

# Medtronic

## Living with a heart failure device<sup>†</sup>

<sup>†</sup>Cardiac Resynchronization Therapy (CRT).





Have you or a loved one been diagnosed with heart failure? If so, this brochure can help you understand your heart condition and treatment options. It provides basic information about heart failure.

It also explains cardiac resynchronization therapy (CRT) devices, and what to expect before and after you have one placed.

Ask your doctor about your unique medical condition and treatment options.



# What is heart failure?

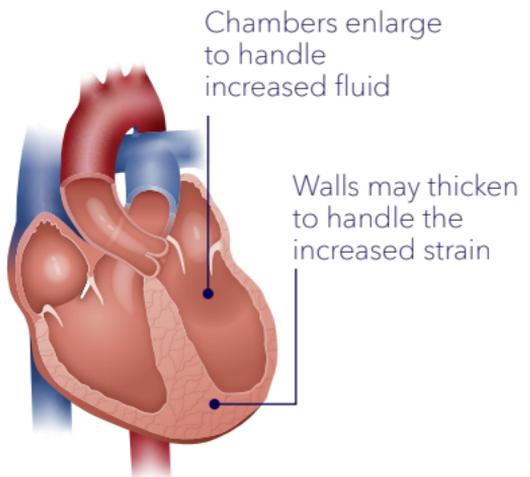
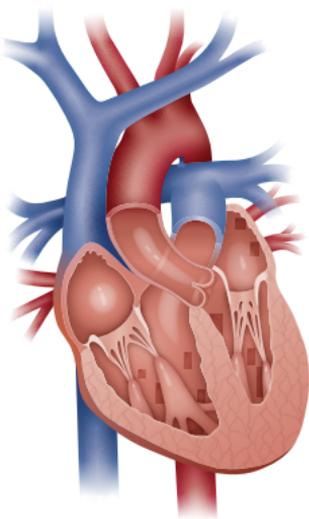
Heart failure is a condition where the heart muscle is weakened and is not able to efficiently pump blood.

The term *heart failure* does not mean your heart has stopped beating; rather, your heart muscle is not able to pump enough blood to meet your body's needs. As a result, you may feel tired, lack energy, have shortness of breath, and notice excess fluid collecting in your body.

The heart is a fist-sized organ that acts as a pump to send oxygen-rich blood throughout the body. In a healthy heart, each chamber contracts (squeezes) in a coordinated effort – the upper chambers (atria) of the heart contract first, then the lower chambers (ventricles) contract. These coordinated contractions circulate blood between the lungs and heart and to the rest of the body. If the heart is not beating in a coordinated way, then the body will not receive the amount of blood it needs to work properly.

Healthy heart

Heart failure



During heart failure, the heart tries to compensate for lost pumping power, which may change its shape and result in an uncoordinated (or unsynchronized) and inefficient heartbeat. 3

# Symptoms of heart failure

Heart failure is a progressive condition, meaning it will gradually get worse. At first you might not experience any symptoms, but over time your heart's ability to pump will continue to weaken and you may experience some or all of the following symptoms:

- Chronic lack of energy
- Breathing problems that can make it hard to sleep at night
- Confusion and/or impaired memory
- Increased urination at night
- Swelling of feet and legs
- Shortness of breath
- Swollen or tender abdomen with loss of appetite
- Cough with frothy sputum

# Causes of heart failure

Heart failure usually develops slowly after an injury to the heart. There is no single cause, and sometimes the cause is unknown. Some of the most common causes of heart failure are:

- Previous heart attack (myocardial infarction)
- Coronary artery disease
- High blood pressure (hypertension)
- Heart valve disease
- Infection of the heart (myocarditis)
- Congenital heart disease (condition you were born with)
- Endocarditis (infection of the heart's inner lining)
- Diabetes (the body does not produce or properly use insulin)



# Risks of a poorly pumping heart

A weakened heart muscle must work harder to pump blood to the body. This may cause the heart to beat faster, which can lead to dangerously fast or irregular heart rhythms. These abnormal heart rhythms can lead to a condition called sudden cardiac arrest (SCA).

## What is SCA?

SCA is an electrical problem with the heart that causes a dangerously fast heart rhythm (ventricular fibrillation). The rapid, irregular heart rhythm causes the heart to quiver rather than pump. When the heart stops pumping blood, oxygen cannot reach the body and brain. If not treated immediately, SCA is usually fatal.

One of the nation's top killers, SCA claims more lives than breast cancer or lung cancer.<sup>1</sup>

## What could put someone at risk of having SCA?

- Previous heart attack or SCA
- Family history of SCA or other heart disease
- Heart failure
- Low ejection fraction (this is explained on the next page)
- Rapid or abnormal heartbeats starting in the bottom chambers of the heart

## What are symptoms of SCA?

- Loss of consciousness
- Dizziness
- Fast heartbeat



**436,000**

lives are claimed by SCA in the United States every year, or > **one life every 90 seconds<sup>2</sup>** – that's equal to five football stadiums full of people.



Scan to learn more about SCA.

# EF number: a number you should know

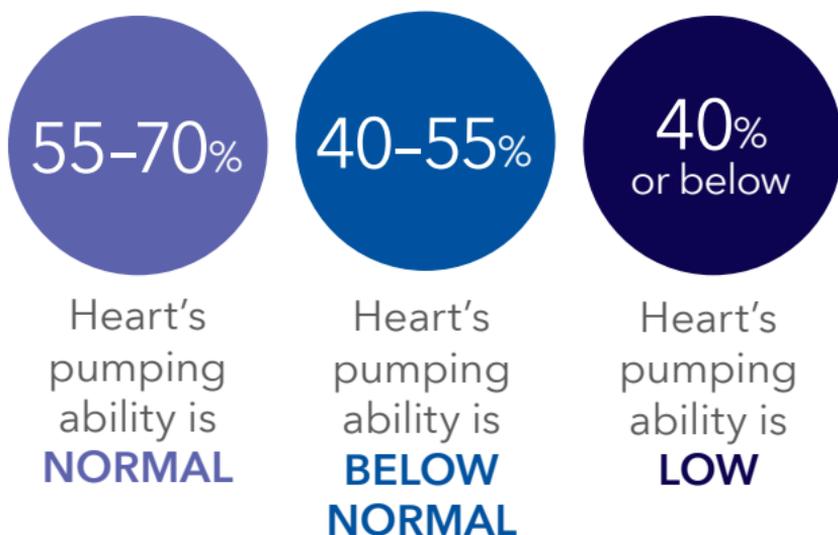
EF stands for “ejection fraction.” It is the percentage of blood that is pumped out of the heart with each heartbeat. Your doctor knows how well your heart is pumping based on your EF number. It is important for you and your doctor to check your EF regularly.

## How is EF measured?

The most common way to measure EF is with an echocardiogram, which is a test usually performed in a doctor’s office or hospital’s diagnostic area.

A healthy heart has an EF between 55% and 70%.<sup>3</sup> This indicates the heart is pumping well and able to deliver enough blood to the body and brain. Even a healthy heart does not pump 100% of blood out of the heart during each beat – some blood always remains in the heart.

## Typical EF ranges<sup>3</sup>:



**People with a low EF are at an increased risk for SCA.<sup>4</sup>**

# What is a CRT device?

When people refer to an implantable cardiac resynchronization therapy (CRT) device, they are actually referring to a two-part system: the CRT device and the leads.

- A **CRT device** is a device implanted under the skin, typically just below the collarbone. The device delivers therapies to coordinate the heart's pumping action and treats fast, irregular, or slow heart rhythms depending on the type of CRT device. This device may also be referred to as a heart failure device, biventricular device, three-lead CRT device, CRT-P (pacemaker), or a CRT-D (defibrillator).
- **Leads** are thin, soft insulated wires about the size of a spaghetti noodle. They carry the electrical impulse from the CRT device to your heart and relay information about the heart's activity back to the CRT device.



Cardiac resynchronization therapy defibrillator (CRT-D) and leads

# How does a CRT device work?

A CRT device is designed to monitor your heart rhythm 24 hours a day. It sends electrical pulses to pace the lower chambers of your heart and help them beat in a more coordinated rhythm. This coordinating or “resynchronization” therapy helps the heart’s ability to pump blood and oxygen more efficiently to the body. Your doctor will program the CRT device to deliver the most effective therapies for your specific heart condition.

**In response to abnormal heart rhythms, a CRT device may also provide the following therapies:**

- Pacing therapy for slow heart rhythms – electrical impulses are delivered to the heart when the heart’s own rhythm is too slow or abnormal.
- Defibrillation therapies for fast or irregular heart rhythms – a shock is delivered to the heart to interrupt fast heart rhythms and restore a normal heart rate.

There are two types of CRT devices – a CRT pacemaker (CRT-P) and a CRT defibrillator (CRT-D). CRT-D devices, like all defibrillators, have a pacemaker function in them. Both devices help to coordinate the heart’s pumping action and deliver pacing therapy for a slow heart rate. However, the CRT-D can also treat fast heart rhythms.

All cardiac resynchronization devices are designed to use three leads. One lead is placed inside the right atrium, another lead is placed inside the right ventricle, and the third lead is placed inside a vein on the outside of the left ventricle.



Cardiac resynchronization therapy pacing (CRT-P) and leads

# Getting a CRT device implanted

The procedure to implant a CRT device does not require open heart surgery, and most people go home within 24 hours. Before the surgery, medication may be given to make you sleepy and comfortable.

## The general steps of an implant procedure include:

- A small incision, approximately two-to-four inches long, will be made in the upper chest area, just below your collarbone.
- Three leads will be guided through a vein into your heart, and the leads will be connected to the CRT device.
- The CRT device settings will be programmed, and the device will be tested to ensure it is working properly to meet your medical needs.
- The CRT device will be placed beneath your skin, and the incision in your chest will be closed.



# Remote monitoring for implanted heart devices

If you have an implanted heart device, ongoing care doesn't end at the implant. It's important to maintain a connection with your doctor or clinic for the life of your device. One of the best ways to do this is through remote monitoring.

Remote monitoring is a way for your implanted heart device to communicate with your doctor or clinic, potentially lowering the number of times you have to travel to your clinic for a device check.

To find out if remote monitoring is right for you, please talk to your doctor.



Scan the QR code to learn more about remote monitoring for an implanted heart device.

# Common questions

Many people with a CRT device get back to their normal daily activities after recovering from the implant procedure. There may be certain situations your doctor will ask you to avoid. Discuss your activity and lifestyle goals with your doctor and develop a plan that works best for you.

## Can I use a cell phone?<sup>5</sup>

Cell phones and other mobile devices are safe to use as long as you maintain proper distance between them and your CRT device. Keep your cell phone, tablet computer, or other mobile device six inches from your CRT as it could create interference. Use your phone on the ear opposite your CRT and to avoid placing the cell phone in a pocket near your CRT.

## Is it safe for me to have an MRI scan?<sup>5</sup>

Most CRTs are not considered safe in the MRI environment because the MRI could change the settings, temporarily affect the operation of, or potentially damage the device. Medtronic CRT systems are FDA approved for use in the MRI environment.

Talk to your doctor about the CRT options available to you, including a device that may allow you access to an MRI in the future.





### **Are household appliances safe to use?<sup>5</sup>**

Yes. Most household appliances and items are safe to use as long as they are properly maintained and in good working order. This includes microwave ovens, major appliances, electric blankets, and heating pads. Please read the patient manual for a list of these items and the specific distances that they should be kept away from your CRT device.

### **Will magnets affect my device?<sup>5</sup>**

Items that have magnets, such as magnetic therapy products, stereo speakers, and handheld massagers can temporarily affect the operation of your CRT device. Keep items containing magnets at least six inches away from your implanted CRT device. Do not use magnetic mattress pads and pillows because it is difficult to maintain a six-inch distance when using these items.

### **Can I travel?<sup>5</sup>**

Yes. Make sure you carry your device ID card when traveling and tell airline security personnel that you have an implanted heart device.

Then, simply walk through security archways at a normal pace. Don't stop under or touch the archway as you pass through. Full-body scanners are safe to use as instructed. If a handheld wand is used, ask the security operator not to hold it over your device or wave it back and forth over your device.

You can show your device ID card to security personnel and ask for hand screening instead if you prefer.

# Get heart device answers



If you or a loved one have questions about living with a heart device, please visit [HeartDeviceAnswers.com](https://HeartDeviceAnswers.com) or scan the QR code above. Once on the site, simply type in a word, phrase, or question or explore a list of topics to find the answers you're looking for.



# Additional resources

## Medtronic Patient Services

If you have a Medtronic cardiac device and want to learn more or have questions about living with an implanted CRT device, please contact Medtronic Patient Services at 1-800-551-5544. Our Patient Services Specialists are available to assist you Monday-Friday from 7 a.m. to 6 p.m. CT.

## Medtronic.com/CRT

For in-depth information about Medtronic CRT devices, visit [Medtronic.com/CRT](https://www.medtronic.com/CRT).

## References

- <sup>1</sup> Rosamond W, Flegal K, Furie K, et al. Heart disease and stroke statistics – 2008 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. January 29, 2008;117(4):e25-e146.
- <sup>2</sup> CPR Facts & Stats. Available at: <https://cpr.heart.org/en/resources/cpr-facts-and-stats>. Accessed October 26, 2023.
- <sup>3</sup> Ejection Fraction: What the Numbers Mean. Penn Medicine. Available at: <https://www.pennmedicine.org/updates/blogs/heart-and-vascular-blog/2022/april/ejection-fraction-what-the-numbers-mean#:~:text=Ejection%20fraction%20is%20measured%20as,blood%20and%20may%20be%20failing>. Accessed October 5, 2023.
- <sup>4</sup> Epstein AE, DiMarco JP, Ellenbogen KA, et al. ACC/AHA/HRS 2008 Guidelines for device-based therapy of cardiac rhythm abnormalities [corrections appear at *J Am Coll Cardiol*. April 21, 2009;53(16):1473. *J Am Coll Cardiol*. January 6, 2009;53(1):147.]. *J Am Coll Cardiol*. May 27, 2008;51(21):e1-62.
- <sup>5</sup> MRI SureScan™ Implantable Cardioverter Defibrillator Patient Manual M975772A001 REV. A.

**Important safety information**  
**Cardiac Resynchronization Therapy (CRT)**  
**Implantable Pacemaker**

A cardiac resynchronization therapy (CRT) implantable cardioverter defibrillator (ICD) system delivers therapies to treat patients who may benefit from synchronizing the pumping of the heart chambers. A CRT ICD also delivers therapies to treat patients with heart rhythm disorders or who are at significant risk of developing heart rhythm disorders. A CRT ICD is placed inside your body and works automatically. An implantable CRT pacemaker system relieves symptoms of heart rhythm disturbances. They do this by restoring normal heart rates. A normal heart rate provides your body with the proper amount of blood circulation. The pacemaker system is intended for patients who need rate-adaptive pacing or chronic pacing or for patients who may benefit from synchronizing the pumping of the heart chambers. Risks associated with these implantable device systems include, but are not limited to, infection at the surgical site and/or sensitivity to the device material, failure to deliver therapy when it is needed, or receiving extra therapy when it is not needed. After receiving a CRT ICD system, you will have limitations with magnetic and electromagnetic radiation, electric or gas-powered appliances, and tools with which you are allowed to be in contact. Treatment with these implantable device systems is prescribed by your physician. This treatment is not for everyone. Please talk to your doctor to see if it is right for you. Your physician should discuss all potential benefits and risks with you. Although many patients benefit from the use of this treatment, results may vary. For further information, please call the Medtronic toll-free number at 1-800-551-5544 (7:00 a.m. to 6:00 p.m., Monday-Friday, Central Time) or see the Medtronic website at [medtronic.com](http://medtronic.com).



## Patient Services

Medtronic

8200 Coral Sea St. NE MVC31

Mounds View, MN 55112

Patient toll-free line:

1.800.551.5544

Fax: 763.367.5809

7:00 a.m. to 6:00 p.m. CT

Monday-Friday

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