
Heart arrhythmias and palpitations

Summary

- 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, or if you feel nauseous, a cold sweat, dizzy or short of breath, lasting for more than 10 minutes.
 - A heart that beats irregularly, too fast or too slow is experiencing an arrhythmia.
 - A palpitation is an awareness of the heartbeat or of a short-lived arrhythmia.
 - Palpitations may be caused by emotional stress, physical activity or consuming caffeine or nicotine.
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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 not work properly because of cardiovascular 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, even 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.

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How your heart works

Your heart has a right side and a left side, separated by a wall. Each side has a small collecting chamber (atrium), which leads into a large pumping chamber (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, located in the top of the right atrium. These signals travel rapidly throughout the atria to make sure that all the heart's 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.

Palpitations of the heart

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. They 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.

Types of arrhythmia

Arrhythmias are categorised into two types – tachycardia and bradycardia.

Tachycardia

Tachycardia 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 tachycardia and ventricular tachycardia.

Supraventricular tachycardia is a rapid heartbeat 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 it is 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 occurs when the electrical signal that should trigger your heartbeat splits away in uncontrolled 'waves' around the ventricles. It must be corrected immediately.

Bradycardia

Bradycardia is when your heart beats too slowly, generally less than 60 beats per minute. It becomes 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. However, 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 ageing or by 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.

Symptoms of arrhythmias

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.

Medications, stimulants and arrhythmias

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

- appetite suppressants
- beta blockers
- caffeine, including energy drinks
- cocaine
- amphetamines
- nicotine in cigarettes
- alcohol
- some asthma medications
- thyroid medications.

Arrhythmias as symptoms of serious disorders

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

- cardiovascular 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.

Diagnosis of arrhythmias

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 (for example, on a treadmill), or have a portable ECG recorder attached to you for a longer period of time (such as 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. It records your heart's electrical activity and response to certain stimuli
- chest x-rays.

Treatment for arrhythmias

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.

Treatment for arrhythmia may include:

- medication – to stabilise the heart rhythm, or treat conditions that are causing the arrhythmia
- **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 your heart rhythm if it is dangerous
- defibrillation – use of a mild electrical current to 'reset' your heart rhythm
- electrical cardioversion – a mild electrical shock that restores a normal heart rhythm while you are under anaesthetic
- 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 or inactivate the malfunctioning area(s) of the heart
- lifestyle changes – including managing stress, quitting smoking, reducing alcohol intake, eating healthy foods,

being physically active, managing blood pressure and cholesterol, and maintaining a healthy body weight.

Where to get help

- In an emergency, always call triple zero (000)
- Your doctor
- Cardiologist
- **Heart Foundation Helpline** Tel. **13 11 12**

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Heart Foundation

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