

Heart arrhythmia and palpitations

Your heart is a vital organ. It is a muscle that pumps blood to all parts of your body. The blood pumped by your heart provides your body with the oxygen and nutrients it needs to function. Normally, this pumping (your heartbeat) is controlled by your heart's electrical system.

Sometimes your heart's electrical system may malfunction because of coronary heart disease, chemicals in your blood (including some medicines) or sometimes for no known reason. Changes in your heart's electrical system can cause abnormal heart rhythms, called 'arrhythmias'.

Arrhythmias are a disturbed rhythm of your heartbeat. There are many different kinds of arrhythmias. Some may cause your heart to skip or add a beat now and again, but have no effect on your general health or ability to lead a normal life. Other arrhythmias are more serious and life-threatening. Untreated, they can affect your heart's pumping action, which can lead to dizzy spells, shortness of breath, faintness or serious heart problems.

Palpitations are a sensation or awareness of your heart beating. They may feel like your heart is 'racing', thumping or skipping beats. Almost everyone has had palpitations at some time in their life. Palpitations are usually associated with an abnormal heart rhythm (arrhythmia).

Palpitations may have no obvious cause, but can be triggered by:

- Physical activity
- Emotional stress
- Caffeine
- Nicotine.

An occasional palpitation that does not affect your general health is not usually something to worry about. However, see your doctor if you have more frequent or consistent palpitations, which may be associated with a serious arrhythmia.

How your heart works

Your heart has a right and a left side, separated by a wall. Each side has a small collecting chamber called an 'atrium', which leads into a large pumping chamber called a 'ventricle'. There are four chambers – the left atrium and right atrium (upper chambers) and the left ventricle and right ventricle (lower chambers).

Normally, the upper chambers of your heart (the atria) contract (squeeze) first and push blood into the lower chambers (the ventricles). The ventricles then contract – the right ventricle pumping blood to your lungs and the left ventricle pumping blood to the rest of your body.

In a healthy heart, heartbeats are set off by tiny electrical signals that come from your heart's natural 'pacemaker' – a small area of your heart called the '**sinus node**' that is located in the top of the right atrium. These signals travel rapidly throughout the atria to make sure that all of the heart muscle fibres contract at the same time, pushing blood into the ventricles.

These same electrical signals are passed on to the ventricles via the **atrioventricular (AV) node** and cause the ventricles to contract a short time later, after they have been filled with blood from the atria. This normal heart rhythm is called the 'sinus rhythm', because it is controlled by the sinus node.

Symptoms of arrhythmia

Occasional palpitations during periods of emotional or physical stress are normal and are nothing to worry about. The symptoms of more serious arrhythmias include:

- Persistent palpitations that feel like pounding, galloping or fluttering
- Chest pain
- Dizziness or fainting
- Sweating
- Shortness of breath
- Light-headedness
- Fullness in the throat or neck.

Two categories of arrhythmias

Arrhythmias are categorised into two types.

- **Tachycardia** – this is when your heart beats too fast, generally more than 100 beats per minute. Some forms of tachycardia are easily treated and not serious, but others can be life-threatening. Tachycardia can be a normal response to physical activity, but can also be a sign of a medical problem.

The two main types of tachycardia are supraventricular and ventricular tachycardia. Supraventricular tachycardia is a rapid heart beat that starts in the atria or AV node, and is not usually life-threatening. Common types of supraventricular tachycardia are atrial flutter and atrial fibrillation. Ventricular tachycardia is when the ventricles beat too fast and is potentially very dangerous. If ventricular tachycardia becomes so severe that the ventricles can't pump effectively, it can lead to ventricular fibrillation. This life-threatening condition is when the electrical signal that should trigger your heartbeat splits away in uncontrolled 'waves' around the ventricles, and must be corrected immediately.

- **Bradycardia** – this is when your heart beats too slowly, generally less than 60 beats per minute. It is serious when your heart beats so slowly that it can't pump enough blood to meet your body's needs. Bradycardia may be normal, and can be associated with improved physical fitness. It can also be caused by many physical disorders, such as sick sinus syndrome and heart block.

Sick sinus syndrome is when the sinus node in your heart malfunctions and 'fires' too slowly, telling your heart to beat slowly. It can be caused by age or coronary heart disease. Heart block is when there is a block or delay in the electrical signal from your heart's collecting chambers (atria) to its pumping chambers (ventricles). It often results from damage to your heart's electrical pathways, caused by coronary heart disease and ageing.

Medications and stimulants can cause arrhythmia

Some arrhythmias can be caused by certain medications or drugs, including:

- Appetite suppressants
- Beta blockers
- Caffeine
- Cocaine
- Amphetamines
- Nicotine in cigarettes
- Alcohol
- Some asthma medications
- Thyroid medications.

Serious disorders can cause arrhythmias

Arrhythmias can be a symptom of more serious underlying disorders, including:

- Coronary heart disease (including a history of previous heart attacks)
- Heart valve or heart muscle abnormalities
- Congenital heart disease
- An overactive thyroid gland

- Problems with the electrical circuitry of the heart, such as blocked signals or signals taking an abnormal path through the heart
- Significant electrolyte abnormalities
- Irritable heart cells sending extra electrical signals.

Medical tests

If you have persistent arrhythmias, ask your doctor for a thorough medical examination. Recommended tests include:

- Electrocardiogram (ECG) – records a detailed snapshot of your heart rate and rhythm. You may have this done while you are resting or exercising (e.g. on a treadmill), or have a portable ECG recorder attached to you for a longer period of time (e.g. 24 hours)
- Tilt test – to find out if different body positions trigger the arrhythmia
- Electrophysiology studies (EPS) – a catheter is inserted into your body and directed to your heart, and records your heart’s electrical activity and response to certain stimuli
- Chest X-rays.

Treatment

Treatment for an arrhythmia depends on its cause and how much it is affecting your health and lifestyle. It is important to remember that not all arrhythmias are dangerous or life-threatening. Sometimes, the heart is perfectly healthy but its regular rhythm is interrupted by emotional stress or physical activity levels.

It may include:

- **Medication** – to ‘stabilise’ the heart rhythm, or treat conditions such as an overactive thyroid gland
- **A pacemaker** – a small electronic device that electrically stimulates the heart to maintain an appropriate heart rhythm, if the heart rhythm is too slow
- **An implantable cardiac defibrillator** – to monitor and correct the heart rhythm, if heart rhythm is dangerously fast
- **Defibrillation** – a mild electrical current to ‘reset’ the heart rhythm
- **Electrical cardioversion** – a mild electrical shock that restores a normal heart rhythm, while you are under anaesthetic
- **Pharmacological cardioversion** – medicines to restore a normal heart rhythm
- **Catheter ablation** – a catheter with an electrode on the end is inserted into your body and directed to your heart, where it gently ‘burns’ and inactivates the area(s) responsible for abnormal signals in the atria.
- **Surgery** – to remove the malfunctioning area(s) of the heart
- **Lifestyle changes** – including managing stress well, quitting smoking, eating healthy foods, being physically active, controlling blood pressure and cholesterol levels, and maintaining a healthy body weight.
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Where to get help

- In an emergency, call an ambulance on triple zero (000)
- Your doctor
- Cardiologist
- Heart Foundation’s Health Information Service Tel. 1300 36 27 87
- Order a copy of Arrhythmias [brochure], by calling the Heart Foundation’s Health Information Service Tel. 1300 36 27 87.

Things to remember

- A heart that persistently beats irregularly, too fast or too slow is experiencing an arrhythmia.
- Many palpitations’ (an awareness of the heartbeat or short-lived arrhythmia) are caused by emotional stress, physical activity or consuming caffeine or nicotine.

- Immediately call triple zero (000) and ask for an ambulance if you feel pain or discomfort (pressure, heaviness or tightness) in your chest, neck, jaw, arms, back or shoulders, and/or feel nauseous, a cold sweat, dizzy or short of breath, lasting for more than 10 minutes.

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Heart Foundation

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