

# Palpitation

Heart Information Series Number 14



**British Heart  
Foundation**

This is one of the booklets in the *Heart Information Series*. For a complete list of booklets, see page 33.

We welcome your comments on this booklet.  
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We update this booklet regularly. However, you may  
find more recent information on our website  
**bhf.org.uk**

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## About this booklet

This booklet is for people who have palpitation. It describes:

- different types of palpitation
- how doctors diagnose palpitation
- which types of palpitation are harmless and which ones may need treatment, and
- the different types of treatment that may be given.

This booklet is not a substitute for the advice your doctor or cardiologist (heart specialist) may give you based on his or her knowledge of your condition.

## What is palpitation?

Palpitation is a word used to describe the feeling you get when you are aware of your heartbeat. The heart may be beating at a normal rate, quickly, slowly or irregularly, or it may be missing beats.

Most palpitations are quite harmless, although they can be unpleasant and distressing. Everyone has them at some time, including people without heart disease. There are many causes of palpitation, including fear, anger, physical activity, fever, stomach upsets or drinking alcohol.

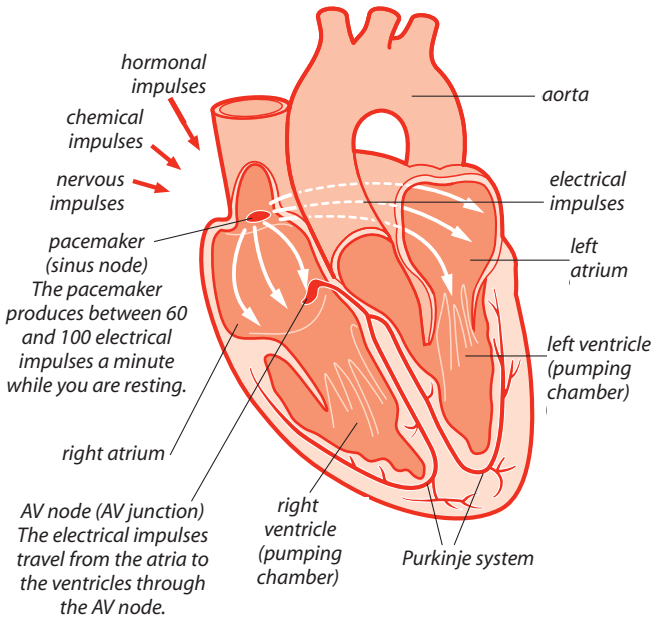
However, some palpitations are caused by disease. These palpitations may feel particularly unpleasant as the heartbeat may be very fast, very slow or very irregular. Bouts of palpitation may last for seconds, minutes or hours. Some people have very rare episodes, while others have palpitation every day. Attacks may happen suddenly and unexpectedly, but a few may be triggered by things such as anxiety or exercise. Palpitations that cause symptoms such as sweating, breathlessness, faintness, chest pain or dizziness, will usually need further investigation.

## Normal heart rhythms

The heart is a muscular pump which circulates blood through the body and lungs. It has four chambers – two upper ones called the right and left atria, and two lower ones called the right and left ventricles.

The heart's pumping action is controlled by tiny electrical impulses produced by a part of the right atrium called the 'sinus node'. This is sometimes called the heart's 'natural pacemaker'. The rhythmical impulses produced by the sinus node make the atria contract and push blood into the ventricles. The electrical impulses travel to the ventricles through the atrio-ventricular node (or 'AV node'). This acts like a junction box and is sometimes called the 'AV junction'. The impulse is delayed a little before it enters the ventricles through fibres which act like 'wires' (the Purkinje system). When the impulse reaches the ventricles they both contract, pushing the blood out of the heart to the lungs and the rest of the body. In a normal heart rhythm, each impulse from the heart's pacemaker makes the atria and the ventricles contract regularly and in the correct order.

## Normal electrical signals in the heart



While you are resting, your heart's pacemaker produces between 60 and 100 impulses a minute. It is the pumping of blood that produces your pulse, which you can feel, for example, at the artery in your wrist. Doctors can measure the rate and rhythm of your heart by taking your pulse.

Sometimes, the heart will beat faster or more slowly, depending on your state of health and whether you have been active or resting. When the heart is beating fast, this is called 'sinus tachycardia'. When it is beating slowly, it is called 'sinus bradycardia'. These are normal heart rhythms and do not mean that there is anything wrong with your heart.

### **A normal but fast rhythm (sinus tachycardia)**

Being physically active creates certain reactions in the nervous system and in the body's chemicals which make the pacemaker speed up. When the heart rate produced by the sinus node goes above 100 beats a minute, the rhythm is called 'sinus tachycardia'. Tachy means fast and cardia means heart. The chemicals involved are called 'catecholamines', one of which is adrenaline. Adrenaline is also released when we are frightened – it prepares our body for action. The heart beats



quickly and powerfully to pump out more blood, to make you ready for 'fight or flight'.

Your heart rate may also be increased if you have an overactive thyroid gland, a fever or anaemia, or if you are pregnant.

### **A normal but slow rhythm (sinus bradycardia)**

When the sinus node slows the heart rate to below 60 beats a minute, the rhythm is called 'sinus bradycardia'. Brady means slow and cardia means heart. Many athletes have sinus bradycardia. Also, when you are feeling sick it is normal for your heart to slow down. If the heart slows down too much, it may make you faint.

## **"My heart sometimes seems to have an extra beat."**

Extra heartbeats – called ‘ectopic beats’ – are very common. They may be extra beats from upper chambers of the heart (the atria) or they may be from the lower chambers of the heart (the ventricles). Most people have at least one ectopic beat every 24 hours but they are more common in people who have a heart condition.

Most ectopic beats go unnoticed. If you do notice an ectopic beat, it may feel like a thud in the chest, a brief irregular heart rhythm, or a missed heartbeat. Sometimes, you may notice an ectopic beat when you are in bed lying in a position where you can ‘hear’ your heart rhythm. Tiredness or alcohol can make you more aware of these extra beats. It is possible that coffee and tea may occasionally trigger ectopic beats.

Ectopic beats are not dangerous and do not damage your heart.

## Fast, regular heartbeats

If you feel that your heart is beating too fast, but still regularly, this can be:

- normal sinus tachycardia (see page 11)
- supraventricular tachycardia (see below), or
- ventricular tachycardia (see page 13).

**Supraventricular tachycardia** (also known as SVT, paroxysmal SVT or PSVT)

Supraventricular tachycardia is a disturbance of the heart rhythm caused by rapid electrical activity in the upper parts of the heart (the atria). In these attacks, the heart beats very fast, usually at a rate of between 140 and 240 beats a minute.

Symptoms may be uncomfortable but they are not usually harmful. The most common symptom is palpitation, but there may also be breathlessness, dizziness or, very occasionally, fainting. Sometimes the SVT rhythm comes and goes. This is called paroxysmal SVT. Attacks usually start at a young age, may happen over many years, and tend to reduce as you get older. Some people find that certain things can trigger an attack, such as an emotional upset, or anxiety. Drinking large amounts of coffee or alcohol, or heavy

cigarette-smoking, can also trigger an episode of SVT.

An attack may last from a few seconds or minutes to several hours. Attacks can often be stopped by a technique called the 'Valsalva manoeuvre'.

This involves taking a breath in and then 'straining out', with the airway closed at the back of the throat. Or, you could try swallowing something cold – for example, some ice cream or a small ice cube.

You may be able to prevent the palpitations by avoiding the situations or the things that seem to trigger them. Or, your doctor may be able to prescribe medicines to help (see page 23). If the attacks are troublesome, you may need to have some tests done. These will include an ECG (electrocardiogram) and perhaps a 24-hour ECG recording or a patient-activated recording. If these do not identify the problem, you may need to have a small recording device implanted or an electrophysiological study. All these tests are described on page 22.

There are two main types of supraventricular tachycardia.

- AVNRT (atrioventricular nodal re-entrant

tachycardia) usually involves the AV node (see the picture on page 6).

- AVRT (atrioventricular re-entrant tachycardia) happens when there is an abnormal connection between the atria and the ventricles. This is often seen in people who have Wolff-Parkinson-White syndrome.

If you have AVNRT or AVRT, you may need to be referred to a specialist centre for more detailed tests and treatment.

### **Ventricular tachycardia**

Ventricular tachycardia is a condition where there is an abnormally fast rate – between 120 and 200 beats a minute – in the ventricles (the two lower chambers of the heart). This may be caused by increased activity of the electrical impulses to the ventricles.

This condition usually happens as a complication of a heart condition, but it is also sometimes seen in otherwise healthy people. The attacks may last for just a few seconds or minutes, or may continue for some hours. The first symptoms may be faintness, or fast, regular palpitations with breathlessness and sometimes chest pain. An electrocardiogram (ECG) will show whether it is ventricular tachycardia

or another type of abnormal heart rhythm (see page 20).

Anyone with symptoms needs to get medical help immediately as it might be necessary to have an injection, or an electric shock (cardioversion), to stop the attack. However, many attacks of ventricular tachycardia do stop on their own.

Your doctor may give you a drug to help prevent future attacks. You may need to have an electrophysiological study to help your doctors plan the best way of managing your tachycardia. This test is described on page 22.

If the drugs are not effective and you continue to have frequent attacks, your doctor may suggest another form of treatment. This could be one of the following.

- Having an ICD implanted. ICD stands for implantable cardioverter defibrillator. An ICD continually monitors your heart rhythm and delivers an electrical impulse or shock whenever you have a ventricular tachycardia attack, and returns the heart to its normal rhythm.

- Catheter ablation therapy, which identifies and removes or destroys the affected area which is causing the abnormal rhythm.

These treatments are described on pages 25-28.

The choice of treatment depends on your condition. However, these treatments are not suitable for everyone.

## Fast, irregular heartbeats

### Atrial fibrillation

Atrial fibrillation is a very common type of palpitation. It occurs in about 4 in every 100 people over the age of 65, but it can also affect younger people. Atrial fibrillation can last for a few minutes or hours, or the condition can become permanent.

Atrial fibrillation is a type of irregular heartbeat (arrhythmia) in which the atria beat irregularly and often very fast – up to 400 beats a minute. As the AV node cannot conduct all these impulses, only a few are passed on to the ventricles (see the illustration on page 7). The ventricles respond by beating quickly (at up to 180 beats a minute) and irregularly. The speed and irregularity of the arrhythmia can produce quite unpleasant palpitations. If the atrial fibrillation is particularly fast, the heart's pumping action is disturbed and may cause breathlessness.

Fortunately, atrial fibrillation is not usually immediately dangerous, but it does need to be investigated and treated. In a very small number of people, the fast irregular rhythm may lead to a clot forming in the heart. If the clot became dislodged, it could cause a stroke.



The causes of atrial fibrillation include rheumatic heart disease, coronary heart disease, heart valve disease, heart failure and high blood pressure. It can also be caused by an overactive thyroid, having too much alcohol, acute lung infections such as pneumonia, and heart and lung surgery. If you have atrial fibrillation but no underlying cause is found, it is usually called 'lone atrial fibrillation'.

There are various ways of treating atrial fibrillation. The treatment varies from one person to another.

- If you have a normal heart rate but only have occasional attacks of atrial fibrillation, your doctor may prescribe a low-dose aspirin for you.
- Your doctor may prescribe digoxin, or a beta-blocker, such as atenolol or an anti-arrhythmic drug such as amiodarone. These drugs will slow down a fast heartbeat, or help to return it back to normal.
- If you have a risk of blood clots forming – for example if you have rheumatic heart disease, high blood pressure, diabetes or continuous atrial fibrillation – you may be given an anticoagulant medicine such as warfarin, which will reduce the risk of stroke.
- You may be given electrical 'cardioversion' or 'defibrillation' to restore the heart's normal rhythm. This is described on page 24.

- In the rare cases that the heart does not respond to the treatment above, other procedures such as catheter ablation therapy and pacemaker implantation may be considered. These are described on page 25.

## **"My heart is beating too slowly."**

If you find that your heart is beating too slowly, but with a regular beat, this could be normal sinus bradycardia (described on page 9), or it could be a form of 'heart block' or sinus node disease.

Heart block can produce slow, pounding palpitations and often comes with dizziness or fainting attacks. Heart block happens when the heart tissue that carries the electrical impulses is diseased, and so interrupts the heart's normal activity.

Sinus node disease happens when the sinus node, the heart's 'natural pacemaker', is not working properly and an abnormally slow pulse rate develops. This could develop into sick sinus syndrome where there may be a very fast heart rate (tachycardia) followed by a very slow heart rate (bradycardia).

If you have heart block or sinus node disease, your doctors may advise you to have an artificial pacemaker (see page 25).

## How do doctors diagnose palpitation?

The doctor will ask you about the pattern and frequency of your attacks and exactly how the palpitations feel. He or she may ask you to tap out the rhythm with your hand. The doctor needs to decide whether the palpitations reflect a normal heart rhythm and need no treatment, or whether you have an arrhythmia – an abnormal heart rhythm – which needs to be investigated. In either case, you may have a blood test for anaemia and to check how your thyroid is working.

### Tests to help diagnose palpitations

#### Electrocardiogram (ECG)

Sometimes, arrhythmias cause no symptoms and can only be detected by feeling the pulse or doing an electrocardiogram (ECG) recording. This is a test that gives information about the rhythm and electrical activity of the heart. Almost all patients who have symptoms associated with their palpitations will have an ECG. The ECG helps to identify the source of the abnormal rhythm. It is painless and usually takes about five minutes. Small patches, set in sticky tape, are put on your arms, legs and chest, and are connected to a recording machine. A reading is then taken.

Sometimes, an **exercise ECG** is used to analyse any abnormalities with your heart rhythm. Here, an ECG recording is taken while you are exercising on a treadmill or stationary bike.

If your palpitations happen very often but not often enough to be recorded on an ordinary ECG, your medical team will recommend a **24-hour ECG**. This involves strapping a portable ECG recorder, about the size of a personal stereo, to your waist for 24 hours while you do your normal activities. You then keep a simple 'diary', recording what activities you do and when, and make a note of any times that you have palpitations or other symptoms. An analysis of the ECG recording will detect any arrhythmias. Special attention will be paid to the times that you felt palpitations or other symptoms.

If your symptoms are less frequent, you may be given a device called a **patient-activated recorder** which allows you to record your heartbeat whenever you have symptoms. The hospital staff will explain how to use the recorder and you will usually keep it for several weeks.

Or, your doctor may suggest implanting a small recording device, called an 'implantable loop recorder' (ILR), under the skin of your chest wall.

This is usually done under local anaesthetic as a day case (which means that you don't need to stay overnight in hospital). When you get your symptoms, you turn the device on and it will record the electrical activity of your heart. The next time you go to the hospital for a check-up, the doctors can then download the recording and analyse it.

### **Electrophysiological study**

If palpitation is causing you a big nuisance, or if your doctors cannot make a definite diagnosis from the ECG tests, you may have an electrophysiological study (also called an 'EPS'). This allows doctors to analyse the heart's electrical activity in great detail.

Fine tubes called 'electrode catheters' are inserted through a vein or artery, usually in the groin. They are then gently moved into position in the heart where they stimulate the heart and record the electrical impulses. Often, the abnormal arrhythmia that is causing the palpitations can be started and stopped by a sophisticated external pacemaker. An electrophysiological study lets doctors see the arrhythmia as it happens, and helps them diagnose the problem and plan the treatment.

## What treatment is given for palpitation?

If your palpitation is caused by an over-awareness of the heart's normal activity, you may just need reassurance that your heart rhythm is OK or that any palpitations you do have are harmless. In other cases, it may be worth avoiding 'triggers' such as coffee, alcohol and cigarettes. If you have been under a lot of pressure recently, it may help if you take some steps to reduce your stress or anxiety levels. For more information, see our booklet *Stress and your heart*.

If your palpitations are persistent and troublesome, you may need to take 'anti-arrhythmic' drugs. You may be referred to a specialist who will be able to prescribe the best drug for your particular arrhythmia.

In some cases, drugs are not effective in controlling the abnormal rhythm. However, over the past few years there have been dramatic advances in the treatment of arrhythmias, including cardioversion, sophisticated pacemakers, catheter ablation therapy and implantable defibrillators. These are described on the following pages.

## Cardioversion

Cardioversion is a very successful treatment for various types of fast rhythms, such as atrial fibrillation and ventricular tachycardia. You will be given a general anaesthetic, which will make you sleep through the whole procedure. The doctor will then apply a controlled electrical current to the chest wall, which helps restore your heart to a normal rhythm. The procedure does not usually cause any side effects. If you have atrial fibrillation, you may need to take anticoagulant drugs such as warfarin for a few weeks before and after the cardioversion, to prevent blood clots from forming. After the cardioversion you will have regular check-ups. In certain people, the irregularity may happen again up to six months afterwards. If this does happen again, your doctor may repeat the treatment, or consider giving you different drugs.

Cardioversion is not usually offered to people who have had atrial fibrillation for many years. This is because of the increased likelihood of the rhythm returning to atrial fibrillation, and because of the possibility of dislodging clots in the heart.



## Pacemakers

If you have heart block, sinus node disease or atrial fibrillation that is difficult to control, you may be advised to have an artificial pacemaker implanted. Most pacemakers are inserted by 'transvenous implantation', which takes between 30 and 60 minutes. It is usually done under local anaesthetic and sedation, and should cause little pain or discomfort. You will need a period of bed rest after the procedure and probably an overnight stay in hospital. For more information about pacemakers and how they are implanted, see our booklet *Pacemakers*.

## Catheter ablation therapy

Catheter ablation therapy (sometimes just called 'ablation therapy') may be used to help correct supraventricular tachycardia, atrial fibrillation, ventricular tachycardia and Wolff-Parkinson-White syndrome.

Catheter ablation therapy is carried out using the same techniques that are used for doing an electrophysiological study (see page 22). Many people have an electrophysiological study and catheter ablation done at the same time. The procedure can take between one and three hours.

It is usually done under a local anaesthetic and with sedation. It is not usually painful, but it may be a little uncomfortable. Afterwards, you will need to stay in hospital to rest for a few hours, or perhaps overnight.

Once the doctors have found out what is causing the abnormal arrhythmia that is giving you palpitation, radio frequency energy is used to destroy (ablate) the affected areas that are causing the abnormal rhythm.

In some cases where there is an abnormal electrical pathway, parts of it can be ablated, leaving the normal electrical pathway intact. However, in other cases it may be necessary to destroy some of the electrical pathways near the AV node, between the atria and the ventricles (see the picture on page 7). In these cases, the person may need to have an artificial pacemaker fitted. Sometimes, this is done before the ablation treatment.

In every 100 people who have catheter ablation therapy, the treatment is successful for between 70 and 99. The success rate depends on which type of abnormal heart rhythm you have. Ablation for rhythms such as SVT and Wolff-Parkinson-White have proved very successful. However, if you have

catheter ablation therapy for atrial fibrillation you may not be completely cured but you may have fewer and shorter episodes after the treatment.

More recently, doctors have been using a treatment called 'pulmonary vein ablation' or 'pulmonary vein isolation' to help control atrial fibrillation. (The pulmonary veins are the veins that take blood from the lungs back to the heart.) This treatment, which may take a few hours, produces a type of circular scar that blocks the abnormal electrical impulses. This procedure is still being researched.

### **Implantable cardioverter defibrillators**

(also called 'ICDs')

An ICD is made up of:

- a pulse generator – a device much smaller than a pack of playing cards and weighing about 75 grams (3 ounces) – which is implanted under the muscle or skin below the left collar bone, and
- a wire (or wires) which are usually passed through a vein to the heart.

An ICD monitors the heart rhythm and can sense if there is about to be a disturbance in the rhythm. If the disturbance is not too serious, it will deliver a short, quick burst of electrical impulses. If this does

not work, or if it senses a more serious disturbance, it delivers a bigger electrical shock to the heart. This stops the abnormal rhythm and gets the rhythm back to normal again.

Implanting an ICD involves an operation. It is usually done under local anaesthetic and sedation, but is sometimes done under general anaesthetic. You will need to stay in hospital either overnight or for one or two days. For more detailed information, see our booklet *Implantable cardioverter defibrillators (ICDs)*.

## What to do if someone has a heart attack or cardiac arrest

Ideally, everyone should know what to do if someone has a heart attack or cardiac arrest. About three in every four cardiac arrests happen away from hospital and there may be nobody else around to help.

The British Heart Foundation co-ordinates an initiative called Heartstart UK. Heartstart UK schemes train people in emergency life support. For more details see page 34.

### If someone has a heart attack

- 1 Get help immediately.
- 2 Get the person to sit back in a comfortable position.
- 3 Phone 999 for an ambulance and then phone their doctor.

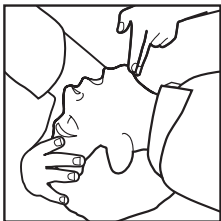
### If a person seems to be unconscious

- Approach with care. To find out if the person is conscious, gently shake him or her, and shout loudly, 'Are you all right?'
- If there is no response, shout for help.
- You will need to assess the casualty and take suitable action. Remember **A, B, C – Airway, Breathing, Circulation.**

# A

## Airway

Open the person's airway by tilting the head back and lifting the chin.



# B

## Breathing

### Check

Look, listen and feel for signs of breathing for up to 10 seconds.

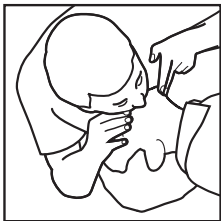
### Action: Rescue breathing

If the person is unconscious and not breathing, phone 999 for an ambulance.

Put the person face upwards on the floor.

Open the airway again and give two of your own breaths to the person. This is called 'rescue breathing'.

Close the person's nostrils with your fingers and thumb and blow into the mouth. Make sure that no air can leak out and that the chest rises and falls.



# C

## Circulation

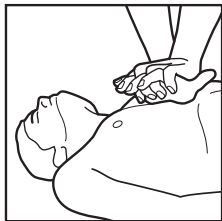
### Check

Check for signs of circulation. This means checking for signs of normal breathing, coughing or movement. Take no more than 10 seconds doing this.

### Action: Chest compression

If there are no signs of a circulation, or if you are at all unsure, start chest compression.

Find the notch at the bottom of the breastbone. Measure two fingers' width above this. Place the heel of one hand there. Place your other hand on top. Press down firmly and smoothly 15 times. Do this at a rate of about 100 times a minute – that's faster than one each second.



Repeat 2 rescue breaths and then 15 chest compressions. Keep doing the 2 rescue breaths followed by 15 chest compressions until:

- the casualty shows signs of life, or
- professional help arrives, or
- you become exhausted.

## For more information

### British Heart Foundation website

**bhf.org.uk**

For up-to-date information on the BHF and its services.

### Heart Information Line • 08450 70 80 70

(A local rate number.)

An information service for the public and health professionals on issues relating to heart health.

### Publications and videos

The British Heart Foundation (BHF) also produces other educational materials that may interest you. To find out about these or to order your

**Publications and videos catalogue**, please go to **bhf.org.uk/publications**, call the **BHF Orderline on 01604 640 016** or e-mail **orderline@bhf.org.uk**

You can download many of our publications from **bhf.org.uk/publications**

Our publications are free of charge, but we would welcome a donation.



## Heart Information Series

This booklet is one of the booklets in the *Heart Information Series*. The other titles in the series are as follows.

- 1 Physical activity and your heart
- 2 Smoking and your heart
- 3 Reducing your blood cholesterol
- 4 Blood pressure
- 5 Eating for your heart
- 6 Angina
- 7 Heart attack and rehabilitation
- 8 Living with heart failure
- 9 Tests for heart conditions
- 10 Coronary angioplasty and coronary bypass surgery
- 11 Valvular heart disease
- 12 Having heart surgery
- 13 Heart transplantation
- 14 Palpitation
- 15 Pacemakers
- 16 Peripheral arterial disease
- 17 Medicines for the heart
- 18 The heart – technical terms explained
- 19 Implantable cardioverter defibrillators (ICDs)
- 20 Caring for someone with a heart problem

## **Heart health magazine**

*Heart health* is a free magazine, produced by the British Heart Foundation especially for people with heart conditions. The magazine, which comes out four times a year, includes updates on treatment, medicines and research and looks at issues related to living with heart conditions, like healthy eating and physical activity. It also features articles on topics such as travel, insurance and benefits. To subscribe to this **free** magazine, call 01604 640 016.

## **Heartstart UK**

For information about a free, two-hour course in emergency life support, contact Heartstart UK at the British Heart Foundation. The course teaches you to:

- recognise the warning signs of a heart attack
- help someone who is choking or bleeding
- deal with someone who is unconscious
- know what to do if someone collapses, and
- perform cardiopulmonary resuscitation (CPR) if someone has stopped breathing and his or her heart has stopped beating.

## For more information on statistics quoted in this booklet

Statement	Where you can find out more about this
<p><b>Page 16</b></p> <p>Atrial fibrillation ... occurs in about 4 in every 100 people over the age of 65.</p>	<p>From: 'Study of the prevalence of atrial fibrillation in general practice patients over 65 years of age'. By JD Hill, EM Mottram, PD Killeen and others. Published in the <i>Journal of the Royal College of General Practitioners</i>, in 1987: volume 37, pages 172-173</p> <p>and</p> <p>'Epidemiological features of chronic atrial fibrillation: the Framingham Study'. By WB Kannel, RD Abbott, DD Savage and others. Published in the <i>New England Journal of Medicine</i> in 1982: volume 308, pages 1018-1022.</p>
<p><b>Page 23</b></p> <p>In every 100 people who have catheter ablation therapy, the treatment is successful for between 70 and 99. The success rate depends on which type of abnormal heart rhythm you have.</p>	<p>From: 'Ablative strategy: A definite treatment for cardiac arrhythmias?' By M Hocini, JL Pasquie, P Jais and others. Published in the <i>Revue du Praticien</i> in 2004: volume 54, pages 291-297.</p>

## About the British Heart Foundation

The British Heart Foundation (BHF) is the leading national charity fighting heart and circulatory disease – the UK's biggest killer. The BHF funds research, education and life-saving equipment, and helps heart patients return to a full and active way of life.

We rely on donations to continue our vital work. If you would like to make a donation, please ring our **credit card hotline on 0870 606 3399**. Or fill in the form opposite.

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1/2005

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**Please send your form to the British Heart Foundation. The address is over the page.**

*For your notes:*

*For your notes:*



## Technical terms

<b>ablation</b>	A procedure to restore a regular heart rhythm.
<b>arrhythmia</b>	A variation from the normal regular rhythm of the heartbeat.
<b>atria</b>	The two upper chambers of the heart.
<b>atrial fibrillation</b>	An irregular heartbeat in which the atria beat very fast, at up to 400 beats a minute.
<b>atrio-ventricular node</b>	See 'AV node'.
<b>AV junction</b>	See 'AV node'.
<b>AV node</b>	The part of the heart through which the electrical impulses pass from the atria to the ventricles.
<b>bradycardia</b>	A slow heart rate.
<b>cardioversion</b>	A procedure to restore a regular heart rhythm.
<b>catheter</b>	A fine, hollow tube.
<b>defibrillation</b>	A procedure to restore a regular heart rhythm.
<b>ECG</b>	See 'electrocardiogram'.
<b>ectopic beat</b>	An extra beat.
<b>electrocardiogram</b>	A test to record the rhythm and the electrical activity of the heart. Also called an ECG.
<b>electrophysiological study</b>	A test to detect and give information about abnormal heart rhythms.

<b>exercise ECG</b>	An ECG recording taken while the person is exercising on a stationary bike or treadmill.
<b>fibrillation</b>	Twitching or quivering of the heart muscle.
<b>heart block</b>	When the electrical impulses of the heart are slowed down or delayed by an interruption in the heart's normal electrical activity.
<b>Purkinje system</b>	The fibres which act like 'wires' to transmit electrical impulses through the heart.
<b>sick sinus syndrome</b>	A condition in which a person has both slow and fast heart rhythms.
<b>sinus bradycardia</b>	A normal, slow heart rhythm.
<b>sinus node</b>	The part of the heart which produces the electrical impulses that control the heart's pumping action.
<b>sinus tachycardia</b>	A normal, fast heart rhythm.
<b>SVT</b>	Supraventricular tachycardia.
<b>tachycardia</b>	A fast heart rate.
<b>ventricles</b>	The two lower chambers of the heart.

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## Your comments please

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