

# Medtronic

Engineering the extraordinary

## Treating atrial fibrillation with pulsed field ablation

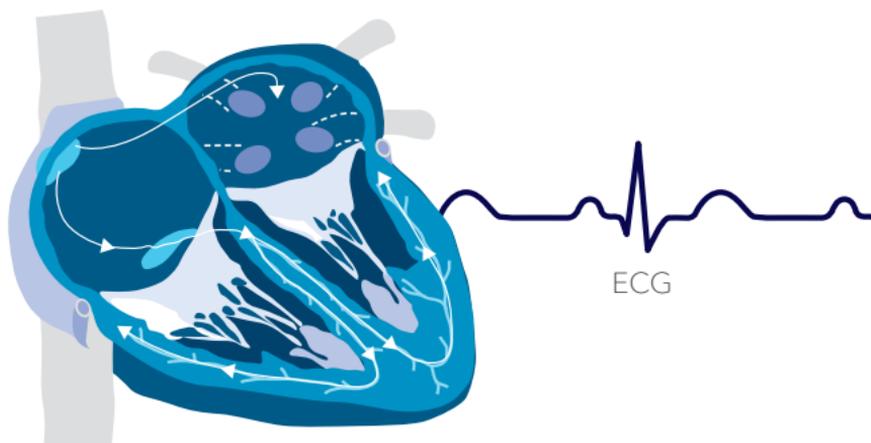


Talk to your doctor about your treatment options. The PulseSelect™ PFA system can be used to treat drug refractory, recurrent, symptomatic paroxysmal, and persistent AFib patients. The Sphere-9™ catheter can be used to treat drug-refractory, recurrent symptomatic AFib lasting 7+ days and typical atrial flutter (using heat energy).

# About your AFib

Atrial fibrillation (AFib) is a type of arrhythmia, or irregular heartbeat.

It affects the upper chambers of the heart, called the atria. This irregular rhythm makes it harder for the heart to pump blood to the rest of the body.



## Normal heartbeat

Flow of electrical signals in a normal heartbeat



## Atrial fibrillation

AFib with abnormal signals originating in the atria

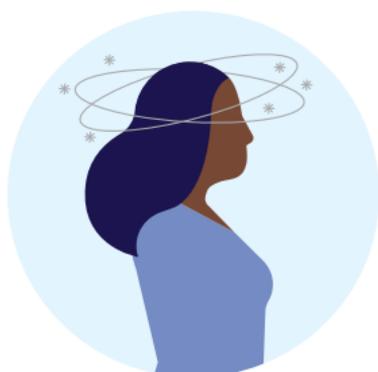
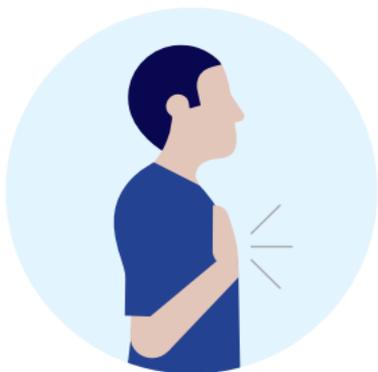
Without treatment, it can lead to serious complications such as heart failure, stroke, or even death. In fact, it raises your risk of stroke by five times.

Even without symptoms, AFib can be a serious medical condition. That's why it's important to work with your doctor to find the right treatment.

## Your symptoms

AFib symptoms vary and can include:

- Irregular or rapid heartbeat
- Fatigue or weakness
- Trouble with normal exercise and activities
- Shortness of breath
- Chest discomfort or pain
- Dizziness or fainting



## AFib may be the result of:

- Heart abnormality from birth
- Damage to the heart from a heart attack
- Heart valve problems

The causes of AFib are often unclear. People with otherwise normal hearts may also develop AFib.

## Certain factors can increase your risk of developing AFib, including:

- High blood pressure
- Heart valve disease
- Narrowed or blocked arteries
- Prior open-heart surgery
- Lung or kidney diseases
- Thyroid disease
- Infection from viruses
- Sleep apnea
- Alcohol, caffeine, or drug use
- Smoking or using tobacco
- Advancing age
- Family history
- Lack of physical activity
- Obesity or diabetes



## The goals of your AFib treatment include:

- Reducing AFib symptoms and improve your quality of life
- Preventing blood clots and decrease the risk of stroke
- Controlling the heart rate to allow the ventricles (lower heart chambers) enough time to fill with blood
- Restoring heart rhythm where the atria (upper chambers of the heart) and ventricles are working together more efficiently

## Treatment options you may discuss with your doctor:

- Catheter ablation to treat heart tissue causing AFib (minimally invasive)
- Medicines to help control heart rate or rhythm
- Blood thinners to prevent clots and reduce stroke risk
- Left atrial appendage occlusion, a device-based procedure that lowers stroke risk
- Cardioversion to reset the heartbeat with medicine or a mild shock
- Pacemakers or defibrillators to manage rhythm and detect episodes
- Open-heart surgery to treat heart tissue causing AFib (used in rare cases)
- Lifestyle changes to manage risk factors like high blood pressure or sleep apnea

# What is cardiac ablation?

Cardiac ablation is a minimally invasive procedure used to help control AFib. It is performed by a heart rhythm specialist, known as an electrophysiologist. Until recently, the cardiac catheter ablation energy source typically used to treat AFib used thermal energy (heat or cold). A new and innovative treatment called **pulsed field ablation (PFA)** uses short bursts of nonthermal energy to safely and effectively treat certain types of AFib.



## PulseSelect catheter

The PulseSelect pulsed field ablation catheter delivers short bursts of PFA energy to treat only the areas of the heart causing AFib. Because it uses nonthermal energy, it can target problem areas in the heart while helping reduce the risk of damage to surrounding tissue.



## Sphere-9 catheter

The Sphere-9 catheter is exclusively integrated with the Affera™ mapping and ablation system. It is capable of delivering two types of energy – PFA and radiofrequency – in one device. This gives your doctor more flexibility to personalize your treatment based on your specific needs.

Talk to your  
doctor to see if  
**PFA** might be right  
for you.

# Your cardiac ablation procedure

Your doctor will explain the procedure in detail, but here's a general overview of what to expect.

## Your doctor may recommend cardiac ablation now because:

- Early treatment with ablation may lead to better results.
- AFib can get worse over time if not treated.
- Ablation may slow disease progression better than medication alone.
- An irregular heartbeat can cause blood to pool and form clots, which may lead to a stroke.

## Before the procedure:

Your doctor may ask you not to eat or drink after midnight before your procedure and to stop taking certain medicines. You may receive general anesthesia to help you sleep through it. Be sure to tell your doctor right away if you notice any changes in your health before the procedure.

## During the procedure

### How the doctor reaches your heart

To reach the left atrium, the doctor will make a small cut in your upper leg (groin area). A thin, flexible tube called a catheter is inserted and gently guided through your blood vessels into the heart. The doctor then moves the catheter through a thin wall between the right and left atria of the heart.



### The ablation

Once the catheter is in the right place, the doctor sends energy through it to treat the heart tissue causing irregular electrical signals. This helps stop the abnormal rhythm that leads to AFib.



## After the procedure

You'll need to limit physical activity for a few days while your body recovers. It's normal to feel some chest soreness or see bruising near where the catheter was inserted (groin area). As your heart heals, you may still have some AFib symptoms. Your doctor may prescribe medicine to help and will schedule follow-up visits to check your recovery and heart rhythm. Let your doctor know if you notice any symptoms that bother you or don't seem normal.

# You may be wondering ...

## Is cardiac ablation safe?

Cardiac ablation is generally considered to be a safe and effective treatment for AFib when medication isn't sufficient. It is a minimally invasive procedure, meaning there is no need to open the chest or make large incisions. The most common problem is local irritation or bleeding at the site of the incision. The risk of more serious complications is small, but you should talk to your doctor about whether the procedure is right for you.

## How effective is cardiac ablation?

Cardiac ablation has been shown to effectively treat AFib, improving symptoms and quality of life for many patients. Generally, the earlier your AFib is treated with ablation, the more successful it may be. Of course, every patient's experience is different. Sometimes after the procedure you will continue to have AFib episodes and may need a repeat procedure. It's also possible that you may need to continue with some type of medication. Be sure to discuss this and any other concerns you might have with your doctor.

## What are the risks and complications?

Cardiac ablation is generally a safe procedure. Complications are rare but can be serious. Risks may include bleeding and bruising where the catheter was inserted, discomfort, chest pain, new or worsening heart conditions, new or worsening

breathing conditions, infection, temporary or permanent stroke, severe complications leading to hospitalization, or potentially death. Always talk with your doctor about diagnosis and treatment information.

For more information about atrial fibrillation, visit [medtronic.com/AFib](https://www.medtronic.com/AFib) or call the toll-free Medtronic Patient Services line: **1-800-551-5544.**



## **Procedure information for catheter ablation:**

Complications, while infrequent, can occur during catheter ablation. Some of the risks include bleeding and bruising where the catheter was inserted, discomfort, chest pain, new or worsening heart conditions, new or worsening breathing conditions, infection, temporary or permanent stroke, severe complications leading to hospitalization, or potentially death. Your physician can further explain these complications as a part of a comprehensive risk/benefit evaluation, as you consider catheter ablation for your condition. This treatment is prescribed by your physician. This treatment is not for everyone. Please talk to your doctor to see if it is right for you. Your physician should discuss all potential benefits and risks with you. Although many patients benefit from the use of this treatment, results may vary. Information on this site should not be used as a substitute for talking with your doctor. Always talk with your doctor about diagnosis and treatment information. For further information, please call the Medtronic toll-free number at 1-800-551-5544 (8:00 a.m. to 5:00 p.m., Monday-Friday, CT) or see the Medtronic website at [medtronic.com](http://medtronic.com).

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