



## Pacemaker

Pacemakers are common, with more than 3 million of these small devices in use worldwide and about 600,000 implanted each year. People need pacemakers for a variety of reasons – mostly due to one of a group of conditions called arrhythmias, in which the heart's rhythm is abnormal. One of the most common problems requiring a pacemaker is a heart rate that's too slow, which is known as bradycardia. Almost any heart condition can lead to bradycardia by disrupting the heart's natural electrical system, which controls your heartbeat.

### **What is a pacemaker?**

When a sinoatrial node or sinus node (the heart's natural pacemaker) becomes defective, the heart may beat too fast, too slow, or irregularly. This is referred to as arrhythmias. An artificial pacemaker is used to treat a dangerously slow heart rate to help it beat at a more regular healthy rate.

### **What is pacemaker for?**

A pacemaker is a small, artificial electrical device, which assists, or in some cases replaces the function of the sinoatrial node. Pacemakers are used to treat patients who have symptoms caused by abnormally slow heartbeats. A pacemaker is capable of keeping track of the patient's heartbeats. If the patient's heart is beating too slowly, the pacemaker will generate electrical signals similar to the heart's natural signals, causing the heart to beat faster. The purpose of the pacemaker is to maintain heartbeats so that adequate oxygen and nutrients are delivered through the blood to the organs of the body. Without treatment, a slow or irregular heart rate can lead to weakness, confusion, dizziness, fainting, shortness of breath, and even death.

There are two types of pacemakers: permanent (implantable) and temporary (external). Your doctor will advise you as to which device is most suitable depending on your condition. Most pacemakers are demand pacemakers. Demand pacemakers have a sensing device, which paces the heart as needed. The device is off when the heart beats too fast and on when the heart beats too slowly. Patients are usually unaware of when the device is pacing the heart.

### **How do you prepare for a pacemaker?**

You should not eat or drink after midnight the night before the test. If you are taking medications, do so with a small sip of water.

Talk to your doctor about any medications you may be taking, and whether you should or should not take them as normal on the day of the test. If you take medication for diabetes, please talk to your doctor about the dose that you should take the morning of the procedure. In either case, you should bring all your medications, in their original containers; so the cardiologist is aware of them.

You will be asked to change into a hospital gown. You may wear glasses, dentures and hearing aids during the procedure. Rings may also be worn. However, please remove any necklaces or dangling jewelry.

### **What happens during a pacemaker procedure?**

A pacemaker implantation is a minor procedure requiring only mild sedation and a local anesthetic (patients are generally not put to sleep). A small, approximately 2-inch incision is made parallel to and just below the



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collarbone. A thin flexible wire (called the lead) is inserted into a vein that lies just under the collarbone. The doctor advances the lead through that vein under fluoroscopic (x-ray like) guidance into the heart. Once the lead enters the heart, the doctor attaches it to the tissue inside the heart. At this point, the doctor will test the lead to see if it is in a suitable place for pacing. The testing is not painful. After the lead test, your doctor may decide to move the lead and perform the test again. Repositioning and retesting a pacing lead several times is not unusual during a pacemaker procedure.

The other end of the pacer wires are connected to a "generator" that is implanted under the skin beneath the collarbone. This generator is about half an inch deep and one and a half inches wide. The skin is then sutured closed and the patient leaves the hospital later that same day or the following day.

## **Do pacemaker batteries wear out?**

The pacemaker contains batteries that will wear down over time, just like any electronic device. Most batteries last at least five years. Using a special analyzer, the doctor can detect the first warning that the batteries are running down. This can be done before you detect any changes yourself. A sudden major slowing down of your heart rate, which you may detect, indicates a more serious problem. If that occurs, call your doctor.

## **If I have a pacemaker, are there electrical devices to avoid?**

Yes. Keep the following potential sources of strong electrical or magnetic fields at least 30 cm (12 inches) away from your pacemaker:

- Large stereo speakers
- Strong magnets
- Magnetic bingo wands
- Magnetic wands and detectors used in airport security
- Industrial equipment like power generators / arc welders
- Avoid leaning over running engines
- Many amusement park rides have strong magnets and should be avoided.
- Talk on your cell phone your ear opposite the pacemaker placement

## **Where is the procedure performed?**

Pacemakers are implanted in the Cardiac procedure room.

## **How long does this procedure take?**

Typically, the procedure takes 1 - 2 hours to perform.

## **What happens after the procedure?**

You may stay in the hospital for one to three days after having a pacemaker implanted. Before you leave, your pacemaker is programmed to fit your particular pacing needs. A return visit is scheduled to refine the settings.

After that, you'll periodically have your pacemaker checked.

**Melrose-Wakefield Hospital**  
585 Lebanon Street  
Melrose, Massachusetts 02176

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170 Governors Avenue  
Medford, Massachusetts 02155

Scheduled cardiac catheterizations can be made from 7:00am to 7:00pm. Monday through Friday.  
Our services are available 24/7 seven days a week.

**To schedule an appointment call the Cardiac and Endovascular Center at 781.979.3748.**

