Heart Catheterization

What is Heart Catheterization?
It is a procedure that provides details about your heart’s function and blood flow. It can help your doctor make a diagnosis and choose proper treatment. It can be used to:

1. Look for blockages in the arteries of your heart (called coronary artery disease)
2. Check the pumping function of the heart
3. Check the structure and function of heart valves
4. Measure the pressures and oxygen level in the top and bottom chambers of the heart

How Is a Heart Catheterization Done?
A thin flexible tube (catheter) is passed to your heart and coronary arteries through an artery or vein in your groin or wrist. To make the heart’s chambers and vessels visible on x-ray, dye is injected through the tube into the coronary arteries and left heart chamber. An x-ray camera films the heart and its vessels as they pump blood. These x-ray images can be viewed right away.

NOTE: Be sure to tell your doctor or nurse if you are allergic to x-ray dye (contrast).

How Your Heart Works
Your heart is made up of strong muscle tissue. Its main function is to pump blood throughout your body.

Your heart has four chambers, two on the right side (venous) and two on the left side (arterial). The upper chambers are called the right and left atrium. The lower chambers on each side are called left and right ventricles. All four chambers work together to pump the blood and deliver vital nutrients and oxygen throughout your body.

The main pumping chamber is the left ventricle. This chamber pumps blood enriched with oxygen to all parts of your body. The right ventricle pumps blood to your lungs where it picks up fresh oxygen.
There are 4 valves in your heart. These valves allow blood to move in only one direction.

- Mitral valve is between the left atrium and the left ventricle
- Tricuspid valve is between the right atrium and the right ventricle
- Pulmonary valve is between the right ventricle and the pulmonary artery (goes to lungs)
- Aortic valve is between the left ventricle and the aorta (main artery in the body)
Before your Heart Catheterization
Some medicine you receive during your catheterization will make you sleepy. You will need to arrange for someone to drive you home. You should not drive or make important decisions until the next day.

The Night Before

1. Do not eat or drink anything after midnight or earlier if so told.
2. If your catheterization is scheduled for late morning or later, you will be told if you can have a liquid breakfast.

Catheterizations are scheduled throughout the day. Please arrive at the time you were told to do so. If you are in the hospital, your nurse will tell you when it is time.

1. You will be asked to change into a hospital gown (without snaps). You may want to wear socks to the cath lab as the room is kept very cool.
2. Take your medicine as instructed.
3. All nail polish must be removed.
4. If you have dentures, please wear them to the lab.
5. Remove watches, earrings, necklaces or medic alert bracelets. You may wear your wedding ring if you wish. Glasses may also be worn.
Before Leaving for the Cath Lab

1. A doctor or nurse will explain the procedure, its purpose, benefits and risks.
2. You will be asked to sign a consent form.
3. An IV (intravenous) line will be started in your hand or arm.
4. You will be asked to empty your bladder.

Staff will take you to the cath lab on a cart.

Family members and friends are not allowed in the lab. They will be told where they can wait.

In the Cath Lab

It will be cool in the lab. You will be helped onto the table. You will lie flat so that the x-ray machine can rotate around the upper part of your body. If you have back problems, tell the staff so that they can help you find a more comfortable position. ECG patches (electrodes) will be placed on your shoulders, chest, arms, and legs. These patches are hooked to equipment that monitors your heart.
**Points of Insertion**
Your groin or wrist will be used for the heart catheterization. The area will be shaved and cleaned to remove any bacteria on the skin.

Since a heart catheterization is done using sterile technique, the doctors will be wearing sterile gowns, hats, masks, and gloves. You will be covered from your chest to feet with a sterile sheet. Once the sheet is placed over you, please keep your arms at your side. If you need to move your arms, ask the nurse in the room to guide you.

**Getting Ready**
Your doctor will inject a small amount of medicine into your wrist or groin. Although it will sting and burn a little, it will quickly numb the area. This will prevent you from feeling pain at this site during the heart cath. Your leg or hand may feel numb as well. You will feel pressure, pulling, and tugging at the site where the tube is inserted. You will be given medicine for pain and to make you sleepy. You will be sleepy but able to talk with your doctor and nurse.

**Placing the Catheters**
After numbing the site, the doctor will insert a small needle and sheath into the artery in your leg or wrist. A catheter is passed through the sheath up to your heart.

If pressure and oxygen readings in your heart are needed, a sheath is placed in the vein and a long catheter is passed into the right side of your heart. As the tubes are advanced into your heart, you may feel extra heartbeats or fluttering in your chest. This is normal.

**About Breathing**
During the cath, your doctor may ask you to take a deep breath, hold your breath, or breathe normally.

For deep breaths, breathe in slowly, as if sucking through a straw. Do not take in short jerky breaths. Hold the breath until you are asked to breathe normally. A deep breath moves your diaphragm down away from your heart, giving your doctor a clearer view. When asked to breathe normally again, gently let your breath out so that the catheters remain in place.
After Heart Catheterization

Your treatment depends on the type of heart problem that you have. If you have blockages in the arteries of your heart, here are some of the options.

1. Medicine to help reduce symptoms of chest pain (angina)
2. Bypass surgery to detour around the blockages
3. Angioplasty, atherectomy, and stents

- In angioplasty, a special catheter with a small balloon at the tip is passed into a narrow portion of the artery and inflated. This compresses the plaque against the walls of the artery.
- The angioplasty is often followed by the placement of a “wire coil” or stent. The stent, an implant, will remain in the artery. Within weeks, new tissue will grow and cover the stent.

After your heart cath, you will return to a room to recover. You will stay in bed for two to several hours. The staff will keep you comfortable with the use of medicines and position changes. Some patients are discharged the same day and some stay overnight.

If a stent is placed, you will start taking a medicine to block your platelets and prevent blood clots on your stent. The medicine is one of these: clopidogrel (Plavix®), prasugrel (Effient®) or ticagrelor (Brilinta®). You will take this medicine for several months. You will also take one aspirin per day. These medicines help to prevent a clot from forming on the stent. Do not stop your heart medicines without first talking with your heart doctor (cardiologist).

Blockage can develop within the stent. This blockage occurs slowly and you may have a return of chest pains. If this should happen, please contact your doctor when you notice the symptoms.