercising</b></p> <ul style="list-style-type: none"> <li>• I will walk for at least 10 minutes during my lunch hour.</li> <li>• I will talk to my doctor about joining a cardiac rehabilitation program.</li> <li>• I will sign up for a low-impact aerobics class or join a walking group.</li> </ul>	
<p><b>Heart-Healthy Eating</b></p> <ul style="list-style-type: none"> <li>• I will add more fresh fruits and vegetables to my diet.</li> <li>• I will read food labels to choose products that have the least fat, cholesterol, and salt.</li> <li>• I will get cookbooks with heart-healthy recipes from my local bookstore or library.</li> </ul>	
<p><b>Quitting Smoking</b></p> <ul style="list-style-type: none"> <li>• I will ask my doctor about medications and products to help me quit smoking.</li> <li>• I will join a smoking cessation class or ex-smoker's support group.</li> </ul>	
<p><b>Losing Excess Weight</b></p> <ul style="list-style-type: none"> <li>• I will work with my doctor to set realistic weight loss goals.</li> <li>• I will keep a record of what I eat. This can help me stay on my weight-loss plan.</li> </ul>	

# Managing CAD

Surgery has lowered your risk of a heart attack—for now. You need to understand that bypass surgery does not cure CAD. Although blood flow to the heart will be improved, new blockages could still form. You need to take steps to prevent this. By committing yourself to managing your risk factors for CAD, you can help keep new blockages from forming.

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