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Understanding **pacemakers**



About this booklet

Having a pacemaker can improve your quality of life and for some people, it can save their life. This booklet can help you:

- understand what a pacemaker is and why you need it
- prepare for your pacemaker fitting and recovery after
- learn how to live well with a pacemaker.

Please use this booklet as and when you need it. You do not have to read it all at once. We're here to support you and your loved ones.



Call 0808 802 1234 (freephone)
or email hearthepline@bhf.org.uk
Our helpline is open weekdays,
9am to 5pm (excluding
bank holidays).

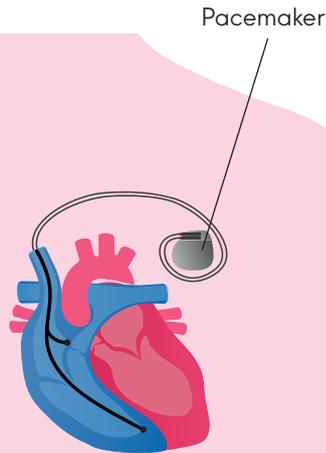
Contents

Pacemakers explained	4
Why you need a pacemaker	8
Types of pacemaker	10
Other treatment options	16
Preparing for a pacemaker fitting	17
During a pacemaker fitting	21
Recovery after a pacemaker fitting	26
Living with a pacemaker	36
Get support	56
Further information	60

What is a pacemaker?

A pacemaker is a small electrical device that's put under the skin in your chest, near your collarbone.

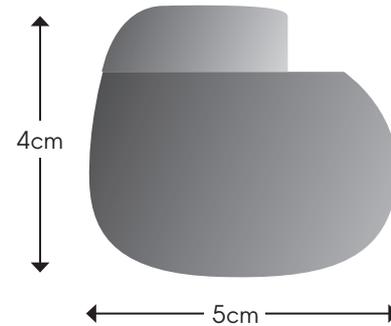
It's used to treat some abnormal heart rhythms (arrhythmias) that can cause your heart to beat too slowly or miss beats.



What does a pacemaker look like?

A pacemaker is a small box. It contains a battery and an electric circuit (called a pulse generator). It usually has one or more leads coming off it, but some newer pacemakers have no leads.

Pacemakers are usually smaller than a matchbox, about 5cm by 4cm. They weigh 20g to 50g.



What does a pacemaker do?

Your heart has a sinoatrial (SA) node that sends out electrical impulses to make your heart beat. These impulses travel across the top chambers (atria), causing them to contract (squeeze) and pump blood into the bottom chambers (ventricles).

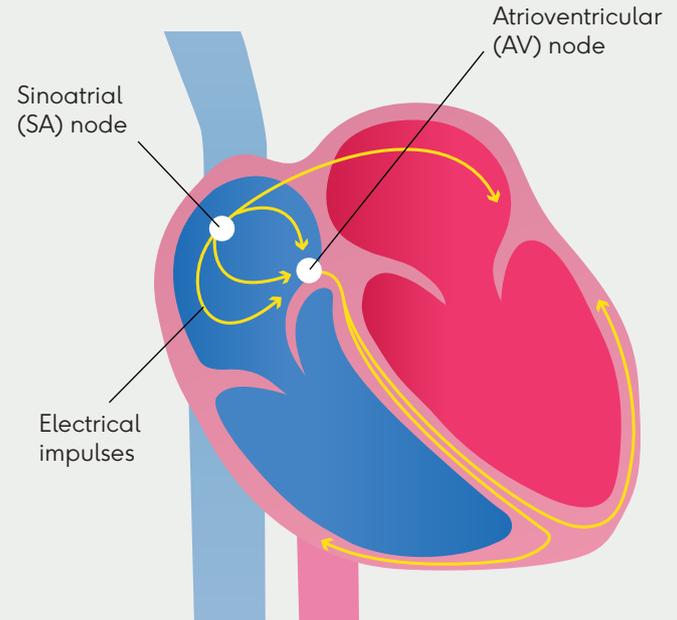
Your atrioventricular (AV) node slows down the impulses for a short period of time, so your atria have enough time to pump out blood (contract).

If your SA node is not working properly, your heart can beat too slowly or miss beats.

A pacemaker can take over the role of your SA node. It checks your heart rhythm all the time. If it notices an abnormally slow heartbeat or missed heartbeats, it sends electrical signals to make your heart beat normally. It does not give your heart an electrical shock.

Most pacemakers work only when they're needed. Others send out impulses all the time, called a fixed rate.

Some pacemakers can also help the chambers of your heart beat in time (see page 14).



Why do I need a pacemaker?

You may need a pacemaker fitted if:

- your heart beats too slowly or sometimes, in certain conditions, too fast
- the chambers of your heart are not beating at the same time
- you have a particular type of heart block
- you have heart failure.

You may have a pacemaker fitted as an emergency treatment (acute) or it can be planned (elective). Your doctor will talk to you about why you need a pacemaker.

Find more information on why you need a pacemaker at [bhf.org.uk/pacemakers](https://www.bhf.org.uk/pacemakers)

What are the benefits of having a pacemaker?

Having a pacemaker can improve your quality of life.

It can help make daily activities easier, like walking up stairs or keeping active. It should also improve any symptoms like feeling breathless or dizzy. And having a pacemaker can help you to stay out of hospital and live longer.

For some people it can save their life.

What type of pacemaker do I have?

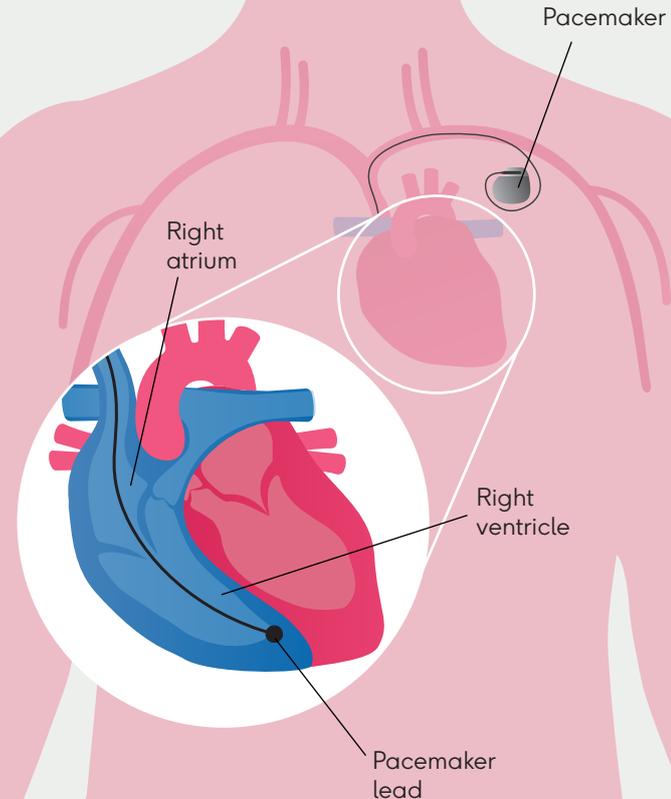
There are different types of pacemakers. The one you have will depend on your condition and symptoms.

Most pacemakers have leads coming off them which connect the pacemaker to your heart. Your pacemaker can have:

- one lead (a single-chamber pacemaker)
- two leads (a dual-chamber pacemaker)
- three leads (a biventricular pacemaker).

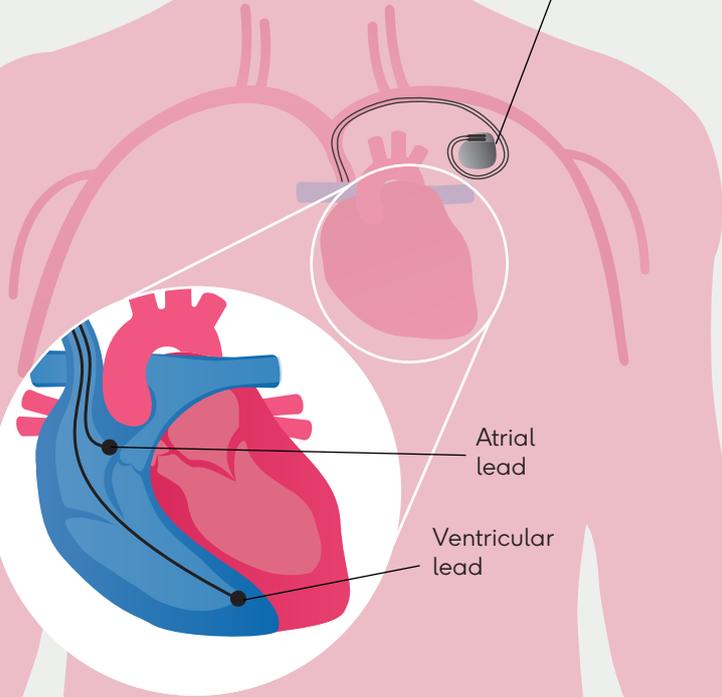
Some people may have a pacemaker with no leads, called a leadless pacemaker. But they're not suitable for everyone.

Single-chamber pacemaker



Dual-chamber pacemaker

Pacemaker

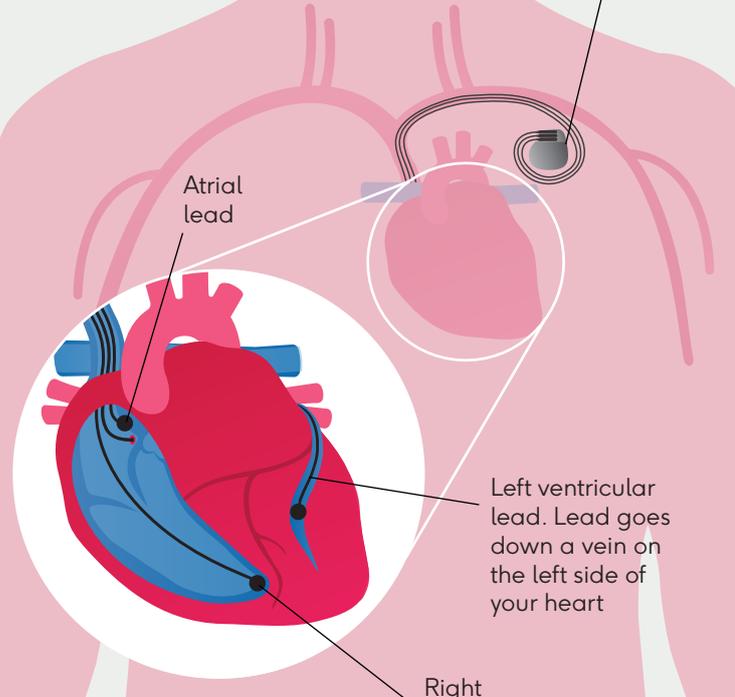


Atrial lead

Ventricular lead

Biventricular pacemaker

Pacemaker



Atrial lead

Left ventricular lead. Lead goes down a vein on the left side of your heart

Right ventricular lead

What is a CRT pacemaker?

Some people need a special pacemaker called a cardiac resynchronisation therapy (CRT) pacemaker. It's used when the pumping chambers of your heart beat out of time with each other.

A CRT helps the chambers to pump at the same time and helps your heart pump better.

It can be combined with other devices to help your heart, such as:

- cardiac resynchronisation therapy with a defibrillator (CRT-D)
- cardiac resynchronisation therapy with a pacemaker (CRT-P).

If you're at risk of a dangerous, abnormal heart rhythm (arrhythmia) you're more likely to have a CRT-D or a device called an implantable cardioverter defibrillator (ICD).

Find out more about ICDs in our booklet **Understanding implantable cardioverter defibrillators (ICDs)**. Order your free copy at [bhf.org.uk/publications](https://www.bhf.org.uk/publications)

New pacemakers

A new, smaller pacemaker about the size of a large tablet or vitamin has been created. It's wireless and can be put directly into your heart.

However, it may not be suitable for everyone who needs a pacemaker. Speak to your doctor to find out more.

Are there other treatment options?

Some people may be able to control an abnormal heart rhythm (arrhythmia) without having a pacemaker fitted.

For example, some conditions can be treated with medicine or a procedure called catheter ablation. But this is not possible for many people, and a pacemaker may be the best option. Especially if you need emergency treatment.

Speak to your doctor to find out why they're recommending a pacemaker and if there are any alternatives.

Is it a safe procedure?

It's normal to feel worried before having a surgical procedure. But having a pacemaker fitted is a common and safe procedure.

Your risk will depend on your individual circumstances, for example any other conditions you have and your general wellbeing. Any individual risks will be discussed with you before you have the treatment.

If you're worried about having a pacemaker fitted, speak to your doctor. You can also talk to one of our cardiac nurses.



Call 0808 802 1234 (freephone)
or email hearthelpline@bhf.org.uk
Our helpline is open weekdays,
9am to 5pm (excluding
bank holidays).

How do I prepare for a pacemaker fitting?

Preparing for your procedure can help you feel more in control and less nervous.

You could:

- Organise transport to and from the hospital.
- Organise time off from work.
- Wear clothes that are loose and comfortable on the day.
- Take things to keep you busy, like books, podcasts and music.
- Do a food shop before and prepare a few healthy freezer meals.
- Arrange for someone to look after children or pets while you're in hospital.
- Sort support for when you're home.

If you need help getting to and from the hospital, call the number on your hospital letter.

What happens before my pacemaker is fitted?

You may have some tests before your pacemaker is fitted, such as:

- an electrocardiogram (ECG)
- blood tests.

You'll also be asked about your general health, including your heart and any other medical conditions you have. Let them know about any medicines you take regularly.

If you've got an appointment to have a pacemaker fitted, you'll have these tests days or weeks beforehand.

The nurse will tell you if you need to stop eating or drinking before your procedure and if there's anything else you can do to prepare.

If you have any questions about having a pacemaker fitted speak to the nurse at your pre-assessment appointment.

If you're having a pacemaker fitted as an emergency, you may have some of these tests on the same day.

Find out what happens during these tests on our website at [bhf.org.uk/tests](https://www.bhf.org.uk/tests)

How is a pacemaker fitted?

There are different ways to have a pacemaker fitted, including:

- transvenous implantation
- epicardial implantation.

Transvenous implantation is the most common procedure to fit a pacemaker in adults.

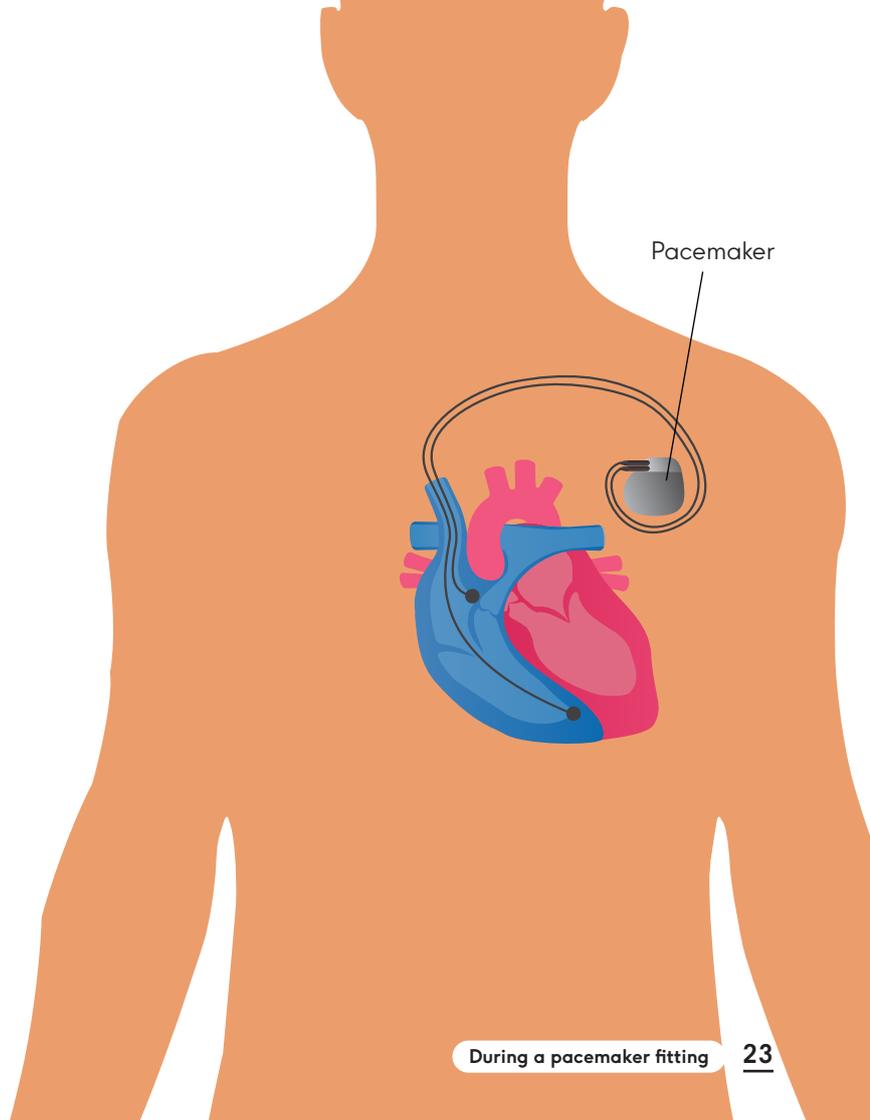
Having a pacemaker fitted is a common procedure and should not hurt. It's normal to feel a bit nervous.

Finding out what to expect can help reassure you. Talk to your doctor or nurse if you have questions.

Transvenous implantation

Transvenous implantation usually takes one hour.

- 1 You'll be given local anaesthetic to numb the area. This means you're awake but should not feel any pain. You may also be given a sedative medicine to help you relax and you'll feel sleepy.
- 2 A small cut, about 5cm to 6cm, is made on the left side of your chest.
- 3 Leads connecting the pacemaker to your heart are put into a vein and guided to your heart. They touch the wall of your heart muscle to check your heart rhythm.
- 4 The pacemaker box is fitted into a small space in your chest, between your skin and chest muscle. The leads and the pacemaker will be connected.
- 5 The cut will be closed with a special type of glue or stitches.

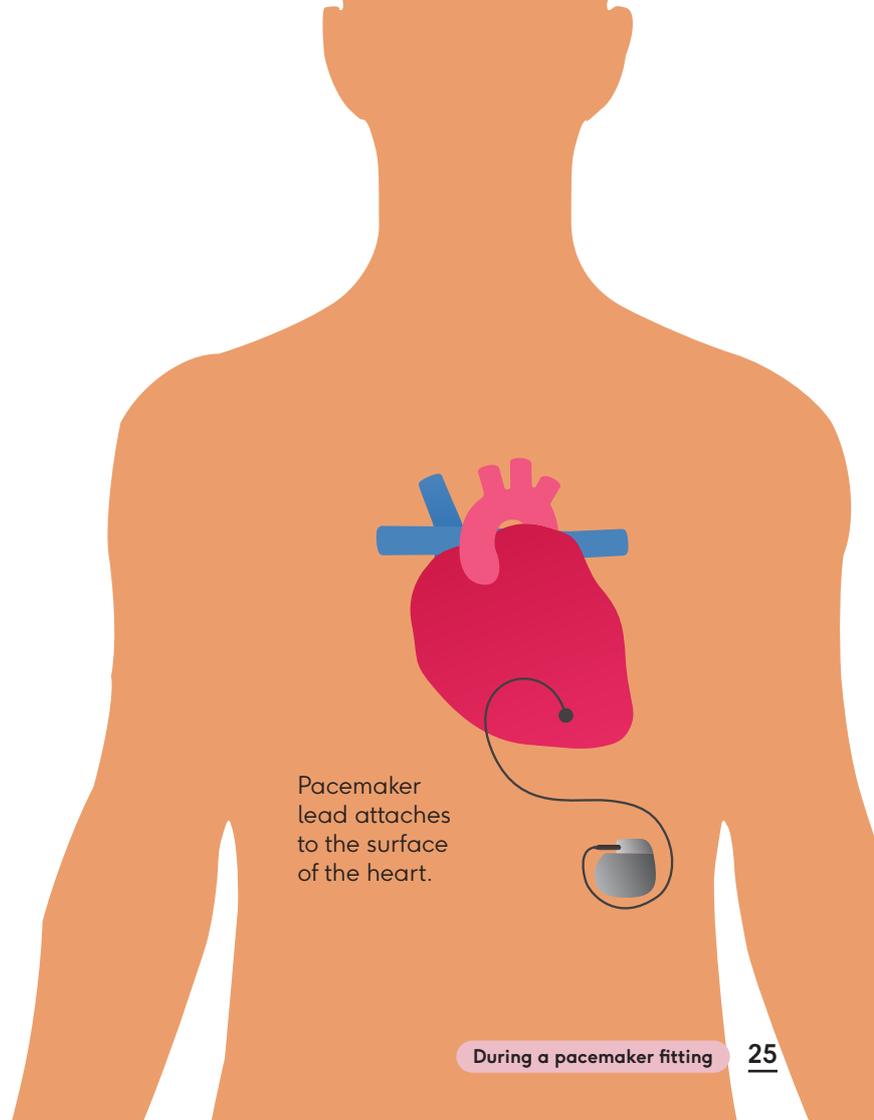


Epicardial implantation

You may be more likely to have epicardial implantation if your pacemaker is fitted during heart surgery or you're a child.

If you're not having heart surgery, it usually takes one to two hours.

- 1 You'll be given general anaesthetic. This means you're asleep during the procedure and should not feel any pain.
- 2 A small cut, about 5cm to 6cm, is made just below your chest near the bottom of your ribs (your abdomen).
- 3 The pacemaker leads are attached to the surface of your heart. They connect to a pacemaker box which is fitted under the skin of your abdomen.
- 4 The cut will be closed with a special type of glue or stitches.



How long will I be in hospital?

Most people can go home the same day they have the procedure. But some people may need to stay in hospital longer.

You'll usually have your heart rhythm checked for a few hours after your pacemaker is fitted and you'll have a chest X-ray. A nurse will also take your blood pressure and check the cut on your chest.

The nurses can give you something to eat and drink. They will also help you get up and out of bed after the procedure. This can help you feel more confident about moving around once you get home.

Your pacemaker will be checked before you leave to make sure it's working properly.

What happens when it's time to go home?

Before you leave hospital, someone will have a chat with you about your recovery and what you can and cannot do.

They should explain:

- how to look after the cut (wound) on your chest
- whether you need stitches removing and who does this
- who you should contact with any questions or concerns.

You'll also be given a pacemaker identification card (see page 38).

Speak to the hospital team if you need support at home or help with transport.

What will the first few days at home be like?

Recovering takes time and everyone recovers at different speeds. Take it easy for the first few days and make sure you have enough rest.

It's normal to feel tired afterwards but most people find that they're back to normal after a few days.

Having someone with you at home for the first few days will help to build your confidence.

Many people find it helps them to get up, washed and dressed. Doing light activities can also help build up your confidence, such as:



making drinks and snacks



walking around the house or garden



very light chores, like washing up.

Do not try to do too much too soon and listen to your body. If any of these activities make you feel unwell, contact your GP.

Can I move my arm and shoulder?

You'll need to avoid lifting your arm above your shoulder level on the side you had your pacemaker fitted for four to six weeks. This includes things like hanging out washing, carrying children or pets, weights and lifting things above your shoulder.

However, it's important to keep your shoulder and arm moving. Gently rotate your shoulder at a low level and move your head from side to side to avoid stiffness in your neck, shoulder and arm.

If you're not sure what movement is safe, speak to the nurses before you leave hospital. You can also call your GP or our cardiac nurses (see page 57).

**Do not lift your arm
above shoulder height
(or 90 degrees)**



How do I look after my wound?

You'll have a cut (wound) where you had your pacemaker fitted. It will be covered with a dressing (material pad) after the procedure. Dressings help keep any cuts clean.

You'll need to keep the cut dry and clean while it heals. It will be sore and a bit bruised for a few days.

After 24 hours you can usually shower, but you'll need to avoid getting the wound area wet. You may need to avoid soaking your wound for longer, for example by not having a bath.

The dressings should be kept on for at least three days after your procedure.

Speak to your hospital team to find out more.

Clothes and bras

After the procedure you may find some clothes uncomfortable or difficult to wear. You may want to buy soft, stretchy tops or clothes that fasten at the front so they're easier to get on and off.

If you wear a bra, you may want to buy one that's comfortable before you have a pacemaker fitted.

It can help to wear a bra that:

- ✓ has wider straps
- ✓ fastens at the front
- ✓ is made of soft material
- ✓ has soft straps that do not pull on your shoulder.

When to get help

Serious complications are not common after having a pacemaker fitted.

Call 999 if you feel like you cannot breathe or have chest pain.

Contact your GP, the pacemaker clinic or NHS 111 as soon as possible if you:

- feel dizzy
- feel very tired and weak
- have a high temperature (38°C or above)
- cannot stop hiccupping
- have pain, swelling, redness or discharge (fluid) from your wound
- have a swollen arm on the side of your pacemaker
- feel like your heart is pounding, fluttering or beating quickly (palpitations).

These symptoms could be signs of an infection or your pacemaker not working, so it's important to get help.

What follow-up appointments will I have?

You'll normally have a follow-up appointment four to six weeks after having your pacemaker fitted. It's important to go to your appointment, even if you feel well. The hospital team will check your pacemaker is working.

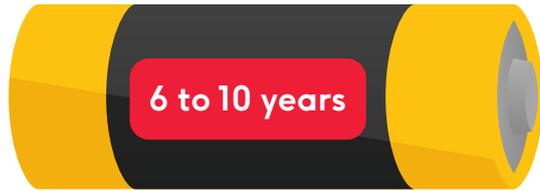
You should be given a regular hospital appointment. This will depend on the type of pacemaker you have and your condition.

If you're not sure when your next appointment is, you can call your cardiology department. The number should be on your hospital letter. You can also contact your GP.

In the future you may need to have the battery of your pacemaker changed (see page 37).

How long does my pacemaker last?

The battery in a pacemaker usually lasts 6 to 10 years. After this you will need to have the battery changed, sometimes called a box change.



You'll have plenty of warning before the battery runs out and it will be checked at least once every year. The pacemaker clinic will invite you for an appointment before the battery runs out.

What happens when the battery runs out?

The procedure for changing the battery is simpler than when your pacemaker is fitted. You'll be given local anaesthetic. This means you'll be awake but should not feel any pain.

Your pacemaker box will be removed, but the leads stay in place. A new box is put in your chest and the cut will be closed with stitches or a special glue.

Most people go home the same day.

What is a pacemaker identification card?

After having a pacemaker fitted you should be given a pacemaker identification card (ID card). Sometimes it's called a registration card.

This has information about the type of pacemaker you have. It's important to carry it with you in case of an emergency. You could put it in your purse or wallet and take a picture of it and keep it on your phone.

It helps healthcare professionals and other professionals, including your dentist, know about your pacemaker.

Will I be able to feel or see the pacemaker?

Some people can feel the pacemaker. But pacemakers are now smaller so you're less likely to see or feel them.

It may be uncomfortable to lie in certain positions after having the pacemaker fitted. This feeling should go away.

If you find it very uncomfortable speak to your GP. You can also call our cardiac nurses for help and support.



Call 0808 802 1234 (freephone)
or email hearthelpline@bhf.org.uk
Our helpline is open weekdays,
9am to 5pm (excluding
bank holidays).

Life with a pacemaker

If you've had a pacemaker fitted, your doctor may also recommend making some lifestyle changes. These changes can help you look after your general heart health.

It can feel overwhelming to think about changes to your daily life. But you could make small swaps over time to build up healthier habits.

Changes could include:



getting more exercise



stopping smoking



having less salt, saturated fat and sugar in your diet



maintaining a healthy weight



reducing the amount of alcohol you drink.

There are lots of ways to do this. Why not order our free booklet **Understanding your heart health** for simple swaps and heart health tips? Order it online at [bhf.org.uk/publications](https://www.bhf.org.uk/publications)

Exercise

You'll need to avoid lifting your arm above your shoulder level on the side you had your pacemaker fitted for four to six weeks. You'll also need to avoid strenuous exercise and contact sports.

This includes activities like:

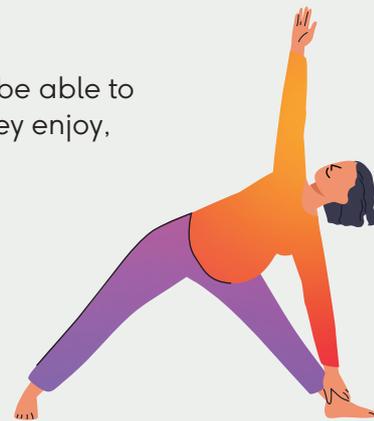
- hanging out washing
- weights
- lifting things above your shoulder
- picking up children, grandchildren and heavier pets
- some stretches
- running, tennis, rugby, football and golf.

Once you're recovered, staying active can help you to live a happier and healthier life. This will usually be after six weeks or your first check-up at the pacemaker clinic.



Most people should be able to return to activities they enjoy, such as:

- the gym
- cricket
- golf
- yoga and Pilates
- climbing
- swimming.



You'll need to avoid contact sports, like rugby, football and boxing, because they can cause damage to your pacemaker.

You may also need to avoid some strenuous exercises. The pacemaker clinic can tell you more about what you can and cannot do.

It's normal to worry if you should exercise. But there are lots of ways to be active that are enjoyable and safe for you.

Find an exercise that suits you on our website at [bhf.org.uk/activity](https://www.bhf.org.uk/activity)

Sex

You can continue to enjoy a healthy sex life once you've recovered from having a pacemaker fitted.

For the first four to six weeks while you're recovering you should avoid positions that put pressure on your arms or chest.

Some people find they're able to have a more active sex life after having a pacemaker as they have more energy.

Your doctor or nurse will have talked to lots of other people about sex. It may not be easy to talk about at first, but most people say they feel reassured when they do.

Read more on our website at [bhf.org.uk/sex](https://www.bhf.org.uk/sex)

Driving

After having a pacemaker fitted or a battery change (box change) you'll need to stop driving for:

- at least one week if you drive a car
- six weeks if you drive a bigger vehicle, like a bus or lorry.

If you have symptoms that affect your ability to drive, like dizziness or fainting, you'll need to stop driving until they're under control.

You must tell the DVLA and your car insurance provider if you've had a pacemaker fitted.

Speak to your doctor about when you can start driving and if you have any questions about driving.

Read more on our website at [bhf.org.uk/driving](https://www.bhf.org.uk/driving)

Seatbelt tip

If you find wearing a seatbelt is painful after having a pacemaker fitted, try putting a soft jumper or small pillow between your chest and the seatbelt.



Work

You may be able to return to work one week after having a pacemaker fitted.

It's important to remember that everyone is different. When you go back to work will depend on the type of work you do and how you're feeling. If you're doing heavy lifting or you drive a larger vehicle, you may need longer off work.

These times are just a general guide – everyone is different. You should talk to your doctor or nurse about your own situation.

Read more on our website at [bhf.org.uk/work](https://www.bhf.org.uk/work)

Holidays and flying

You can go on holiday after having a pacemaker fitted.

Most people should be fit to fly four weeks after having a pacemaker fitted. But it's important to speak to your doctor if you're planning to fly after your procedure or taking a long flight.

If you have another heart condition or have symptoms, check with your doctor that you are fit enough to travel.

There are things you can do to keep safe while you travel:

- ✓ Keep any medicine in your hand luggage if you are flying to your destination. Some people keep a supply in their suitcase too.

- ✓ Keep your pacemaker identification card and a list of any medicines you take in case you need them for airport security or if you need to replace any medicine while you're away.
- ✓ Know the emergency numbers in the country you're travelling to and your travel insurance provider.
- ✓ Look up where your closest pharmacy and hospital are on holiday in case you need them.

You can find more information on holidays at [bhf.org.uk/holidays](https://www.bhf.org.uk/holidays)

Travel and life insurance

If you're diagnosed with a heart condition or you've had a procedure, you need to tell your life and travel insurance provider.

Many people can live well after treatment for a heart condition. But it's important to make sure your insurance provider knows about your condition in case you need to claim in the future.

Find out more about travel and life insurance at [bhf.org.uk/practicalsupport](https://www.bhf.org.uk/practicalsupport)

Airport and health scans

Airport scanners and metal detectors should not cause a problem. Take your pacemaker identification card with you and tell the airport staff you have a pacemaker.

If you have a health scan, like an MRI, let the healthcare professional know you have a pacemaker before you have the test. Most pacemakers are compatible with health scans but it's important to let the person doing the test know.

Mobile phones and smart watches

It's safe to use a mobile phone, but you'll need to keep it more than 15cm (or 6 inches) away from your pacemaker. This is because mobile phones contain magnets that can interfere with your pacemaker.

When taking phone calls, you could use headphones, speakerphone or use the ear on the opposite side to your pacemaker only. Try not to put your phone in your chest pocket or leave it near your chest.

If your phone does get too close to your device, try not to panic. Pacemakers are designed to return to their normal settings after the phone has been moved away.

It's not currently clear whether new devices, like smartwatches and rings, interfere with pacemakers. Speak to your doctor to find out whether they're safe to use.

Household electrical items

Most electrical items around your house, including microwaves, air fryers, food mixers and hairdryers, should not affect your pacemaker. You should try to keep them at least 15cm (6 inches) from your pacemaker.

You can also use household tools such as drills, lawn mowers and electric screwdrivers, as long as they're in good condition.

Hearing aids are safe to wear if you have a pacemaker. If your hearing aid has any wireless accessories, these will need to be kept at least 15cm (6 inches) away from your pacemaker.

Devices to avoid if you have a pacemaker

If you have a pacemaker, you should avoid these devices:

- ✗ abdominal or stomach stimulators (used for building muscle)
- ✗ body fat composition scales
- ✗ magnetic mattress pads or pillows
- ✗ welding equipment (with currents above 130 amps).

If you have an induction hob you will need to stay 60cm away from it when cooking.

These devices all give off electrical signals that can interfere with your pacemaker.

If you feel dizzy when using an electrical device, move away from it and check your heartbeat has returned to normal.

Find more information on devices you may need to avoid by searching '**pacemaker**' at **nhs.uk**

Worries about your health

It's normal to feel worried or anxious about your health. But sometimes, this can get in the way of living your life.

If you feel anxious and sad a lot of the time, and it's affecting your daily life, talk to your GP.

Do not be afraid to ask for help. Sometimes you need to put yourself first.

You can also refer yourself to the NHS for talking therapies, like cognitive behavioural therapy (CBT) or counselling. Search '**NHS talking therapies**' for more information.

You can also get in touch with Mind, a charity offering support to anyone affected by their mental health. Visit **mind.org.uk**

Support for you and your loved ones

Being told you need a pacemaker can make you worry about your heart and the future. By having a pacemaker fitted you can live well with your condition.

It can help to talk things through with loved ones.

On the following pages, you'll find some of the ways British Heart Foundation can help.

Call the Heart Helpline

If you want someone to talk to, you can speak to our cardiac nurses. Your friends and family can also call if they want to understand what's happening or have questions.

Call **0808 802 1234** (freephone) or email **hearthelpline@bhf.org.uk**
Our helpline is open weekdays, 9am to 5pm (excluding bank holidays).

You can also speak to our nurses using the live chat feature. Find out more at **bhf.org.uk/helpline**

Join Heart Matters

Discover the benefits of Heart Matters, your free heart-health membership.

Join to receive our free magazine or email newsletter, featuring expert tips, heart-healthy recipes, inspiring stories, and the latest updates backed by BHF-funded science.

Guided by our team of experts, Heart Matters helps you to make small changes for a healthier heart.

bhf.org.uk/heartmatters

Find an online community

Our community on HealthUnlocked is a free online space for people with heart and circulatory conditions to share experiences and get support from one another.

Visit **healthunlocked.com**

Get information in another format

We have lots of information about looking after your heart. Find helpful tips and easy swaps for a healthier heart in our booklet **Understanding your heart health**.

You can read and order our booklets for free at **bhf.org.uk/publications**

We also have information in audio, easy read, braille and other languages. Read or listen to our information online at **bhf.org.uk/infoforall**

We are British Heart Foundation



Through research, information and support we're here for everyone affected by heart and circulatory conditions.

Get help

Speak to one of our experienced cardiac nurses for more information and support. They can help answer your questions, big or small.

You can call **0808 802 1234** (freephone). Our helpline is open weekdays, 9am to 5pm (excluding bank holidays).

Support our work

If you've found this information helpful and would like to support our work, please scan the QR code or visit bhf.org.uk/support-us



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on your phone

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