Chest Heart & Stroke Scotland

ATRIAL FIBRILLATION

ESSENTIAL GUIDE

This Essential Guide is about atrial fibrillation (AF).

It explains:

- What atrial fibrillation is
- Different types of atrial fibrillation
- Symptoms of atrial fibrillation
- Causes and triggers of atrial fibrillation
- Tests you may be given
- Managing atrial fibrillation

What is atrial fibrillation?

For your heart to beat properly, the four chambers of your heart (2 **atria** and 2 **ventricles**) must contract regularly in the right order. This is your **heartbeat**.

Sometimes something goes wrong, and your heart can end up beating out of order. This is called an **arrhythmia**.

The most common type of arrhythmia is **atrial fibrillation (AF)**, where your heartbeat is irregular and can beat very fast at odd times.

Atrial fibrillation can affect adults of any age, but gets more common with age. It affects around 2% of the general population, and more men than women experience it.

How does my heart work normally?

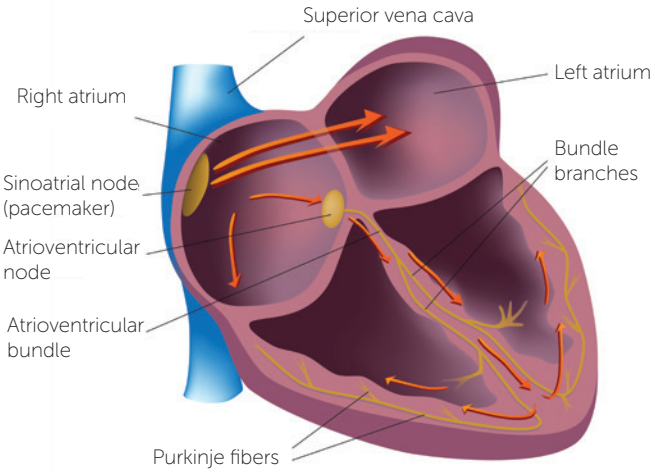
Your heart normally beats **60-100 times** a minute, pumping blood out into the body to carry oxygen and nutrients.

Blood is pushed from the **atria** (the top, thin-walled chambers of the heart), down into the **ventricles** (the larger, thick-walled chambers). Then the ventricles contract, forcing blood out of the heart and around the body.

The heartbeat is controlled by electricity which moves through three main points on the heart:

1. the **sino-atrial node (SAN)** on the right atrium (also called a "pacemaker")
2. the **antrio-ventricular node (AVN)** at the point where all four chambers meet
3. the **ventricular septum** - the muscular wall between the ventricles.

How electricity flows in the heart:



1. The electrical signal starts in the **SAN.**
2. The signal moves across the atria to the **AVN**, making the atria contract and push blood into the ventricles.
3. The signal runs down the **septum** to the bottom of the ventricles, which contract from the bottom up.
4. The heart **relaxes** until a new signal starts in the SAN.

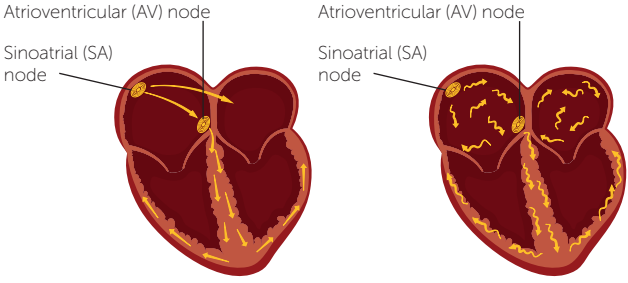
What happens in AF?

Sometimes, the signals running from the SAN and across the atria become chaotic and disorganised. This leads to the **atria** contracting rapidly and irregularly.

This process is called **fibrillation** - hence the name **atrial fibrillation**.

Not all of these damaged signals carry on to the ventricles, but the ventricles do contract faster and more irregularly than normal.

All of this prevents the heart from pumping blood effectively, meaning that less blood reaches other parts of your body.



Normal electrical pathways

Abnormal electrical pathways

Different types of AF

There are four main types of AF. All of them can vary in how much they affect you.

Paroxysmal atrial fibrillation comes and goes. It usually stops within 48 hours even without treatment.

Persistent atrial fibrillation lasts for longer than 7 days. It can be treated with drugs or with "cardioversion" treatment to help the heart get back to normal.

Permanent or **chronic atrial fibrillation** lasts for a long time (usually more than a year). Cardioversion is usually not effective, but some drugs can help to control the heart rate.

Acute-onset atrial fibrillation is where AF either starts suddenly, or suddenly gets much worse. This can cause potentially dangerous symptoms which may need hospital treatment.

Symptoms of AF

Some people with AF have no symptoms at all. In these cases, AF is usually discovered when a healthcare professional takes your pulse and finds it is irregular and fast.

However, in other cases, the inefficient beating of your heart may mean that not enough oxygen or nutrients are getting to parts of your body. This can lead to:

- dizziness
- tiredness
- chest pain
- shortness of breath
- palpitations (being very aware of your heartbeat)

Seek urgent medical advice if you have chest pain and notice a change in your heartbeat.

What causes AF?

AF can develop from other conditions like:

- **problems with the thyroid gland**
- **diabetes**
- **electrolyte imbalances**
- **certain heart conditions**, e.g. high blood pressure, coronary heart disease, congential heart disease, cardiomyopathy, or heart valve disease
- **certain lung conditions**, e.g. asthma, pulmonary embolism, emphysema, COPD, pneumonia, or lung cancer

Some lifestyle factors can also trigger an attack of AF:

- Drinking too much alcohol
- Being overweight
- Drinking a lot of caffeine
- Smoking
- Drugs which raise your heart rate, e.g. speed or cocaine

How is AF diagnosed?

AF is usually diagnosed based on your pulse rate. However, your doctor may do other tests to confirm the AF diagnosis and pick up on any underlying causes.

These tests may include:

Echocardiogram (“echo”)

This is an ultrasound scan of the heart. It can show any structural problems - for instance, damaged valves or muscle - in the heart.

Chest X-ray

This can be used to show any lung problems that might cause AF.

Blood tests

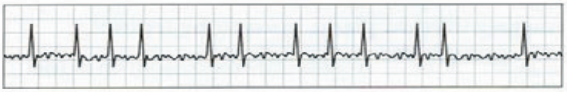
These are used to see whether you have an imbalance in your thyroid function or your electrolytes, both of which can cause AF.

Electrocardiogram (ECG)

An ECG shows the heart's electrical activity, including any unusual patterns.

Electrodes are attached to your chest, wrists, and ankles to take the reading. An ECG is painless, and usually takes 5-10 minutes.

A normal ECG trace



An AF ECG. The waves are irregular and there are lots of tiny "fibrillation" waves between heartbeats.

You may also be asked to take a:

- **24-hour ECG** (**holter monitor** or **ambulatory ECG**) where you keep the electrodes on while you go about your day
- **exercise ECG** (**stress test** or **treadmill test**) where an ECG is taken while you exercise.

Complications of AF

Atrial fibrillation is usually not dangerous in itself, although it can be unpleasant. However, AF comes with some risks of worse problems.

The two most common complications are:

Blood clots

When the atria are not pumping effectively, they may not empty all the way. This can leave a pool of blood in the chamber, which can develop into a clot.

If this blood clot enters circulation, it may travel to the brain, causing a **stroke**, or to the coronary arteries, causing a **heart attack**.

Heart failure

Heart failure is when the heart cannot beat hard enough to meet the body's demands for blood, oxygen, and nutrients. This is common in AF, which can weaken the heart over time.

How is AF treated?

When deciding on your treatment, your doctor may consider:

- what type of AF you have
- what symptoms you have
- any underlying causes of your AF
- your age and overall health

You may have to attend regular follow-up appointments or assessments.

There are three main aims of AF treatment:

- **control the heart rate**
- **control the heart rhythm**
- **prevent or reduce complications**

The main approaches are: drugs, cardioversion treatment, or surgical means.

You may have to try several treatments before finding one that works.

Drug treatments

Three main drug types are used to treat AF:

- **beta-blockers**
- **calcium-channel blockers**
- **anti-arrhythmatics**

Whichever medication you are given, you have to take them regularly and as prescribed. Discuss any side effects or new symptoms with your doctor.

Cardioversion

Cardioversion uses a device called a **defibrillator** to deliver a controlled electrical shock to the heart. This "resets" the heartbeat, allowing it to restore the normal rhythm.

Not all kinds of AF benefit from cardioversion. Your heart specialist will carefully consider whether it is a useful option for you.

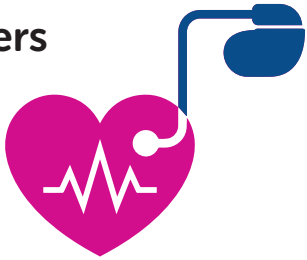
Cardioversion can be used alone or along with drug treatments. You may be put under anaesthetic for the cardioversion treatment.

Catheter ablation

Catheter ablation is a surgical procedure. A laser is used to destroy areas of the heart which are causing irregular electrical signals.

This procedure is not very invasive. It takes between 1-4 hours and usually does not need an overnight hospital stay, although you may take a few days to fully recover at home.

Artificial pacemakers



An artificial pacemaker is a small machine that sends electrical pulses to your heart to keep it beating regularly.

Some people with AF may benefit from having an artificial pacemaker inserted.

This is a minor surgical procedure, and you will usually be awake under local anaesthetic while the device is inserted. This procedure usually only takes an hour or so.

Preventing thrombosis

AF can give you a higher risk of **thrombosis**. This is where a blood clot forms in your circulatory system. If this clot blocks blood flow, it can cause a stroke or heart attack.

Your doctor may prescribe you a medicine called an **anticoagulant** to reduce the risk of blood clotting.

Your doctor will decide which type of drug is best for you and how often you will take it. This decision is based on your symptoms and whether you have other risk factors for a stroke.

Always follow the instructions when taking your medication. Tell your doctor if you experience any side effects.

Your doctor should explain all risks associated with the medication before you start taking it. Make sure you ask any questions you have!

There are two main types of anticoagulant:

Warfarin

Warfarin is the most common anticoagulant.

While taking warfarin, you will need regular blood tests. Based these blood tests show, your doctor may adjust your medication.

Warfarin can make you bleed more if you are cut or injured. It is not suitable if you are pregnant, or if you are prone to ulcers.

You will also have to control your diet carefully while taking warfarin.

Direct oral anticoagulants (DOACs

DOACs prevent clots from forming in the blood. They are used more and more for AF.

DOACs currently used in the UK are:

- Dabigatran (Pradaxa®)
- Rivaroxabran (Xarelto®)
- Apixaban (Eliquic®)
- Edoxaban (Lixiana®)

Help and support

Chest Heart & Stroke Scotland

The **CHSS Advice Line** (**0808 801 0899**, or email **adviceline@chss.org.uk**) can offer personalised support and information.

CHSS also offers a range of **booklets** on lifestyle changes, symptoms, and treatments which you may be experiencing. You can order these online: **www.chss.org.uk**

AntiCoagulation Europe (ACE)

This charity offers information about anticoagulant treatments and medications, as well as the conditions they treat.

Tel: 020 8289 6875

Email: anticoagulation@ntlworld.com

Web: www.anticoagulationeurope.org

Arrhythmia Alliance

This charity provides information and support with heart arrhythmias, and even has a sub-charity, the AF Alliance, which specialises in AF.

The phone number below is for their helpline, which is open 24 hours and can provide personalised advice and support.

Tel: 01789 867 501

Email: info@heartrhythmalliance.org

Web: www.arrhythmiaalliance.org.uk

British Heart Foundation (BHF)

This is the largest heart charity in the UK. BHF offers information and support for a wide range of heart problems, including atrial fibrillation.

Tel: 0300 330 3322

Email: heretohelp@bhf.org.uk

Web: www.bhf.org.uk

Our publications are free to everyone in Scotland, in PDF and in print. See them all at **www.chss.org.uk/resources-hub**

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text ADVICE to 66777
adviceline@chss.org.uk

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To give feedback or request alternative formats, email: **health.information@chss.org.uk**

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