

Heart Catheterization

What is heart catheterization?

Heart (cardiac) catheterization is a procedure in which a very thin flexible tube is inserted through a blood vessel into the veins, arteries, and chambers of your heart. The tube is called a catheter. It is usually inserted through a blood vessel in the arm, groin, or neck.

Heart catheterization can:

- Allow X-ray pictures (angiograms) outlining the heart chambers or coronary arteries to be taken with use of a special dye.
- Record the blood pressure in the blood vessels in the lungs and the heart and in the chambers of the heart.
- Measure blood flow and oxygen content of blood in different parts of the heart.
- Take a tissue sample (biopsy) of the heart muscle using an instrument passed through the catheter.

Usually you do not need to stay in the hospital overnight for this procedure.

How do I prepare for the procedure?

Follow the instructions your healthcare provider gives you. Eat a light meal the night before the procedure. You may be asked not to eat or drink anything for 12 hours before the procedure. Arrange for someone to drive you home afterward.

What happens during the procedure?

You are given a sedative, which will make you feel relaxed, but you will stay awake. You are also given a shot (a local anesthetic) to numb the area where the catheter is inserted.

Your healthcare provider will insert the catheter into your groin, arm, or neck. The catheter will be passed through the blood vessels toward the heart. X-rays are used to follow the position of the catheter. You will not feel the catheter as it passes through your blood vessels.

Your healthcare provider will guide the tip of the catheter to precise positions in the heart and its blood vessels. The catheter is attached to a device that measures blood flow and blood pressure in different places in the heart and blood vessels.

If pictures of the heart chambers, valves, or coronary arteries are needed, a special kind of liquid (called contrast or dye) is injected through the catheter. X-rays

are taken while the dye moves through your artery. Sometimes the X-rays are taken so fast that they form a movie that shows how the dye is moving through the artery. This procedure is called angiography.

At the end of the procedure, your healthcare provider will remove the catheter and put pressure on the area where the catheter was inserted (the puncture site) to control any bleeding. The procedure takes about an hour.

What happens after the procedure?

After the procedure you may stay in an observation area for at least a few hours until there is little risk that you will have bleeding from the puncture site. After that you may go home. Avoid any strenuous activity for the rest of the day to prevent bleeding.

Ask your healthcare provider for specific instructions on how to take care of yourself at home. Ask how and when you should expect to hear your test results. Make sure you know when you should come back for a checkup.

A bruise may appear near the puncture site and be uncomfortable for a few days.

What are the benefits of this procedure?

Heart catheterization is considered the most accurate way to gather the information your healthcare provider needs to diagnose and treat heart problems. Your provider will study the X-ray moving pictures to see if your heart valves are normal, to check how well the heart is pumping, and to look for possible blockages in the coronary arteries. He or she will note the direction and amount of blood flow through the heart. With the knowledge gained from the procedure, heart valves may be repaired or replaced before heart failure occurs. Heart attacks may be prevented or delayed by treating coronary artery blockages.

What are the risks of this procedure?

Complications from this procedure are rare. The risk of death is very low. Possible risks include:

- You may have an allergic reaction to the dye. (This reaction can be treated with medicine.) The dye could also damage the kidneys.
- The procedure can cause irregular heart rhythms, which could need treatment.

- If the catheter is placed in an artery, a blood clot could form around the catheter and block the artery.
- You may have bleeding where the catheter was inserted into your blood vessel.
- The catheter may damage a blood vessel.
- In rare cases, you may have an allergic reaction to the drug used in the anesthesia.
- While not common, a heart attack or stroke might be triggered by the procedure.
- If you have diabetes or kidney disease, you may be at higher risk for kidney damage from the dye.

You should ask your healthcare provider how these risks apply to you.

When is it used?

Some of the reasons heart catheterization may be done are:

- [Coronary artery disease:] If your coronary arteries are partly or completely blocked, you have an increased risk of a heart attack, especially if your symptoms have gotten worse recently. Cardiac catheterization and the injection of dye into the arteries is the best way to study the coronary arteries. The dye study shows the location and the amount of the blockage. The procedure may be done to see if you need coronary bypass surgery or coronary angioplasty.
- [Open-heart surgery:] Sometimes catheterization is needed before open-heart surgery. The surgeon needs to check for any conditions that may increase the risk of problems during surgery.
- [Artificial heart valves:] If you have an artificial heart valve, you may need catheterization so your healthcare provider can see how the valve and the rest of the heart are working.
- [Birth defects of the heart:] A child born with a heart problem may need to have catheterization in early childhood. It helps the surgeon see the structure of the child's heart and where there are defects.
- [Biopsy:] During the procedure a piece of heart muscle can be removed and checked for inflammation or other problems.
- [Angioplasty:] Catheters can be used to open a narrowed heart valve or artery. Balloon angioplasty, for example, uses pressure from a balloon to widen an artery.
- [Stenting:] Catheters may also be used to remove plaque buildup and to place stents that hold open arterial walls.

When should I call my healthcare provider?

Call your provider right away if:

- The place where the catheter was put into your skin begins to bleed or swell, or it becomes more painful.
- Your leg or foot becomes cool or cold.
- You have slurred speech, balance problems, or trouble using your arm or leg.
- You develop a rash, itching, sweating, or trouble breathing.

Call during office hours if:

- You have questions about the procedure or its result.
- You want to make another appointment.

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