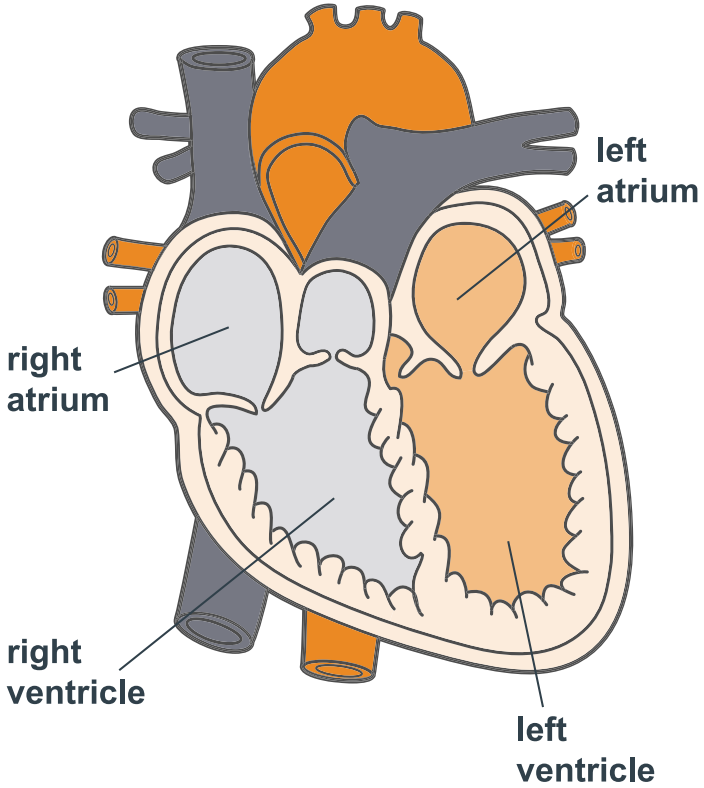
Comprehensive Guide to

Atrial Fibrillation

What is Atrial Fibrillation?

Atrial Fibrillation, sometimes referred to as AFib or AF, is the most common type of cardiac arrhythmia, or abnormal heart rhythm.[1]

How does the heart work?



The heart is a muscle, composed of four chambers: two upper chambers, called the atria, and two lower chambers, called the ventricles, each occupying both the right and left side of the heart.

The heart has an electrical system that coordinates the work of the heart chambers (heart rhythm) and controls the frequency of beats (heart rate).

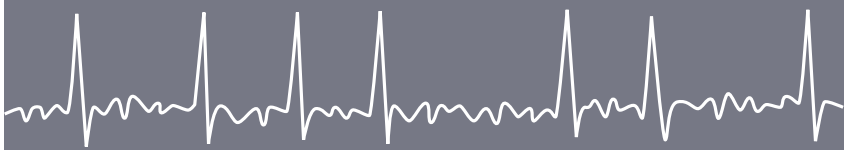
What happens during AFib?

During AFib, the atria beat rapidly or in an uncontrolled manner. AFib is a condition that interrupts the normal flow of the electrical system, which is typically reflected on an EKG.

When the heart beats erratically, it does not pump blood as efficiently as it should. A person may feel ill or experience other AFib symptoms because oxygen isn't being properly delivered to all parts of the body. [3, 4]

Normal Heart Rhythm

Abnormal Heart Rhythm



What are the different types of AFib?

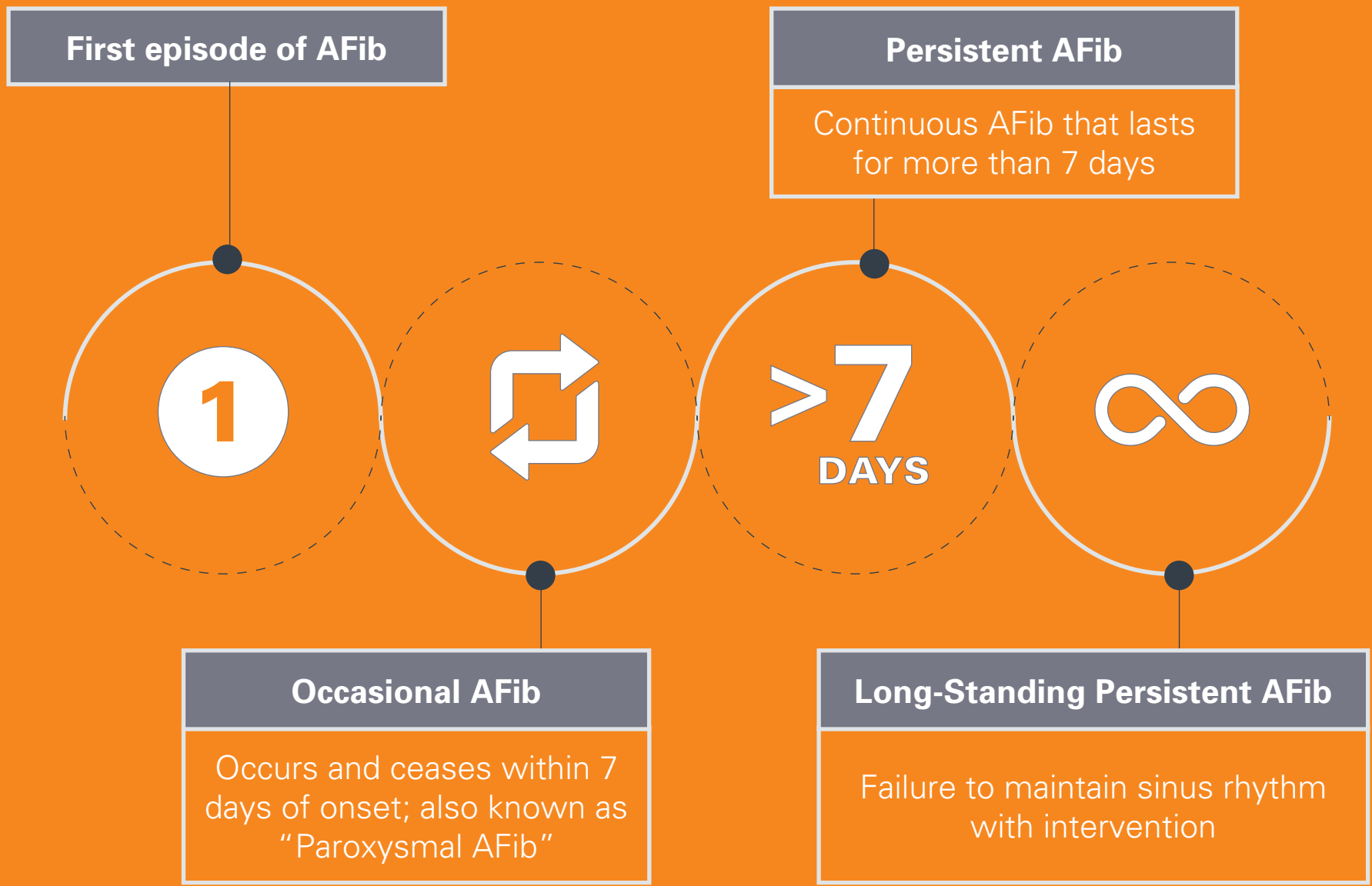
The Heart Rhythm Society defines AFib by the duration of the AFib episode. The longer one is consistently in AFib, the further along AFib is on the progression scale. The different types of AFib are:

- Occasional or Paroxysmal AFib
- Persistent AFib
- Long-Standing Persistent AFib

1 in 4

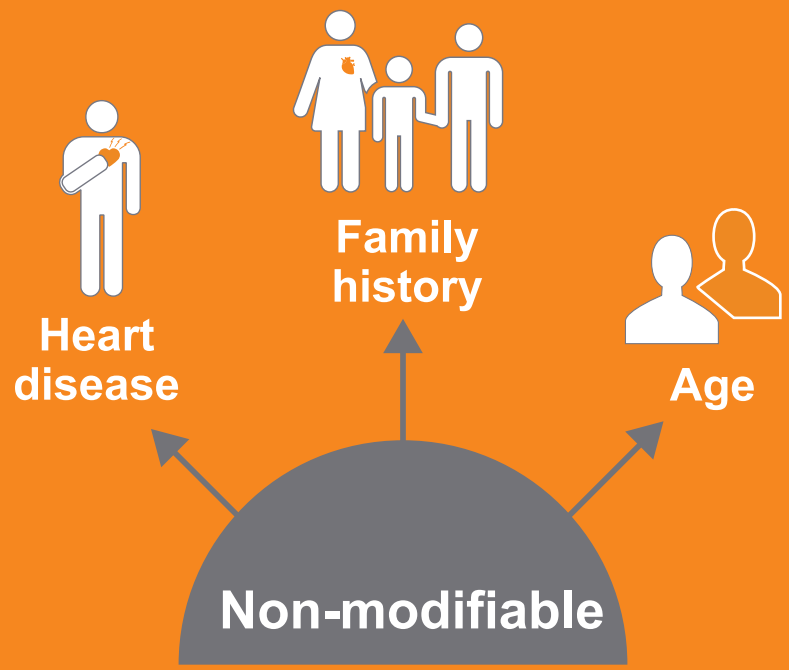
adults over 40 are at risk of AFib.[5]

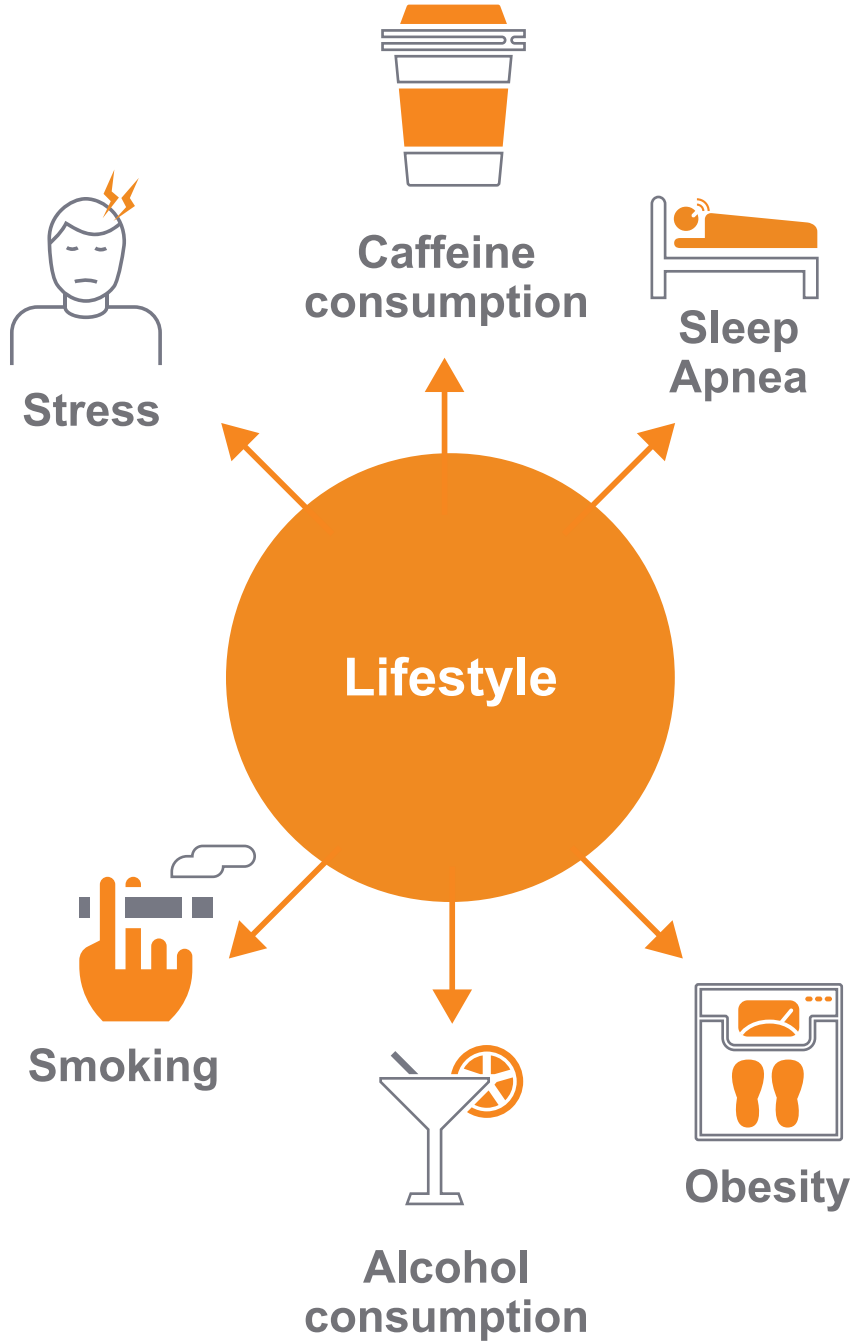
Progression of AFib[5]



What causes AFib?

The causes of AFib are wide-ranging and include non-modifiable factors and lifestyle factors.[5]





What are the symptoms of AFib?

AFib can cause a wide variety of symptoms in most patients and can severely impact quality of life.

However, 15-30% of patients, don't feel any symptoms at all.[7]

Symptoms of AFib include[1]:

Heart palpitations

Fatigue

Difficulty exercising

Shortness of breath

Anxiety

Chest pain

Dizziness

If you are experiencing any of these symptoms, make an appointment with a heart arrhythmia specialist, known as an Electrophysiologist (EP).

Who treats AFib?

Many different doctors may be involved in the diagnosis, management, and treatment of AFib.

Primary Care Physician

Practices general medicine and may detect and diagnose heart arrhythmias

Cardiologist

Specializes in diagnosing and treating diseases of the cardiovascular system, including AFib

Electrophysiologist (EP)

A cardiologist with additional training in heart arrhythmias who specialize in the diagnosis, management, and treatment of heart arrhythmias, including AFib and is the preferred physician to perform catheter ablations

How is AFib diagnosed?

EKG

The standard test doctors use to diagnose AFib is an EKG, or electrocardiogram. This test uses painless electrodes placed on the chest that detect the electric currents that the heart uses to generate the rhythmic muscular contractions that pump blood through its chambers and out to the body.

Holter Monitor or Event Monitor

If AFib isn't detected during an EKG, which generally lasts only a few minutes, you may need to wear a portable EKG monitor to get an accurate evaluation of your heart function over several days, weeks or months.

Stress Test

A standard stress test shows changes in the heart's electrical activity. This type of test is helpful to diagnose forms of AFib that occur mainly or frequently during times of increased physical activity.

Why should you seek treatment for AFib?

1 in 5 patients

progress from paroxysmal, or occasional AFib to persistent AFib in 1 year.[8]

AFib is a progressive disease.

If left untreated, AFib may progress and get worse. Studies have shown that treatment options are more effective when treated earlier in the disease state.

AFib can severely impact quality of life.

AFib can negatively affect quality of life and lead to other serious health conditions. AFib may cause symptoms such as fatigue, shortness of breath, and reduced ability to exercise, preventing you from doing the things you love to do.[5]

AFib is associated with 5 times the risk of **stroke and heart failure**.[5,6]

How are AFib and stroke related?

Stroke is a serious complication of AFib that is associated with long term disability and mortality. Immediately after a stroke, patients with AFib have greater neurologic impairment and functional disability than patients without AFib.[9]

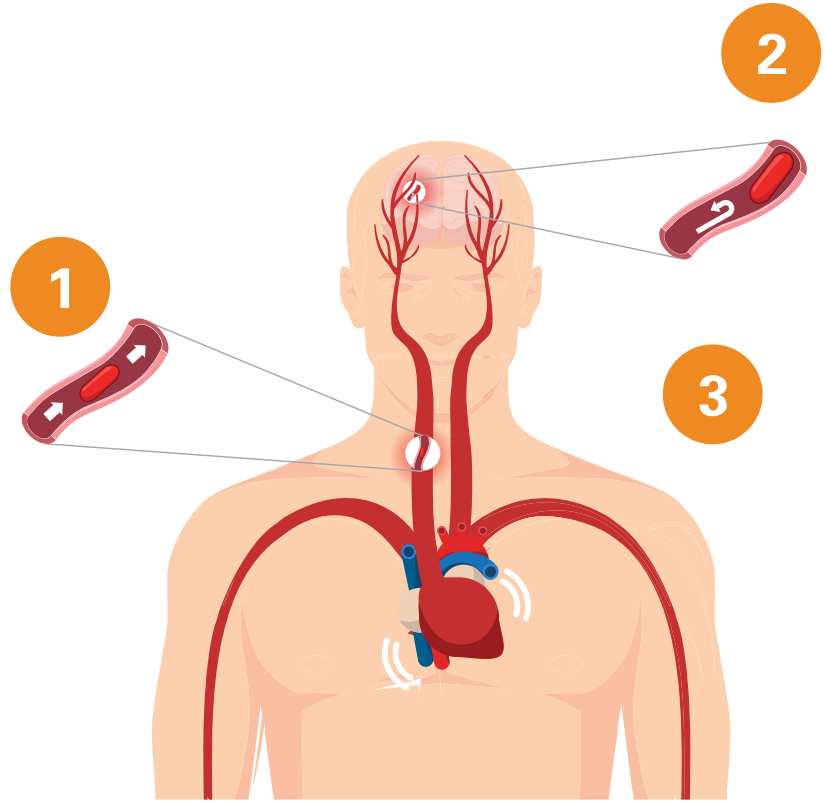
Nearly

1/3

of strokes are caused by AFib.[10]

The link between AFib and stroke

A stroke occurs when the flow of blood to part of the brain is significantly reduced or blocked. The most common cause of a stroke is a blood clot.



1. During AFib, rapid uncoordinated beating of the atria results in ineffective contractions. When this happens, the blood can become stagnant within the atria and clots may form.[11]

2. Once a regular heart rhythm is restored, the flow of blood can carry these clots out into the body.[11]

3. Blood clots may eventually reach the brain and cause a blockage in a small vessel or capillary and cause a stroke.[12]

What are your AFib treatment options?

Early treatment is essential for overcoming AFib.

Treatment options include:

- Medications
- Cardioversion
- Catheter ablation*

*after failing first line medications

Factors that may be considered in your AFib treatment plan include:

- Nature or cause of the arrhythmia
- Severity of the arrhythmia
- Severity of symptoms
- Medications
- Age
- Personal and family medical history
- Other health problems

Medications

Most AFib patients are initially prescribed medications to restore their heart rhythm, manage the symptoms of AFib, or minimize their risk of stroke.

Medications may include:

Rate Control

- Calcium channel blockers - interrupts the movement of calcium into the heart and blood vessel tissues to slow the heart rate
- Beta blockers - slows the heart rate, relaxes the blood vessels and makes it easier for the heart to pump blood

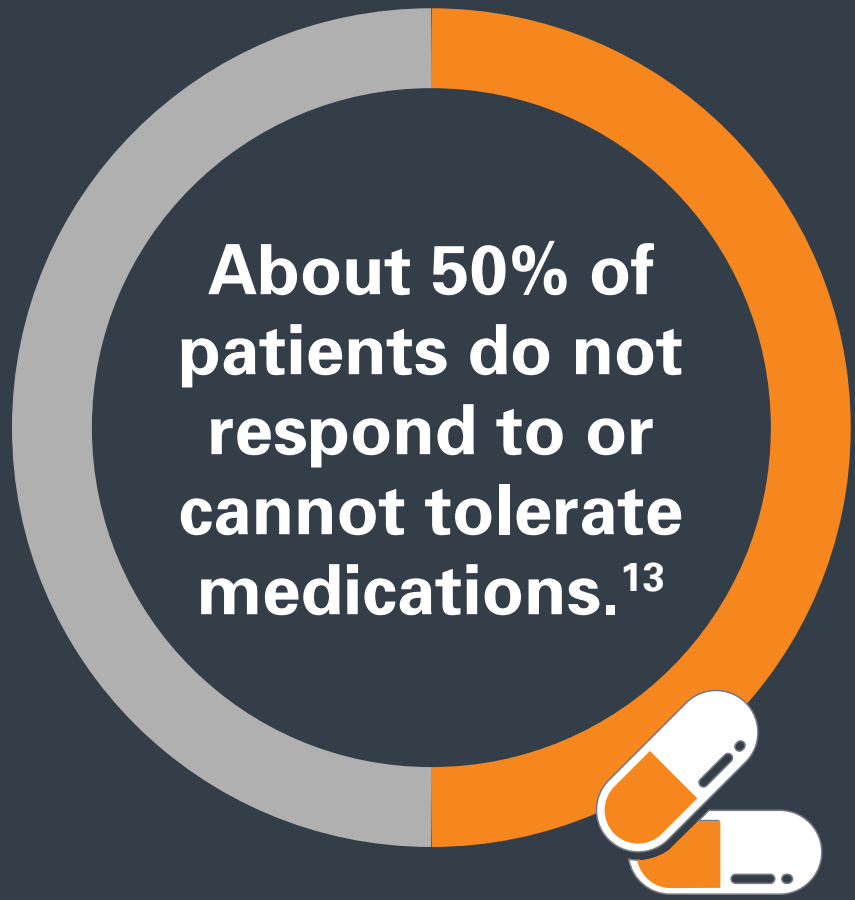
Rhythm Control

- Sodium channel blockers - slows the electrical conductivity of the heart to improve rhythm problems.
- Antiarrhythmic medication- works to restore and/or maintain normal sinus rhythm

Blood Thinners

- Anticoagulant medication - reduces the risk of blood clots and stroke

Medications may cause unwanted side effects and may not work for everyone.



Cardioversion

A cardioversion is a controlled low-dose shock to the heart to convert abnormal rhythm to sinus rhythm. It is typically performed under sedation in a hospital setting such as an emergency room, intensive care unit, recovery room, special procedure room or electrophysiology lab. Oftentimes, AFib may return after a cardioversion.

Catheter Ablation

Catheter ablation is recommended by the American College of Cardiology, the Heart Rhythm Society and the American Heart Association for patients when medication proves to be unsuccessful. Catheter ablation is a procedure to restore the heart's incorrect electrical signals which cause an abnormal heart rhythm.

Most patients who receive catheter ablation treatment experience a long-term reduction in the number of episodes of arrhythmia and the severity of symptoms and feel an improvement in their quality of life.[5]

Success rates for catheter ablation are up to

88% [14*]

*In studies, success defined as freedom from any atrial arrhythmia (atrial fibrillation, atrial flutter, atrial tachycardia) 12 months post-procedure when operator remained in the preset contact force range. Further sub-analysis showed that when the contact force was within investigator-selected range ≥ 85% of time, success was increased by 21% to 88% ≥ 85%: n = 32; <85%: n = 73).

What is catheter ablation?

Catheter ablation is a procedure to restore the heart's incorrect electrical signals which cause an abnormal heart rhythm.

How is the procedure performed?

A catheter ablation procedure is performed by a heart rhythm specialist called an electrophysiologist (EP).

During the procedure, a thin tube called a catheter is placed through a small incision in a patient's leg where it is then weaved up through a leg artery to the heart. Aided by 3-D imaging technology, an EP uses a catheter to produce a small scar on a specific part of the heart tissue. The procedure is done by either radiofrequency ablation or cryoablation.

Radiofrequency ablation

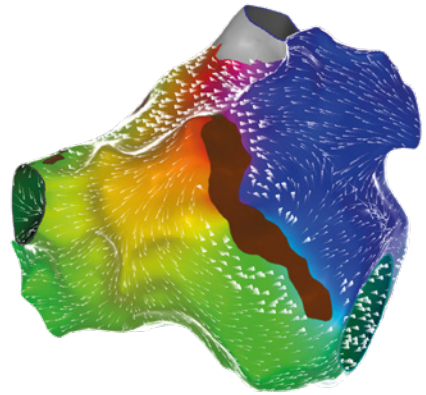
There are two phases during a radiofrequency ablation:

Mapping

Ablation

Mapping

An EP creates a 'map' of the heart using catheters to identify the location of the abnormal electrical signal that is causing the arrhythmia. The mapping catheter has a tiny electromagnetic sensor in its tip that communicates with a 3D electroanatomical mapping and ablation system to create a picture of the heart. The resulting map gives the EP detailed information about how the heart looks and where the electrical circuit is broken.



Ablation

Once the EP has created a 3D map of the heart, the catheter is maneuvered to the areas identified by the map. The EP then uses radiofrequency waves to neutralize these small parts of the heart tissue that generate and conduct abnormal electrical activity. Ablation therapy blocks the faulty electrical impulses that cause the irregular heart rhythm.

Catheter ablation is a low risk procedure. As with any procedure, there are risks which include bleeding, swelling or bruising at the catheter insertion site.[5,15]

Benefits of catheter ablation

Catheter ablation is more effective in preventing AFib recurrence than drug therapy, and is equally as safe. Catheter ablation may result in the following benefits:

Improvement in quality of life[5]

Permanent symptom relief [5]

Elimination of long-term risk of stroke and death normally associated with AFib[16]

Patients receiving catheter ablation have been shown to be up to

73%

more likely symptom-free

at 4 years when compared to patients receiving drug therapy. [17,18]

Success rates of catheter ablation

There are many different factors that may predict the success of a catheter ablation procedure. These include disease progression, sleep apnea, obesity, increased left atrial size, age, and hypertension.[5] Talk to your doctor about these factors prior to your procedure.

Success rates for catheter ablation are up to 88%.[14*]

Improvement in quality of life after catheter ablation

Treatment of AFib can restore quality of life, with the latest research showing that quality of life is improved significantly more after catheter ablation of AFib than with drug therapy.[19]

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Next Steps

It's important to act quickly in treating AFib. Consider these next steps:

Talk to your doctor.
Ask your doctor about a referral to an Electrophysiologist, a heart arrhythmia specialist

Find an Electrophysiologist (EP) near you.
An EP has extensive training in heart arrhythmias and can discuss different treatment options for AFib. To find an EP near you, visit www.getsmartaboutafib.com/

Get Support.
You are not in this alone.
Visit www.facebook.com/getsmartaboutafib to join a community of over 100,000 members, share your story, and learn about others' experience with AFib.

Learn more.
If you would like to learn more about AFib or catheter ablation, visit GetSmartAboutAFib.com, a website dedicated to educating AFib patients and their families.

Questions for your doctor

Below are some helpful questions to ask your doctor at your next visit:

Questions for your Primary Care Physician:

1. I have _____symptoms. Could this be AFib?
2. Do I need to take any diagnostic tests?
3. Should I monitor my heart rate with a heart monitoring device?
4. Am I at risk of stroke?
5. When should I go to the emergency room?
6. Do I need to make any lifestyle modifications?
7. What are my treatment options?
8. Should I see a specialist?

If you have been diagnosed with AFib:

1. What is causing my AFib?
2. What can I do to prevent my heart from going into AFib?
3. What type of AFib do I have (e.g., paroxysmal, persistent, etc.)?
4. Are there any activities I should avoid?
5. Do I need to make any lifestyle modifications?
6. What is my stroke risk?
7. Am I at risk for any other medical conditions?

If physician recommends medications:

1. What is the purpose of the medication?
2. Why are you recommending this medication?
3. What happens if I don't take the medication?
4. What should I do if I have side effects from the medication?
5. What should I do if the medication doesn't fulfill its purpose?
6. Will medications cure my AFib?
7. Can I take these medications with _____ (insert medication currently prescribed)?

If medications aren't working:

1. Are there any alternatives to medication?
2. Am I a good candidate for a catheter ablation procedure?
3. Can you refer me to an electrophysiologist?

Questions for an electrophysiologist:

1. Am I a good candidate for a catheter ablation procedure?
2. How many catheter ablation procedures have you performed?
3. What is the recovery time of the catheter ablation procedure?
4. What are the benefits of a catheter ablation procedure?
5. What are the risks of a catheter ablation procedure?

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As with any medical treatment, individual results may vary. Only a cardiologist or electrophysiologist can determine whether ablation is an appropriate course of treatment. There are potential risks including bleeding, swelling or bruising at the catheter insertion site, and infection. More serious complications are rare, which can include damage to the heart or blood vessels; blood clots (which may lead to stroke); heart attack, or death. These risks need to be discussed with your doctor and recovery takes time. The success of this procedure depends on many factors, including your physical condition and your body's ability to tolerate the procedure. Use care in the selection of your doctors and hospital, based on their skill and experience.

THERMOCOOL® Catheters are approved for drug refractory recurrent symptomatic paroxysmal atrial fibrillation, when used with CARTO® 3 Systems (excluding NAVISTAR® RMT THERMOCOOL® Catheter).
Caution: US law restricts this device to sale by or on the order of a physician.
Important information: Prior to use, refer to the instructions for use supplied with this device for indications, contraindications, side effects, warnings and precautions.

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