



## Pacemakers

If your physician has recommended a pacemaker for you to improve blood flow, you may be interested in learning a little about how your heart functions and how a pacemaker can help you. This information will answer some of your questions, but if you would like to talk further, please call your doctor.

The heart supplies blood that is rich in oxygen to all the cells in your body. When you are sick or when you are exercising, your heart needs more oxygen; it beats faster and pumps harder. The ability of your heart to speed up is controlled by an electrical stimulation of the heart muscle, which tells the heart how often to beat.

In some people, the electrical circuit that controls the heart rate can be interrupted due to a heart attack or another unknown cause. The heart rate may be very slow or suffer intermittent pauses. When this happens, people may feel dizzy, or weak, or they may even black out. A pacemaker can control the rate of the heart so that the heart can provide better blood flow to the tissues.

### Preparation

Your doctor will decide which type of pacemaker will be best for you based on what your current heart rhythm is, how strong your heart muscle is, and how active you are. There are many different kinds of pacemakers, but all artificial pacemakers have two distinct parts. A small battery-powered unit serves as the generator to produce the electrical impulses that start your heartbeat. This generator is implanted under your skin through a small incision. It is connected to your heart by tiny wires that are implanted at the same time. The impulses flow through these wires (leads) to your heart and are timed to flow at regular intervals that simulate your heart's natural rhythms.

### The Procedure

Insertion of the pacemaker is a fairly simple process. You are taken to the Electrophysiology Lab where you may or may not be sedated. Local anesthetic (similar to the Novocain used by dentists) will be used to numb whichever side of the chest is used.

The major veins emptying into the heart run directly under the collarbone. The doctor threads a thin wire or wires into the vein and passes it into the heart. The tip of the wire or wires will rest against the heart. The other end of the wire or wires is attached to the pulse generator, what we might think of as the "brain" of

the pacemaker. A battery inside the pulse generator sends an electrical signal that makes the heart beat. It can also tell if the heart is beating on its own at an adequate rate.

Most pacemakers are programmed to beat only when one's own heart rate slows or pauses. The pulse generator is about the size of a pocket watch and is inserted between two muscles just below the collarbone. A 3-inch incision is required. Following insertion, you may be able to detect a slight bulge where the pulse generator is.

### **After The Procedure**

After the pacemaker is inserted, your heart rhythm will be monitored overnight by nurses on the telemetry unit. They are trained to know if there is any problem with the pacemaker. A dressing will be applied over the incision. There will probably be some soreness in the shoulder. Pain pills can be given to decrease the pain, if needed. You will be encouraged not to lift the affected arm above shoulder level for 1-4 weeks.

Some temporary limitations in activity will be recommended. This is necessary because it takes time for the tip of the lead wire to become firmly attached to the inner lining of the heart.

Your doctor will discuss the results of the procedure and answer any questions that you have. You will receive specific instructions about how to care for yourself after the procedure, including medication guidelines, wound care, activity guidelines, pacemaker care, and follow-up schedule.

Additionally, you will receive a temporary ID card and book that indicates the type of pacemaker and leads you have. The card will include the doctor's name and the date of implant. **Carry this card with you at all times!** Within 6 weeks you will receive a permanent card from the company.

### **Incision care**

You may or may not have stitches or staples that will need to be removed by your doctor. If so, they will be taken out about one week after the implant. Women may prefer to wear a small pad under their bra for strap protection against the incision area. Please avoid rubbing or pushing on the pacemaker site, and be sure to report any of these symptoms to your doctor or our nursing staff:

- Progressive wound swelling or redness.
- Incision drainage or separation.
- Increasing pacemaker pocket tenderness.
- Fever greater than 101 F (38.3 C) or chills.

- Protrusion of pacemaker or wires through skin.

### **Maintenance**

You will receive a patient information booklet and a temporary ID from the pacemaker company. Within 6 weeks, your permanent ID card will arrive. Carry your ID card with you at all times. Remember that your pacemaker will require some care. It will need to be checked periodically by your doctor to see how the leads and battery are working. It is generally checked every 3 months in the office or over the phone. Every 6 to 12 months your cardiologist will perform a more detailed evaluation of the device.

The batteries of your pacemaker will wear down over time, and the pacemaker may eventually need to be replaced. Regular visits to your doctor will help assess the status of the batteries long before you could feel a change yourself. If you do notice a sudden slowing down of your heart rate, a more serious problem has probably arisen with your pacemaker, and you should call your doctor. If the batteries need to be replaced, a minor surgical procedure is necessary.

### **Taking Your Pulse**

It is a good idea to monitor your pulse periodically to compare it with the programmed pacemaker rate. To do this, place your fingertips on the inside of your wrist or over the artery in your neck. Count the number of beats for one full minute. This is your heart rate. Your doctor can tell you what the programmed pacemaker rate is.

### **A Few Reminders**

Always wear your medic alert bracelet and carry your pacemaker Identification card with you. These allow medical personnel to tell that you have a pacemaker in the event of a medical problem. Be sure to let your dentists or other doctors know that you have a pacemaker.

Your pacemaker is protected from most types of interference produced by other electrical devices encountered in your daily routine. Household appliances like televisions, microwaves, stereos, radios, vacuums, electric blankets, hairdryers, shavers, food processors and gardening machinery will not affect your pacemaker. Most office and light shop equipment like computers, typewriters, and copiers, woodworking tools, etc., pose no threat.

You need to avoid metal detectors and strong magnets. Metal detection devices in airports may detect the metal in your pacemaker, but should not damage it. You also need to tell airport security personnel that you have a pacemaker before boarding.

The function of your pacemaker may be adversely affected by strong energy sources like MRIs, arc welding equipment and electrical cautery.

**Activity**

Physical activity is important to everyone, including people with pacemakers. Be sure to follow the program of activity outlined by your doctor and ask about exercise guidelines. These general rules will apply:

- Please limit vigorous activity or the amount of overhead movements of the arm and shoulder on the side of the pacemaker for as long as your doctor advises.
- Avoid weight lifting or contact sports until approved by physician.
- Do not drive a motor vehicle until approved by your doctor.
- Resume sexual activity as soon as comfortable and desirable.

When you have recovered you can be assured that car, train or airplane trips pose no danger to your pacemaker. People with pacemakers can continue their usual sexual activity. This general rule of advice applies to everyone when it comes to exercise: Don't overdo it! The proper amount of activity should make you feel better, not worse.

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Smoking and second hand smoke are dangerous to one's health.  
Ask your health care provider for information to quit smoking.

El hábito de fumar y el humo de otros fumadores son dañinos para la salud.  
Pídale a su médico información para como dejar de fumar.