

About Bypass Surgery

Steward

What It Is

Definition

A coronary artery bypass graft (CABG) is a surgical procedure that restores blood flow to the heart muscle. This is done by using blood vessels from other parts of the body to make a new route for blood to flow around blocked coronary (heart) arteries.

There are three different approaches:

- *Conventional* – is done by dividing the breastbone and spreading the chest. During the procedure, a heart-lung machine is used.
- *Minimally Invasive* – is done through a smaller incision without dividing the breastbone.
- *Off-pump (also called “beating heart”)* – is done with the heart-lung machine.

Reasons for Procedure

Atherosclerosis is a disease of the arteries. Cholesterol and fatty deposits build up on the walls of the arteries. This restricts blood flow causing decreased oxygen to the heart muscle. When the buildup happens in the heart, it may lead to chest pain, called angina, or heart attack. Lifestyle changes and medicines can be used to treat atherosclerosis. When the blockage

gets too severe, CABG may be recommended to re-establish blood supply to the heart muscle. It is often done in cases of:

- Severe blockage in the main artery or in several blood vessels that supply blood to the heart
- Persistent angina that does not improve with other treatments

Possible Complications

If you are planning to have a CABG, your doctor will review a list of possible complications, which may include:

- Infections
- Bleeding
- Stroke
- Damage to other organs, such as the kidneys
- Irregular heart rhythm
- Death

Some factors that may increase the risk of complications with heart surgery include:

- Lung disease, especially chronic obstructive pulmonary disease (COPD) (emphysema)
- Prior heart attack or cardiac surgery
- Obesity
- Diabetes
- Smoking
- Kidney disease

What To Expect

Prior to Procedure

Your doctor will likely do the following:

- Physical exam
- Chest X-ray
- Lab work
- Echocardiogram
- Electrocardiogram (ECG, EKG)
- Cardiac catheterization



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Talk to your doctor about your medication. You may need to stop taking certain medication for one week before surgery, such as:

- Blood-thinning drugs, such as warfarin (Coumadin)
- Anti-platelet drugs, such as clopidogrel (Plavix)
- Diabetes medications, such as metformin (Glucophage)

Your doctor may also ask you to:

- Eat a light meal the night before. Do not eat or drink anything after midnight.
- Arrange for a ride to and from the hospital.
- Arrange for help at home after the procedure.

Anesthesia

General anesthesia will be given. You will be asleep during the procedure.

Descriptions of Procedures

- *Conventional* – Before you are brought to the operating room (OR), you will have IVs placed and your skin prepped. Once in the OR, a breathing tube will be placed in your throat and you will be put to sleep. Next, an incision will be made through the skin and the breastbone will be split to open the chest. You will be connected to a heart-lung machine. Since the heart needs to be stopped for the surgery, this machine will act as the heart and lungs.

An artery will likely be taken from the chest wall as well as a section of vein from the leg. These vessels will be used as the bypass grafts. Once the heart is stopped, they will be connected to the blocked arteries. Once the bypass grafts are completed, the heart will be allowed to “wake up” and the heart-lung machine will be disconnected. Temporary tubes will be placed in your chest to help drain any fluid. The chest will be closed and you will be taken to the intensive care unit (ICU).

- *Minimally Invasive* – A small incision will be made in the chest between the ribs without dividing the breastbone. This allows the surgeon to reach the

heart. Then standard techniques are used to connect the prepared chest artery or leg vein to the coronary (heart) artery that is blocked.

- *Off-pump* – An off-pump coronary artery bypass can either be done through a minimally invasive incision or a conventional approach. During this procedure you won't be on a heart-lung machine. Instead, a device will be attached to your heart to stabilize it and you will receive medicine to slow down the heart.

Immediately After Procedure

You will be monitored in the intensive care unit, where you will have the following interventions:

- Heart monitor
- Pacing wires to control heart rate
- Tubes connected to a machine to drain fluids from the wound
- Breathing tube or an oxygen mask
- Catheter inserted into the bladder

How Long Will It Take?

The surgery can take anywhere from 3 to 6 hours.

How Much Will It Hurt?

Anesthesia prevents pain during surgery. You may be given medication for any pain during recovery. Pain levels vary from patient to patient.

Average Hospital Stay

The average stay is 3 to 6 days.

Post-Procedure Care

At the Hospital

- To reduce the risk of fluid buildup in your lungs, you will be instructed to breathe deeply and cough 10 to 20 times every hour.
- If a leg vein was removed, elevate your legs above your heart while sitting. Do not cross your legs.
- Efforts will be made to get you out of bed and walking as soon as possible.
- Dressings, pacing wires and chest tubes will be removed within the first few days.

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At Home

When you return home, do the following to help ensure a smooth recovery:

- Take medicines as directed by your doctor, such as:
 - Antiarrhythmics
 - Blood thinners
 - Cholesterol-lowering medicine
 - Blood pressure medicine
 - Pain medicine
- Follow your doctor's guidelines for caring for your incision
- Weigh yourself every morning
- Be sure to follow all of your doctor's instructions

Recovering after Surgery/What to Expect

Every patient's recovery can be different. You will need to shower, daily, with a mild soap. Ask your doctor when it is safe to take a bath or soak in water. You may find that there will be some areas of discomfort in the area of surgery that can last for several weeks. Also, it is common that you may feel tired for many weeks following this type of surgery.

If you had a conventional bypass surgery, you will be asked not to do any type of heavy lifting for two months that will cause pain at the surgical site. Most patients, after a minimally invasive bypass surgery, can return to normal activities approximately three weeks after the operation. People with jobs requiring strong physical activity may require additional time before resuming those types of activities. Be sure to ask your doctor when you can drive and return to work.

When to Call Your Surgeon

- Pain that you cannot control with the medication you have been given
- Signs of infection, including fever and chills
- Redness, swelling, increasing pain, excessive bleeding, or discharge at the incision sites
- Nausea and/or vomiting that you cannot control with the medication you were given after surgery or that lasts longer than expected
- Cough, shortness of breath, or chest pain
- Pain, burning, urgency, frequency of urination, or persistent blood in the urine
- Gaining more than four pounds within one or two days
- Pain and/or swelling in your feet, calves, or legs, or sudden shortness of breath or chest pain

For more information, call the Steward Center for Advanced Cardiac Surgery at 617-789-2045.