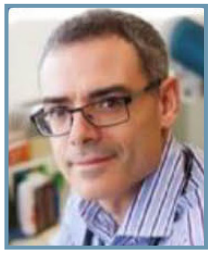
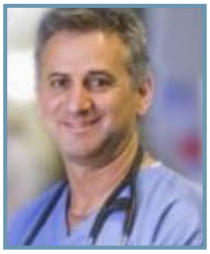
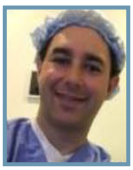
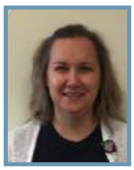
Catheter Ablation: A Targeted Treatment for Atrial Fibrillation

A PATIENT HANDBOOK

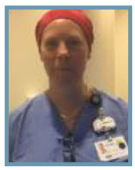
SOUTHLAKE
REGIONAL HEALTH CENTRE





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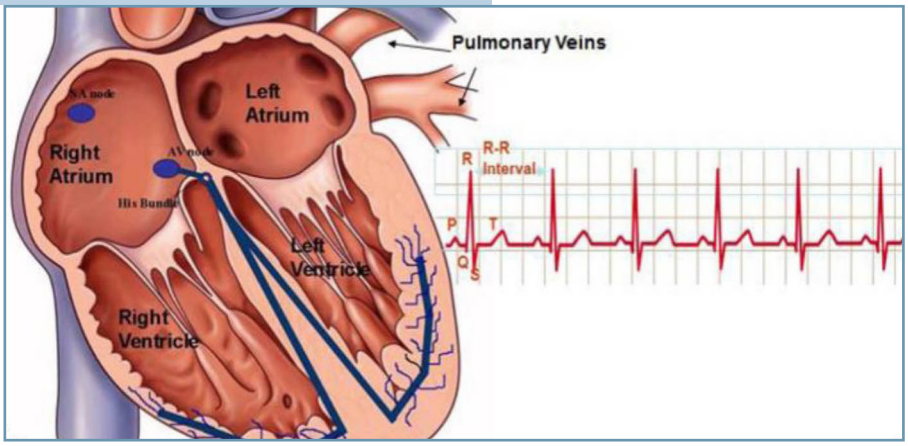
Your Heart's Electrical System

Your heart has an "electrical system" that causes it to beat and pump blood and nutrients throughout your body.

The sinoatrial (SA) node is the electrical control centre of the heart and sets the pace or rhythm of the heart. The SA node starts the electrical stimulation of the heart muscle, which then spreads across the heart's upper chambers, causing them to pump.

The electrical signal then travels to the atrioventricular (AV) node in the middle of the heart, where it is then sent to the heart's lower chambers causing them to pump. This pumping action is felt as your pulse on your wrist or neck. The rate of pumping of the lower chambers determines your pulse rate. After the lower chambers have finished pumping, the SA node begins the cycle again.

The SA node is referred to as the "natural pacemaker" with the AV node referred to as the "gate keeper" controlling the heartbeat.

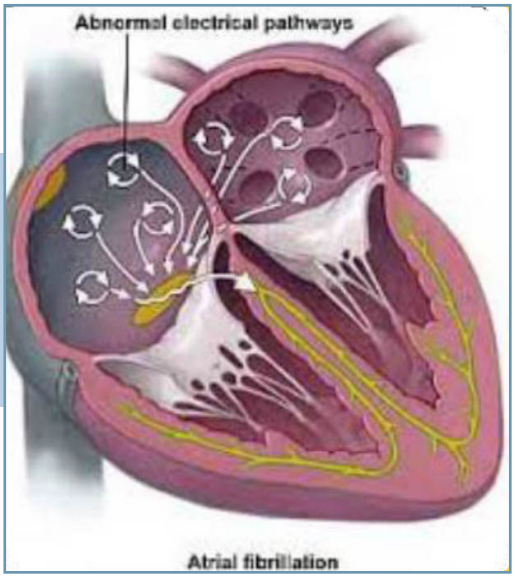


What is an Arrhythmia?

Typically, a healthy heart beats 60-100 times per minute during rest. However, some people have an irregular heartbeat or an arrhythmia. An "arrhythmia" is a disturbance in the rhythm of your heart beat that may result from "short circuits" in the SA and AV nodes or anywhere in the electrical pathways of the heart. Arrhythmias can cause the heart to beat too fast, too slow, or irregularly. This irregular beating causes the heart to pump poorly. This can lead people to feel irregular heartbeats (palpitations), dizziness, or fatigue. In some cases, arrhythmias can put you at risk of heart attack, heart failure, stroke, or cardiac arrest, depending on the specific type of arrhythmia.

Arrhythmias can be categorized according to whether they cause a heartbeat that is too slow, erratic, or too the heart where the irregular heart beat starts. This brochure will focus on arrhythmias that originate in the atria (upper chambers of the heart).

Atrial fibrillation is an uncontrolled, irregular heart rhythm. The upper chambers of the heart quiver and do not pump effectively.



Common Types of Atrial Arrhythmias

This section will provide a brief overview of the most common types of atrial arrhythmias treated with catheter ablation, along with cause and symptoms of each type.

Atrial Fibrillation

Atrial fibrillation (AF) is the most common type of abnormal heart rhythm and is found in more than six million people worldwide. AF is a disorganized heartbeat that occurs in the upper chambers of the heart (atria). During AF, the atria beat between **350-600 times per minute** which can make your lower chambers (ventricles) beat irregularly and sometimes also quickly. If you have AF, you may experience symptoms such as heart palpitations, dizziness, fatigue, and shortness of breath. Episodes of AF can last from minutes to hours to days. Some people are in AF all the time (persistent) while others go in and out of AF (paroxysmal).

Atrial Flutter

Atrial flutter is similar to AF, as it is a fast rhythm that originates within the upper chambers of the heart, however it is more organized and regular. During atrial flutter, the atria beat between **150-300 times per minute** while the ventricles usually beat at a regular rate, which can be quite fast. The upper chambers of the heart cannot empty properly. Symptoms of atrial flutter include palpitations or pounding of the heart. Episodes of atrial flutter can last for hours or days. Therefore, most people with atrial flutter require treatment.

During episodes of both AF and atrial flutter, blood does not empty properly from the upper chambers of your heart. The blood can pool and sometimes clot. This can ultimately lead to a stroke.

What is Atrial Fibrillation?

Atrial fibrillation (AF) is one specific type of arrhythmia. In fact, it is the most common type of abnormal heart rhythm and is found in more than 1% of all Canadians. AF is a disorganized heartbeat that occurs in the upper chambers of the heart (the atria). This, in turn, causes the lower chambers of the heart (the ventricles) to beat irregularly and sometimes quickly.

A normal heart beats about 60-100 times per minute. But during AF, the atria beat between 350-600 times per minute in a random, irregular way. This can cause your ventricles (the lower chambers) to beat irregularly and sometimes quickly – up to 150-200 times per minute. This is what causes many people to feel irregular beats (palpitations). It may also cause you to feel dizziness, fatigue, chest pain and shortness of breath.

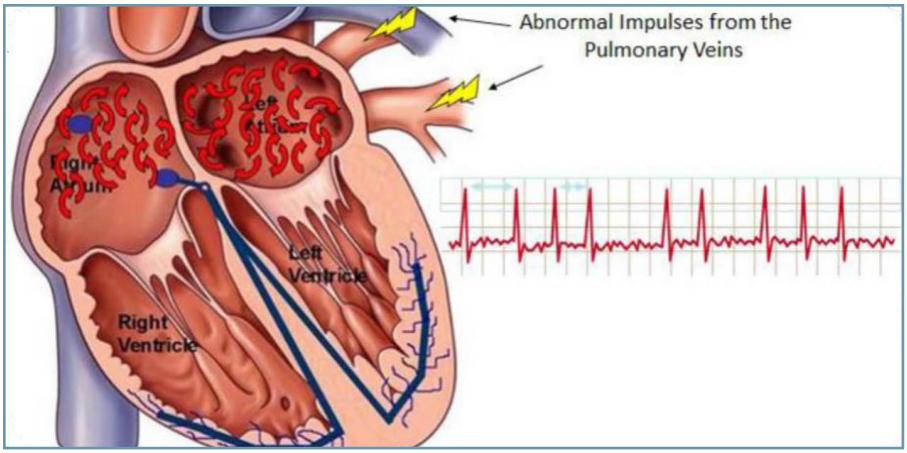
AF may occur in isolated episodes, or it may occur for long periods of time (hours, days, weeks, even months). It may even stay all the time. Often, people start by having rare episodes (once a year, once a month) which become more frequent over time. Unfortunately, AF almost never goes away on its own. Once you start having AF episodes, they almost always come back and become worse over time.

Types (Patterns) of Atrial Fibrillation

Paroxysmal: refers to AF that comes and goes on its own. The AF may last seconds, minutes, hours, or days before the heart returns to normal rhythm. Often people with this type of AF feel more palpitations. This is because of sudden changes in heart rate from AF to normal rhythm.

Persistent: is when the AF does not stop on its own. People may not feel as many palpitations, but may still feel fatigue and shortness of breath. Medications or an electrical shock (cardioversion) are used to reset the natural pacemaker of your heart. If no treatment is given, then you will stay in AF.

Permanent: this is when the AF cannot be fixed. Medications and electrical shock (cardioversion) do not restore the heart to normal rhythm.



What causes Atrial Fibrillation?

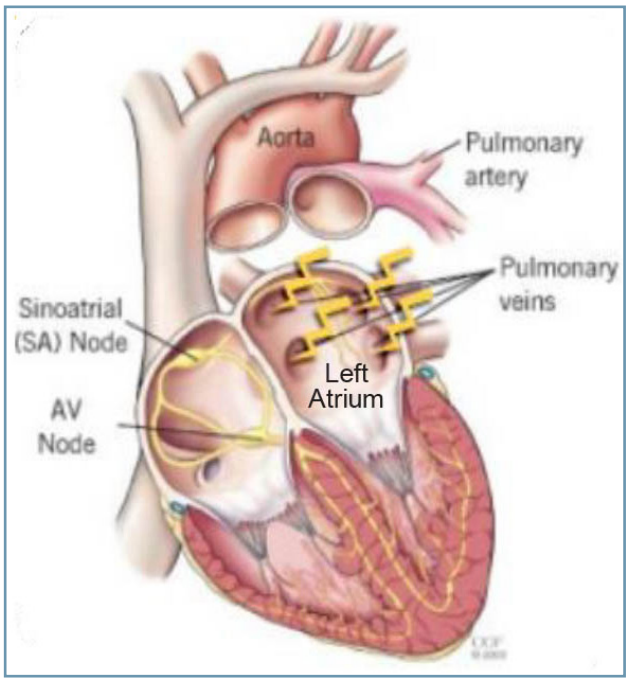
AF most often occurs in adults over age 60; however, it can occur in younger people.

AF may be associated with other heart or lung conditions, such as high blood pressure, coronary artery disease, heart valve disease, heart failure, chronic lung disease or sleep apnea. Obesity has been identified as an important risk factor as well. In some cases, AF is inherited; research is ongoing in this field. In many cases, however, AF occurs in completely normal hearts.

Excessive alcohol, binge drinking or caffeine intake, specific drugs, electrolyte or hormonal imbalances, stress, and weight gain can all make AF worse. However, eliminating these factors may not necessarily eliminate the AF. There is no specific diet that seems to make AF worse or better.

Inside the heart, AF is triggered by electrical "short circuits" that fire off electrical impulses in a very rapid and irregular way. In AF, there are a lot of these short circuit regions (more than 50-100). Most of these short circuits for AF are located in one of the upper chambers of the heart called the left atrium.

Specifically, there are four veins attached to the left atrium that bring blood back from the lungs into the heart called the pulmonary veins. Most of the AF short circuits are clustered around these pulmonary veins.



Is Atrial Fibrillation Dangerous?

AF is usually not a life-threatening problem in the short term. Some people can be in AF for hours and some are even in AF all the time. However, AF can have some serious consequences, especially in the long term.

During AF, blood does not empty properly from the upper chambers of your heart. The blood can pool and sometimes clot. If this clot breaks off and goes to the brain, it can cause a stroke. People with AF are five to seven times more likely to have a stroke than the general population. Clots can also travel to other areas of the body and damage other organs (kidneys, bowels, heart etc).

Over time, AF can cause the heart to become abnormally large (dilate) which can decrease the heart's pumping function by as much as 20-25 percent. This can even lead to heart failure.

Although AF is not a life-threatening condition, it requires careful management to ensure you don't suffer complications.

For many people, the most important problem with AF is that it significantly interferes with their quality of life. The symptoms caused by AF can be very limiting, preventing people from living a normal lifestyle. Many people can become disabled from the symptoms, while others feel like they have "aged" by many years because of the fatigue.

Is Atrial Fibrillation Dangerous? *cont'd*

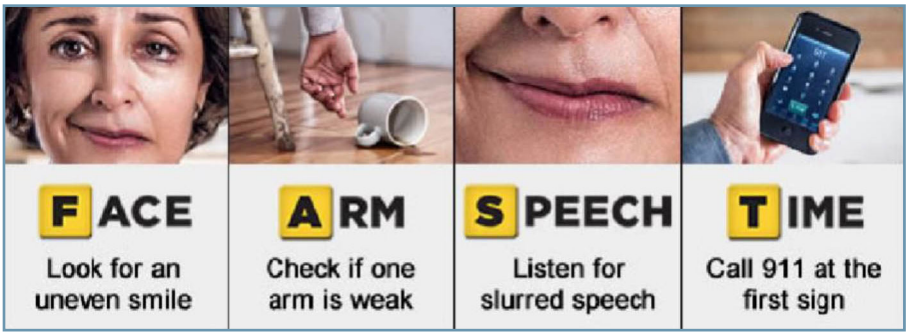
Testing for Signs of Stroke

F ace is it drooping?

A rms can you raise both?

S peech is it slurred or jumbled?

T ime to call 9 - 1 - 1 right away?



How is Atrial Fibrillation Diagnosed?

In order to diagnose AF, your doctor needs to record it. There are several tests that can be used to record AF, including:

Electrocardiogram (ECG): a test that draws the electrical impulses of the heart on a piece of graph paper.

Holter monitor: a portable, external recording device that you wear (usually one to fourteen days) that records the heart rhythm continuously. You have to wear small, sticky patches on your skin which attaches to wires that feed into the device.

Loop recorder (event monitor): also a portable, external recording device that you wear for a longer time (usually one to four weeks) to record your heart rhythm only when you press a button to activate the device. You must wear small, sticky patches on your skin which attaches to wires that feed into the device. This test is helpful if you have episodes or symptoms less frequently (less than once a day).

Implantable loop recorder: a special device that can be implanted under your skin to record your heart rhythm. Like the external loop recorder, you can activate the device to record your heart rhythm with a special remote control. Because the device can be left implanted for more than a year, it can be used to record episodes or symptoms that happen very infrequently (less than once a month)

Recording your heart rhythm during your symptoms or episodes helps in diagnosing AF.

How is Atrial Fibrillation Diagnosed? *cont'd*

Additional Heart Testing:

Echocardiogram: is an ultrasound of your heart. This test is done by placing gel on your chest and sliding a special probe which is attached to an ultrasound machine along your chest wall. It uses sound waves to measure the structure of your heart and allows the doctor to see how the chambers of your heart are working.

Stress test: a test where you exercise on a treadmill while we record the heart rhythm. We do the recording to see if there are any blockages in the arteries supplying your heart.

How is Atrial Fibrillation Treated?

AF Treatment Goals

The goals of AF treatment are to:

- Reduce the risk of blood clot formation and stroke
- Control your heart rate
- Restore a normal heart rhythm

Your doctor will work with you to develop a treatment plan suited to your condition, symptoms and situation. The treatment prescribed will depend on your type of AF, symptoms, and lifestyle.

AF Treatment Options

Your AF treatment plan may include:

Lifestyle Changes

Lifestyle changes often do not eliminate AF, but they can help. There is no specific diet that can fix AF, but there are some steps you can take. First of all, it is advisable to quit smoking. Ask your doctor if you feel you will need some assistance to quit smoking as it is an essential part of reducing your heart risk. Second, limit your intake of alcohol. You do not necessarily need to eliminate alcohol completely, but limit it to small amounts (one-two drinks per day) in moderation. Third, limit or eliminate the use of caffeine, one cup per day (coffee, tea, cola, energy drinks and chocolate). To date, no multivitamin, herbal therapy, or dietary supplement (like fish oils) has been shown to definitely reduce AF.

Exercise is important for heart health. If you find AF is impacting your ability to remain active, speak with your doctor about an exercise prescription to a cardiac rehab program. If there is a specific activity that triggers your AF, try to avoid it. Being overweight can make your AF much worse. Data has shown that people who are overweight can significantly reduce their AF by reducing their body weight. Discuss with your doctor the possibility of enrolling in a weight loss program if you are overweight.

Another important risk factor for making AF worse is sleep apnea. This is where some people stop breathing for short period of time while they sleep. A sign indicating you might have sleep apnea is if you snore loudly or if you feel tired after a full night's sleep. A sleep study may be needed to make the diagnosis. If you have sleep apnea and have been prescribed night time breathing support (like a mouth guard or CPAP), you must use these nightly to improve your AF.

Keeping your blood pressure under good control is important in AF. This may be done through lifestyle changes and/or medication. You should keep your blood pressure under 140/90; this may need to be lower in certain people. Check your blood pressure regularly.

Additional points to consider; keep yourself hydrated, drink at least 6-8 glasses of water and/or electrolyte rich fluids per day. This may reduce symptoms of dizziness, light-headedness associated with AF.

Blood Thinning Medications (Oral Anticoagulants)

Anticoagulant therapies are designed to thin the blood, prevent clots from forming, and reduce the risk of stroke. Blood thinners currently available in Canada include Warfarin(Coumadin®), Dabigatran(Pradaxa®), Rivaroxaban(Xarelto®), Apixaban(Eliquis®), and Edoxaban(Lixiana®).

If you are taking Warfarin, regular blood tests (every one-four weeks) are required to adjust the dose of this drug to keep the blood thinned to just the right amount. The other drugs (Dabigatran, Rivaroxaban, Apixaban, Edoxaban) do not require routine blood monitoring and are given in fixed doses. They may also be associated with less major bleeding risk. However, not everyone is necessarily a candidate for these drugs, such as patients with kidney disease.

In some people, aspirin may be used instead of blood thinning agents. Your doctor will discuss the best choice of blood thinner for you.

Rate Control Medications

These medications help slow the heart rate during AF, but won't actually prevent AF from happening. These include Digoxin(Lanoxin®), beta blockers (like Bisoprolol, Metoprolol, Atenolol), and calcium channel blockers (like Diltiazem, Verapamil).

Rhythm Control Medications (Antiarrhythmics)

These medications actually attempt to convert your heart rhythm out of AF and keep it out of AF. Common examples of these medications include Flecainide(Tambocor®), Propafenone (Rhythmol®), Sotalol(Sotacor®), and Amiodarone(Cordarone®). These medications can be effective about 30-60% of the time, but may lose their effectiveness over time. Each medication may also have potential side effects. Some of these medications may cause other arrhythmias, so the dosage may need to be closely monitored by your heart specialist. Newer antiarrhythmic medications may become available, and could be prescribed by your heart specialist if required. These drugs can be taken as needed if you have infrequent AF; but most often these drugs are taken on a daily basis.

Electrical Cardioversion

AF can be treated electrically with a procedure called a cardioversion. During the procedure, you are given a short-acting anesthetic. Once asleep, an electrical shock is delivered through two sticky pads placed on your chest and back. This electrical shock resets the natural pacemaker restoring normal heart rhythm. You can usually go home the same day after this procedure. You will need a driver to take you home.

Implantable Devices

In select cases, especially when the heart is very slow, a pacemaker may be implanted to help keep the heart rate stable.

Catheter ablation

Catheter ablation is a procedure used to remove the short circuits responsible for AF. During the procedure, small wires are threaded into the heart through your legs and often, neck veins. These wires map the heart's electrical activity and help locate the problematic areas. These problematic areas are burned away (cauterized) or frozen (cryothermy) -a process also known as "ablation". Ablation is usually offered to people who have a lot of symptoms from their AF.

Every person with AF is unique. Your doctor will work with you to develop a treatment plan suited to your condition, symptoms, and situation.

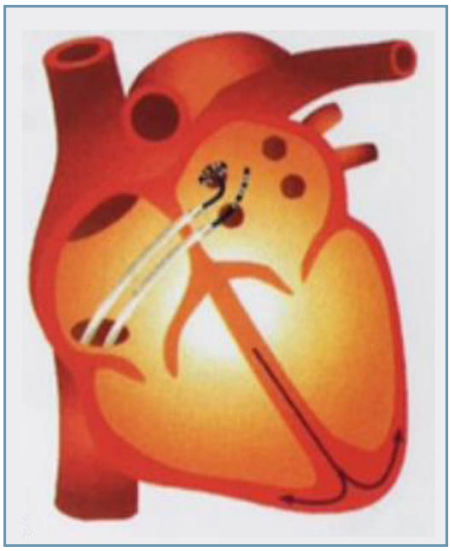
How is Catheter Ablation Performed?

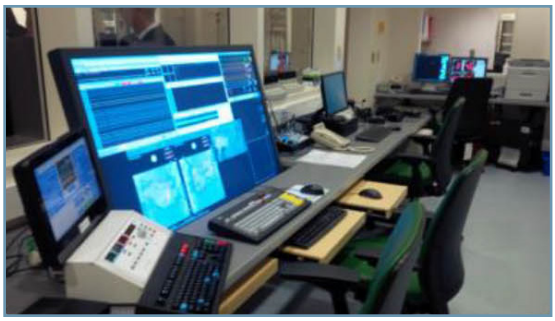
Catheter ablation involves inserting several long, flexible tubes called "catheters" into your heart. The procedure is performed in a specially equipped room called the Heart Rhythm Interventional Suite. Usually, local anesthesia (numbing agent injected in the skin) combined with intravenous sedation is used to relax you and keep you comfortable during the procedure. The procedure is NOT usually done under general anesthetic, but may be done in specific circumstances.

The catheters are inserted into your heart via your veins. There are no cuts made and you will not have scars. After a local anaesthetic, access to veins in your legs and neck are obtained with needles and small tubes, like a large intravenous catheter. You may feel some discomfort as these small tubes are inserted. One or more catheters are then placed inside the small tubes and threaded into the heart. After the diagnostic catheters have been placed, one or two small punctures are made in the wall of the heart that separates the left and right atria in order to guide the catheters into the left atrium. This is called a transseptal puncture.

Once the catheters are inside the left atrium, they will be used to map the electrical system of the heart and locate the short circuits. You do not necessarily need to be in AF to do the mapping. The catheters are guided accurately around the heart by X-rays, ultrasound imaging, and an advanced computer system that can generate three-dimensional models of your heart and map its electrical activity (sort of like a GPS system). These technologies help us to map your heart accurately and safely.

Once the problem areas have been located, a special catheter can be used to deliver heat energy to those areas ("ablation") to eliminate them. On occasion, cold energy may be used instead of heat energy.





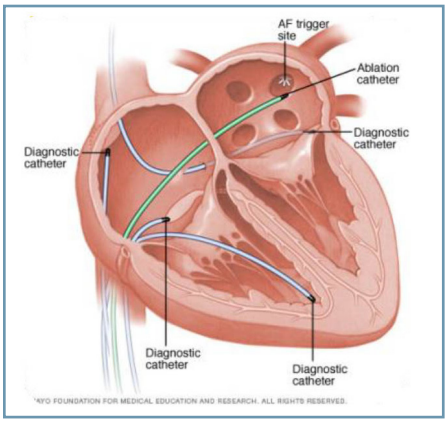
Catheter ablation is performed in a specially equipped lab, similar to a Cath Lab, called the Heart Rhythm Interventional Suites.

This procedure is becoming increasingly used to treat AF. In this procedure, the short circuits responsible for triggering and maintaining the AF are targeted and ablated. Most of the ablation is performed around the pulmonary veins, where most of the short circuits are located. Other areas with abnormal electrical signals may also be targeted.

This procedure typically takes 2-4 hours to perform.

During the ablation procedure, you are lying flat on an X-ray table while being sedated with intravenous medication to keep you comfortable. Because of the long duration of this procedure, you will have a urinary catheter inserted into your bladder. You may also have a small probe placed in your nose and down into your mouth to monitor the temperature of your food pipe (esophagus) which lies behind the left atrium.

During the actual ablation, you may experience a chest burning sensation (sort of like heart burn) which is normal. Most people tolerate this well. If the discomfort gets worse, be sure to let the team know and you will be given extra sedation to keep you comfortable.



Special catheters are used to ablate precisely targeted tissue inside the heart responsible for AF.

Atrial Fibrillation Ablation: Success and Complications

At Southlake, we are proud to be performing one of highest volumes of this procedure in Canada. Because of our wide experience, our success and complication rates are often better than other large centres performing these procedures worldwide.

For typical episodic AF (paroxysmal AF), we offer an 80% success rate without anti-arrhythmic medication after one procedure; 20% of people may need a second procedure and the success rate after that is over 90%. For people who are in AF all the time (persistent AF) the success rate is lower; around 70% after one procedure and 85% after two procedures. However, some people have partial success (10% or more) where the arrhythmia is not eliminated but may be substantially reduced. Some people may find that previously ineffective antiarrhythmic medications are now effective in eliminating AF. The decision to remain on medication, or to have a second procedure is part of the treatment plan your AF specialist will discuss with you in follow-up appointments.

As an invasive procedure, there are risks associated with atrial fibrillation ablation. These may include:

- Stroke
- Bleeding from venous access sites
- Perforation of the heart (hole in the heart) resulting in bleeding into the heart walls (tamponade)
- Narrowing of the pulmonary veins (called stenosis), leading to breathing problems
- Damage to a nerve that affects movement of your diaphragm (phrenic nerve palsy)
- Damage to the esophagus (food pipe) which is behind the heart (called atrial-esophageal fistula). This is an extremely rare complication, generally seen 2-3 weeks after the ablation and has been associated with death.

Fortunately, the risks are all under 1%. The risk to your life from this procedure is extremely small, roughly 1:1000.

Although there are risks associated with this procedure, more and more people are choosing AF ablation as an alternative to long-term medications.

Preparing for Atrial Fibrillation Ablation:

So, you and your AF specialist have decided AF ablation is right for you, what next? Here at Southlake we ask all our patients to attend an Atrial Fibrillation Education Session (school). This school is designed with the AF patient experience in mind. This session is of great benefit as you learn about AF, management strategies, ablation procedure, follow-up care and the Southlake Way. At these sessions, you will meet our team of experts who will provide touch points for you as you await your AF ablation. Our experts include Arrhythmia RNs, Nurse Practitioners (NP), Triage Nurse Coordinators and Administrative support.

In addition, you will attend individual pre-ablation appointments with the Arrhythmia RN's and NP's. This is our opportunity to reassess your health and medications, readiness for AF ablation and your opportunity to ask specific questions about your procedure. It is best if you review this handbook and bring it with you.

General preparation: Before your AF ablation, you will need to be on a blood thinner (anticoagulant) for at least one month. This is to prevent any clots from forming inside the heart. Aspirin is not considered an anticoagulant. Your doctor will decide which blood thinner is best for you. Sometimes we ask you to stop your blood thinner for one to two days before your ablation to reduce the risk of bleeding. You will get clear instructions from the team on when to make any medication changes required in preparation for your procedure.

You will be placed on a powerful antacid pill (like pantoprazole - Pantoloc®) to protect the esophagus (food pipe) against irritation after the ablation procedure. Typically, this medication is started 1 week before and continues for 5 weeks after your procedure.

If you are on antiarrhythmic drugs before the ablation, these may be stopped a few days in advance. If you are on Amiodarone, it needs to be stopped at least 2-3 months prior to the procedure. Once more, you will get clear instructions from the team on when to make any medication changes required in preparation for your procedure.

Transesophageal Echo:

On the day before your ablation (sometimes on the same day), you will need to have a special ultrasound test to take pictures of your heart. In this test, an ultrasound probe is inserted into your mouth and down your food pipe (esophagus) to take pictures and make sure there are no clots in the left atrium. This is called a transesophageal echo (TEE). Your throat is frozen and you are given sedation for this test, and most patients tolerate it very well. This test takes about 45 minutes plus recovery time. Because you are given sedation, you cannot drive yourself home. **If there are clots in the heart, your ablation will be postponed.**

After Atrial Fibrillation Ablation:

After the catheter ablation procedure has been completed, the catheters will be removed and you will be monitored in the recovery area. You will be on strict bed rest for the first 4 hours. Our specialized recovery room nurses will check you frequently to ensure there is no bleeding from the venous access sites. Once you are permitted to sit up and move around, the urinary catheter will be removed. Generally, you will be able to go home after an overnight stay in the hospital. Please have a ride arranged for your discharge.

It usually takes 3-7 days after your ablation before you can resume your normal activities. During this time, take extra care to avoid heavy exertion or lifting to allow the access sites in your groin to heal. You may have some bruising in this area which is normal.

It is important to protect your esophagus (food pipe) for the first few weeks after the ablation:

- AVOID straining, retching, bending over for the first 4 weeks after the ablation.
- AVOID fluids which are very hot or very cold for the first 4 weeks-room temperature fluids are best.
- AVOID spicy food for the first 4 weeks.
- AVOID ALCOHOL for the first 4 weeks.
- For the first 2 weeks following your ablation, stay on a soft diet (avoid meats, crisp foods like chips) - stick with foods that are oatmeal, pudding consistency.
- If you feel more than mild chest pain, rest the esophagus - clear fluids only - until chest pain has resolved.
- Monitor your temperature daily - if you have fever greater than 38.5 C or greater than 101 F; that is a real fever and you need to contact our clinic right away or go to your local emergency department.
- Severe chest pain, especially with fever, should prompt a visit to OUR emergency department. Bring along your "Dear Doctor Letter".
- Continue the strong antacid prescription (Pantoloc®) for 5 weeks following your ablation.

You will be restarted on your blood thinner (anticoagulant) medication for at least 3 months after your ablation to prevent stroke. If you do not have recurrence of AF, you can discuss whether it is safe to stop blood thinners with your AF specialist.

Often, you will go back on some rhythm control (antiarrhythmic) medications for 2-3 months after the ablation. This is because the heart gets irritated after ablation and can often go back into AF within the first 3 months-this does not necessarily mean that the procedure was a failure. Your AF specialist will discuss when or if you can stop your antiarrhythmic medications.

If you go back into AF after your ablation for longer than 24-48 hours, we usually like you to be electrically cardioverted. This can be done safely at your nearest emergency department within 48 hours after the onset of an episode. If you have short episodes of AF that stop on their own, it is not necessary for you to be seen in the emergency department unless you feel faint or have severe symptoms. Remember to avoid 'triggers' of AF during the first 3 months after your ablation.

Some people experience a mild-to-moderate central chest pain or aching which is often worse when you are lying down or when you take a deep breath. This is quite normal and often indicates some irritation of the lining of your heart after ablation. This condition will be resolved after a few days. If it is more than mild, contact the clinic as you may be able to take anti-inflammatory medications to help treat the condition.

It is especially important to keep your follow-up appointments and take all your medications as prescribed during the recovery period. We will arrange a follow up appointment for you with your AF specialist about 3 months after your ablation.

Episodes of AF are relatively common in the first months following your procedure, and do not mean the procedure was not successful.

When to notify our clinic:

- *Fever greater than 38.5°C or 101°F*
- *Painful swellin at venous access sites*

When to present to local ER

- *AF episode lasting between 24-48 hours. Please take your "Dear Doctor Letter" for cardioversion.*

When to present to Southlake ER

- *Severe chest pain, especially when accompanied by fever. Leave a message with our clinic.*

Other types of Ablation:

AV Node Ablation with Pacemaker

This procedure is less commonly used today. In this procedure, a pacemaker is first implanted beneath your collarbone, with wires that go into your heart. Then, the AV node that connects the upper and lower chambers of the heart is burned away (ablated) using a small catheter. This prevents the lower chambers from beating quickly when the upper chambers are in AF. This procedure does not cure AF; it just helps slow and regularize the lower chambers.

Atrial Flutter Ablation:

Some people with AF will also have atrial flutter. The atrial flutter can sometimes be eliminated by performing a more limited ablation in the right atrium.

Patient Resources:

- I Heart Southlake southlake.ca
- Medscape-Atrial Fibrillation Patient Education Centre
  This site includes a frequently asked questions area, anatomical drawings, and information about treatment options. You must be a registered member of Medscape to access this page. Registration is free. www.medscape.com.

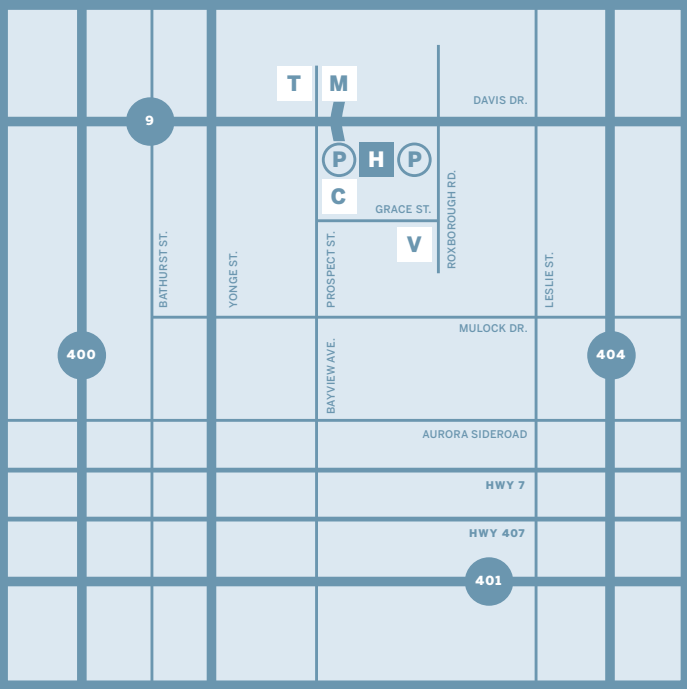
Heart Rhythm Websites:

- Canadian Heart Rhythm Society www.chrsonline.ca
- Heart Rhythm Society www.hrsonline.org
- Heart and Stroke Foundation www.heartandstroke.ca
- Cardiac Care Network of Ontario www.ccn.on.ca
- Thrombosis Canada www.thrombosiscanada.ca
- Mayo Clinic www.mayoclinic.com
- Cardiac ablation www.mayoclinic.org
- Cleveland Clinic www.clevelandclinic.org
- Cardiac ablation www.clevelandclinic.org/departments/heart

Notes:

Notes:

HOW TO FIND US



V Southlake Village, 640 Grace Street

M Medical Arts Building, 581 Davis Drive

Southlake Foundation, 581 Davis Drive

H Southlake Regional Health Centre

C Stronach Regional Cancer Centre

T The Tannery Mall, 465 Davis Drive

P Parking

Bridge over Davis Drive – accessible from P3 of the Parking Garage and Level 3 of the Medical Arts Building.

For more information, please contact:

Regional Cardiac Care Program

Southlake Regional Health Centre
800 Mulock Drive
Newmarket, ON L3Y 9C1
Tel: (905) 895-4521 ext. 2572
TTY: (905) 952-3062

www.southlake.ca

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