UW Medicine
UNIVERSITY OF WASHINGTON MEDICAL CENTER

# Cardiac Catheterization Lab Procedures

*This handout describes how cardiac catheterization works. It also explains how to prepare for your procedure and the self-care needed after you go home.*

## Contents



## About This Test

Your doctor has referred you for this test to assess your heart and its circulation. This test is called *cardiac catheterization* or *coronary angiogram*. Cardiac catheterization gives specific information about your heart and its blood flow (circulation).

*Your doctor has referred you for a cardiac test so that we can learn more about your heart and its blood flow.*


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### Diagnosis

This test is being done to diagnose your heart condition. During the test, X-ray images and pressure measurements are recorded. Your doctor will study these to see the chambers, valves, and blood vessels of your heart.

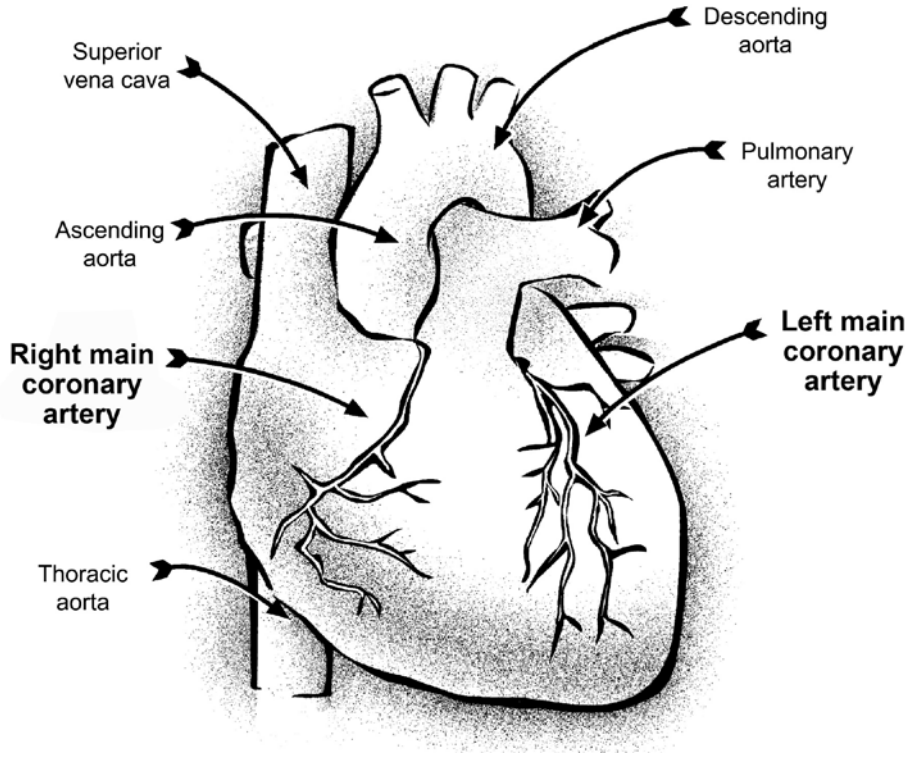
### Treatment (Intervention)

The cardiologist doing the procedure will talk with your doctor about whether you need treatment. If it is safe to proceed with a treatment or intervention and you wish to have this treatment, it will be done at the same time as your cardiac catheterization. In some cases, the diagnosis shows that no intervention is needed.

## Coronary Arteries

Coronary arteries are blood vessels that lie on the surface of the heart. There are 2 main coronary arteries, the right and the left. (See the drawing below.)

As blood leaves the heart, a small amount of it is sent through these arteries to supply the heart with blood and oxygen. All cells in the body need a constant blood supply, including the cells of the heart.




*Arteries of the heart, including the left and right main coronary arteries*

The coronary arteries may be affected by the disease process called *arteriosclerosis*. This is a buildup of fat and cholesterol deposits, called *plaque*, inside an artery. Plaque can block (obstruct) normal blood flow. When a blockage is severe, the blood flow to the heart muscle can be reduced. This may result in chest discomfort, called *angina*.

When an artery is completely blocked, damage to the heart muscle may occur. This is a *myocardial infarction*, or heart attack. During the cardiac catheterization, images are created to show how blood flows through your arteries and whether there are blockages or limited blood flow.

## Before You Come to the Hospital

Being prepared for your hospital visit will help make your stay as comfortable as possible. These tips will help you prepare:

- If you need detailed directions, please call the Interventional Cardiology Recovery Unit (ICRU) at 206-598-8435.
- Pack an overnight bag in case you have to stay overnight. Usually, patients who have a diagnostic catheterization are discharged after 6 hours. Patients who need an intervention procedure will stay in the hospital for 24 hours.
- Make hotel or motel reservations or other plans to stay overnight in the Seattle area if you are from out of town.
- Please bring these items with you:
  - A list of medicines you are currently taking, along with a list of medicines you have taken in the past 2 days. Please include the dose amount. Also include nonprescription medicines, such as herbal supplements and vitamins.
  - The name and phone number of a contact person.
- If you have had a catheterization before and received pictures from the procedure, please bring them.

## How to Prepare

### Fasting

Do **not** eat or drink anything starting 8 hours before your procedure.

### Medicines

Take your usual morning medicines with small sips of water, unless you have been told otherwise.

### Day of Admission

You will need to check in at the operating room (OR) reception desk on the 2nd floor of the Surgery Pavilion. (Remember, the main entrance into the hospital is on the 3rd floor.)

After you have checked in, you will go to the ICRU. The ICRU is in the Surgery Pavilion, in Room SP2020. In the ICRU:

- You will change into a hospital gown.
- Your blood pressure and temperature will be taken.
- A nurse will ask you questions about your medical history.
- An electrocardiogram (EKG) will be done. This painless test measures the electrical activity of your heartbeats. It helps show whether parts of your heart are too large or are working too hard.
- An *intravenous* (IV) line will be started.
- Your groin and/or arm will be scrubbed with antiseptic solution and shaved to help prevent infection.
- You will be asked to read and sign consent forms for your cardiac catheterization procedure. The procedure has some risks, and some patients have side effects from the dye or medicines that are used. These side effects are not common, but you should be aware of them. Your provider will talk with you about these risks and side effects before asking for your consent to do the procedure. You may ask any questions you have before signing the consent forms. You may also decide not to sign the forms. The procedure will not be done if you do not give your consent by signing the forms.

From the ICRU, you will be taken to the Cardiac Catheterization Lab. During your catheterization, your family may wait in the waiting room. Staff will give them instructions on where to wait and how to get updates on how you are doing.

## In the Catheterization Lab

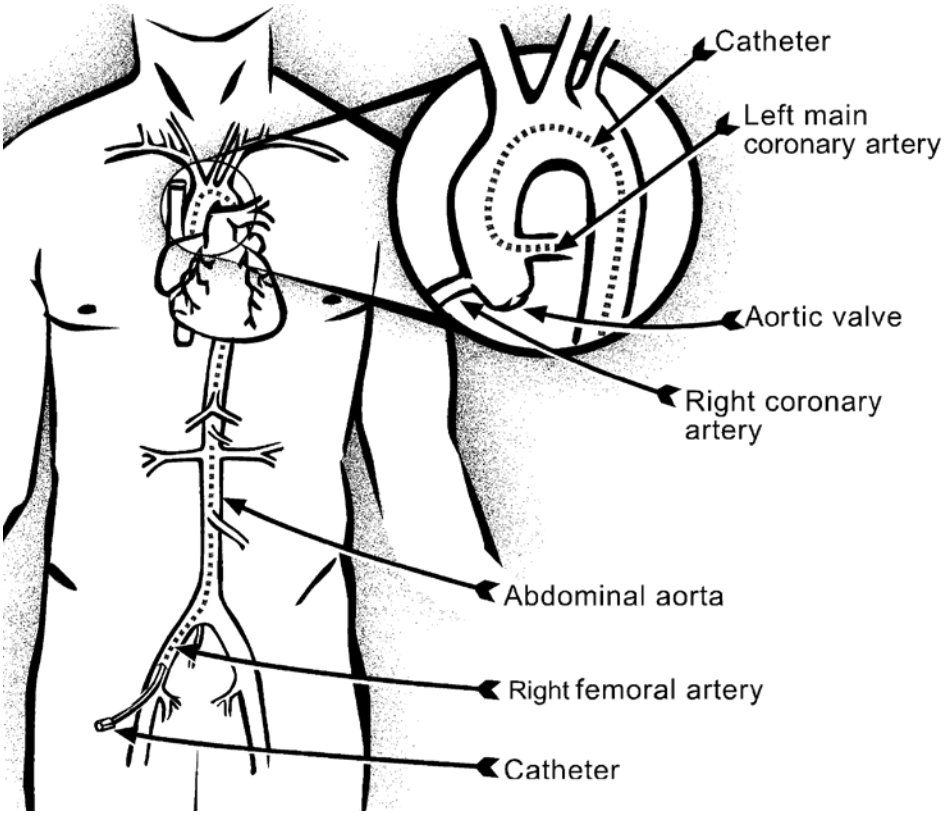
- You will be helped onto a special table that slides back and forth, with a camera above it. This table and camera will help your doctor see the blood vessels around your heart from different angles.
- Electrodes will be attached to monitor your heart rhythms.
- You will be draped in sterile paper sheets.
- A nurse will give you a sedative through your IV before the procedure. This will help you relax and make you sleepy.

**Always ask your doctor or nurse if you have any questions or do not understand part of the catheterization process.**

## Cardiac Catheterization (Coronary Angiogram)

After you have signed the consent forms and have been prepared for the catheterization:

- Your groin or arm will be numbed with an *anesthetic* (numbing medicine) called Lidocaine.
- A short tube called a *sheath* will be inserted into your *femoral* artery, a large artery in your leg. Some patients may have the sheath inserted into an artery in their arm. You may feel pressure, but you should not feel pain when the sheath is inserted. If you have any pain, please tell your doctor.
- A *catheter* (a long, flexible tube) will be guided through the sheath and to the arteries of your heart. You will not feel the catheter as it moves.
- Your doctor will inject *contrast dye* through the catheter and into your heart arteries. This will show if there are any blocks in your blood vessels. You will not feel these injections, but you may feel a warm flushing at times. This feeling is normal.
- If your doctor finds arteries that are narrowed or blocked, an intervention may be needed to open the arteries.




*Femoral artery catheterization sites*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### What to Expect During the Procedure

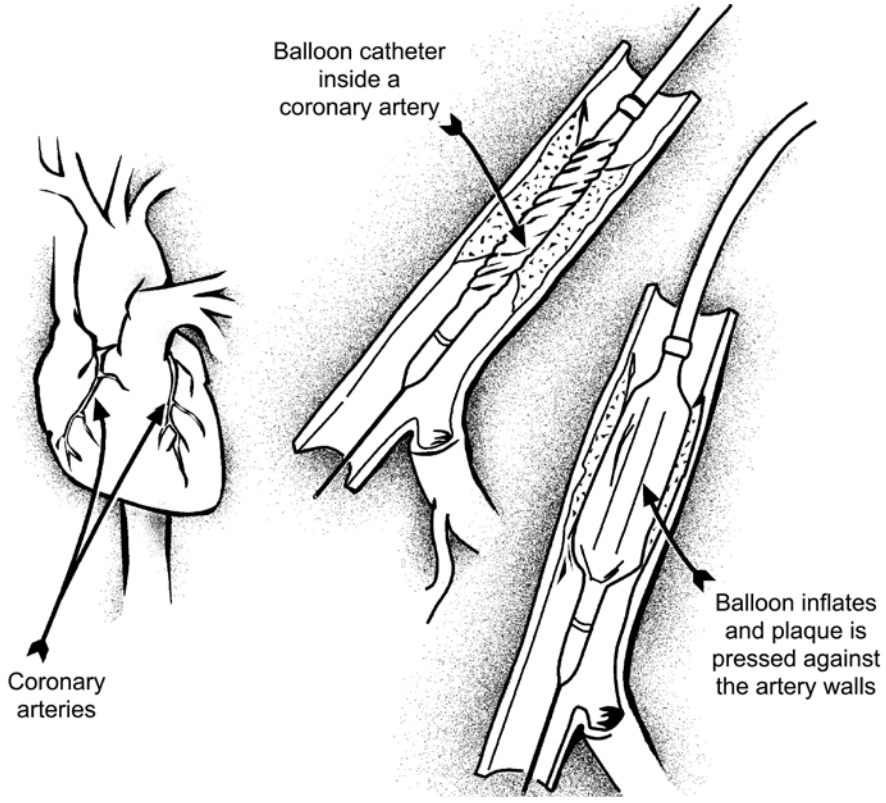
- The procedure is not painful, but you may feel pressure in your groin and/or arm.
- You will be told what is happening during each step. A nurse will be with you to help keep you comfortable.
- You may feel a fluttering in your chest. This is normal.
- If you have any discomfort, tell your doctor or nurse.

## Interventions

If there is a narrowing in your coronary arteries, your doctor may advise you to have an intervention to improve the blood flow to your heart muscle. The 2 most common interventions are:

### Percutaneous Transluminal Coronary Angioplasty (PCTA)

In a PCTA, the doctor places a small guide wire in your artery through the catheter that is already in place. A balloon catheter is then placed over the wire and moved to the narrow place in your artery. The balloon is then inflated for 20 to 60 seconds to press the plaque against the artery walls. This opens the artery and allows blood flow to your heart to increase.




*Percutaneous transluminal coronary angioplasty (PCTA)*

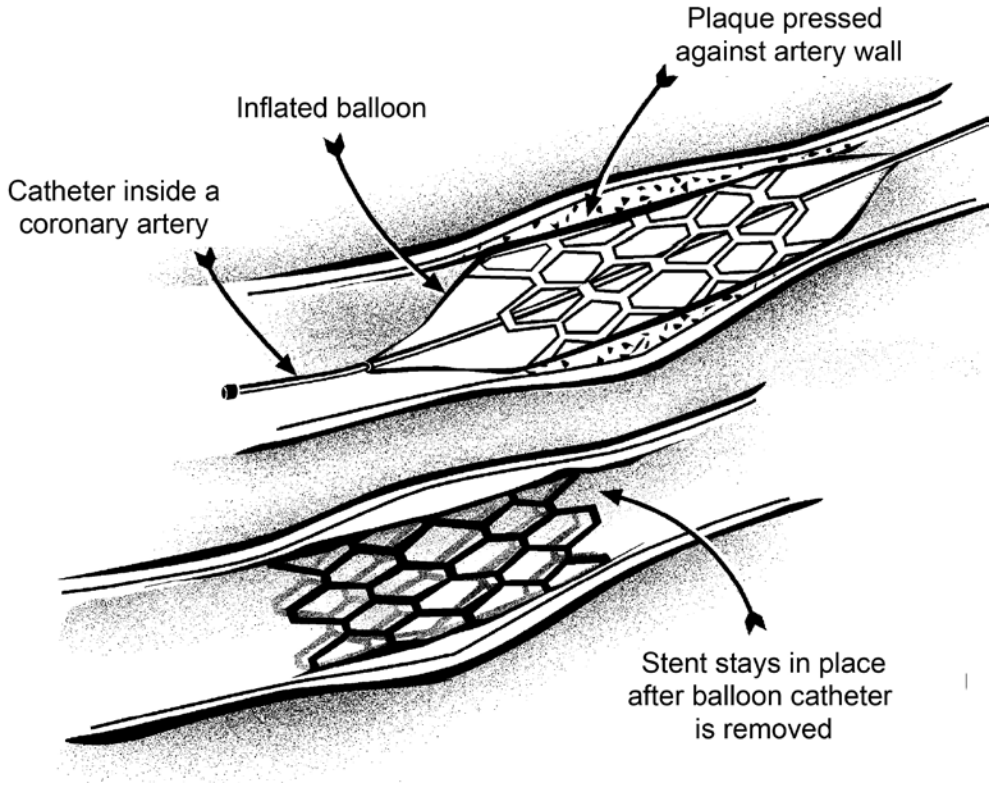
## Stent

The most common intervention to treat narrowing of a coronary artery is to open the artery with a *stent*. A stent is a small mesh tube that can be expanded by a balloon catheter. The balloon presses the plaque against the artery walls. This opens the artery and allows blood flow to your heart to increase.

After the procedure, the catheter is removed. The stent stays inside your artery to keep the area open.

Some stents are coated with a medicine that keeps scar tissue from forming and causing another blockage. These are called *drug-eluting stents*.

If you have a drug-eluting stent, you will have to take an *antiplatelet* medicine **and** aspirin for 1 year or longer. Antiplatelet medicines keep your blood cells from clumping together or clotting, and they will help keep your stent open.




*Stent placement in coronary artery*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## After Your Procedure

### If You Have ONLY Catheterization

After your doctor gathers all the information needed from the procedure, the catheter(s) and sheath are removed. Pressure is applied to the insertion site to prevent bleeding.

A sterile dressing is then placed over the insertion site to keep the area clean. The site will be checked regularly by your nurse.

- **If an artery in your leg is used:** You must keep your leg straight for 3 to 6 hours during your recovery time. You may need to keep it straight longer if you had a stent placed.
- **If an artery in your arm is used:** You will have a band around your arm for 2 to 4 hours. The band helps close your artery and stop the bleeding. You must limit your arm use before and after the band comes off.
- Different types of devices may be used to close your artery and stop the bleeding. You will receive instructions for the device that you have.

After the catheterization, you will be taken back to the ICRU, where you will begin to recover. If you have an angiogram with no intervention procedure, you can expect to stay in the ICRU for your recovery time. Usually this is 4 to 7 hours, but it will depend on many factors, including what size sheath was used in your procedure.

During recovery:

- You will need to lie flat. Your nurse will help you stay comfortable.
- You will be able to eat as usual.
- You may be given pain medicines if you have any discomfort from lying flat.
- Your pulse, blood pressure, and dressing will be checked often during the first 3 to 6 hours after your procedure.

### If You Also Have an Intervention

If you have an intervention after your catheterization, **expect to stay in the hospital overnight**. Because you may not know ahead of time whether or not you will have an intervention, make arrangements to stay in the hospital for at least 24 hours.

## Discharge

Before you are discharged from the hospital:

- A doctor or nurse practitioner will examine your insertion site. They will also talk with you about the results of your procedure.
- If needed, your medicines or diet will be adjusted. Your nurse will teach you about these changes and talk with you about your follow-up care.
- Ask questions if you do not understanding anything your nurse or doctor tells you.
- **You must have a responsible adult drive you home after your procedure.** You cannot drive yourself.

## When You Get Home

Follow these instructions after you go home from the hospital:

### Activity

- For 24 hours after your procedure, do **not** drive.

**If the catheter was inserted in your groin:**

- On the day **after** your procedure, you may return to light activity and you may drive.
- Avoid strenuous activity for 48 hours.
- Do **not** lift more than 5 pounds for the next 5 days.
- You may shower the day after your procedure, but do not take a bath, sit in a hot tub, or go swimming for **5 days**.
- You will have a bruise at the insertion site. It might spread down your leg over the next day. It may take 2 to 3 weeks to go away.

**If the catheter was inserted in your arm:**

- For 2 days:
  - Do **not** lift more than 1 pound with the affected arm.
  - **Avoid wrist movement:** Do not flex or rotate your wrist. Do not push or pull anything. Do not push yourself up from a sitting or a lying-down position.
- For 5 days, avoid vigorous exercise that uses the affected arm.
- You may shower the day after your procedure, but do not take a bath, sit in a hot tub, or go swimming for **3 days**.
- It is normal to have a small bruise or lump at the insertion site.

## Diet

You may resume eating your regular foods, unless your doctor or nurse advised changes in your diet. If you have questions about these changes, you can ask your primary health care provider for a referral to a dietitian. The dietitian can help you plan meals and snacks that contain the foods you have been advised to eat.

## Pain

- Your insertion site will be sore and tender for 1 or 2 days.
- You may take acetaminophen (Tylenol) for pain relief. Follow the dosing instructions on the label.
- Take your regular aspirin as prescribed.
- Do **not** take other products that contain aspirin.
- Do **not** take other anti-inflammatory products such as ibuprofen (Advil, Motrin) or naproxen (Aleve, Naprosyn). They may cause increased bleeding.
- If you have severe pain or swelling at the catheter site, call the cardiologist who did your procedure.

## Site Care

- You may remove the dressing 24 hours after your procedure.
- Keep the site clean and dry. Clean the site gently with mild soap and water. Reapply a clean Band-Aid, if needed.
- Check the insertion site every day for infection. (See "When to Call for Help" on the next page for signs of infection.)

## Follow-up Care

- Keep taking your prescribed medicines unless your doctor tells you not to.
- If you have any questions or concerns about your cardiac catheterization procedure, call the Interventional Cardiac Recovery Unit (ICRU) at 206-598-8435, weekdays from 6:30 a.m. to 6 p.m.
- Follow up with your primary health care provider after your procedure, as instructed.

## When to Call for Help

**If you have heavy bleeding or a lot of swelling, put pressure on the site and call 9-1-1 right away.**

### Bleeding

- If you have light or moderate bleeding or swelling at the site, apply pressure on it with clean fingers for 10 minutes.
  - If the bleeding does not stop or the swelling does not go down in 10 minutes, **call 9-1-1 right away**. Continue to apply pressure on the site until help arrives.
  - **Also, if your catheter was placed in your arm:** If the bleeding stops or the swelling goes down, sit quietly for 2 hours. Do not bend the affected wrist. Call the cardiologist who did your procedure as soon as possible.

### Other Concerns

Also call the cardiologist who did your procedure if you have:

- Any of these **signs of infection**:
  - Redness
  - Fever higher than 101.5°F (38.6°C)
  - Drainage
  - Change in the bruise or lump
  - Numbness in your arm or wrist
- **Severe pain** that is not relieved by acetaminophen (Tylenol)

## Your Notes and Questions

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## Questions?

Your questions are important. Call your doctor or health care provider if you have questions or concerns.

Cardiac Services:
206-598-8435

After hours and on weekends and holidays, call 206-598-6190 and ask for the Procedural Interventional Cardiology Fellow on call to be paged.


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