

Patient Information Guide to  
**Cardiac Angiogram  
and Angioplasty**



**CRÍ**

*Fighting Heart Disease & Stroke*



*Fighting Heart Disease & Stroke*

Croí works to improve the quality of life for all through the prevention and control of heart disease, stroke, diabetes and obesity.

Our specialist health team equip people with lifesaving skills; provide rapid access cardiac diagnostics; and develop and deliver innovative cardiovascular health care in the areas of prevention and rehabilitation, helping thousands of people throughout the region make measurable improvements to their cardiovascular health and wellbeing.

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# Section 1

## Why am I having this investigation?

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**Your doctor may consider doing a cardiac angiogram if you have had any of the following:**

- a heart attack
- severe chest pain
- chest tightness or discomfort
- pains in the jaw, throat or shoulders
- increased shortness of breath
- irregular heart beats
- heart murmur (heart valve problems)
- abnormal preliminary investigations (such as an exercise test)

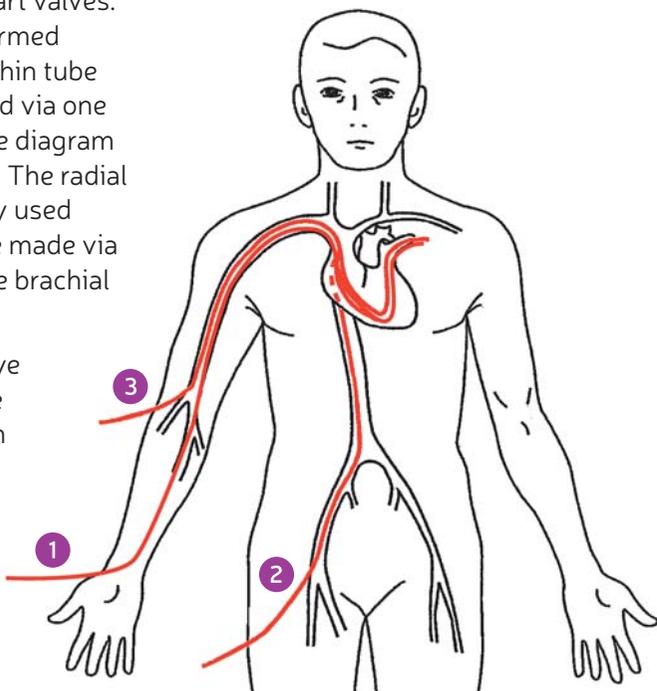
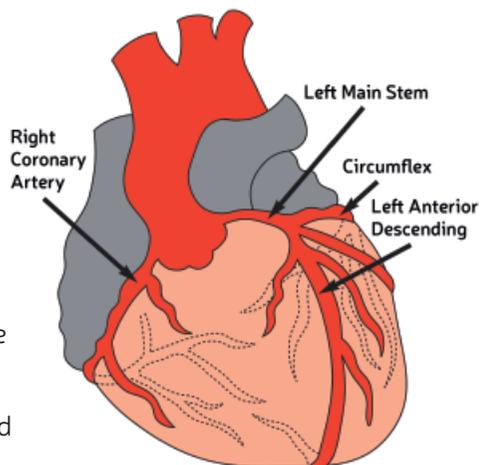
## What is Cardiac Angiogram?

Cardiac Angiogram or an 'angiogram' is the main investigation performed on people with suspected or symptomatic heart disease.

If there are indications that your coronary arteries may have become narrowed or blocked, the exact position and severity of the narrowing or blockage needs to be known, in order that the most appropriate treatment for you can be decided.

This investigation is also done to find any heart muscle abnormalities or defects; and to examine heart valves. Cardiac angiogram is performed under local anaesthetic. A thin tube (cardiac catheter) is inserted via one of the arteries shown on the diagram and positioned in the heart. The radial artery (1) is most commonly used however access can also be made via the femoral artery (2) or the brachial artery (3).

A special (radio-opaque) dye is then injected through the catheter into the three main coronary arteries; and the pictures recorded. As well as views of the coronary arteries, heart muscle function and heart valves can be viewed.



## Pre-admission preparation

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### Medication

#### *Should I take my tablets as prescribed?*

If you are on any medication, you should take all your morning medication with a little water at approximately 6am. This includes Aspirin, diuretics and tablets for high blood pressure. *Please note:* If you are concerned about taking diuretics (water tablets), due to having a long journey to hospital, these can be taken on arrival. Please bring all your medication with you (including drops and lotions), as this helps doctors and nurses to establish exactly what you are taking. You should take your medication as normal during the day while you are in hospital.

#### *Anticoagulants - Warfarin, Rivaroxaban (Xarelto), Dabigatran (Pradaxa)*

If you are taking any of the above, you will need to check with your Cardiologist (heart doctor) as to when you should stop taking it prior to admission. If you have a mechanical heart valve, you may need to be admitted earlier

and put on I.V. Heparin to provide satisfactory anticoagulation while your usual medication is stopped. If a blood test is required prior to your angiogram it will be taken by the doctor who admits you to the ward. Your anticoagulant should be restarted on the night of the procedure, unless the doctor advises you otherwise. If not, it must be started on the following day at the latest.

### Diabetics

If you are a diabetic, it is important that you inform your doctor prior to your admission so that your procedure will be made a priority. If you are instructed to fast from the night before, your procedure will be done early in the morning, following which you may take your insulin or tablets. **However, if you are taking metformin, it should not be taken for 48 hours after the procedure.** If you are informed that your procedure will be in the afternoon, you will be advised to have a light breakfast early that morning.

## Renal Patients

If you are a patient with renal failure who uses CAPD (Continuous Ambulatory Peritoneal Dialysis), it is very important that you bring all the equipment needed for your exchanges with you, including connections. If this is not possible, please ring the ward a few days prior to your admission to inform the staff. If you are on dialysis, please inform your dialysis unit of your impending admission.

## Eating and Drinking

You should have no food or drink from midnight on the night prior to your admission. However, if your procedure is scheduled for later in the day you may be advised to have a light breakfast. This is to prevent any nausea or vomiting during the test. Refreshments will be provided after the procedure.

## Cash and Valuables

Please do not bring large amounts of cash/jewellery with you. You will be allowed to keep spectacles and hearing aids with you during the procedure.

## Clothing

Please bring a dressing gown/robe and slippers with you. Please also remove all nail varnish.

*Ladies: You will be asked for the date of your last menstrual period. If there is any possibility that you may be pregnant, a pregnancy test will be done on admission and only if this is negative will the angiogram test be carried out.*

## Transport

Please make your own arrangements for admission and discharge. You will not be able to drive yourself home or use public transport on the day of the procedure. If you live alone, arrange for a family member or a friend to stay with you overnight; this is for your own safety.

## What happens in hospital?

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Some people have a cardiac angiogram during a hospital stay, others will come in overnight or come in as a day-case patient for the procedure.

You will be welcomed to the ward, where your nurse will check your details, ask questions concerning your medical history; and check your blood pressure, pulse and weight. If you are allergic to iodine or have any other allergies, please inform both your nurse and doctor.

You will also be seen by a doctor, who will obtain a medical history from you, carry out a physical examination, explain the procedure to you and answer any questions you may have. You will be asked to sign a consent form.

After changing into a gown, you will be asked to remove any dentures before being escorted to the waiting area of the angiogram lab. There you will be greeted by a nurse, who will also check your details, before you are taken into the catheter lab. In the catheter lab you will be introduced to the nurses and doctors who will be present during your investigation.

## The procedure

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- The doctor will start the procedure by cleaning the area of your groin/arm with an antiseptic iodine solution and covering it with sterile sheets.
- Throughout the procedure you will be attached to a heart monitor. A local anaesthetic will be injected into the area where the catheter will be introduced. You may experience a tingling sensation for a few seconds. When the area of the skin becomes numb, the doctor will insert a catheter into the artery and guide it up to your heart. The doctor uses X-ray to see the catheter and moves it to the opening of the coronary artery. You may experience pressure when the catheter is initially put in, but nothing beyond that.
- If you wish, you will be able to view the catheter being guided through the artery into your heart on the equipment monitors. You may feel your heart flutter, speed up or miss a beat; this is quite normal and will only last for a short while.
- When the catheter is in the correct position, a dye will be slowly injected. You may be asked by the doctor to cough, breathe deeply or hold your breath from time to time. This helps the dye to move through the bloodstream of the heart. It is important that you carry out these instructions. You may feel a warm-glowing, flushing sensation when the dye is injected, lasting a few seconds.

Some people experience a metallic taste in the mouth or a feeling of wanting to go to the toilet. These sensations are not unusual. During the procedure the lights in the lab may dim from time to time; this is nothing to worry about.

- If you feel sick or itchy, have any chest pain or discomfort, you must tell the doctor. A series of X-rays will be taken once the dye has been injected. When the test is completed, the catheter is removed.
- The catheter test takes approximately 20 to 30 minutes.

## What happens afterwards?

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- If the catheter was inserted into your groin, the doctor will remove the tube once the procedure is over. Pressure will then be applied to your groin for at least 15 to 20 minutes to ensure there is no bleeding from the artery or the artery will be sealed with a suture. If the test was carried out by radial access, manual pressure will be applied, or a band will be applied over the artery for approximately 2 hours.
- You will be instructed on the length of time of bed rest. This is to prevent any bleeding occurring when you start walking and allow the puncture site to seal fully. You must lie flat for at least one to two hours after removal of the tube; and it is important that you keep your leg or arm straight at all times during the period of bed rest.
- A nurse will check your pulse and blood pressure; as well as check the wound at regular intervals to ensure all is well. You must inform nursing staff if you feel unwell or peculiar after the investigation.
- Bedpans and urinals will be provided as required, as it is unsafe to get out of bed to use the toilet.
- It is very important that you drink plenty of fluids to 'flush' the dye out of your body. Light refreshments will be offered following the procedure.
- If you have heart or renal failure you will not be expected to drink more than your fluid allowance.
- Your doctors will inform you of the results of your cardiac angiogram prior to your discharge. The length of your

stay in hospital may be affected by your results. You may wish to bring reading material, newspapers, etc with you for your time of bed rest.

## Aftercare of your catheter site

- Should the site begin to bleed profusely or you notice a painful large swelling in the groin or arm, apply pressure to the site for 10 to 15 minutes. If the bleeding or swelling persists, inform the doctors or nurses (if you are in hospital) or go to your local Accident and Emergency Department (if you are at home).
- It is advisable to rest the arm or leg as much as possible for the first 24 hours. On the evening following your angiogram, you should avoid climbing stairs as much as possible.
- When you laugh, cough or sneeze over the next 48 hours, you should support your groin or arm (your nurse will demonstrate this).

- If you notice a change in sensation or colour of your leg or arm, contact your GP or Accident and Emergency Dept. Your leg or arm may be sore for a few days/weeks and Paracetamol can be taken to alleviate this. It is common to have some bruising, but if the bruising travels up towards your abdomen or round towards your buttock, or extends further up your arm, get your GP to review this.
- If you notice any signs of allergy (e.g, rash, sore throat or swelling) drink plenty of fluids and contact your GP or Accident and Emergency Dept.
- You may not drive for 24 hours and will not be permitted to take public transport home on the evening of your angiogram.
- You may bath or shower on the next evening. If you have a plaster covering the site, this may be removed and it is not necessary to replace.

If you are worried about any aspect of your recovery, please contact your GP or the Cardiology team at your hospital.

## Lifestyle

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Now that you have had your cardiac angiogram, perhaps it is a good time to take a look at how you can keep your heart in better shape.

- **Stop smoking**

Smoking cessation can dramatically decrease the risk of heart attack.

- **Keep your blood pressure under control**

Reduce salt intake, watch your weight, exercise regularly, reduce stress, take medicines as prescribed.

- **Monitor your cholesterol level**

It is important to have your cholesterol level measured regularly. The doctor will advise you on the appropriate level for you depending on the results of your angiogram.



- **Eat well**

Try to eat less fatty foods, eat more fresh fruit and vegetables.

- **Exercise regularly**

Aim for a minimum of 150 minutes of moderate intensity aerobic activity per week. One way of achieving this is a 30 minute brisk walk 5 days per week.

- **Lose weight**

Carrying extra weight means that the heart has to work harder. Lose weight slowly by eating a balanced, varied diet and take more exercise.

- **Try to manage stress**

It's not easy, but put time aside each day to relax.

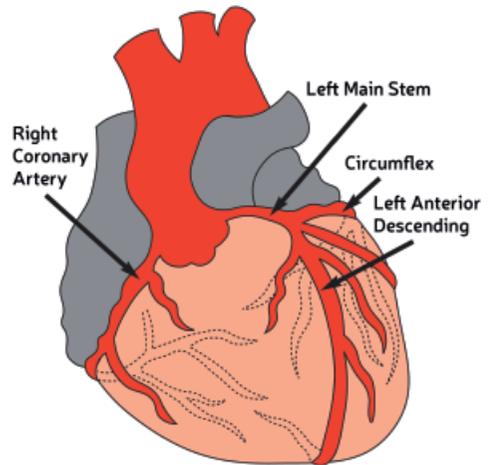
- **Drink alcohol in moderation!**

Do not drink more than the recommended safe limits: for men 17 standard drinks a week, for women 11 standard drinks a week.

## Your Cardiac Angiogram Results

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The doctor will discuss with you the results of your cardiac angiogram. If your cardiac angiogram (angiogram) shows that there is disease in your arteries, ask the nurse or doctor to show you the position of the narrowing on the diagram below.



Your doctor will then discuss treatment options with you. Treatment for heart disease involves using one or a combination of the following:

- Medication
- Lifestyle changes
- Angioplasty or bypass surgery



## Section 2

*The second section of this booklet is designed for people with coronary heart disease who have been advised by their Cardiologist (heart doctor) to have coronary angioplasty.*

### **What is Angioplasty?**

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Angioplasty is a medical procedure in which a balloon is used to open narrowed or blocked blood vessels of the heart (coronary arteries), allowing the blood to flow more easily to the heart. The angioplasty procedure is similar to a cardiac angiogram (angiogram). While the

coronary angioplasty is usually planned in advance, in some cases, it may be carried out as an emergency treatment. It may also be carried out at the same time as the cardiac angiogram test if the person has consented to the procedure beforehand.



A cross-section of a narrowed coronary artery

## Preparing for your Angioplasty

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Although angioplasty is not surgery, your pre-admission preparation is important.

The preparation for angioplasty is similar to the preparation for cardiac angiogram so please see pages 3, 4 and 5 of this booklet.

The doctor will explain the procedure to you and discuss any risks associated with the procedure.

Your angioplasty will take place in the Cardiac Angiogram Laboratory and you will be awake throughout the procedure. Medication to help you relax will be given to you if required. The angioplasty may take up to two hours. Please ensure that you have made the appropriate travel arrangements prior to your admission for your discharge home.

## The procedure

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Similar to the cardiac angiogram, the doctor will numb the skin around the artery in your groin or radial artery with local anaesthetic.

Next, a sheath (a thin plastic tube) is inserted into the artery. A long, fine, hollow tube called a catheter is passed through the sheath and guided up the blood vessel to the arteries in your heart.

Once the doctor positions the catheter into the blocked artery, the balloon at the end of the catheter is inflated.

This widens the artery by compressing the fatty matter into the artery wall, thus increasing blood flow to the heart.

You may feel some chest discomfort while the balloon is inflated, but once the balloon is deflated and removed this pain should disappear. Please inform your doctor or nurse about this pain so that the balloon can be deflated and pain medication administered.

For most people, coronary balloon angioplasty increases blood flow to the heart, diminishes chest pain and reduces the risk of heart

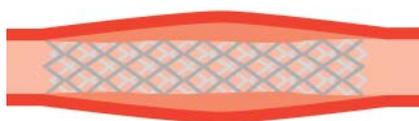
attack. However, for some people the artery may become blocked again. This can be treated with balloon angioplasty again or perhaps bypass surgery. However, the risk of this artery becoming blocked again is reduced if a stent is also implanted during the angioplasty.

## What is a Coronary Stent?

A coronary stent is a small stainless steel mesh tube that acts as a scaffold in keeping your artery open.

- It is introduced into your artery by a balloon catheter and positioned at the site of the narrowing in the artery.
- Once in place, the balloon tip is inflated and the stent expands to the size of the artery and holds it open.
- The balloon is then deflated and removed and the stent stays in place permanently. One or more stents may be used in the vessel to span the length of the narrowing.

- The stent will help hold the artery open and will improve blood flow to the heart, relieving symptoms of coronary heart disease.



Coronary artery with stent in place

## Care after Angioplasty/ Stent insertion

After angioplasty and/or stent insertion you will return to the Coronary Care Unit or transfer back to the referring hospital after 2 hours recovery in the Day Ward.

Nursing staff will monitor your heart rhythm and blood pressure; and will check your puncture site for bleeding. If the femoral artery was used, your foot pulses will also be checked regularly. As the numbing sensation wears off from the groin site or wrist you may feel some pain or discomfort. This is normal and can be resolved if you ask your nurse for pain relief medication.

After the required length of bed rest you may mobilize. If a closure device was used to help close the site incision, this period of bed rest may be shorter. Your nurse will let you know if this is the case.

### REMEMBER

If you feel sudden pain at the groin site or wrist, or suspect that it is bleeding, it is very important that you inform the nursing staff immediately!

### When can I eat and drink?

When you return to the ward you may eat and drink. It is important to drink plenty of fluids to clear the contrast dye through your kidneys and out of your body. You may feel the need to urinate more frequently, but this is normal.

## Advice on discharge

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### Medications

If a stent was inserted during the angioplasty procedure, you will need to take anti-platelet drugs. These drugs thin the blood, reducing the risk of clots forming around the new stent and allowing the stent to be incorporated into the artery wall. Examples of these drugs include Aspirin, Plavix, Brilique, and Efient.

Your doctor will give you a prescription for your tablets before you are discharged and will explain to you any new medications that you may be required to take.

It is important that you follow your medication regimen exactly. Do not stop taking any of the prescribed medications unless you are instructed to do so by your doctor. If you experience any side effects from the medications, such as headaches, nausea, vomiting or rash, please...

**NOTIFY YOUR DOCTOR  
IMMEDIATELY**

## Chest pain

If you experience chest pain similar to the type of pain you experienced prior to your angioplasty stop what you are doing and sit down. If the pain is still there after two minutes and you have the nitrolingual spray, place one to two puffs under your tongue. Continue to rest and relax. If the pain becomes more severe or does not ease after 15 minutes, then you or a family member should call 999 or 112.

## Follow-up

Your doctor will see you before you go home; he will discuss the results of your angioplasty/stent with you. You will receive a follow-up appointment with the cardiologist (heart doctor) about six weeks after you go home.

## Returning to normal

The advice you receive on discharge depends on how successful the procedure was and whether or not you have blockages in any other coronary arteries.

Your doctor will advise you as to what extent you can resume normal activity and return to work.

Most activities can be resumed gradually within two weeks.

It is advisable to avoid any heavy lifting or vigorous activity for several days to allow for the wound to heal properly.

If you have had a heart attack just prior to your angioplasty, the advice will be a little different and your nurse will discuss this with you before your discharge. Please ask for a copy of the Croí 'Recovering from a Heart Attack' booklet. For the first few days after you get home, it is important to check your puncture site. If pain, redness or tenderness develops, contact your GP immediately as this may indicate infection or bleeding. It is also important, if you feel that you're about to cough or sneeze, to put gentle pressure on the wound site, to keep the wound from re-opening.

## Cardiac Rehabilitation Classes

Cardiac rehabilitation classes are provided to give continued support to patients following angioplasty, heart attack and cardiac surgery. The cardiac rehabilitation programme aims to help you to return to

normal life and health following your angioplasty. It involves a supervised exercise programme, advice on relaxation and management of stress, as well as educational sessions in relation to risk factors for heart disease. It is best to enquire about cardiac rehabilitation classes before you are discharged. Croí offer a range of specialised cardiac health and lifestyle programmes, for further information please contact Croí on 091 893500.

## Driving

You should not drive for the first week after having angioplasty. However, if you hold a truck or bus driving licence, this period may be longer and you will need to seek medical advice prior to resuming driving.

## Looking to the future

While the procedures performed during your coronary angioplasty will open a blocked/narrowed artery, they will not cure coronary artery disease. **Lifestyle modifications will need to be made to reduce the risk of further cardiac problems occurring.** Please see page 8.

A nurse will complete the following page for you as a summary, after the doctor has seen you and discussed with you the results of your cardiac angiogram and angioplasty.



For further information visit

[www.croi.ie](http://www.croi.ie)







Fighting Heart Disease & Stroke

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*Fighting Heart Disease & Stroke*

Croi is a not-for-profit charity dedicated to fighting heart disease and stroke in the region. We are an independent organisation, totally funded through our own fundraising activities and voluntary contributions. We are at the heart of communities working with people to make sustainable and life-changing improvements to their cardiovascular health and wellbeing; supporting patients and their families, teaching the lifesaving skills of CPR; and providing health professionals with the knowledge and skills to translate best evidence into daily preventive care.

### **Your donation can be sent:**

**By post:** Croí Heart & Stroke Centre  
Moyola Lane, Galway

**Online:** [www.croi.ie](http://www.croi.ie)  
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This booklet is designed to help you understand more about the procedure of Cardiac Angiogram and Angioplasty and is not intended to replace the medical advice of your doctor.



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