**What is Coronary Angiography?**

A coronary angiography is a remarkable type of diagnostic procedure that allows doctors to use an X-ray camera outside your body to see how blood circulates within the walls of your heart through your coronary arteries. This is accomplished with only one small incision, typically in your groin or arm. Through this incision, a very small tube - a catheter - is threaded to your heart. The tip of the tube is positioned either in the heart or at the beginning of the arteries supplying the heart, and a special fluid (called a contrast medium or dye) is injected. This fluid is visible by X-ray, and the pictures that are obtained are called angiograms. Coronary angiography remains the gold standard for assessing coronary arteries and coronary blood flow in real time imaging.

**What is Coronary Artery?**

Your heart is your body’s hardest-working muscle, pumping blood throughout your body, day after day. The coronary arteries supply your heart muscle with blood. There are two main coronary arteries, left and right. The left coronary artery has two main branches, the left circumflex (LCX) and the left anterior descending (LAD). Although blood is constantly circulating through the heart; the heart itself is nourished just by the blood that makes it through these coronary arteries. In spite of all the blood passing through your heart every minute, your heart muscle can starve when any of these coronary arteries become too clogged. They can become clogged from a buildup of cholesterol, cells or other substances. This can reduce the flow of blood to your heart. If a blood clot forms and completely blocks blood flow through that artery, a heart attack may occur.
Who is Coronary Angiography for?

Your doctor may recommend that you undergo coronary angiography if you have symptoms of coronary artery disease, such as chest pain (angina) or if other tests have suggested that you may have heart abnormalities. It’s important to confirm that your symptoms are caused by blockages in your coronary arteries. If there are blockages, it’s important to see just how serious the blockages are. All this can be done with an angiography. Because of its risks, angiography is usually done only after certain other heart tests have been performed, such as an electrocardiogram, an echocardiogram or a stress test.
What are the risks associated with Coronary Angiography?

As with most procedures done on your heart and blood vessels, coronary angiography does pose some risk. Major complications are rare, though. Among the potential risks and complications are:

- Heart attack
- Blood clots
- Radiation exposure from the X-rays
- Infection
- Stroke
- Trauma to the catheterised artery
- Irregular heart rhythms (arrhythmias)
- Allergic reactions to the dye (iodine based) or medication
- Perforation of your heart or artery
- Kidney damage
- Excessive bleeding

How do you prepare for Coronary Angiography?

In some cases, the procedure is performed on an emergency basis. More commonly, though, it is scheduled in advance, giving you time to prepare. Angiography is performed in the catheterisation (Cath) lab of our hospital. Usually you arrive at the hospital on the morning of the procedure. Although an angiography is not a surgery, there are a few guidelines that need to be followed.

- Don’t eat or drink anything for six hours before your procedure
- Take all your medications to the hospital with you in their original packaging. Ask your doctor about whether or not to take your usual morning medications
- If you have diabetes, discuss your insulin or oral medication program with your doctor
• If you are a smoker, be sure not to smoke the morning of your procedure

Since you will not be allowed to drive yourself home after the procedure, arrange for transportation to and from our facility.

Please be on time for your appointment, since there's a lot to do. After completing the admission forms your health care team will review your medical history, including allergies and medications you take. They may perform a physical exam and check your vital signs - blood pressure and pulse. You empty your bladder and change into a hospital gown. You may have to remove contact lenses, eyeglasses, jewellery, hairpins and other items.

A nurse will draw a small sample of your blood, for lab work, and will place an intravenous (IV) access in your arm. A small amount of hair may be shaved from your groin or arm where the catheter is to be inserted. Before we go to the cath lab, you may receive a medication that will help you to relax.

**Will I be awake during the procedure?**

It is standard procedure to give you a light sedative prior to the procedure to help you relax during the procedure. The sedative can make you feel slightly drowsy or very sleepy but you will be aware of what is happening around you and able to communicate with the staff. We need you to be awake so we can get you to hold your breath from time to time and so you can tell us how you are feeling. The services of an anaesthesiologist may be requested by your cardiologist if deemed necessary.

**How is a Coronary Angiography done?**

Your interventional cardiologist will join us in the lab. Although you’ll feel groggy, you will be awake, and able to speak with him.
The large machine hanging from the ceiling is the X-ray camera. Unlike a traditional X-ray, this machine takes pictures continuously. The X-ray camera may move over and around your head and chest to take pictures from many angles. These pictures are displayed on the monitors next to you, and they are also filmed, for later review.

You will be asked to lie flat on a table. During the procedure you may be asked to keep your hands behind your head. Should you have any difficulty in staying in this position, please inform a member of your health care team. You may be given a sedative through the IV to help you relax, as well as other medications and fluids. Electrodes placed on your chest will monitor your heart throughout the procedure. A blood pressure cuff placed on your arm or leg will track your blood pressure and another device, a pulse oximeter, will measure the amount of oxygen in your blood. You may receive medication called anticoagulants to help prevent your blood from clotting on the catheter and in your coronary arteries.

At the beginning of the procedure the area around the puncture site, either on your hand or thigh, is numbed with local anaesthetic to minimise any discomfort. The procedure begins with placement of a small plastic sheath via a very small incision, either in your hand or your thigh. Through this sheath a hollow tube, called a catheter, is threaded into your artery system. Watching on the TV monitor, your interventional cardiologist will carefully guide the catheter until it is exactly at the entrance of the coronary arteries. At the right moment your interventional cardiologist will release X-ray dye through the tube. On the monitor, the delicate vessels that feed the heart wall will stand out, much like a river with many small streams leading from it. Partial blockages will show as unusually narrow sections of the river; complete blockages will look like dams, with X-ray dye unable to pass.

Since there are three different coronary arteries, your interventional cardiologist will repeat the procedure as necessary. Your help may be asked for, for example by asking you to cough or hold your breath momentarily. While the catheter is in place, other tests may be run as well. Common tests include measuring how much blood your heart pumps in a beat, and how well your heart
valves work. Depending on what your doctor discovers during the angiography, you may have additional catheter procedures at the same time, such as a balloon angioplasty or stent placement to open up a narrowed artery.

What will I feel?

You may feel a slight pressure as the plastic sheath is put in. If a picture of the heart’s main pumping chamber is taken you’ll feel a hot flash sensation from head to toe that will last for 20 seconds. When the dye is injected, you may have a brief sensation of flushing or warmth. Don’t be alarmed if you feel your heart skipping beats - that’s a frequent occurrence during angiograms. You may also have an urge to urinate and rarely, some chest discomfort or nausea. Tell your health care team if you feel pain or discomfort.
Will I feel the catheters inside me?

There are no nerve endings on the internal lining of the arterial vessels so you will not feel the catheters being moved inside your body.

What happens after the procedure?

Sometimes, the plastic sheath that was first inserted into your blood vessel is left in place for several hours or even overnight. If you received anticoagulants during the procedure, removing the sheath too soon could trigger heavy bleeding. Usually, the catheter will be taken out and a nurse or doctor will apply direct pressure for 15 minutes or longer where the catheter was inserted to make sure there is no internal bleeding. You will be asked to lie quietly on your back for several hours. You will not have to lie on your back if the catheterisation was performed from an arm artery. You will be taken to the Intensive and Coronary Care Unit for observation and monitoring. You can have a glass of water an hour after the procedure and eat about two hours post procedure once you are sitting up. You may feel sore where the catheter was inserted or from lying on your back. You may be discharged the same day, or you may have to remain in our hospital for a day or more. Drink plenty of fluids to help flush the dye from your body. If you’re feeling up to it, have something to eat. Your doctor will talk to you about the results.

What changes may happen to my medical treatment?

Your angiography is a procedure to help identify the problem - it is not a treatment. Since the catheterisation procedure provides comprehensive, accurate information about the heart, the doctor will be able to make a well-informed decision about treatment. Some possibilities are:

- The test may prove that symptoms are not related to the heart
• Medication may be altered - the dosage may be changed or perhaps stopped altogether
• A new medication might be indicated
• Coronary Angioplasty may be recommended to widen the narrowing in the coronary artery, improving blood flow to the heart
• Surgery may be recommended - either coronary artery bypass surgery or repair of the heart valves or walls

What should I do after the procedure?

Take it easy at first. Although you should be fine to return to desk-work the day after your angiography, avoid lifting or straining for at least a week. Always follow your doctor’s advice. We have enlisted a few guidelines for you.

Before leaving the Hospital

• Collect your report and CD-ROM from the Department of Cardiac Science and Critical Care
• You should have someone at home with you on the day of discharge
• You should not drive for 24 hours following an angiogram, and for 48 hours following an angioplasty
• Continue with current medication unless otherwise instructed by your doctor. Collect your new prescription from your doctor before leaving the Fortis Clinique Darné. Ensure you drink plenty of water after the procedure
• Arrange a follow-up appointment with your cardiologist and general practitioner or specialist as necessary
At Home

Call your doctor's office or the hospital if:

- You develop increasing pain or discomfort at the catheter site
- You have signs of infection, such as redness, drainage or fever
- There’s a change in temperature or color of the leg or arm that was used for the procedure
- You develop chest pain or shortness of breath, you feel faint or weak
- If the catheter site is actively bleeding or begins swelling, apply pressure to the site and contact emergency medical services

Occasionally there may be a bruise at the puncture site. A small hard lump (similar to the size of a pea) may be felt under the skin. This can remain there for up to several weeks or may become permanent scar tissue. There is nothing to be concerned about. A cold compress on the area helps ease the tenderness. If you shower tonight, stand with your back to the (tepid) water.

For the next two days:

- Do not lift anything heavier than 10 kg (25 lbs). Heavy manual workers may need a longer break
- Do not participate in strenuous exercise such as golf, aerobics or football
- Do not sit in a hot bath or spa and do not cross your legs when sitting
• You may commence walking as long as the incision site is not sore, but leave the site undisturbed
• You may resume work the following day, depending on how you are feeling and your type of work. Do not hesitate to ask your cardiologist for more advice on getting back to work

**Long-term management**

You will discuss this with your cardiologist, specialist and general practitioner. It is important to reduce coronary risk factors and reduce the chance of cardiac and vascular disease. To maintain a healthy lifestyle: stop smoking, eat a low fat diet, maintain a healthy weight and enjoy regular exercise.

**How long after the procedure do I need to wait before going out of town on a planned trip?**

Your Cardiologist is the best person to advise you. There is no general rule and all aspects of your condition must be taken into account. Do not hesitate to ask your cardiologist.

If you have any questions or concerns about the coronary angiography procedure or further treatment, please do not hesitate to contact the staff at Fortis Clinique Darné on **(+230) 601 2300**.
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- Cardiac Sciences
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- Dentistry & Dental Implantology
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- Endocrinology
- ENT
- Gastroenterology
- General Surgery
- Internal Medicine
- Minimally Invasive Surgery
- Neonatology
- Nephrology
- Neuro Sciences
- Obstetrics and Gynaecology
- Oncology
- Ophthalmology
- Orthopaedics
- Paediatrics
- Plastic & Aesthetic Surgery
- Psychiatry
- Rheumatology
- Urology

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- Dental Scan
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- Echography
- Emergency and Ambulance Services (24/7)
- Mammography
- Medical Check Ups
- Medical Laboratory
- Open MRI
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For a Healthier Future

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