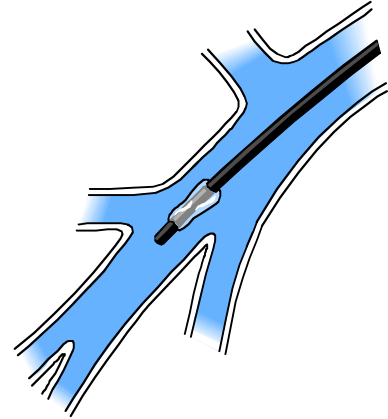


## Cardiac Catheterization

Cardiac catheterization is a procedure that is used to evaluate heart function and structure. The most common reason for performing a cardiac catheterization is to detect the presence of heart disease (a blockage of the arteries that take oxygen and nutrients to the heart muscle). Cardiac catheterization is an invasive procedure that consists of inserting a catheter (a long, very thin tube) into a blood vessel in the arm or leg, and guiding it up to the heart with the aid of fluoroscopy, a technique that shows real-time X-ray images. A contrast agent is injected through the catheter into the heart and coronary arteries while images are taken with the fluoroscopy equipment. This allows the doctor to view video images of the heart and measure the valves, the coronary arteries and the chambers of the heart.



- Cardiac catheterization is used to detect the presence of heart disease. Heart disease and valve disease are the two most common diagnoses that cardiac catheterization allows for evaluating. It also evaluates whether the heart muscle functions well. In addition, it can detect localized areas of the heart muscle that do not function or can determine that the heart muscle is weak and does not pump efficiently. It can also determine whether there is any leakage from one chamber of the heart to another. Cardiac catheterization can help determine whether medical treatment or performing a surgical intervention to treat the problem is needed.

### Preparation:

- Cardiac catheterization generally is performed on an outpatient basis. It is carried out at the hospital in a specialized procedures room known as catheterization laboratory.
- Wear comfortable clothes when you go to the hospital. You will have to wear a hospital gown during the procedure.
- Leave all money, jewelry and other valuables at home. If you use false teeth, eyeglasses or hearing aids, you must use them during the procedure to be able to communicate.
- The doctor or male nurse will give you specific instructions about what you can eat or drink before the procedure. In general, you should plan not to eat or drink anything after midnight on the night prior to the catheterization.
- Ask the doctor what medications you should take the day of the examination. You may be told to stop using certain medications, such as Coumadin (warfarin, an anticoagulant) or aspirin products. If you are told to take your medications, taken them with small sips of water.

- If you have diabetes, ask the doctor how you need to adjust your medications on the day of the examination.

What to expect:

- When you arrive, you may have to complete additional medical information. You must know the name of all the medications you take and whether you are allergic to anything. Do not forget to remind the doctor or male nurse if you suffer from any allergy. This is especially important if you are allergic to iodine, shellfish or radiographic dye. It is also important to report an allergy to latex. Some medications could increase the risk of suffering complications due to the catheterization. These include aspirin and related medications, Coumadin (warfarin), Plavix (clopidogrel), diuretics and insulin. Take a list of your medications (including over-the-counter ones) and the doses.
- You will have to change and put on a hospital gown.
- A male nurse will place an intravenous path in your arm so that liquids and medications can be administered to you during the procedure.
- The cardiac catheterization room will be cool and not very well lit. The air must be kept cool not to damage the equipment that is used in the procedure.
- You will have to lie down on a special table that is hard. You will see a large camera and several television monitors. You will be able to see the cardiac catheterization on the monitors.
- The male nurse will clean your skin on the site (arm or groin) where the catheter (a thin plastic tube) is inserted. The site where the catheter is inserted may be shaved.
- Sterile cloths will be used to cover the insertion site and prevent it from becoming infected. It is important for you to keep your arms and hands on the sides, under the sterile cloths.
- Electrodes (small flat adhesive patches) will be placed on your chest. The electrodes are connected to an electrocardiography (electrocardiogram) monitor, which will monitor the heart rate and rhythm during the procedure.
- A mild sedative will be applied intravenously for you to relax, but you will be awake throughout the procedure.
- The doctor will use a local anesthetic to numb the site where the catheter will be inserted. A plastic introducer (a short and hollow tube that is used to guide the catheter up to the blood vessel) will be inserted in a blood vessel in the arm or groin. It may be necessary to make a small incision to insert the introducer through the skin. A catheter will be introduced through the introducer and will be threaded up to the heart. You may feel pressure when the introducer or catheter is inserted, but you should not feel pain. Tell the male nurse or the doctor if it hurts.
- Once the catheter is in place, the lights will be dimmed and a small amount of contrast material (an intravenous dye that allows the heart and the blood vessels to be seen on the X-rays) will be injected into the arteries and the chambers of the heart through the catheters. The contrast material delineates the vessels, valves and chambers.

- When the contrast material is injected into the heart, you may feel heat for several seconds. This is normal and will disappear in a few seconds. The symptoms of an allergic reaction may include itching or a feeling of tightness in the throat. You must inform the doctor immediately if this happens. Symptoms of nausea and chest discomfort may also appear. Inform the doctor or the male nurses if you perceive these symptoms or any other.
- The X-ray camera will be used to take photographs of the arteries and the chambers of the heart. You may be asked to hold your breath while the X-rays are taken. Once all the X-rays are taken, the catheter will be removed and the lights will be turned on.
  - An interventionist procedure may be combined with the cardiac catheterization. These procedures are used to treat problems that are found during the catheterization. Your doctor will tell you if he plans any interventionist procedure as part of your cardiac catheterization.

After the procedure:

- The catheters and the introducer will be removed.
- If the catheter was inserted into the arm: The incision will be bandaged. You will have to keep your arm straight for at least an hour. You will be able to walk. You will remain under observation for a few hours to check whether any symptom or side effect from the procedure appears. You will be given instructions about how to care for your arm when you return home. Tell the male nurse if you think you are bleeding (if the site feels warm and moist) or if you feel tingling or numbness in the fingers.
- If the catheter was inserted in the groin: The incision will be closed applying pressure directly to the site where the catheter was inserted, or with a "plug." A "plug" is out of a material that helps the body's natural scarring process to form a clot in the site punctured the artery. A suture may also be used to close the small incision on the skin in the catheter insertion site. You must lie flat and keep your leg straight for two to six hours to keep the catheter insertion site from bleeding (you will stay less time if a plug is used). You will not be able to raise your head more than 30 degrees (2 pillows). Do not try to sit up or stand up.
- A sterile bandage will be placed on your groin to protect it against infections. The male nurse will examine the bandage periodically, but contact him if you think that you are bleeding (you feel the site warm and moist) or if you feel tingling, numbness or coldness in the fingers.
- You will need to drink lots of liquids to eliminate the contrast material from the body. You may feel the need to urinate more frequently. While you are in bed, you will have to use a commode or urinal.
- The doctor will tell you if you can return home or have to spend the night admitted. You will be monitored for several hours after the procedure.
- The treatment, including medications, diet and future procedures, will be explained to you before you return home. How to care for the wound, what activities you can do and what the subsequent treatment will be will also be explained to you.

The cardiac catheterization procedure generally take sonly 30 minutes, but plan on 5 to 10 hours from the time you arrive until you are ready to go home.

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