

# Atrial Fibrillation and Ablation Therapy: A Patient's Guide

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ATRIAL FIBRILLATION CENTER  
AT  
UNIVERSITY OF ROCHESTER MEDICAL CENTER  
[www.heart.urmc.edu](http://www.heart.urmc.edu)  
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## INTRODUCTION

Our goal at the Atrial Fibrillation Center at the University of Rochester Medical Center is to treat all patients with symptomatic atrial fibrillation with the highest standard of care. Our cardiologists at the Atrial Fibrillation Center have the most experience in upstate New York in treating atrial fibrillation. As one of the top academic medical centers in the United States, we also have the unique ability to offer our patients participation in clinical trials involving newer therapies for atrial fibrillation not offered anywhere else in upstate New York.

If you have atrial fibrillation and want to meet one of our cardiologists to discuss advanced treatments for atrial fibrillation, call us to make a clinic appointment at 585-275-4775.

## WHAT IS ATRIAL FIBRILLATION?

Atrial fibrillation (AF) is the most common heart rhythm abnormality worldwide. AF is an irregular heart rhythm that originates in the top chambers of the heart called the atria. During AF, the electrical impulses of the heart do not start in the normal area. Instead, the electrical impulse starts from many different areas of the atria and spreads out in a chaotic manner, which causes the heartbeat to be irregular and disorganized.

AF affects at least 2.5 million Americans and an increasing number of people develop AF every year. While AF can be a difficult arrhythmia to treat, there are many more therapeutic options available to patients today than there were even 5 to 10 years ago.

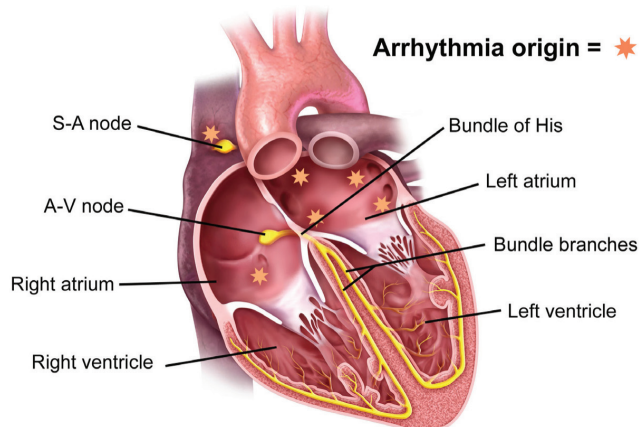
A number of health conditions can be associated with AF. These include high blood pressure, sick sinus syndrome, congestive heart failure, cardiomyopathy, valvular heart disease, congenital heart defects, and thyroid disorders. AF can occur at any age but is much more common with older age and tends to affect men more commonly than women.

## HOW DOES THE NORMAL HEART WORK?

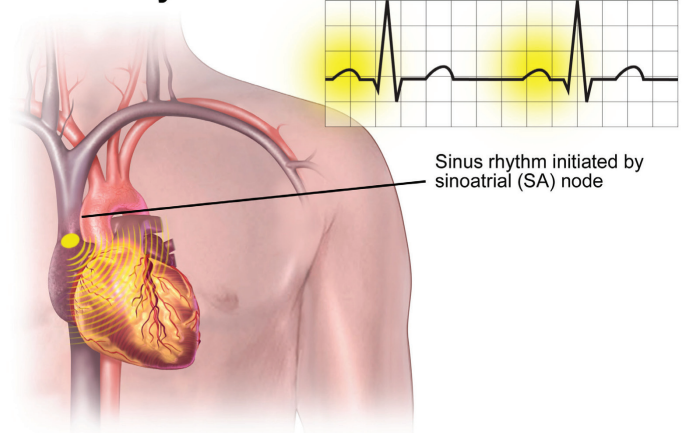
To better understand what causes AF, it is helpful to know how the normal heart is supposed to work. The heart consists of four chambers. The two top chambers are called the atria and the bottom chambers are called the ventricles. The ventricles are the stronger chambers and eject blood to the lungs through the right ventricle and oxygenated blood throughout the body via the left ventricle.

The normal heart rhythm is called normal sinus rhythm. The heart has a natural pacemaker that is located in the right atrium called the sinoatrial node (SA node). An electrical impulse starts in the SA node and then travels to the right and left atria and down to the atrioventricular node (AV node). The AV node slows down these electrical impulses before allowing them to travel down the electrical pathways in the ventricles. During normal sinus rhythm, the atrium and ventricles pump together in unison.

## Atrial Fibrillation



## Sinus Rhythm



## DIFFERENT KINDS OF ATRIAL FIBRILLATION

The Heart Rhythm Society defines several different forms of AF:

- Paroxysmal AF is defined as at least 2 episodes of AF ( $\geq 2$  episodes) that end spontaneously within 7 days
- Persistent AF is defined as AF which is continuous beyond 7 days, or lasting less than 7 days but requires drugs or electrical cardioversion to stop
- Longstanding persistent AF is defined as continuous AF of greater than one-year duration
- Permanent AF is a condition that leads to a decision not to pursue restoration of normal sinus rhythm by any means

The term "Lone AF" is also used and refers to any form of AF that occurs in patients who have no heart function abnormalities and have no clear cause for their AF. The form of AF that a patient presents with can have important treatment implications. In general, paroxysmal AF is more easily treated than more persistent forms of AF.

## HOW DOES AF AFFECT YOUR QUALITY OF LIFE?

Symptoms of atrial fibrillation present differently in different people.

Some people have few to no symptoms, while others are aware of the exact moment they go into AF. Many patients report feeling heart pounding, dizziness, shortness of breath and chest pain. Inability to exercise to pre-AF levels and fatigue are also common symptoms.

AF is often a progressive arrhythmia. This means that episodes of AF may change from happening once in awhile to happening all the time. This progression is often associated with worsening symptoms, making it hard for some people to do their daily activities.

Many people may find it quite stressful to have AF because episodes can be very unpredictable and can occur at almost anytime. Patients may be afraid to travel and attend social events for fear of having AF.

## WHAT IS THE BEST WAY TO MANAGE YOUR AF?

The appropriate treatment goals for AF depend on the patient's age, the presence or absence of other heart disease and patient symptoms. In general, the treatment approaches for managing AF include:

- Rate controlling strategy: Several different medications can be used to help control the heart rate. This is important because very fast, uncontrolled heart rates can weaken the heart muscle and cause heart failure.
- Rhythm controlling strategy: Attempting to maintain the heart in a normal beating pattern (normal sinus rhythm) can be done by either chemical or electrical cardioversion, and possibly antiarrhythmic drug therapy. Medications can control AF, similar to how high blood pressure can be controlled with medications, however, medications cannot be expected to cure AF. In other words, treating AF with medications requires continuation of the medications indefinitely.
- Rhythm cure strategy: Ablation therapy is the only treatment that offers a potential cure for this arrhythmia. All other therapies are temporary ways to control AF over the short term.
- Anticoagulation: Preventing blood clots from forming in the left atrium is important to prevent strokes in the setting of AF. This is best achieved by taking medicine, usually aspirin or warfarin depending on the risk factors of the patient.

## ARE YOU A CANDIDATE FOR ABLATION THERAPY?

People who may be eligible for AF ablation include:

- Patients who experience symptoms with paroxysmal or persistent atrial fibrillation
- Patients who continue to suffer from symptoms that occur with AF despite treatment with antiarrhythmic drugs
- Patients who cannot tolerate antiarrhythmic drugs or have complications from these drugs

Patients who may not be eligible for AF ablation include:

- Patients with persistent AF of greater than 3 years duration
- Patients with very weak hearts and long standing advanced heart failure symptoms
- Patients with significant enlargement of the left atrium
- Morbidly obese patients
- Patients with severe lung disease

## HOW IS ABLATION FOR ATRIAL FIBRILLATION PERFORMED?

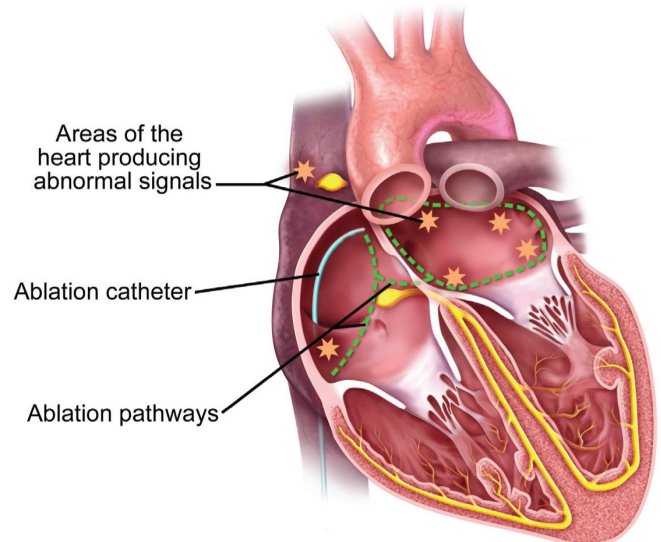
Atrial fibrillation ablation is often also referred to as pulmonary vein isolation (PVI) or wide area circumferential ablation (WACA). In 1998, Dr. Michel Haissaguerre published a landmark article describing electrical impulses located within the pulmonary veins that could trigger episodes of AF in patients with paroxysmal AF. Most people have four pulmonary veins that are attached directly to the left atrium. Further research over the past 5 to 7 years has revealed that there can be other triggers for AF outside the pulmonary veins that may also need to be considered especially in patients with more persistent forms of AF. The goal of AF ablation is to isolate or block off the electrical impulses within the pulmonary veins to prevent them from invading the atria.

An AF ablation procedure begins by putting thin wires into a vein in the upper thigh and threading them up into the heart. Blood thinning medication (heparin) is given routinely during the procedure to prevent blood clots from forming in the heart. A small ultrasound camera is then inserted into the right atrium. The left atrium is then accessed through a procedure called a trans-septal puncture with a thin needle. An ultrasound camera gives a clear image to guide the location of the trans-septal puncture. Once the left atrium is entered, a three dimensional electroanatomical computer map of the left atrium and pulmonary veins is created. This map is then used as a guide to deliver radiofrequency energy to the inside surface of the left atrium through special catheters. The radiofrequency energy (ablation) produces small areas of scar tissue that block the impulses firing from within the pulmonary veins. In patients with persistent AF, additional radiofrequency lesions outside of the pulmonary veins may also be required. A catheter called a LASSO catheter is often used to confirm and guide electrical isolation of the pulmonary veins.

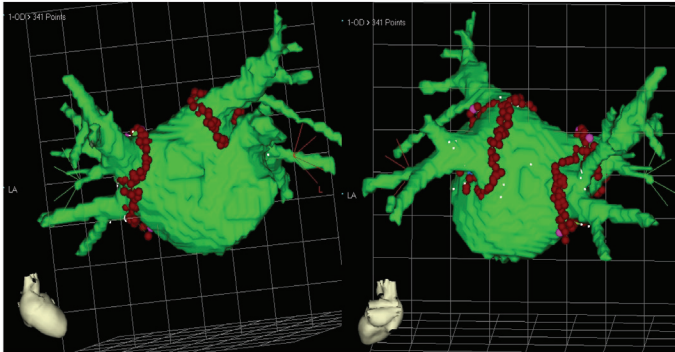
During the AF ablation procedure patients are monitored very carefully. Some patients undergo the procedure with medication to make them very sleepy (conscious sedation) while others will have general anesthesia. The decision of using either of these will be made by your cardiologist together with your input. Equipment used during the actual ablation procedure includes:

- Monitoring of the ACT (how thin the blood is) to minimize the risk of stroke
- Constant monitoring of the heart rhythm
- Oximetry monitor which measures the oxygen level within the blood
- Fluoroscopy which helps the cardiologist see the catheters and the heart borders on an X-ray screen

## Atrial Fibrillation Ablation

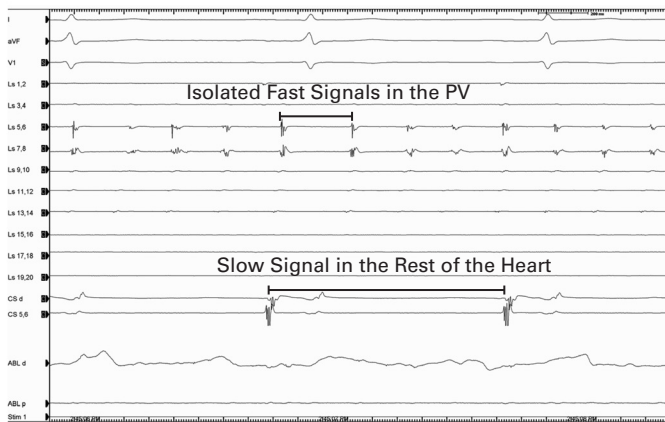


**3D Map of the Left Atrium**

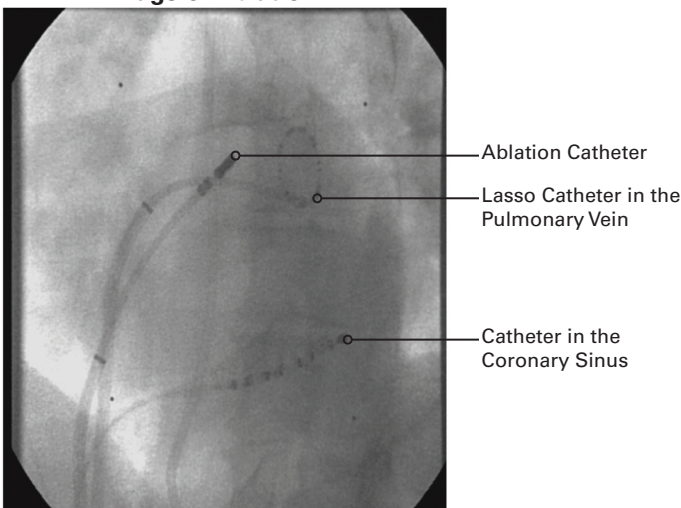


\*Red dots indicate Ablation Lesions around the Pulmonary Veins

**Electrically Isolated Pulmonary Vein (PV)**



**Image of Ablation**



**WHAT COMPLICATIONS CAN OCCUR WITH AF ABLATION?**

As with any cardiac procedure, there are potential complications that can occur with AF ablation. Overall the risk of serious complications is low and the cardiologists performing AF ablation at the University of Rochester Medical Center are highly trained and have had extensive experience with performing ablation procedures. Some of the potential risk of AF ablation include:

- Perforation of the heart or blood vessels
- Stroke
- Bleeding
- Small risk of injuring the esophagus (the swallowing tube) during the ablation procedure

**HOW CAN YOU BE EVALUATED FOR ATRIAL FIBRILLATION ABLATION?**

You will need a thorough evaluation to decide if an ablation procedure is the appropriate treatment for your atrial fibrillation. You may have already had many of these test performed by your own cardiologist or primary care provider. The evaluation may include one or more of the following:

- 12 lead electrocardiogram (EKG)
- Physical examination
- Surface or trans-esophageal echocardiogram
- Holter monitor or event recorder
- Test to evaluate for obstructive sleep apnea
- Cardiac MRI or CT to view the left atrial and pulmonary vein anatomy

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## FREQUENTLY ASKED QUESTIONS REGARDING ATRIAL FIBRILLATION ABLATION

**Q.** How successful is AF ablation?

**A.** The success of AF ablation depends on the type of AF and the underlying health of the heart. Patients without any heart disease and who have paroxysmal AF may have success rates of 80% or more. Patients with more persistent forms of AF and with other cardiac disease may have lower success rates between 60-70%. Many patients may experience a significant reduction in the amount of their AF even if the AF cannot be totally eliminated. In some patients a second ablation procedure may be required to obtain the most optimal results.

**Q.** Do I need to stop any medications before the ablation?

**A.** Blood thinners such as warfarin (coumadin) are stopped four days prior to the procedure. The warfarin will be reinitiated after the procedure. Antiarrhythmic drugs are also sometimes discontinued depending on the type of atrial fibrillation. You may also require heparin (lovenox) shots for several days before and after the ablation.

**Q.** Can I eat before the ablation procedure?

**A.** You can eat a normal meal the evening before your procedure. Do not drink or eat anything after 12:00 midnight the evening before your procedure. If you must take medications, take them with a small sip of water.

**Q.** What happens when I arrive for my procedure?

**A.** When you arrive to the Electrophysiology Lab area a nurse will help to get you ready. An IV (intravenous line) will be started in your arm. The IV is used to deliver medications and fluids during the procedure. If you require general anesthesia, the anesthesiologist will meet with you at this time.

**Q.** Where is the ablation procedure performed?

**A.** The ablation is performed in a specialized room called the Electrophysiology Lab. This room is equipped with fluoroscopy (live Xray), complex three dimensional mapping systems, intra-cardiac echo and systems used to pace different chambers of the heart.

**Q.** How long does the ablation procedure last?

**A.** The procedure usually takes between 3 to 4 hours to complete.

**Q.** When will I know the final results of the procedure?

**A.** After the procedure, your doctor will come out and discuss the results with you, your family or anyone else that you designate. Due to the effects of the sedation, you may not remember speaking with your doctor. The success of the procedure cannot be determined for six to eight weeks after the procedure. In fact, recurrences of atrial fibrillation during this time period are not uncommon and do not predict the final outcome of the procedure. This is due to the healing process and the time needed for the ablation scars to mature.

**Q.** How will I feel after the procedure?

**A.** You may feel drowsy for the first 48 hours due the effects of sedation. You may also have some mild chest discomfort that can be worse when taking a deep breath. You should call our office if you have any bleeding from catheter sites, fevers, significant chest discomfort, shortness of breath, difficulty swallowing or any other symptoms that you are concerned about.

**Q.** Do I need to stay in the hospital overnight?

**A.** Yes. You will need to stay in the hospital overnight for close observation. Your heart rhythm will be constantly monitored in your hospital bed on a special monitor called a telemetry monitor. Your blood pressure, temperature and oxygen saturation will also be closely monitored. If you feel well, you will be discharged in the morning on the day after the ablation procedure.

**Q.** Can I drive myself home after the procedure?

**A.** No. You may be drowsy for 48 hours after the procedure from the sedation medications. Another adult must drive you home for your safety.

**Q.** Can I take a shower after the procedure?

**A.** Yes, you can shower when you return home. It is a good idea to avoid baths or swimming pools for 5 days following the ablation. Please try to keep the procedure site in your leg clean and dry.

**Q.** When can I return to my normal activities and work?

**A.** You will be able to walk as soon as four hours after the procedure. You should not lift anything over 20 lbs for the first week after the procedure. Strenuous exercise such as weight lifting, jogging, and elliptical trainers should be avoided for one week. You should be able to return to work 5-7 days after the ablation procedure.

**Q.** Can I stop taking my medications after the procedure?

**A.** No. You will need to remain on warfarin (coumadin) for at least 3 months after the procedure. If you are not already taking warfarin; it will be initiated after the procedure. If you have had a stroke in the past or have significant risk factors for stroke, it may not be possible to ever discontinue warfarin regardless of the results of the procedure. It is very important that the warfarin level (INR) be closely monitored after the ablation. Antiarrhythmic drugs (amiodarone, tikosyn, propafenone, flecainide, sotalol, etc.) will be continued for a minimum of three months after the procedure. In many cases, antiarrhythmic drugs can be discontinued after this time period.

## PHYSICIANS AT THE ATRIAL FIBRILLATION CENTER

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*MEDICINE of THE HIGHEST ORDER*

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