

# Patient information from BMJ

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## Bradycardia

Bradycardia means that your heart beats more slowly than it should, either all the time or for short spells. In some people it doesn't cause problems or need treatment. But for others it can be dangerous and even life threatening without treatment.

You can use our information to talk with your doctor about the best treatments for you.

### What is bradycardia?

If you have bradycardia your heart beats more slowly than it should. This can mean that blood doesn't get pumped around your body quickly enough.

This can cause several types of problem. For example, it can lead to more serious heart problems, including heart failure; and it can cause dizziness and fainting, leading to falls and injuries.

You might have heard of a device for treating heart problems called a **pacemaker**. In fact, the heart has its own natural pacemaker that controls your heartbeat with electrical signals.

Bradycardia is what happens when the heart's natural pacemaker stops working properly. This can be a condition in itself, or it can be caused by other things, including:

- getting older
- physical damage to the heart and blood vessels: for example, from a puncture wound, or from heart surgery
- having too little of some minerals. These minerals are called electrolytes. If you don't have enough of any of them, it can cause bradycardia
- some infections
- some medications. For example, some antidepressants and some blood-pressure drugs can cause the heart to slow down, and
- some medical conditions. For example, thyroid problems can sometimes slow down your heart.

## What should my heart rate be?

Your heart rate - the speed at which your heart pumps blood - varies depending on what you are doing. For example, if you are exercising, excited, or stressed, your heart rate goes up; when you are resting or relaxed it slows down.

When you are resting, the speed of your heartbeat is called your **resting heart rate**. This is what your doctor will measure when deciding if you have bradycardia.

Everybody is different, so “normal” resting heart rate varies from person to person. In adults it can be anywhere between 60 and 100 beats per minute (bpm).

Many things affect your resting heart rate, such as your age, weight, and level of physical fitness. For example, a 20-year-old athlete will probably have a very low resting heart rate, while an older person who doesn't exercise much will have a much higher rate.

A resting rate that is too high can increase your chance of having heart problems: for example, for most adults, 80 bpm is usually thought to be getting a bit too high.

But your heart rate can also be too low, either all the time, or for short spells. This is bradycardia. Doctors usually say that if your resting heart rate is below **50 beats per minute**, you have bradycardia.

## What are the symptoms?

Symptoms of bradycardia include:

- feeling dizzy or light headed
- fainting
- feeling tired much of the time
- shortness of breath, and
- getting tired very quickly when exercising.

You get these symptoms because your heart is not pumping blood and oxygen around your body quickly enough to keep you active.

It's possible to have bradycardia that isn't a problem and that doesn't cause any symptoms. For example, if you are young and fit, or if you are an athlete, then a low heart rate might be normal for you, and it would not be a concern.

But most people with bradycardia are not young and fit. And the only way to know if you need treatment is to see your doctor. If you think you have a very low heart rate, have it checked.

If your doctor thinks you might have bradycardia, he or she will examine you physically. Your doctor will check for possible signs of bradycardia, including:

- swelling in the legs and abdomen
- swelling in the veins in the neck
- cold fingers and toes

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- unusual heart sounds, and
- signs of thyroid problems, such as facial swelling, and coarse skin and hair.

You might also need some tests. These could include:

- an ECG (electrocardiogram). With this test, sensors attached to your skin monitor the electrical signals in your heart to see how well your natural pacemaker is working
- exercise testing using a treadmill. Your doctor will check whether your heart rate goes up enough when you exercise
- blood tests
- a test called Holter monitoring. This involves wearing a small monitor around your shoulder that checks your heart rate over several days
- a longer test called event monitoring. This involves wearing a small monitor for several weeks. When you have symptoms, such as fainting or dizziness, you press a button and the device records what is happening in your heart
- carotid sinus massage. Your doctor tests what happens to your heart rate while gently pressing the carotid artery in your neck. If your heart rate drops a lot, it's a sign of bradycardia.

## What treatments work?

If you have bradycardia that isn't causing you problems, or that's caused by something that can be treated in another way, you probably don't need treatment for bradycardia.

For example:

- thyroid problems can usually be treated with drugs
- a lack of electrolytes is usually easily treated with simple changes to your diet, and
- bradycardia caused by medications can be treated with careful changes to the medications you take.

If you do need treatment, you will probably be seen by a heart specialist (cardiologist). If your bradycardia is making you feel very unwell, your treatment will probably start with medicines to help increase your blood pressure and help your heart to beat faster.

Your treatment is also likely to involve what's called pacing. This means using an electrical device called a pacemaker to help your heart to beat at a level that's better for your health.

Depending on your individual needs, pacing can be either temporary or permanent.

With **permanent pacing**, you have a pacemaker fitted into your chest or abdomen. This might sound like a major operation, but modern pacemakers are very small. The procedure can usually be done under local anaesthetic, and you can usually go home within 24 hours.

**Temporary pacing** can be done either as short-term emergency treatment, or as a short treatment when someone's symptoms are not so severe that they need a permanent pacemaker.

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Temporary pacing can be done either by attaching electrical pads to the skin, or by inserting a tiny pacemaker into the heart through a vein. The treatment lasts for between a few minutes and a few days, depending on how much you need.

Temporary pacing through a vein works better, but it is more likely to cause complications, such as infections. Your doctor should discuss any complications and side effects with you before you have treatment.

Some people with severe bradycardia have a small device called a **defibrillator** fitted alongside a pacemaker. If the heart rate becomes dangerously slow, the defibrillator delivers a brief electric current that should nudge it back to the right speed. But most people don't need this treatment.

## What will happen?

Even if you have bradycardia that doesn't need treatment, you should stay alert for any symptoms that might happen, such as dizziness, and see your doctor if they happen.

If you have bradycardia that has a cause that can be treated, such as a thyroid condition or low electrolytes, you will probably just need treatment for that problem.

But if you have bradycardia that's caused by a problem with the heart's natural pacemaker, you will need long-term monitoring and treatment by a cardiologist.

For example, if you have had a pacemaker fitted, your cardiologist will check it soon after it has been fitted, then after a couple of months, then every year.

He or she will check things such as whether the battery needs to be replaced, and whether the device has recorded any unusual heart activity.

Your cardiologist will also ask you to keep an eye on your symptoms, and to monitor your heart rate.

He or she might ask you to keep a symptom diary and to keep a record of any big changes in your heart rate. He or she can then recommend any necessary changes to your treatment.

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