

Pacemaker Information



What is a Pacemaker?

Your heartbeat is controlled by the heart's own bioelectrical triggering system. When that system ceases to work properly, the solution may be a pacemaker. A pacemaker is a small, battery-operated device that helps the heart beat in a regular rhythm. It is used to replace a faulty natural pacemaker or blocked pathway. There are two types of pacemakers, permanent and temporary. Permanent pacemakers are called internal while the temporary type is called external.

- A pacemaker uses batteries to send electrical impulses to the heart to help it pump properly. An electrode is placed next to the heart wall and small electrical charges travel through the wire to the heart.
- Most pacemakers have a sensing device that turns itself off when the heartbeat is above a certain level. It turns back on when the heartbeat is too slow. These are called demand pacemakers.

The pacemaker has two parts -- a battery-powered generator and the wires that connect it to the heart. The silver-dollar-size generator, which has an effective life of seven to 12 years, is implanted just beneath the skin below the collarbone. The leads are threaded into position through veins leading back to the heart. The entire implantation procedure requires only a local anesthetic, and takes about an hour.

Most patients with pacemakers suffer from a condition in which the heart beats too slowly (bradyarrhythmia). This is most commonly a result of deterioration in the heart's own pacing system in elderly patients, though high blood pressure,

coronary artery disease or scarring from a heart attack can also cause bradyarrhythmias.

The most commonly installed pacing device is a demand pacemaker. It monitors the heart's activity and takes control only when the heart rate falls below a programmed minimum -- usually 60 beats per minute.

Other conditions which require pacemakers include heart block, in which the heart stops beating altogether for several seconds and tachyarrhythmia, an overly rapid heartbeat.

A more sophisticated type of pacemaker actually monitors a number of physical changes in the body, which signal an increase or decrease in activity. If the heart's own pacing system fails to respond properly, these rate-responsive pacemakers slowly raise or lower the heartbeat to the appropriate level from 60 to 150 beats per minute.

If the patient's condition dictates reprogramming the implanted generator, the cardiologist signals the changes to its tiny on-board computer with an electromagnetic signaling device placed on the surface of the skin above the pacemaker.

Daily Living

Most patients are able to resume their normal daily activities after recovering from surgery for a pacemaker. However, people with pacemakers need to be aware of important recommendations and precautions about electricity and magnets.

Always tell any medical or dental personnel that you have a pacemaker. Guidelines help you become aware of medical procedures that do, and do not, pose risks to the proper functioning of your pacemaker.

When walking through airport and other security systems, people with a pacemaker should be aware that certain security systems may detect the metal of their device.

Being aware of these guidelines will help ensure your highest levels of comfort and ease after receiving a pacemaker.

Myths

The warning signs posted advising pacemaker patients that a microwave oven is installed is no longer necessary. Modern pacemakers are shielded from stray electromagnetic forces and have a backup mode that takes over if a really strong electromagnetic field disrupts the main circuit's programming