A Patient’s Guide to
MRI Conditional Pacemakers
Your Pacemaker

A pacemaker monitors the heart’s rate (how fast it beats) and rhythm (the pattern in which it beats), and provides electrical stimulation when the heart does not beat or beats too slowly (bradycardia).

What a Pacemaker Does

A pacemaker is typically used for cardiac rhythm disorders involving a too-slow heart rate (bradycardia) or because electrical impulses get delayed on their way through the heart.

The pacemaker “listens” to the heart. When the heart’s own electrical system sends a signal and the heart beats, the pacemaker waits and does nothing. When the heart’s system misses a signal, the pacemaker sends a signal to replace it.

Example of one type of bradycardia (third-degree AV block).

Example of a normal sinus rhythm.
Why is MRI compatibility important?

MRI is fast becoming a preferred diagnostic tool used by physicians in the treatment of cancer, stroke, heart-related conditions, and musculoskeletal disorders or injury and is particularly used in patients over the age of 65. Because of its high-resolution image quality and low-radiation risk, MRI is often selected over other diagnostic techniques. Each year up to 8 million MRI scans are performed in Europe. That number is increasing significantly, however, as the use of MRI continues to grow. Historically, pacemaker patients have not been able to benefit from MRI technology due to the risk of interference with the pacemaker.

The extremely strong magnetic fields used in MRI procedures could affect the pacemaker’s normal functions; therefore, patients with traditional pacemakers should not have MRIs.

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Experts estimate that as many as 75% of pacemaker patients will have medical need for MRI.¹

What do I need to know about having a pacemaker and getting an MRI scan?

Some newer pacemakers are MRI (or MR) conditional. This means that they are designed to allow you to safely undergo an MRI scan under certain conditions, due to safeguards in the system’s design that protect it from the risks a non-MRI conditional system might face.

How do I know if I can safely undergo an MRI with my pacemaker?

As a patient with an MRI conditional system, you should have received a special patient card that identifies you as having an MRI conditional system. It is important for you to carry this card with you at all times. Sometimes MRI procedures are planned, and other times they are needed under unexpected circumstances. You will need to let the healthcare professionals caring for you, as well as the MRI technologist or radiologist, know that you have an MRI conditional system.

With an MRI conditional system, you can be comfortable knowing that the device has been designed for safety under set conditions in the MRI environment.
What can I expect before an MRI scan?

Your pacemaker needs to be put into special MRI settings for you to safely undergo an MRI scan. There are two ways your doctor might do this.

The first way is for your doctor to program your pacemaker to the special MRI settings ahead of time and store those settings in the pacemaker. This programming happens during a follow-up appointment.

Then, when you need an MRI scan, the MRI settings are enabled by a clinician, who places a small hand-held device over your pacemaker. The hand-held device uses radio waves to communicate with your pacemaker and enable the pre-programmed MRI settings. Activating the MRI settings is painless and takes only moments.

The second method involves programming your device to MRI settings when it is determined you need an MRI scan. With this method, your doctor uses the programmer to temporarily set your device to MRI settings before your MRI scan.
What can I expect after an MRI scan?

After the MRI scan, your device needs to be returned to its regular settings. In other words, your MRI settings need to be disabled. This can be accomplished in the same two ways in which your MRI settings were enabled.

With the first method, the hand-held device is placed back over your device to disable MRI settings and enable your pacemaker to go back to its permanent settings. With the second method, the programmer is used to program your device back to its regular settings after the scan.

With either method, your device is placed back to its regular settings.

Your MRI conditional pacemaker is designed to give your heart the support it needs, in addition to ensuring you can receive the best in diagnostic imaging in the future should that need arise. Your doctor is the best source of information about your total overall health. It is important to discuss any questions or concerns you might have with him or her.
My additional notes and questions:
My follow-up questions: