

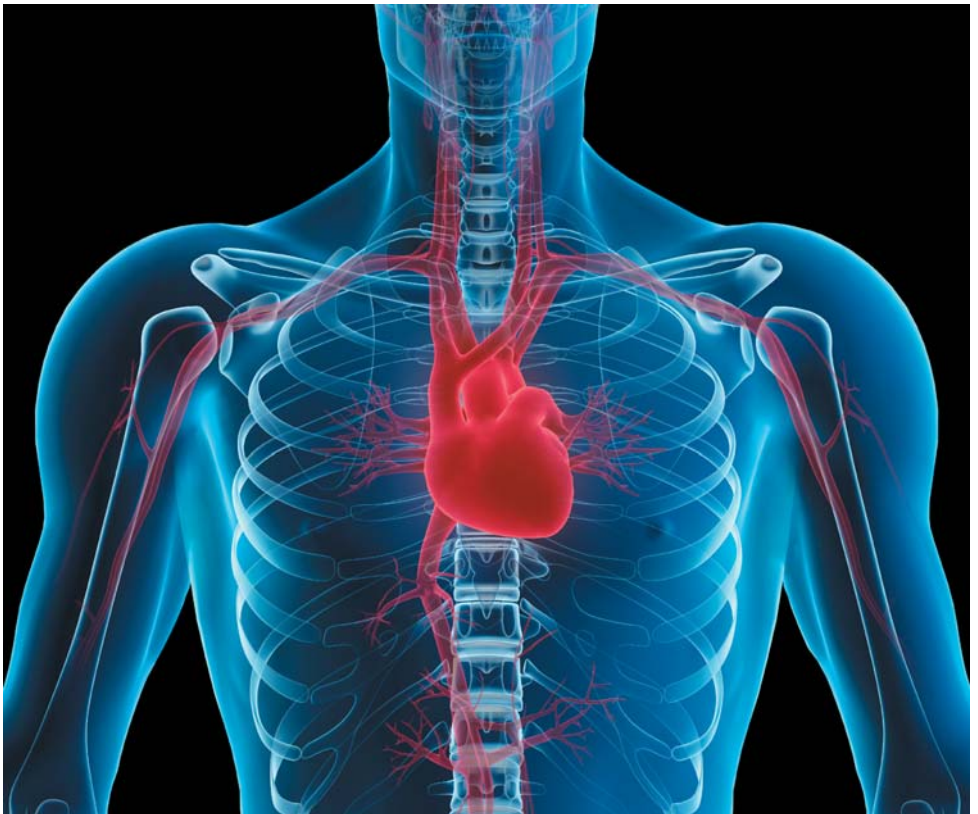


atrialfibrillationassociation  
Australia

[www.atrialfibrillation-au.org](http://www.atrialfibrillation-au.org)  
[www.afa-international.org](http://www.afa-international.org)

Providing information, support and access to  
established, new or innovative treatments for Atrial Fibrillation

# CATHETER ABLATION FOR ATRIAL FIBRILLATION



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## Glossary

Anti-arrhythmic drugs	Drugs used to restore the normal heart rhythm.
Anticoagulant	Drugs which help to thin the blood.
Arrhythmia	Heart rhythm disorder.
Arrhythmia Nurse Specialists	A nurse who is trained in heart rhythm disorders.
Atrial Fibrillation (AF)	Irregular heart rhythm.
Atrial Flutter	A rhythm disorder characterised by a rapid but regular atrial rate.
Cardiologist	A doctor who has specialised in the diagnosis and treatment of patients with a heart condition.

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Catheter ablation	A treatment which destroys the areas inside the heart causing the AF.
Dyspnea	A medical term for shortness of breath.
Echocardiogram	An image of the heart using echocardiography or sound-wave based technology.
Electrocardiogram	A representation of the heart's electrical activity or ECG (sometimes EKG) in the form of wavy lines. An ECG is taken from electrodes on the skin surface.
Electrophysiologist (EP)	A cardiologist who has specialised in heart rhythm disorders.
Sinus rhythm	Normal rhythm of the heart.
Stroke	A medical condition which is now referred to as a "brain attack" where the brain is deprived of oxygen. Blockage of blood flow can be created when a blood clot breaks free, travels through the circulatory system and gets lodged in blood vessel long enough to cause a section of the brain to die. Strokes can vary in severity from transient (TIA) to very mild.
Tachycardia	A rapid heart rate.

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## Introduction

This booklet is directed at people undergoing a catheter ablation procedure for Atrial Fibrillation and their families.

Please also refer to the following booklets:

- Arrhythmias
- AF
- Cardioversion
- Etc.

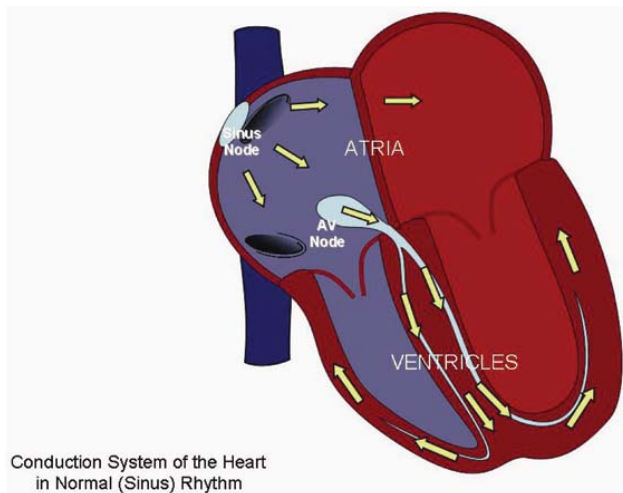
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These booklets should be used in addition to the information given to you by doctors and nurses. If you have any further questions, about the ablation procedure please ask your electrophysiologist.

## The heart during normal rhythm (sinus rhythm)

Normally the heart beats in a regular organised way, driven by the “sinus node” in the right atrium. Electrical impulses spread through the right and left atria and then into the ventricles via the “AV node” as shown in the picture.

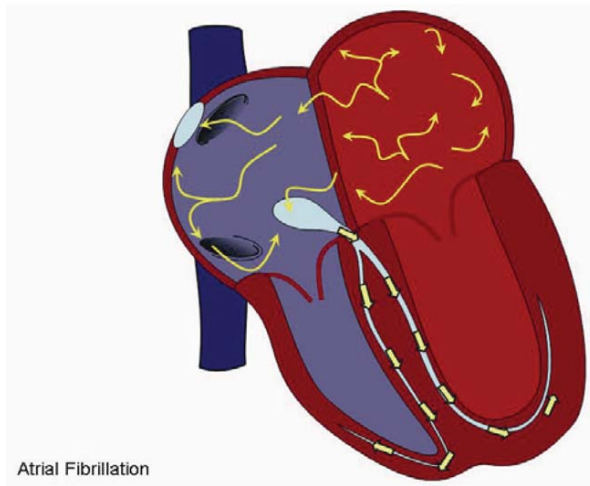
The sinus node is the body’s natural pacemaker, triggering each heart beat according to the needs of the body.



## Atrial Fibrillation 'AF'

During AF the sinus node is suppressed by very rapid chaotic beating of the atria, resulting in rapid and irregular beating of the ventricles often causing symptoms of palpitations, light headedness, breathlessness, chest pain and may even lead to fainting.

Normal heart rhythm can be restored with anti-arrhythmic drugs or by resetting the heart with a shock (cardioversion), however AF often returns and blood thinners (usually aspirin or warfarin) are required to prevent stroke.



In some patients the symptoms of AF can be controlled with drugs that control the heart rate (eg. digoxin, beta blockers, verapamil, diltiazem). In others, anti-arrhythmic drugs (eg. flecainide, sotalol, amiodarone) are used to maintain sinus rhythm.

## Am I suitable for an AF ablation?

Ablation for AF is not required for everyone with AF. Some patients choose or will be advised to take medication - either regularly, or as and when an episode of AF occurs.

Currently the major reason for AF ablation is intrusive symptoms where

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medical therapy has failed or is not tolerated. Although people in sinus rhythm generally have better health outcomes, ablation for AF has not been conclusively proven to make a person live longer or specifically reduce the risk of stroke. Ongoing studies will hopefully answer these questions in the next few years.

In certain circumstances ablation may be recommended to prevent further damage to the heart such as in people with cardiomyopathy or heart failure.

It is important that your individual circumstances and suitability for AF ablation are discussed with your cardiologist or electrophysiologist.

## The ablation procedure

The aim of the procedure is to destroy or exclude the sources of electrical impulses that may be triggering and driving AF, and to alter the tissue of the atria so that they transmit the impulses from the sinus node smoothly, reducing the likelihood of the rhythm degenerating to AF.

Ablation is performed by heating or freezing heart tissue using a long thin wire (catheter) threaded up to the heart through a vein at the top of the leg. Once the tissue is treated in this way it forms a scar which can no longer conduct the abnormal impulses.

These impulses often come from the pulmonary veins (PVs) which drain blood from the lungs into the left atrium (LA). Hence the ablation procedure targets the junction between the PVs and the LA to stop conduction to the atrium ('pulmonary vein isolation').

In some cases widespread electrical abnormalities are present, particularly if the AF is longstanding or in older patients with high blood pressure and atrial enlargement. More extensive ablation is then required to improve and organize electrical conduction ('substrate modification').

## Which is the best procedure to have?

Unfortunately this is an impossible question to answer at the moment. Generally, the more areas that are ablated within the atria, the less likely AF is to recur. However, this must be balanced against potentially

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damaging the function of the heart (specifically atria) by doing too much ablation. Furthermore, it is likely that the electrical abnormalities that cause AF may differ between patients, and unfortunately it is often difficult to pinpoint the specific cause in an individual patient. However, it is generally agreed by cardiologists that the PVs play an important role in the majority of patients with AF and therefore nearly all ablation strategies today will involve electrical isolation of the PVs. There is less agreement amongst cardiologists on the importance of the additional ablation strategies described above, except to state that, in most cases, additional ablation other than PV isolation will be necessary in patients with the persistent form of AF. Therefore, in this group of patients, this will currently consist of performing ablation lines or targeting specific sites, or a combination of both of these approaches.

## What happens before the procedure?

Your electrophysiologist will give you very important instructions regarding medications (eg. warfarin, anti-arrhythmic drugs) such as which to stop and when. If you are told to stop warfarin it may be necessary for you to receive another blood thinner such as Clexane by injection.

To examine your atrial anatomy and assist with the procedure it will usually be necessary to have a detailed scan of the heart such as CT or MRI in the days leading up to the procedure.

You will be then be admitted to hospital on the day of the procedure when you will meet your anaesthetist. You should have nothing to eat or drink for 6 hours before a general anaesthetic.

Prior to the ablation it may also be necessary to perform a transoesophageal echo (TOE), to ensure there is no blood clot in the atria. This is done through a thin tube with an ultrasound probe which is swallowed after a local anaesthetic spray and sedation.

## What happens during the procedure?

The procedure is performed under general anaesthesia or with heavy sedation in a catheter laboratory, similar to an operating theatre. A group of staff will be present including the electrophysiologist, cardiac scientists, nurses and the anaesthetic team.

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Before the procedure starts you will have adhesive patches attached to areas such as your arms, back, chest and legs. These together with a blood pressure cuff and intravenous drips are necessary to monitor you, administer medication and to allow all the equipment to work normally.

After local anaesthetic injection, catheters will be introduced through the leg and a “transeptal puncture” will be performed to gain access to the left atrium. A 3D map or model of the left atrium will be created (with the help of the CT/MRI scan) to guide the ablation.

You may feel chest pain during the ablation and if this is too unpleasant you should ask for more medication. You may also feel palpitations. Throughout the procedure a nurse will be monitoring you closely.

The procedure may take between 2 and 5 hours. At the end of the procedure your heart may need to be cardioverted back into sinus rhythm by delivering an electrical shock across the chest. If this is necessary you will be given more sedation so that you are deeply asleep.

## What happens after the procedure?

Immediately after the procedure you will be returned to the ward where your heart rhythm and your blood pressure will be monitored closely, as will the puncture sites in your groin.

The tubes in your groin will be removed either in the cardiac catheter laboratory itself or on the ward when it is safe to do so and a clamp may be applied. You will then be allowed to eat and drink.

It is usual to be discharged home the next day, again with instructions regarding blood thinners and heart rhythm medications — follow these carefully.

Fleeting pains in the chest, shoulder, or neck, that catch the breath like a “stitch” are not uncommon and are related to inflammation and the healing process. These symptoms should settle quite quickly, often responding to simple paracetamol.

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Most patients recover quickly from the procedure however it may take a day or two to feel completely normal again, partly as a result of the sedative drugs or general anaesthetic used. Recovery from the procedure will vary a little from one individual to another, but most normal daily activities can be resumed as soon as you feel able. It is best to avoid heavy lifting and strenuous exercise such as going to the gym for at least a week to allow your groin to heal properly. You should not drive for at least 48 hours.

It is common to be aware of extra or missed heart beats in the first few weeks and you may even experience an increase in your AF. This does not mean that your ablation hasn't been successful; some people may even require a cardioversion in the early stages post ablation, but any decision about the need for further ablations will generally not be made until at least 2 to 3 months.

## Will I be able to stop my tablets after the procedure?

The circumstances for each patient are different and you will need to discuss this with your specialist. Please follow their instructions carefully.

**DO NOT CHANGE OR STOP TAKING YOUR MEDICATION  
WITHOUT CONSULTING YOUR DOCTOR FIRST.**

## Will the procedure work for me?

The success of this procedure depends on several factors including the type of AF you have (paroxysmal or persistent), the length of time you have had AF, whether or not you have any other heart disease, etc.

Generally the procedure results in a significant improvement (and sometimes cure) of the condition however it may be necessary to undergo more than one procedure.

Current figures report that up to 30-40% of people will require more than one AF ablation, and this figure rises to 50% for those with more difficult AF. This is normally due to the recurrence of AF or the development of atrial flutter, a more organised rhythm disturbance.

Recurrence of AF usually is a result of the small burns (radio frequency

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lesions) not fully forming scar tissue so abnormal electrical impulses can still be conducted. Some patients will need to continue to take medication to control the AF after the ablation.

## Are there any risks associated with the procedure?

Ablation is an invasive procedure and carries a small risk of a serious complication. It is important that you understand this, and your electrophysiologist will discuss this with you before the procedure.

Minor problems that may occur are chest pain during the ablation (which may feel like severe indigestion) or bruising and soreness in the groin after the procedure. X-ray is used during the operation and you must tell your doctor if there is any chance you could be pregnant. The serious complications are uncommon (around 1%) and are listed below.

A pericardial effusion is a collection of fluid (usually blood) contained in the sack surrounding the heart. Small pericardial effusions are common and do not cause any disturbance but larger collections may need drainage through a small tube under the breastbone.

Nerve injury can result in paralysis of the diaphragm and breathlessness, or problems with the digestive tract but fortunately most cases resolve spontaneously.

Pulmonary vein stenosis (PV stenosis) is now very rare and means that the veins become narrowed as a result of the ablation treatment scarring up their entrance.

Stroke is perhaps the most feared complication of AF ablation. It occurs when part of the blood supply to the brain is affected, usually by a blood clot. Great care is taken during the procedure and blood thinning medication (heparin) is used, and warfarin may be used for a few weeks after the ablation.

Bleeding from the groin site may be painful and a lump can be found. This is different from bruising, which can look dramatic. Treatment varies depending on how easily the bleeding can be stopped but anything more than simple pressure is uncommon.

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An atrio-oesophageal fistula is caused by damage to the oesophagus (food pipe), as a result of the heat of the ablation. It is a very rare but extremely serious complication. Signs and symptoms can include fever, chills, stroke, septic shock (collapse) and haematemesis (vomiting blood).

Other very rare complications include the need for urgent heart surgery, major drug reactions, anaesthetic complications and death.

## **Are there alternative procedures?**

There are alternative treatments for Atrial Fibrillation which have not been discussed in this leaflet. These include pacemaker implantation (with or without ablation of the AV node to disconnect the AF from the ventricles) and surgical catheter ablation (usually done at the same time as other chest surgery). Other devices can also be implanted to reduce the risk of stroke and enable some patients to stop warfarin.





# Atrial Fibrillation Association

## MEMBERSHIP APPLICATION

Register to become a member of AFA Australia on line at  
[www.atrialfibrillation-au.org](http://www.atrialfibrillation-au.org)  
[www.afa-international.org](http://www.afa-international.org)

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Please remember these are general guidelines and individuals should always discuss their condition with their own doctor.



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