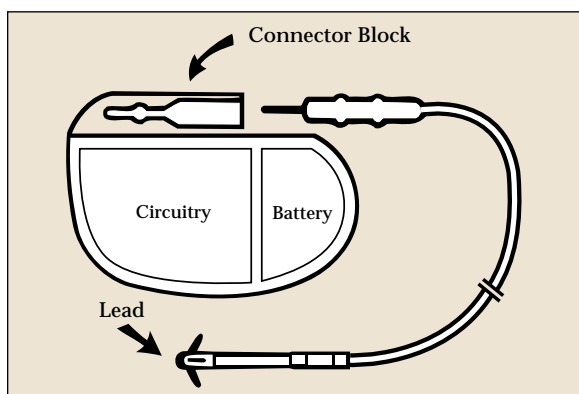
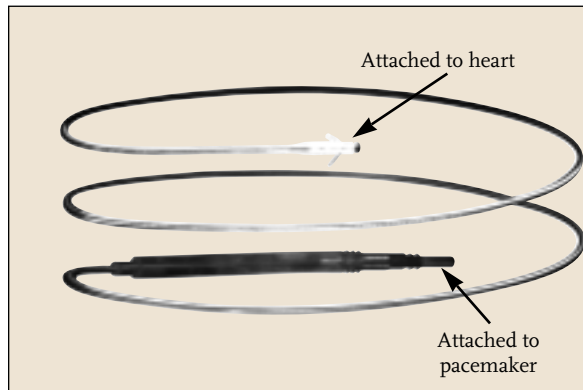


Q What is a pacing lead?

A A pacing lead and a pacemaker are the main parts of a pacing system. A pacing system can restore a healthy heart rhythm when a heart is beating too slowly or irregularly. The pacemaker consists of a battery that supplies energy for the pacemaker and electronic circuitry that transforms the energy into small electrical pulses. A pacing lead is the insulated metal wire that carries the electrical pulses from the pacemaker to the heart. The pacing lead also carries information about the heart's natural activity back to the pacemaker. From this information, the pacemaker determines if the heart is going to beat on its own or if the pacemaker must send electrical pulses to the heart to make it beat.



Battery, Circuitry, Lead



Pacing Lead

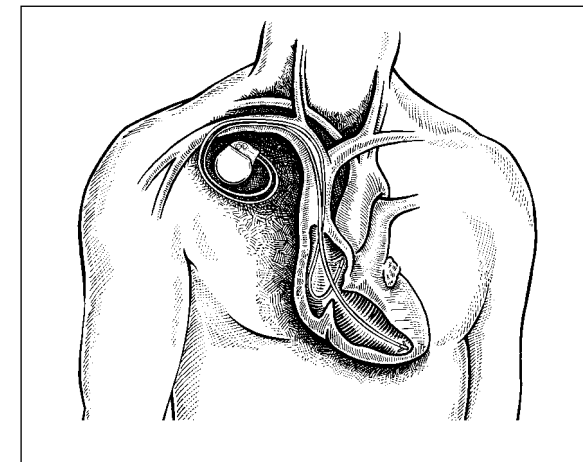
Q How is a pacing lead implanted?

A A lead can be implanted either by endocardial or epicardial implant. The most common method is the endocardial method which is relatively simple and can be performed under local anesthesia. The endocardial lead is inserted into the inside of the heart via a vein, usually in the chest area.

An epicardial lead (also called a myocardial lead) is attached to the outside surface of the heart and requires general anesthesia. This type of lead is most often used when other cardiac surgery is being performed and there is already access to the heart.

Q What is the useful life of a pacing lead?

A It depends. Leads may need to be replaced sooner in some patients than in others. Leads must withstand the flexing motion that occurs each time the heart beats. A pulse rate of 70 beats per



Endocardial Implant with Two Leads

minute equates to over 100,000 heartbeats daily. The patient's heart condition, medical complications, anatomical differences and surgical technique can affect the lead's longevity.

Q How is the performance of a pacing lead tested?

A An electrocardiogram (ECG) is one way to check the pacing lead. An ECG shows if the lead is sensing (receiving information via the lead from the heart), and pacing (delivering the electricity from the pacemaker) the heart appropriately. Other testing can also be performed in the doctor's office to check the electrical conduction of the lead.

Keeping all appointments with your doctor is the best way to ensure your pacing system is delivering the best therapy for your heart's needs.

Q *When are leads replaced?*

A If the testing determines that there is any difficulty pacing or sensing, the doctor may choose to implant a new lead. Most times this is done at the time of a pacemaker replacement surgery, but not always.

Usually leads are not removed from the implant site when a new lead is implanted. Leaving previous leads in place is an accepted practice. If necessary, however, a lead may be removed but this may require a surgical procedure.

Q *How do manufacturers ensure pacing lead performance?*

A All pacing lead manufacturers use very strict standards during the lead design, manufacturing, and testing processes.

In addition, Medtronic sends physicians its Product Performance Reports periodically. These reports provide statistical performance data on both pacemakers and leads. This information helps your physician evaluate your lead's performance as well as your medical needs.

Q *What kind of pacing lead or leads do I have?*

A The Model numbers for your Medtronic pacing leads are printed on your ID card. They are:

Atrial: _____ and/or

Ventricular: _____

Q *How can I learn more about my pacing leads?*

A Your physician or cardiology nurse is best suited to answer questions about your pacemaker or leads.

Medtronic publishes a patient newsletter periodically. This newsletter contains educational articles of interest to pacemaker wearers. To read or print it online, please visit www.medtronic.com/rhythms/

If you wish to be on our mailing list, please contact Medtronic at this address:

Medtronic, Inc.
Patient Services V255
3850 Victoria St. N.
St. Paul, MN 55126-2978



World Headquarters
Medtronic, Inc.
7000 Central Avenue NE
Minneapolis, MN 55432-3576
USA
Internet: www.medtronic.com
Toll Free: 1-800-551-5544
7:00 am - 6:00 pm CT

24 hour general information available on:
<http://www.medtronic.com>

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RESTORING THE RHYTHMS OF LIFE

Common Questions
About Pacing Leads