

Coronary angiography

What is coronary angiography?

Coronary angiography is a procedure in which a special X-ray of your heart's arteries (the coronary arteries) is taken to see if they are narrowed or blocked. It is an important test, used when your doctor suspects or knows that you have coronary heart disease.

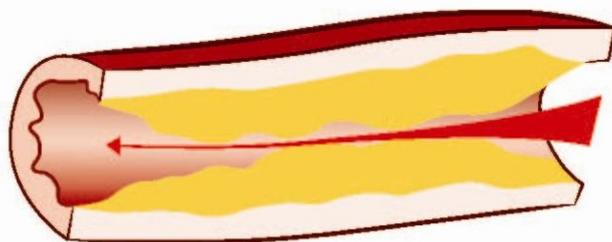
During coronary angiography, you are given a local anaesthetic and then a catheter (a long thin tube) is put into an artery in your groin, or at the inside of your elbow or near your wrist. The catheter is moved up the inside of your artery until it reaches your heart. A special dye is then injected into your coronary arteries and X-rays are taken. The X-ray image (a 'coronary angiogram') gives detailed information about the state of your heart and coronary arteries.

When is coronary angiography required?

Coronary angiography is performed if you have, or are suspected to have, coronary heart disease. Your doctor may recommend that you have the test if:

- you have chest pain that your doctor suspects is caused by narrowed coronary arteries, but he or she wants to be sure
- your doctor wants to assess the degree of narrowing in your coronary arteries to see if you could benefit from a procedure such as angioplasty or bypass surgery, to relieve your symptoms and reduce your risk of further heart problems
- you have had a heart attack—if you had treatment to dissolve the clot blocking your coronary artery, or you have continuing chest pain, or the results of an exercise test indicate the need for further investigation, your doctor will need detailed information about your heart and arteries.

Artery narrowed by build-up of fatty deposits



Are there any risks involved?

As with many medical tests, there are some risks, but serious problems are rare. Most people have no trouble, and the benefits usually far outweigh the risks. You should discuss with your doctor any questions or concerns that you may have about coronary angiography.

Preparing for coronary angiography

Most hospitals have the below routine.

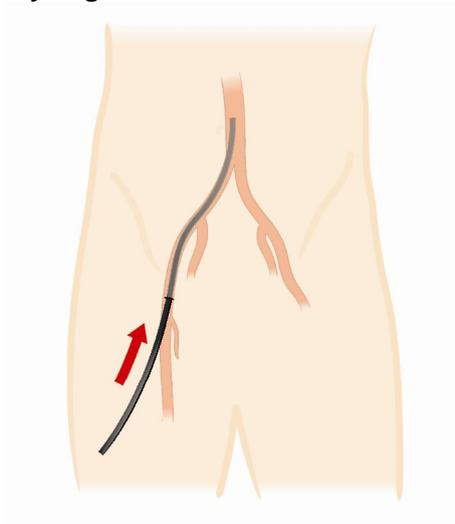
- Before you come to hospital, your doctor may arrange other tests that you need to have to help to assess your case. These may include blood tests, an electrocardiogram (ECG), an exercise test and a chest X-ray.
- You may be admitted to hospital the night before your coronary angiogram, but most people are admitted the same morning. In most hospitals, people are admitted and discharged from hospital on the same day. You may be asked not to have anything to eat or drink for four to six hours prior to the procedure.
- When you are admitted to hospital, a doctor will explain the coronary angiography procedure to you, give you a brief physical examination, and answer any questions that you or your family may have. You will be asked to sign a form consenting to the test.
- You will be asked to remove any jewellery that you are wearing and to put on a hospital gown. You will be shaved in the area where the catheter will be inserted. Sometimes you will be given a sedative about an hour before the test to help you to relax. However, you will be awake throughout the procedure.

The procedure

Coronary angiography is done in special laboratories ('cath-labs') that look like operating theatres. You will be taken there on a trolley, or in a wheelchair, and asked to lie on a narrow table, which will be moved from side to side during the test. You will be connected to a machine that will monitor your heartbeat continuously. Many people have a small needle put into a vein in the back of one hand to allow medicines to be given during the test.

The doctor will inject a local anaesthetic into your groin, arm or wrist (where the catheter is to be inserted) and if your arm is used, they will make a small cut. The catheter will be inserted into the main artery at that point.

Catheter insertion into artery at groin





The catheter will be moved through the main blood vessel of your body (the aorta), to the beginning of the coronary arteries on your heart. Its progress is watched via X-rays shown on a monitor. Most people will not feel any pain or sensation during the test. There are no nerves inside your arteries, so you will not feel the movement of catheters through your body.

When the catheter is in place, a small amount of X-ray dye will be injected into it. X-rays will be taken as the dye travels through your coronary arteries. These X-rays will be shown on a monitor and recorded on a computer. Different catheters are needed to study the various arteries. One will be removed and the next introduced through the same place in your groin or arm.

Some people have nausea or chest discomfort when the dye is injected, but this does not last long. A larger injection of dye is given if your heart muscle is to be examined. This may give a warm feeling in your upper chest first, then over the rest of your body. The feeling may last for about 10 to 15 seconds.

The test will take about 30 to 40 minutes. When the test has been completed, the catheter will be removed and pressure applied to the area where it was inserted. You will be moved to the ward or recovery area to rest in bed for at least four hours. In most circumstances, you will be allowed home after four to six hours. Some people may need to stay in hospital longer so that their symptoms can be monitored further.

The X-ray dye passes through your kidneys and is excreted in your urine.

What happens afterwards?

Your doctor will explain the results of the test. The information about your heart and coronary arteries will help your doctor to recommend the best treatment for you.

Treatments for coronary heart disease

Depending on the extent of the blockage in your arteries, treatment for coronary heart disease usually includes medicine, coronary angioplasty and/or bypass graft surgery.

Medicine

If your angiogram confirms that you have coronary heart disease, your doctor is likely to prescribe a number of medicines to relieve any symptoms and reduce the risk of a heart attack. A small daily dose of aspirin and cholesterol-lowering medicine are usually prescribed. Other medicines may be recommended to slow your heart rate, widen your blood vessels and/or lower your blood pressure.

Coronary angioplasty

Coronary angioplasty improves blood flow to your heart by using a special balloon to open out the narrowed artery in a procedure similar to a coronary angiogram. Very often a small expandable metal tube called a stent is implanted at the narrowed site to keep the artery open.



Bypass surgery

Bypass surgery is when a healthy section of blood vessel from your leg or chest, or sometimes your forearm, is grafted to your coronary artery beyond its most diseased part. The blood can then detour past the narrowing to provide oxygen and nutrients to your heart muscle.

Reducing further risk of coronary heart disease

It is important to realise that medicines, angioplasty and bypass surgery are treatments, not cures, for coronary heart disease. The best ways to prevent coronary heart disease getting worse are to:

- take your medicines as prescribed
- be smoke-free
- enjoy healthy eating
- be physically active
- control your blood pressure
- achieve and maintain a healthy body weight
- maintain your psychological and social health.

People with diabetes should aim to keep their blood glucose levels within the normal, non-diabetic range.

Further information

For more information, call our Heart Health Information Service on 1300 36 27 87 (local call cost) or email heartline@heartfoundation.org.au.

© 2008 National Heart Foundation of Australia ABN 98 008 419 761
INF-045-C

Terms of use: This material has been developed for general information and educational purposes only. It does not constitute medical advice. Please consult your health care provider if you have, or suspect you have, a health problem. The information contained in this material has been independently researched and developed by the National Heart Foundation of Australia and is based on the available scientific evidence at the time of writing. It is not an endorsement of any organisation, product or service. While care has been taken in preparing the content of this material, the National Heart Foundation of Australia and its employees cannot accept any liability, including for any loss or damage, resulting from the reliance on the content, or for its accuracy, currency and completeness. This material may be found in third parties' programs or materials (including but not limited to show bags or advertising kits). This does not imply an endorsement or recommendation by the National Heart Foundation of Australia for such third parties' organisations, products or services, including these parties' materials or information. Any use of National Heart Foundation of Australia material by another person or organisation is done so at the user's own risk.