LIVING WITH YOUR PACEMAKER
Helping you lead a fuller life

Medtronic
Further. Together
What causes bradycardia?

Bradycardia can occur for several reasons. Some common causes of bradycardia include:

- Congenital heart disease (condition you were born with)
- Certain illnesses or heart medications
- Natural aging process
- Scar tissue from a heart attack
- Sick sinus syndrome, also called sinus node dysfunction (the heart’s natural pacemaker is not working correctly)
- Heart block (the electrical impulse that travels from the upper to the lower chamber of the heart is irregular or blocked)

Symptoms of bradycardia

When your heart beats too slowly, you may experience various symptoms:

- Dizziness and fainting
- Chronic lack of energy
- Shortness of breath

These symptoms help your doctor assess the severity of your heart condition and determine the appropriate treatment for you.
diagnosing bradycardia

Only your doctor can determine if you have bradycardia and, if so, how far it has progressed. To rule out or confirm the diagnosis of bradycardia, one or several diagnostic tests may be ordered, depending on the suspected heart rhythm problem. These may include:

- Electrocardiogram (ECG)
- Exercise, ECG, or stress test (measures your heart rhythm while you’re engaged in a physical activity)
- Holter or event monitor
- External loop recorder
- Insertable cardiac monitor
- Tilt table test
- Electrophysiology study (EP study)

HOW DOES A PACEMAKER WORK?

A pacemaker is designed to mimic the heart’s natural pacemaker, the sinus node. The pacemaker has two main purposes – pacing and sensing.

PACING:

A pacemaker will send an electrical impulse to the heart through a pacing lead when the heart’s own rhythm is too slow or interrupted. This electrical impulse starts a heartbeat.

SENSING:

A pacemaker will also “sense” (monitor) the heart’s natural electrical activity. When the pacemaker senses a natural heartbeat, it will not deliver a pacing pulse.

treating bradycardia

How bradycardia is treated depends on what is causing it. Bradycardia can be caused by an underactive thyroid (hypothyroidism), an electrolyte imbalance, or medicines you may be taking for certain conditions. Treating these problems with new medicines, or adjusting the doses of the medicines you are currently taking, may restore a normal heartbeat. If treating these problems medically doesn’t work, or if damage to the heart’s electrical system causes your heart to beat too slowly, then you may be prescribed a pacemaker.

What is a Pacemaker?

When people refer to a conventional pacemaker, they are actually discussing a pacing system, which includes the pacemaker and leads.

- A pacemaker is a small heart device that is implanted under the skin, typically just below the collarbone. The device delivers therapies to treat irregular, interrupted, or slow heartbeats.
- Leads are thin, soft, insulated wires about the size of a spaghetti noodle. The leads carry the electrical impulse from the pacemaker to your heart and relay information about the heart’s natural activity back to your pacemaker.

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The procedure to implant a pacemaker does not require open heart surgery, and most people go home within 24 hours. Before the surgery, medication may be given to make you sleepy and comfortable. Generally, the procedure is performed under local anesthesia.

THE GENERAL STEPS FOR IMPLANTING A PACemaker INCLUDE:

- A small incision, approximately 5 to 10 cm long, will be made in your upper chest area, just below your collarbone
- One or two leads will be guided through a vein into your heart, and the leads will be connected to the heart pacemaker
- Pacemaker settings will be programmed, and the pacemaker will be tested to ensure it is working properly to meet your medical needs
- The pacemaker will be inserted beneath your skin, and the incision in your chest will be closed

FOLLOW-UP CARE AND MONITORING

Follow-up appointments enable the pacemaker to be thoroughly checked. During these check-ups, your doctor may:

- Monitor the battery status of the pacemaker
- Check the leads to determine how they are working with the pacemaker and your heart
- Review your pacemaker settings to ensure they are programmed appropriately to your medical needs
- Make programming adjustments to your pacemaker

In addition to these check-ups with your doctor, your clinic or practice may choose to have your pacemaker checked through remote monitoring.

This remote monitoring can replace some visits, but not all. Your doctor may still need to perform a physical examination or to adjust your pacemaker’s setting or medications.

REMOTE MONITORING VIA THE MEDTRONIC CARELINK™ NETWORK

The CareLink™ Network allows you to send information stored in your implanted pacemaker to your clinic, as instructed by your doctor, using a patient monitor with cellular connectivity or through your own smartphone or tablet (cellular or wi-fi connectivity).

Your pacemaker information is then transmitted to a secure Internet website where your clinic can access and review information about how your heart and pacemaker are working. The CareLink Network provides the same pacemaker information to your doctor that an in-clinic office visit provides. Talk to your doctor regarding the best options to treat your condition.
Micra is 93% smaller than traditional pacemakers. It is the size of a large vitamin capsule, and has a battery that lasts as long as a traditional pacemaker. Unlike a standard pacemaker, it is implanted into the heart through a vein in your leg and does not require a lead. Micra’s miniaturized size and minimally invasive approach leaves no visible sign of a medical device under the skin. This can mean fewer post-implant activity restrictions and no obstructions to shoulder movement.

Is Micra for everyone?
Micra is intended for patients who need a single chamber (also known as a ventricular pacemaker, or VVIR) pacemaker. Talk to your doctor about the benefits and risks of Micra.

How is Micra implanted?
- Your doctor will insert a "straw-like" catheter system into a vein, typically near the upper thigh area of your leg
- The catheter system moves the Micra into the right ventricle of the heart
- The Micra is placed against the heart wall and secured with flexible tines (see image at the far right below)
- Your doctor tests the Micra to ensure it is working properly
- The catheter system is then removed
Most pacemakers today are approved for use in an MRI environment. They are designed and built to be scanned so the MRI does not change the settings, temporarily affect the normal operation of, or potentially damage the heart device.

Medtronic offers different systems which are CE Mark and FDA approved for use in the MRI environment. These pacemaker systems have a unique design and are developed so that under specific conditions, patients may safely undergo MRI scans.

This information is designed to help you learn more about pacemakers options. It is intended to provide you with helpful information, but is for information purposes only, is not medical advice and should not be used as an alternative to speaking with your doctor. Speak to your doctor for more information and any questions specific to your health and treatment options appropriate for you.

For more information please visit: mrisurescan.com
FREQUENTLY ASKED QUESTIONS

CAN I USE A MOBILE PHONE?
Yes. When talking on a mobile phone keep the phone’s antenna 16 cm away from your pacemaker, and use the phone on the ear opposite your pacemaker. We also recommend you avoid placing the mobile phone in a pocket near your pacemaker.

ARE HOUSEHOLD APPLIANCES SAFE TO USE?
Yes. Most household appliances are safe to use as long as they are properly maintained and in good working order. This includes microwave ovens, major appliances, electric blankets, and heating pads.

WILL MAGNETS AFFECT MY DEVICES?
Items that contain magnets, such as magnetic therapy products, stereo speakers, and hand-held massagers can temporarily affect the operation of your pacemaker. Therefore, it is recommended you keep items containing magnets at least 16 cm away from your implanted pacemaker. We do not recommend the use of magnetic mattress pads and pillows because it is difficult to maintain a 16 cm distance when using these items. Please confirm with your physician if this applies to your Micra leadless pacemaker implant.

LIVING WITH A PACEMAKER
Many people with a pacemaker resume their normal daily activities after recovering from the implant procedure. There may be certain situations your doctor will ask you to avoid. Discuss your activity and lifestyle goals with your doctor and develop a plan that works best for you.

EDUCATIONAL SERVICES FOR PATIENTS

MEDTRONIC PATIENT SERVICES
If you have a Medtronic cardiac device and want to learn more or have questions about living with an implanted pacemaker, please contact your clinics and physicians.

The Medtronic website includes in-depth information on heart conditions and treatment options for patients and their caregivers. Our interactive website allows you to take assessments, view videos, read patient stories, and link to other resources. Visit us online at www.medtronic.eu.
WILL I BE ABLE TO TRAVEL?

Given the short duration of security screening, it is unlikely that your Medtronic Pacemaker will be affected by metal detectors (walk-through archways and hand-held wands) and full body imaging scanners (also called millimeter wave scanners and 3D imaging scanners) such as those found in airports, courthouses, and jails. The metal case of your Pacemaker could set off a metal detector.

To minimize the risk of temporary interference with your Pacemaker while going through the security screening process, avoid touching metal surfaces around any screening equipment. Do not stop or linger in a walk-through archway; simply walk through the archway at a normal pace. If a handheld wand is used, ask the security operator not to hold it over your Pacemaker and not to wave it back and forth over your Pacemaker. You may also request a hand search as an alternative.

If you have concerns about these security screening methods, show your pacemaker ID card, request alternative screening, and then follow the instructions of the security personnel.

CAN I EXERCISE? CAN I GO ABOUT MY REGULAR ACTIVITIES?

You should be able to return to your usual activities, as long as those activities do not exceed current fitness levels. Questions about specific exercises should be discussed with your physician.
A CLOSER LOOK AT AN INTERNATIONAL COMPANY

Medtronic was founded in 1949 in Minnesota, U.S.A. Today, we are the global leader in medical technology. Every second, the lives of two people are improved by a Medtronic product or therapy. With deep roots in the treatment of heart disease, Medtronic provides a wide range of products and therapies. The company mission is to alleviate pain, restore health and extend life for millions of people around the world. These are the demands we make of ourselves and of our products for the patients, relatives and doctors who trust our technology.

Brief Statement
See the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential adverse events.
www.medtronic.com/manuals
Consult instructions for use on this website. Manuals can be viewed using a current version of any major internet browser. For best results, use Adobe Acrobat® Reader with the browser.

References