University Hospitals of Leicester
NHS Trust

Heart rhythm test (EPS) and treatment (RFA) for fast heartbeat (Arrhythmia or SVT)

Cardiology / Cardiac Rhythm Management

Information for Patients

Produced: January 2026
Review: January 2029
Leaflet number: 1695 Version: 1

Introduction

This booklet is to help you learn about 2 procedures:

1. Electrophysiological study (EPS): a test that checks how your heart's electrical system is working. It is done if you have fast heartbeats that make you feel your heart is fluttering or pounding.
2. Radio frequency ablation (RFA): small parts of heart tissue are burned to stop abnormal electrical signals. This helps fix the fast or irregular heartbeats.

How does the heart beat normally?

The heart is a pump. It moves blood around your body and to your brain. The pump works because of electrical signals.

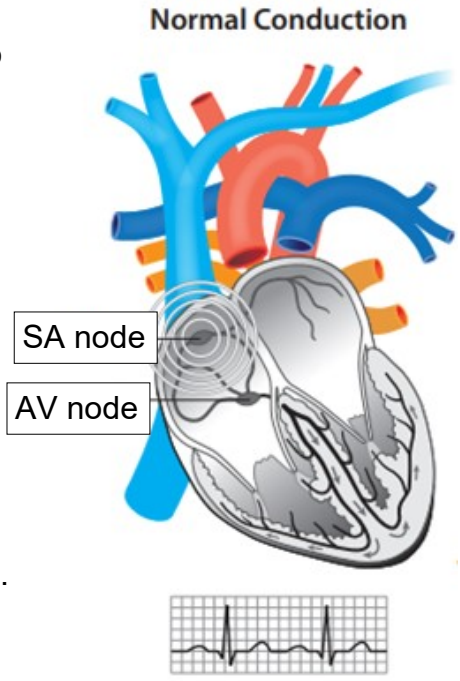
These signals start in a natural "pacemaker" in the heart called the sinus node. This node is in the top right part of the heart, called the right atrium.

The signals travel through the upper chambers (atria) of the heart. They make the muscles squeeze and push blood down to the lower chambers.

The signals reach a part called the AV node. The AV node pauses the signals briefly to keep the heartbeat steady.

After the pause, the signals go down to the lower chambers (ventricles) through special pathways called bundle branches.

The lower chambers squeeze and push blood out. The left side sends blood to the body and brain. The right side sends blood to the lungs.



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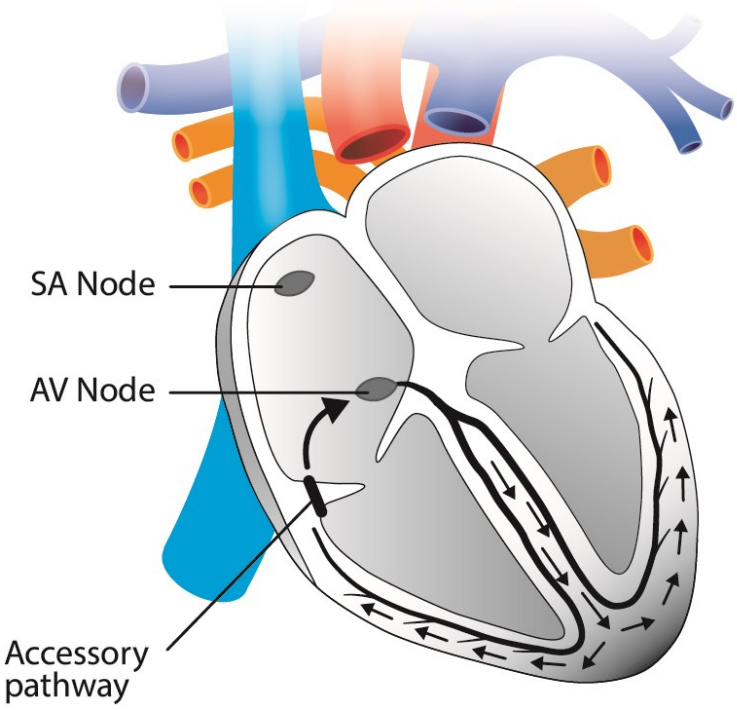
What is different about my heart?

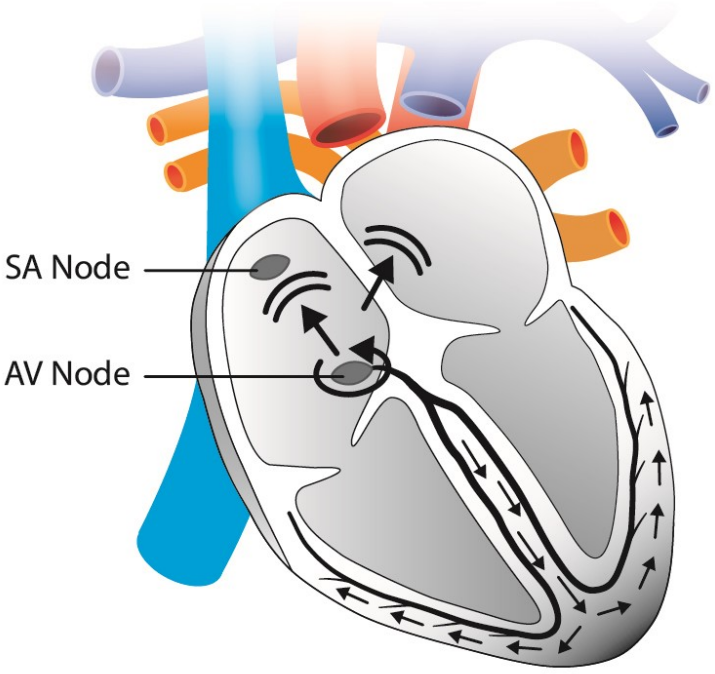
- You might have noticed your heart beating very fast. You may feel fluttering or pounding in your chest. Many people think this is normal until it happens more strongly or often. They might then see a doctor.
- Tests like an ECG or a longer heart monitor check how your heart is beating. These tests can find out if your heart's rhythm is not normal. This is called an arrhythmia. Sometimes it is called Supraventricular tachycardia, or SVT.
- There are different reasons why arrhythmias / SVT happen. Some people are born with heart problems, or they may develop heart disease later in life. But many people with arrhythmias / SVT have hearts that work well and pump blood strongly.
- Arrhythmias or SVT can happen because of extra electrical pathways inside your heart. These pathways can create a "short circuit" in the heart's normal electrical system or sometimes, a small group of cells in the heart can send fast signals from one spot called a "hot spot."
- These short circuits or hot spots cause the lower chambers of the heart to beat too fast. This fast beating can make you feel fluttering or pounding in your chest.
- The diagrams below and on the next page show 3 different types of SVT:
    1. Atrio-Ventricular Reentrant Tachycardia (AVRT)
    2. Atrio-Ventricular Nodal Reentrant Tachycardia (AVNRT)
    3. Wollf-Parkinson White syndrome (WPW)

(AVRT)
Atrio-ventricular Reentrant Tachycardia



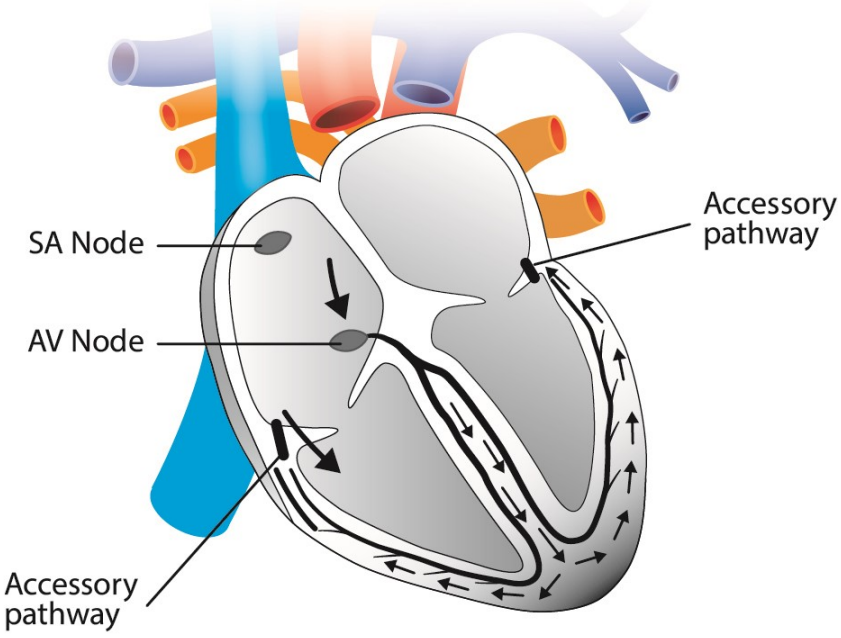
The signal from the heart goes down the normal conduction pathway. It then comes back up through the accessory pathway or vice versa. This causes the heart to beat very fast.

(AVNRT)
Atrio-ventricular Nodal Reentrant Tachycardia



An extra, ‘slow’ pathway near the AV node lets the signal from the heart loop back through the node. This causes an early beat which can then cause the heart to beat very fast.

(AVRT / WPW)
Atrio-ventricular Reentrant Tachycardia
Wollf-Parkinson-White syndrome



An extra pathway lets the signal from the heart travel directly to the ventricles at the bottom and creates a loop. This causes the heart to beat very fast.

Why am I being considered for an Electrophysiology Study (EPS) and Radio Frequency Ablation (RFA) procedure?

Often people have started to not do as much in relation to their activities of daily living and are concerned about what might happen in they have an episode of their arrhythmia / SVT.

Your arrhythmia / SVT is not life-threatening.

You might need an ablation if:

- your symptoms are becoming more frequent and hard to live with,
- you are having frequent hospital visits,
- medication does not control your symptoms,
- you prefer not to take tablets and want a definitive treatment.

Having an ablation provides a high chance of stopping your symptoms from happening and allows you to carry out a normal life with no further restrictions.

Possible risks

As with all procedures there are some risks.

It is important that you understand the risks so that you can make a decision about wanting to have the procedure or not. In a planned procedure, the benefits should outweigh the risks.

- There is a 1 in 1000 risk of death. Included in this is hole in the heart (perforation) with uncontrolled bleeding.
- There is a 1 in 100 risk that blood will leak into the tissues around the heart. This will need a drain under the breast bone to drain away the blood leak.
- There is a 1 in 100 risk of needing a pacemaker after surgery.
- There is a 1 in 100 risk of a blood clot in a vein (deep vein thrombosis) or blood clot in your lungs (pulmonary embolism).
- Groin nerve damage is rare. Bruising where the catheters are passed into the vein is common. In about 1 in 100 patients the vein is damaged. We will need to do a small operation to repair it.
- It is common to get chest discomfort during ablation. If it is too painful then we can give you painkiller and sedative drugs up to safe limits.
- Sometimes if your heart is irregular then it may need help to return back to normal by doing cardioversion. This means we will use an external defibrillator to give a small electrical shock to your heart to return your normal rhythm. Before this happens you will be given some sedation to make you sleepy.
- X-rays use ionising radiation. This can cause cancer which happens after many years. The risk of developing cancer because of this procedure is less than 0.01%. This is very low. For comparison, half (50%) of the general population will get cancer at some point in their life.

- Depending on the complexity of the procedure there is a small chance of radiation induced erythema (skin reddening). If you are at increased risk of this you will let you know after the procedure is finished.

Your Cardiologist will have explained to you why you need to have the ablation and the benefits of this procedure.

If you agree to go ahead, you will be asked to sign a consent form before the procedure goes ahead.

Pre-admission and preparing yourself

All patients having an ablation will be seen in the Cardiac Rhythm pre-admission clinic so that you will know what to expect on the day of your procedure.

At your preadmission appointment we will give you information your procedure, your medication and when to stop eating and drinking.

Please remember to bring the following to your preadmission appointment:

- Your current medication or recent prescription.
- Your record of INR blood tests if you take warfarin.

If you have been given a preadmission date which is less than 7 days before your procedure please contact the Cardiac Rhythm Team on 0116 258 3848 for advice on your medication.

Antimicrobial wash and nasal cream

At your pre-admission appointment you will have been given antimicrobial wash and nasal cream, please use these as instructed for the **3** days before and on the day of your procedure.

Eating and drinking (fasting) before your procedure

If your admission time is 7.30am:

- Do not eat anything from midnight the night before.
- You can have water only until 2 hours before your procedure (6am).

If your admission time is 11am:

- Do not eat anything from 5am on the day of the procedure.
- You can have water only until 2 hours before your procedure (9am).

You will be admitted to ward 32. Please bring a small overnight bag with you and all of your medication. If you are on warfarin, please bring your anticoagulation booklet and readings.

What to do if you feel unwell before attending for your procedure?

If you are unwell before your procedure with anything such as chest infection, Covid-19, cough, a cold or any other illness before your procedure, please contact the Cardiac Rhythm Team as soon as possible. Depending on your illness and how urgent your procedure is, we will advise you whether or not your procedure should be delayed.

You can contact the Cardiac Rhythm Management Team on 0116 2583848, there is an answerphone available to leave a message if we are not able to take the call at that time.

On arrival to Glenfield Hospital

Please report to the ward desk when you arrive on Ward 32. We will show you to the waiting room or to your bed space.

During the ward admission:

- The nurse will check your details.
- They will confirm your tablet advice and eating and drinking advice has been followed.
- You will have your questions answered.
- You **must** tell us if there is a chance that you might be pregnant.
- You will have a cannula (small tube in the vein) inserted. This is for the sedation and other medications to be given through it.
- Have your chest, groin and hair on your back shaved (if needed).
- You will be asked to get undressed, put on a gown and lie down on a bed or trolley.
- A doctor will talk about the EPS and RFA procedure and ask you to sign an electronic consent form.
- A member of the Catheter Lab team will collect you and again confirm your details. They will take you to the procedure room (the Catheter Lab).

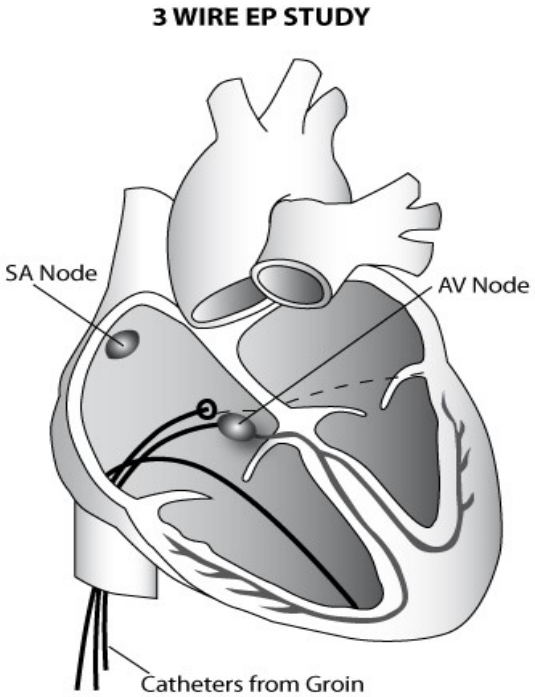
What happens during an Electro-Physiology Study (EPS) for an arrhythmia / SVT?

On arrival to the procedure room, you will meet the rest of the team:

- The staff will be wearing theatre gowns, hats and X-ray lead aprons. This is a sterile procedure and we use X-rays.
- You will be moved from your bed or chair on to the X-ray table. It is narrow with a thin mattress.

We will then:

- Confirm your details.
- Answer any other questions you have.
- Connect you to blood pressure, heart rate and oxygen level monitors.
- You might be given a clear mask to breath oxygen.
- Place ECG stickers on your chest.
- Stick sticky pads to the front and back of your chest and lower back. These feel cold.
- Give you something to help you relax and pain relief into your cannula.
- Clean the top of your leg (s) with a antiseptic cleaning solution and cover you with a sterile sheet.
- Give local anaesthetic at the top of the leg to numb the skin. This will feel sharp and sting for a short while.
- Use a needle to enter the vein at the top of the leg on the right (sometimes the left as well). We will position the small tubes in the vein (s). We may use an ultrasound scan to find the vein (s).
- Thin wires (catheters) will be passed through the vein into the heart.
- X-rays are used during the procedure to help us position the wires in the right places in the heart to record the electrical signals and stimulate it. This helps diagnose the problem and find the right area to ablate.
- Your heart will be 'paced'. This may set off your arrhythmia / SVT and your symptoms of palpitations. This is controlled and can be stopped easily.
- After the cause is found, doctors may decide to burn or 'ablate' the part of the heart causing the problem. This is called an ablation.
- If the problem is on the left side of the heart the doctor will need to do a trans-septal puncture. We will make a small hole in the middle wall of the heart. We will pass the ablation catheter through to get access to the left side. This hole seals quickly after the procedure on its own.
- The whole procedure will last about 2 hours. This can vary. It is important that you are able to lie still during the procedure.
- In some cases, no clear problem can be found or the ablation procedure is considered to be high risk , the doctors will make the decision to not carry on with the ablation.



What happens during a Radio Frequency Ablation (RFA) for an arrhythmia / SVT?

- The ablation is done by burning the tissue with heat using radio frequency energy or by freezing it with a balloon, which is called a Cyro ablation.
- We use radio frequency for the majority of our ablations.
- Radio Frequency energy heats the ablation catheter. This then burns the small area of the heart that is causing the arrhythmia / SVT and creates scar tissue. The scar tissue blocks the signals that cause your fast heart beats.
- There will be an uncomfortable feeling in your chest during the ablation. Please let the team know if it hurts.
- After the last burn we will monitor you for 20 to 30 minutes. Your heart will then be tested again to make sure the arrhythmia is gone.
- At the end of the procedure, we will take the wires out from the heart and the tubes from your groin.
- We will apply pressure to the groin area to stop any bleeding and apply a small dressing or plaster to the area.
- This treatment works well for many arrhythmias / SVT.
- Sometimes there might be more than 1 arrhythmia / SVT. You may need a second procedure. Your doctor will explain more after your procedure.

What happens after my procedure?

- After the procedure we will take you into the recovery area or the ward to rest.
- You may feel a little sleepy until the sedation wears off. You may feel sick because of the pain killers and sedation. This should go away.
- You will have small cuts in the top of the leg on the right (and maybe left as well). You may have a stitch in the skin if required. This will be removed after 2 hours.
- There is a risk of bruising in the groin due to these punctures. We ask you to rest quietly in bed for 2 to 4 hours after the procedure.

We will:

- Record an ECG if needed.
- Monitor your heart rate, blood pressure and oxygen levels for at least 2 hours.
- Give you something to eat and drink.
- Talk about the result of the ablation and answer any questions.
- Talk about changes to your tablets if needed.

- After a successful ablation your heart rhythm medication may be reduced or stopped altogether. This is unless there is also another reason why you take it. The doctor will explain this after the procedure before you are discharged.
- If you feel well, and the procedure went well we will let you go home later the same day or sometimes the next day.
- If you have had a trans-septal puncture you may stay overnight and have an ECG or a scan of the heart (echocardiogram) before you can go home. This is to rule out any late complications.
- You must ask a family member or friend to collect you and to drive you home. If you are being discharged home the same day someone must stay with you overnight.
- Before discharge, we will remove the cannula.
- We will give you a discharge summary of the procedure, medicines advice and follow up information.
- We may also give you a 4 week course of aspirin or an alternative to stop blood clots from forming in the leg (deep vein thrombosis).

Going home

Most patients having this procedure will be in hospital most of the day, but will not need to stay overnight.

You may find that you feel slightly drowsy for a couple of days while you are recovering from your procedure, specially from the effects of the sedation. It would be best to not to make any important life changing decisions until these feelings have worn off.

We advise that there is a responsible adult present with you for 24 hours after the procedure. If this will not be possible, please make sure you talk about this with the team before the day of admission.

How long it takes for you to recover fully from your procedure is different from person to person.

Care of groin site

- You will have 2 to 3 small punctures in the top of the right leg and sometimes in the left leg. These are where the wires pass through the vein into the heart.
- It is normal to have some soreness and bruising in this area.
- You should avoid hot baths or showers for 2 days but instead have them warm.
- You need to move around gently for the first few days at home, do not sit and do nothing.
- You will then need to take things at a steady pace for you for at least 1 week to let your cuts heal and the heart rhythm to settle.

Heart rhythm after procedure

- It is normal for your heart rhythm to be unsettled in the first few weeks.
- It can take 3 months for the heart to heal before we decide how well the procedure has worked.
- This does not mean the procedure has not worked. It may be because of inflammation caused by the ablation.
- If you do have any concerns or worries, please contact the Cardiac Rhythm Management Team on **0116 2583848**.

Chest pain after the procedure

- It is normal to have some chest pain after the procedure. Please take a regular pain killer if needed.
- **If your procedure was in the left side of the heart and you have:**
  - Continuous or new pain
  - a fever
  - changes to your eyesight and speech
  - weakness to your arms and leg

Then you need urgent medical care. Call 111 or 999.

Bleeding

- It is rare to have severe bleeding from the insertion site once you are at home.
- However if bleeding does happen, you must:
  1. Lie flat.
  2. Apply firm pressure to the insertion site for 10 minutes. It is best if someone else can apply pressure to the groin for you.
  3. If the bleeding does not stop after 10 minutes of pressure, please **call 999**.

Driving

- For a normal driving car licence (group 1) you can drive a car after 2 days. This will give time for your cuts heal and your heart rhythm to settle. I
- f after 2 days your groin is still sore and limits your movement please do not drive until you are back to your normal.
- If you have a HGV/PSV (group 2) licence you must not drive for 2 weeks as per DVLA guidelines.

Work

- You need to have at least 1 week off work to recover at home.
- Some people need to have 2 weeks, mostly if you have a manual job.
- If you need a sick note, please talk to the ward staff before you go home.

Travelling

- You should wait for 4 weeks before you fly n an airplane.
- Sometimes you may need to fly before this time, you will need to ask your consultant about this.

Exercise

- **For the first 48 hours (2 days) after the procedure** you should avoid any strenuous exercise. Limit yourself to gentle walking.
- **For the following 7 days,** you can slowly increase your exercise levels up to normal for you.

Outpatient follow-up

- Most patients do not have any further fast heart rates after the procedure.
- We do not need to see all patients back in clinic.
- Your consultant will decide if you need any type of follow up either face to face or through a phone call.

If you have any questions / concerns about your radio frequency ablation or aftercare please contact the Cardiac Rhythm Management Team.

Contact details

Cardiac Rhythm Management Team:

Tel: **0116 258 3848** (Monday to Friday, 8am to 5pm, excluding Bank holidays / answer phone available out of hours).

Email: uhl-tr.cardiacrhythmnurses@nhs.net

Please note this number is not an emergency number. Depending on your symptoms please contact your GP or 111 or for medical emergencies call 999.

More information

Heart Rhythm Charity: Arrhythmia Alliance

Email: info@heartrhythmalliance.org Tel: **0178 986 7501**

British Heart Foundation

Website: bhf.org.uk Tel: **0300 330 3311**

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