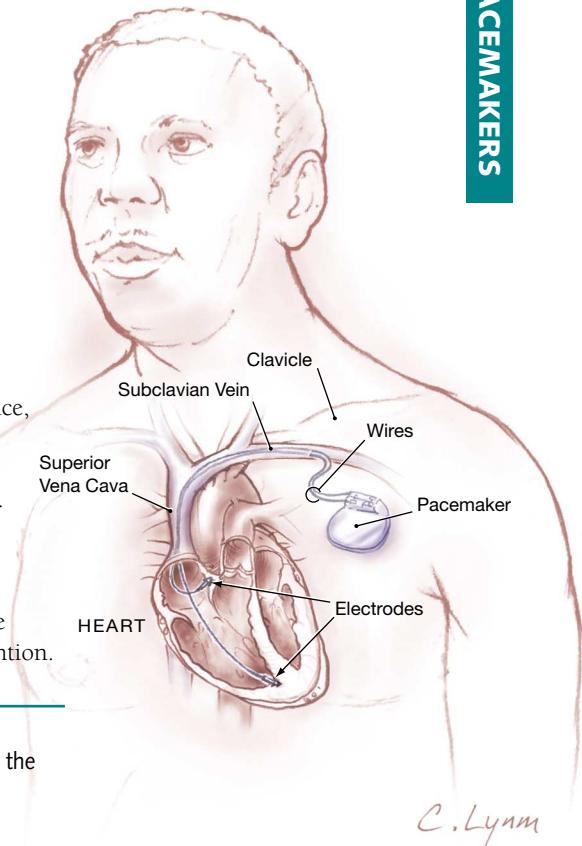


# Heart Pacemakers

The human heart beats an average of 60 to 100 times a minute. It is normal for the speed and regularity of your heartbeat to vary (for instance, it increases if you are anxious or have just exerted yourself). The heart has a natural **pacemaker**—a special group of cells that send electrical impulses over the heart and keep it beating at an appropriate and regular rate. If your heart beats too slowly to meet the needs of your body, you may need an **artificial pacemaker** to make sure your heart beats at a sufficient rate.

Pacemakers are complex devices and therefore require careful follow-up after they are inserted. The August 15, 2001, issue of *JAMA* includes an article about technical problems with pacemakers that have sometimes required attention.



## WHAT IS AN ARTIFICIAL PACEMAKER?

An artificial pacemaker is a small battery-operated device that helps the heart beat at the correct rate. It sends electrical impulses to the heart through a wire(s), replacing the function of your natural pacemaker.

## WHO MIGHT NEED A PACEMAKER?

- Someone whose heart beats too slowly, causing symptoms such as excessive fatigue, severe dizziness, or fainting spells
- Someone who needs to maintain a minimal heart rate after treatment for a rapid, irregular heart rate

## TYPES OF PACEMAKERS

- Permanent, or internal, pacemakers are placed under the skin, usually in the loose tissues of the chest wall below the **clavicle** (collarbone). They turn themselves off when your heartbeat is faster than a certain speed and turn themselves on when your heartbeat is slower than a certain speed. A physician needs to periodically check the pacemaker batteries and perform a simple surgery to replace them when they are low (batteries last an average of 4 to 8 years).
- Temporary, or external, pacemakers are used for a limited period of time and are worn outside of the body clipped to a belt or pants. Only the wire(s) and electrode(s) are surgically implanted in the chest by a simple surgical procedure.

## LET PEOPLE KNOW YOU HAVE A PACEMAKER

Carry a card with you at all times in your wallet indicating that you have a pacemaker. Equipment used by doctors and dentists can affect pacemaker function and, in certain situations, you may not be able to inform a medical professional that you have one.

Sources: American College of Cardiology, American Heart Association, *The AMA Family Medical Guide*, *The AMA Encyclopedia of Medicine*, National Heart, Lung, and Blood Institute.

## FOR MORE INFORMATION

- American Heart Association  
800/242-8721  
[www.americanheart.org](http://www.americanheart.org)
- American College of Cardiology  
800/253-4636  
[www.acc.org](http://www.acc.org)
- National Heart, Lung, and Blood Institute/National Institutes of Health  
301/592-8573  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

## INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page Index on JAMA's Web site at [www.jama.com](http://www.jama.com). A JAMA Patient Page that included information on implantable cardiac defibrillators was published on July 28, 1999. JAMA Patient Pages on heart attack were published on July 28, 1999, and May 6, 1998. A JAMA Patient Page on irregular heartbeat was published on March 7, 2001.

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