

What is a pacemaker?

A pacemaker is actually a two-part system consisting of a pulse generator and a pacing lead.

- The pulse generator contains the battery and electronic circuitry which produce the electrical impulse needed to make the heart beat. The typical pulse generator is usually very small (less than 2 inches wide and 1/4 inch thick). It is implanted in the upper chest just below the skin near the collar bone on either side of the body.
- The pacing lead (or leads) is a thin, insulated wire inserted through a vein to connect the pulse generator to your heart.

Who needs a pacemaker?

Most pacemakers are recommended when an individual experiences symptoms (such as fatigue, weakness, lightheadedness, shortness of breath or fainting) related to an inappropriately slow heart rate. When the heart beats too slowly, it does not pump enough blood to meet your body's needs. Most commonly, the slow heart beat results from diseases in the heart's own pacemaker (SA node) or in the heart's conduction ('wiring') system. Ask your doctor for the specific reason you need your pacemaker. The indications for permanent pacemakers continues to evolve.

What preparation is typical prior to pacemaker implant?

- You will not be allowed to eat or drink anything for 6-12 hours before the procedure.
- An intravenous (IV) line will be started if you do not already have one.
- You may be provided with special antibacterial soaps and be instructed to wash from your neck midway down your chest.
- You will be given antibiotics through the IV line just prior to the procedure.
- You may be given a mild sedative to make you feel relaxed.

How is a pacemaker implanted?

You will be taken to a special room called the Cardiac Catheterization Laboratory or a surgical operating room and placed on an x-ray table. Once you are settled, you will be prepared for the procedure.

- Electronic (EKG) leads will be attached to your chest to monitor your heart rate and rhythm.
- An antiseptic solution will be applied to the upper chest and shoulder where the pacemaker will be inserted.
- Pacemakers can be inserted from either the right or the left. The decision is generally made based on the preferences of both the operator and the patient.
- You will be covered with sterile sheets.
- A local anesthetic will be injected to numb the area before the pacemaker is inserted.

Once these preparations are complete, a small incision (2 to 4 inches) will be made just below the collar bone. A needle will be placed into a vein near your collar bone. The lead (or leads) will be positioned inside your heart through this vein. Your doctor will be making measurements to

determine the best position for placement of the lead inside your heart. The doctor will also be using x-ray pictures in placing the lead(s). While the pacemaker and leads are being inserted, you may feel some pressure. If you begin to feel any discomfort, let the doctor know immediately so you can receive some additional medication to keep the area numb.

Once the lead(s) are in place, you may be asked to take deep breaths and to cough vigorously while your doctor watches an x-ray of your heart. This is done to ensure secure placement of the lead(s).

What happens after a pacemaker implant?

You will spend a short time, typically 1 to 2 days, in the hospital following implantation. Most patients are on a heart monitor (telemetry) and receive antibiotics during this period. You may have a little soreness where the pacemaker was implanted. This is often treated with pain medication if needed.

When I go home from the hospital, what will happen and how will I take care of my surgical wound?

You will probably be aware of the pacemaker for a while. This is a normal feeling and generally will lessen with time. Sometimes, there will be a black and blue mark in the area of the pacemaker. This is from the surgical procedure and will go away with time. If, however, your incision becomes red, hot, more painful, swollen or starts to drain fluid, notify your doctor immediately. Also, call your doctor promptly if you develop a fever. Do not wait for your next scheduled visit.

What activities should be avoided?

Avoid strenuous activity for one week after the operation. During the first few weeks after surgery, avoid sudden, jerky movements with your arms, or stretching or reaching over your head. The type of sutures (stitches) and dressing used on your wound will determine when you can resume your usual bathing routine. Your doctor will tell you when to resume your usual bathing routine and other normal activities.

Can you use the microwave after receiving a permanent pacemaker?

Your pacemaker cannot be damaged by using properly operating household appliances, such as microwave ovens, electric blankets and most power tools. Passing through the metal detector at airports will not damage your pacemaker, but the metal in your pacemaker may sound the alarm.

Activities you should avoid are working within a few feet of large electrical transformers, electric arc welding and working on automobile ignition systems. These activities will not damage your pacemaker, however, there is a possibility that they may interfere with the proper operation of your pacemaker. If you are concerned about the use of any appliance or power tool, consult your doctor.

If you are having any type of medical procedure performed, let your physician, dentist,

chiropractor, physical therapist or any health or cosmetic care provider know that you have a pacemaker.

What is the follow-up for pacemaker patients?

It is important to periodically check the pacemaker to make sure that it is functioning properly and that its settings remain appropriate for your medical needs. Therefore your doctor will schedule you for periodic follow-up checks.

A typical follow-up visit to your doctor usually includes a brief physical examination, an electrocardiogram and a detailed evaluation of how well your pacemaker is performing. Examining and adjusting your pacemaker is quick and painless. Your doctor has special equipment that communicates with the pacemaker, allowing adjustment of its function without any additional surgery. In addition, some doctors use telephone monitoring ('transtelephonic monitoring') to obtain information about your pacemaker. Ask your doctor about the specific schedule of follow-up for you and your pacemaker.

How long does a pacemaker last?

Pacemakers are extremely dependable devices. In general, pacemaker batteries last between 4 and 14 years, the average being 8 years. During follow-up checks, your doctor will be able to determine when replacement is necessary.