

My follow-up questions:

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Global Headquarters

One St. Jude Medical Drive
St. Paul, Minnesota 55117
USA
+ 1 651 756 2000
+ 1 651 756 3301 Fax

Cardiac Rhythm

Management Division
15900 Valley View Court
Sylmar, California 91342
USA
+1 818 362 6822
+1 818 364 5814 Fax

sjm.com



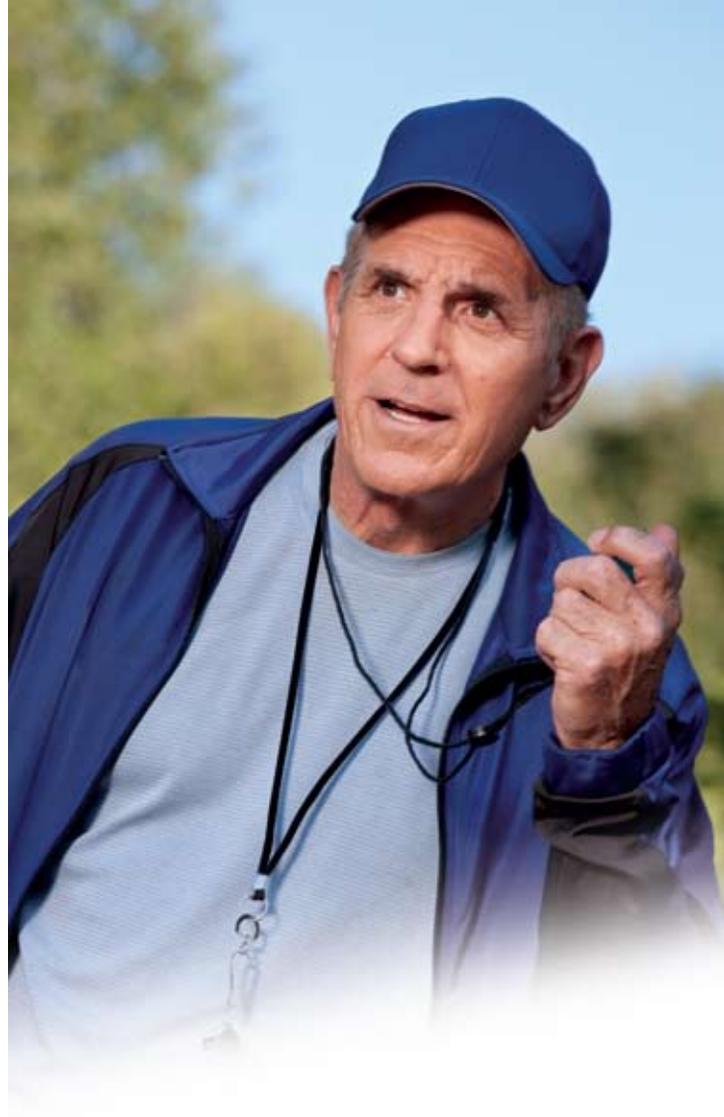
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Brief Summary: Please review the appropriate literature accompanying the device for a complete listing of warnings and precautions.

This pamphlet is for general information only and is not intended to replace the literature accompanying the device.

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LIVING WITH YOUR CRT DEVICE



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Your Cardiac Resynchronization Therapy (CRT) Device—At a Glance

- Heart failure (HF) is a common condition during which the pumping action of your heart is affected because the heart does not contract or relax properly. Frequently the walls of the left ventricle, the heart's main pumping chamber, are weakened and cannot pump enough blood to meet the body's needs.
- Cardiac resynchronization therapy (CRT) is used to treat your symptoms and other complications associated with HF.
- CRT devices are miniaturized computers that can fit in the palm of your hand. They are usually implanted just underneath the skin in the chest area.
- In CRT therapy, a CRT pacemaker (CRT-P) or a CRT defibrillator (CRT-D) sends out electrical impulses through insulated wires placed in the heart to coordinate the contractions of the heart's upper and lower chambers. In addition, both ventricles are paced to improve the heart's pumping ability.
- In addition to HF therapy, CRT-P paces the heart if the rhythm is too slow; a CRT-D also provides therapy for life-threatening rhythms.
- CRT devices cannot be damaged by properly operating household appliances, such as microwave ovens.
- Some studies have shown that CRT therapy can slow and, in some cases, actually reverse some of the physical damage to the heart caused by HF.

Frequently Asked Questions

Living with your CRT device.

CRT is used to treat your symptoms and other complications associated with HF. HF is a common condition during which the pumping action of your heart is affected because the heart does not contract or relax properly. CRT, delivered through an implanted device, helps the heart by stimulating lower chambers so that they are more efficient in pumping blood to the body. Implanted devices help to maintain normal heart rhythms and, if the heart rate becomes very rapid, many of these devices have the capability to restore the rhythm to normal.

What exactly is HF?

HF is not an abrupt failure of the heart. It is a dysfunction in which, most typically, the lower chambers (ventricles) of the heart do not beat efficiently, as they do in a healthy heart. HF, in essence, is an increasingly ineffective heart.

How common is HF?

HF affects about 5 million Americans, with 550,000 new cases diagnosed each year.

What causes HF?

HF has many underlying causes. About half of all HF cases are caused by coronary artery disease (disease of the arteries that deliver blood to the heart muscle to keep it working and healthy). Another common cause is high blood pressure (hypertension), which can overexert the heart. Other root causes include

persistent abnormal heart rhythms (such as atrial fibrillation), heart valve disease, congenital heart disease, diabetes and infections of the heart. In many cases, the cause is unknown.

What problems might I have because of HF?

The heart has a complex electrical system. It actually generates its own electricity, which causes it to contract and relax in the proper timing sequence, so that it can pump blood to the body. People with HF often have problems with the electrical system in their hearts. Electrical signals can become blocked or irregular, causing the heart to beat too quickly or too slowly, or causing a disruption in the heart's contraction pattern.

Also, in HF, frequently the walls of the left ventricle, the heart's main pumping chamber, are weakened and cannot generate a strong pumping action. This is what causes symptoms such as breathlessness, fatigue and fluid build-up in the arms and legs. This is caused by the heart's inability to pump enough blood to meet the body's demands. The heart can become enlarged as it attempts to compensate for the lack of pumping ability, which only worsens the condition.

A CRT device can help to coordinate a disordered contraction pattern, which then helps to improve the efficiency of the heart, so it can provide more blood to the body.

Why do I need a CRT device?

Often medications and lifestyle changes can help treat the symptoms of HF; however, when these two things are no longer enough for your symptoms, your doctor may decide that you need an implanted device.

CRT is an exciting therapy offered for some people with HF. A CRT device provides the electrical support that a person with HF might need. This electrical support helps to coordinate the sequence and beating of the upper and lower chambers of the heart, which improves the heart's ability to pump blood to the body.

Will a CRT device cure my HF?

Thanks to continuing improvements in treatment for HF and related heart conditions, today more people with HF are living longer and enjoying fuller lives than in the past. Significant changes have been made in the past five years. But the condition remains a major health problem, and many treatments (such as CRT, medications or surgical procedures) actually are designed to manage symptoms instead of curing the overall condition.

Many studies have shown that CRT devices can really improve the quality of life for many patients. Once an orderly contraction pattern in the left ventricle is restored, you may feel more energized and healthy because the heart function is improved. Some studies have shown that CRT therapy can slow and, in some cases, actually reverse some of the physical damage to the heart caused by HF.



What exactly is a CRT device?

CRT devices have evolved from pacemaker technology. Pacemakers have been used to treat slow heart rhythms since the 1960s. Like their predecessor products, CRT devices are actually miniaturized (the largest models will fit in the palm of your hand with room to spare), battery-powered computers that are usually implanted just underneath the skin in the chest area. These devices are connected to two or three different wires placed in different parts of the heart. The tiny electrical stimuli are delivered to the heart in a coordinated sequence with the result, in most patients, of an improvement in cardiac function.

To provide electrical support, the device sends a tiny electrical pulse down a wire into your heart, which forces the heart to beat. These impulses are very tiny, and most people do not feel them at all.

While the device is helping your heart to maintain its rhythm, it is also storing a lot of information about your heart. This information can be retrieved by your doctor, and it helps him or her to program your device in a way that it provides you with the best therapy for your condition.

How does a CRT device work?

With a CRT device, thin insulated wires, called leads, are connected to both the right and left sides of the heart. One lead goes to the right ventricle and one goes to the left ventricle. The lead in the right ventricle is placed next to the thick muscle that separates the right ventricle from the left ventricle (called the interventricular septum). The lead in the left ventricle is placed along the back or side wall. Most of the time a third lead is placed in the right upper chamber of the heart (right atrium) as well. The device then sends out electrical

impulses to coordinate the upper and lower chambers of the heart. In addition, both ventricles are paced to improve heart's pumping ability. This improves the heart's ability to pump blood to the body.

There are two types of CRT devices: a CRT pacemaker (CRT-P) and a CRT defibrillator (CRT-D). A CRT-P is used for patients who have slow heart rhythms in addition to HF, while a CRT-D has the added ability to provide lifesaving therapy to the heart if a patient is at risk for life-threatening arrhythmias.

How is a CRT device implanted?

Usually, surgery for an implanted cardiac device is not done under full anesthesia. It is usually implanted under what doctors call "conscious sedation." You will be given medication to help you relax, but you will still be aware of your surroundings and able to hear and even talk with the medical team as the procedure is being conducted. Numbing medication will be given where the incision is to be made. While the local anesthetic will block sharp pain, you may still feel some pressure while the device is being implanted.

What happens during surgery to implant a CRT device?

The doctor will first make a small cut in the upper chest and locate a vein. A small puncture is made in the vein, and the leads, long flexible wires, will be guided down the vein to the heart. The surgical team monitors the progress of the lead using a large overhead monitor called a fluoroscope. This is a kind of moving x-ray picture. The leads are placed, which is often the most time-consuming part of the operation. Once that is done, the doctor will test the leads to make sure that they are in the best position to deliver energy to the heart.

Once the leads are in place, your doctor might ask you to go through some simple maneuvers, such as taking a deep breath or coughing vigorously, to help assess the stability of the lead. Then, he or she will make a “pocket” by separating the skin and underlying tissue from the muscle beneath the tissue. Once the pulse generator is connected to the leads, it is placed in that pocket. Once the device is in place, the doctor will sew up the incision.

Many people just notice a small scar and a small bump after the incision heals. However, in people who are very small or thin, the device might stick out more. If you are worried about how this might look, talk to your doctor. In some cases, the device can be located somewhere that will be less noticeable.

The length of the surgery depends on what kind of device you are getting, as well as your specific anatomy and the time it takes to locate a good position for the lead. Implanting a CRT-P or CRT-D can take a number of hours.

What risks are associated with having a CRT device?

Your doctor is the best source of information about the risks of having a CRT device. Be sure to talk about all your questions and concerns.

A small percentage of CRT patients will develop complications because of the implant surgery. They may include infection, a reaction to a drug used during surgery or to the device itself and blood loss or damage to a blood vessel, the heart wall or other organs. After the surgery, you will feel some discomfort, and you will be tired. As you recover, you will feel better. However, some patients continue to feel some discomfort where the CRT device is implanted. Speak to your doctor if this occurs.

It is important to follow certain precautions after you get a CRT device. You can use most household appliances safely, if in good repair and properly grounded, but you should avoid items with strong magnetic fields, including MRI devices. Your doctor will discuss with you all the precautions you should follow. Also, read completely any literature that came with your device, and pay close attention to sentences that are labeled with the word “warning” or “important.” Those sentences contain important safety information.

When an arrhythmia occurs, CRT treatment may not end it, or treatment may make the arrhythmia worse. In either case, the CRT then delivers stronger treatment to try to end the arrhythmia. There is a slight risk that the CRT device may fail to deliver treatment when you need it, or it may deliver treatment when you do not need it. The CRT may not always eliminate all symptoms of the arrhythmia. You still may feel lightheaded or dizzy, or you may faint.





What happens after the surgery?

Right after the surgery, you will be taken to a recovery room. You may experience some tenderness at the implant site for a while. The typical hospital stay for a CRT patient is only a few days; however, you should discuss the specifics of your case with your physician. In the period after surgery, follow all of your physician's instructions carefully. Above all, be sure to report any redness, soreness or tenderness around the implant site. If you are already back home when you notice redness or soreness around your scar, call your doctor immediately—do not wait for your next appointment.

How long will it take me to recover?

It is difficult to be specific about your recovery because every patient is different. Follow your doctor's instructions carefully. Your activities will be restricted for a period following surgery. Once you have recovered from the operation, your physician is your best source of advice on the subject of resuming your normal activities.

How often do I need to see my doctor once I have a device?

You will be asked to see your cardiologist or physician regularly for routine checkups.

Immediately after your surgery, you will probably be asked to visit the doctor several times. These are all very important visits, and they allow the physician to be sure the device is working properly. Sometimes minor adjustments are required, which can be done painlessly in the doctor's office using a tabletop computer called a programmer. Your doctor will also want to check the incision to see how it is healing.

After that, your physician will want to see you for regular follow-up visits. Your physician will advise you as to the frequency of the follow-up visits. If everything is stable, your doctor might only need to see you once or twice a year or after you have received a shock. Your doctor may also want to see you if your family or family primary care physician has any concerns. If multiple changes are made at the time of an office visit, your physician may want to see you sooner to make sure that these changes are effective and not causing any other problems.

What happens during a follow-up appointment?

The follow-up is completely painless and usually takes less than half an hour. During this time, the doctor or nurse will put a wand over the spot where the device is implanted. The wand is about the size and shape of a television remote control device.

For some devices, a wand is not used; the information is sent wirelessly. The device tells the programmer about the battery status, performs other system checks and can report

on your heart's rhythms since your last follow-up. If you have a CRT-D and you experienced any shocks or therapy during this time, the programmer will get that information, as well. The doctor can also adjust certain settings on your device to adjust your therapy, if needed. For these reasons, it is very important that you keep your follow-up schedule with your doctor.

How will my doctor change the batteries in my device?

Implantable devices are powered by special batteries that are made to last a long time. These batteries do not suddenly wear out, like flashlight batteries, but they give plenty of warning that they are reaching end of service.

Your doctor will monitor the battery as part of your regular device check-up. Most device batteries last three to ten years, although it depends on the device and how often it sends electrical impulses to the heart.

When the device indicates a low battery, your physician will arrange for a replacement. Implantable devices are sealed shut, so the batteries are not replaceable. Instead, your doctor will implant a new device. Typically, this surgery does not last as long as your original device implant because the doctor will simply plug the new device into your already existing heart leads.

What will it feel like if I receive a shock from my CRT-D?

Shocks feel different to different people, and they can be painful. But remember, while it may be unpleasant to get a shock, it means that the device has responded to a dangerous rhythm, and it might have just saved your life.

Ask your doctor what you should do if you receive a shock. He or she will probably want you to call if you have received a shock and might want you to come to the office to have your device checked. Follow your doctor's directions as to what to do when you receive a shock.

Will a CRT device change my life?

The truth is that your life could be longer, more productive, happier and healthier. After surgery, you will need to take it easy for a while. Be sure to carefully follow all of your doctor's instructions. But pretty soon, you will be able to do all the things you used to do—or more.

Do I have to stay away from things like microwaves, magnets or strobe lights?

Implantable devices cannot be damaged by using properly operating household appliances, such as microwave ovens, electric blankets and most power tools. Using electric arc welders or working on automobile ignition systems also will not damage CRT devices; however, there is a possibility that they may briefly interfere with proper device operation. Some medical equipment also may interfere with the function of the CRT device. If you become lightheaded or feel palpitations (rapid, irregular heartbeats), you should simply turn off the electrical equipment or walk away from it, and the implanted device should resume normal operation. If using problematic equipment is something that you cannot avoid, your doctor can tell you what to do. You might also contact the device manufacturer for guidance. Most manufacturers have engineers who can determine if the electrical field generated by the equipment can interfere with the CRT device.

Will medical equipment interfere with my CRT device?

Tell the hospital personnel that you have a CRT device before you undergo any medical procedure, such as electrosurgery, electrocautery, lithotripsy or radiation therapy, or a dental procedure or test. Do not enter areas that have a “no pacer” symbol posted.

Do not undergo any diathermy procedure, even if your CRT device has been turned off. It could cause damage to the tissue around the implanted electrodes or permanent damage to the CRT device. External defibrillator paddles should not be placed directly on your device or leads. Carry your Patient Identification Card at all times so emergency personnel are aware of your device if necessary.

Can I use a cell phone?

Cellular phones, which send electromagnetic signals, can interfere with proper device operation. However, simple precautions—such as not carrying the phone in a breast pocket over the CRT device and holding it to the ear that is farthest from the CRT device—minimize the risk. St. Jude Medical has put special filters in their CRT devices to prevent cell phone interference.

Will an iPod® music player or other portable multimedia player interfere with my CRT device?

There is no indication that compact multimedia players, such as iPod products or MP3 players, interfere with the normal function of a St. Jude Medical device. Some limited data suggests that during CRT-D or CRT-P evaluation in the hospital or in a clinic, use of one of these players within approximately 12 inches of the implanted device and programmer wand could disrupt the communication between the programmer and the device. Again, this interference is only observed when the multimedia player is within 12 inches of the implanted device and the programmer’s telemetry wand. This causes a distortion on the programmer screen, but it has absolutely no effect on the implanted pacemaker or ICD. You should simply turn off the multimedia player during a follow-up session, or move it and any earphone wiring more than 12 inches from the programmer wand to avoid this interference. Though there is no data that carrying a multimedia player device affects a CRT device’s ability to deliver therapy, it is nonetheless recommended that, if you carry the player in your breast pocket, you do so on the opposite side from your implanted CRT device.

iPOD is a trademark of Apple Inc.



Why do I need an identification card?

As a CRT device patient, you should wear some sort of bracelet that alerts people about your device. You should also be sure to tell other physicians, dentists and healthcare professionals that you have an implanted device to help control your heart rhythm. Some manufacturers will send you an identification card that you should carry in your wallet. If you do not receive a card in the mail, ask your doctor what information you should carry in your wallet to identify yourself as having an implanted device.



When can I resume physical activities?

Your doctor will let you know when it is safe for you to resume activities. It is important that you avoid bumping or hitting the area around your implant, so contact sports, like football, may not be a good idea because you may damage the device or leads. Your energy level may increase after you receive your device, and many people find they are able to do more physically than they were before because their symptoms have improved.

Can I participate in strenuous activities like hiking, skiing or jogging?

It is always best to discuss your plans with your doctor. He or she can advise you as to your limits or signs that you might be engaging in activities that are too strenuous. If you participate in a particular activity that affects

your chest or arm (shooting or archery, for example), you might want to discuss this with your doctor before receiving your device. It may affect how the device is selected and where and how it is implanted.

Is it safe to engage in sexual activity?

Other than a brief stay in the hospital and a short recovery period, receiving an implantable device typically does not have any adverse effect on a patient's sex life. It is important, though, to follow your doctor's advice as to when to resume any physical activity.

Will I be able to drive?

Talk to your doctor about driving. Having a CRT-P implanted should not affect your ability to drive. However, if you have a CRT-D implanted, remember that while it will stop a fast rhythm, it may not be able to prevent symptoms associated with that rhythm (dizziness, fainting) from happening. It is best to discuss driving with your physician before you resume driving.

Can I travel?

Your physician is your best resource for the answer to this question. Many CRT patients, however, find that with some extra planning and care, they can enjoy touring to many locations. It is always wise to plan your route carefully and give a copy of your itinerary to a loved one, just in case you encounter difficulties while traveling.

Will airport security interfere with my device?

Though many patients worry about airport security systems, there is really no need for concern. It is true that airport security has been tightened, but this does not place an added burden on you in terms of your implanted device. The best thing to do when you reach airport security is to walk through the metal detector at a normal pace. If the alarm sounds (it may or may not), it only means that the system detected the metal in your device.

Simply show your identification card. Ask for a hand pat-down search. Security personnel may perform a search with a handheld wand. If so, it is important to tell them that the search should be done quickly and that they should avoid holding the wand over your implanted device for more than a second.

What else should I know about traveling with an implantable device?

Remember that, while traveling, it is important to carry with you important medical information, such as medication names and dosages, your physician's name and phone number and how to care for you in an emergency. You should also ask your physician for a copy of the final printout from the programmer associated with the testing results and settings at the most recent evaluation. If you are going to a Spanish, French or German speaking country, your physician might also be able to give you a printout in the language of the country you will visit. Carry with you enough medications, and have a supply in your carry-on luggage and your suitcase when traveling by train or plane. Lastly, alert any travel personnel to special dietary needs you might have, and exercise good eating habits while on the road.

Will I still need to take medication once I have a CRT device?

This is a question for your physician. Usually, having an implantable device does not replace medication. Instead, medication and implantable devices work together. But your doctor may change your dosage.

Will I have any diet restrictions?

For overall heart health, doctors recommend following a diet that is low in sodium, fat and sugar and high in fiber and carbohydrates.

I am feeling better physically, but sometimes I feel worried or sad. Is there anything I can do?

Health is not just physical. Many patients experience stressful feelings once a device has been implanted. There are many coping strategies, including focusing on activities you enjoy, staying close to loved ones and getting enough rest. Try not to worry about shocks—remember CRT-Ps do not shock. It is true that shocks from a CRT-D can be uncomfortable, but many people can go a long time without having a shock. Living with HF can also be scary. But an implantable device is designed to offer you some comfort. It is there to back you up. If you are experiencing feelings of anxiety or depression, discuss this with your physician.

Below are some tips offered by Samuel F. Sears, PhD.

Dr. Sears is a licensed Clinical Health Psychologist who specializes in the care of ICD patients. He is an Associate Professor at the University of Florida Health Science Center in the College of Health Professions, Department of Clinical and Health Psychology.

Mind strategies

Check your stress level regularly; catch distress early

- Ask your friends and family how they think you have been handling the daily challenges in your life lately.
- Try this: Check your stress level each week. Have you been taking enough time to relax and live comfortably and confidently?

Look at changes as challenges

- Cardiac disease and an implanted device prompt changes in your life. Change can be stressful if you want everything to stay the same. Because change is a part of life, viewing these changes as challenges—not obstacles—will ultimately lead to happier outcomes.
- Try this: Review a recent change that you have experienced and look for the ways you made positive efforts to adapt. What good things did this change bring into your life?

Engage in positive thinking

- The power of positive thinking involves realistically evaluating events in your life and choosing to emphasize the positive and valuable aspects. Looking for the strengths in others and ourselves can often empower you with a renewed sense of purpose for your life.
- Try this: Take a moment to recognize the most positive qualities of two people in your life. Tell them how you feel at least once this week.

Know your condition and your device

- Being informed about your condition and your device will help you talk with your healthcare providers. Having a CRT device enrolls you in a lifelong class on your heart and your health.
- Try this: Practice explaining to someone in your family why you received a CRT device and how the CRT-D keeps you safe.

Plan for shocks

- The CRT-D's job is to provide lifesaving therapy to your heart. This therapy can sometimes require a shock. You need to have a plan for you and your family to respond in the event of a shock.
- Try this: Review your plan with your healthcare providers. What do they want you and your family to do if you receive a shock? Feel free to ask them questions.

Body strategies

Do something pleasant

- To break the cycle of stress and distress, participate in some pleasant and peaceful activities. Although it may seem difficult, when you start doing fun, rewarding activities again, you will start feeling more like your usual self.
- Try this: Do something you used to enjoy that you have not done in awhile.
 - Visit some old friends or relatives.
 - Go for a drive with a friend.
 - Eat an ice cream cone.
 - Listen to music you enjoy.
 - Treat yourself to a favorite meal.

Stay active

- Some CRT-D patients are surprised to learn that regular physical activity is important. Physical activity helps maintain a positive, upbeat mood, regulates your energy level and builds strength.
- Try this: Ask your doctor or nurse about safe levels of activity and then try your specific physical activity. Take time to notice how you feel during and after your activity. You may find that it has a calming effect on your mind and body. After three weeks, consider continuing the activity as part of your regular schedule.

Get some sleep

- Getting some rest can go a long way toward making you feel better. Two types of rest can help: quality sleep and relaxation.
- Try this:
 - Maintain a consistent sleep/wake schedule. Try to go to bed and wake up at the same time each day, even on the weekend.
 - Use your bed only for sleep and romance, so that it is not associated with other wakeful activities, such as watching television, working on a laptop computer or reading.
 - A warm bath or shower shortly before bed can be relaxing and help you fall asleep.
 - A dark, quiet, fairly cool bedroom environment is best for sleep.

Relax and take care

- Taking better care of yourself means you will be there to care for those you love.
- Try this: Identify some actions that are soothing (such as having quiet time, meditation, warm bath), and do at least one activity a day for a week.

Involve family ties

- Our loved ones can be an important part of our wellness.
- Try this: Discuss something that you and a loved one want to achieve and work together to accomplish it.

Pay attention to feeling alive and well

- Experiencing cardiac disease can remind us what it feels like to be ill and vulnerable, and it makes us feel unsure about how to help ourselves. Savor moments in life that prompt feelings of being alive and well.
- Try this: Consider people and activities that help you feel vibrant, refreshed and loved. Take time to get together to celebrate your relationships.

Now you have a CRT-D, and with it may come feelings of depression and anxiety. It can be overwhelming. That is why it is important to let your doctor know when you experience these feelings:

- Sadness: feeling sad or having crying episodes on more days than not
- No fun anymore: no longer enjoying activities that you used to enjoy
- Harmful thoughts and feelings: thoughts of hurting or killing yourself or severe feelings of hopelessness
- Avoidance: avoidance of activities, people, intimacy or other situations that may raise your heart rate
- Excessive anxiety: feeling nervous, anxious, jittery or tense more often than not, or being unable to get worries out of your mind
- Shock fears: feeling afraid of future shocks, to the point that it severely limits your daily activities

When you tell people how you feel, you open the door to the care, love and support you need. Many hospitals have patient support groups that meet regularly to learn about device therapy, heart disease and so on. It is not unusual for patients—particularly right after surgery—to be nervous or apprehensive about the device. These groups can offer insight and support as you become used to your new lifestyle. They will also help you meet other patients. Ask your doctor about local patient support groups.

Glossary:

Arrhythmia An irregular rhythm of the heart, resulting in the heart beating too slowly, too quickly or irregularly (also called dysrhythmia).

Atrial Relating to the atrium.

Atrium (pl. atria) One of the two upper chambers of the heart—the right atrium and the left atrium. These chambers receive blood from the body and pump it to the ventricles, the lower chambers of the heart.

Bradycardia An abnormally slow heart rate, less than 60 beats per minute. However, if a person is in very good physical condition, it is natural for heart rate to be below 60 beats per minute.

Cardiac Resynchronization Therapy Defibrillator (CRT-D) An implantable cardioverter defibrillator that includes a pacing feature to help resynchronize (coordinate) the lower heart chambers. Also known as an ICD-CRT, ICD with biventricular pacing or heart failure ICD.

Cardiac Resynchronization Therapy Pacemaker (CRT-P) A pacemaker system comprising a device and three leads: one in the right atrium, one in the right ventricle and one in the left ventricle. These can help the left and right ventricle beat at the same time.

Conscious Sedation A medication used in surgery that numbs only one area of the body while the patient stays awake (also called local anesthetic).

Contraction A squeezing of the heart muscle that forces blood out of the heart. This contraction is the heartbeat.

Defibrillation The use of electric shock to stop rapid heartbeats, usually ventricular fibrillation. Defibrillators use paddles on the outside of the chest or internal electrodes placed directly on the heart.

Electromagnetic Interference Also known as EMI, this is magnetic or electrical interference from machines or devices that can interrupt the normal operation of a CRT-P/CRT-D.

Fibrillation An arrhythmia in which the heart quivers rapidly. Atrial fibrillation occurs in the atrium and is usually not life threatening. Ventricular fibrillation occurs in the ventricles and can be fatal.

Heart Failure Heart failure (HF) is a complex clinical syndrome that results when the heart muscle is weakened and can no longer pump blood as efficiently as a healthy heart.

ICD Implantable cardioverter defibrillator; an implanted pulse generator used to treat ventricular fibrillation and tachycardia by delivering electrical shocks directly to the heart.

Lead A special wire connected to the pulse generator and placed in or on the heart.

Pacemaker An electronic device surgically implanted in the chest designed to regulate the heartbeat (also called pulse generator).

Programmer A special computer designed to communicate with or “program” an implanted device.

Pulse Generator A sealed device containing electronic circuitry and a battery, designed to send out electrical pulses and correct problems with the heart’s rhythm.

Remote Monitoring Using a device or machine to transmit information about your CRT-P/CRT-D over a phone line.

Rhythm The regular beating of your heart.

Sudden Cardiac Arrest A condition caused when the lower chambers of the heart (the ventricles) suddenly stop beating normally and develop ventricular fibrillation. The ventricles do not contract normally, so they cannot effectively pump blood. VF quickly becomes more erratic, resulting in sudden cardiac arrest. If this arrhythmia is not corrected immediately via a shock from an external defibrillator, ICD or CRT-D, death will follow.

Tachycardia Any cardiac arrhythmia characterized by a rapid rate, usually more than 100 beats per minute. Tachycardias may be normal, as in the case of a sinus tachycardia induced by exercise, or they may indicate an electrical problem in the heart.

Ventricles The two lower chambers of the heart. These chambers pump the blood out of the heart into the body.

Ventricular Relating to the ventricle.

Ventricular Fibrillation A quivering of the ventricles during which essentially no blood is pumped to the body. It can lead to death if an electrical shock is not quickly delivered to the heart to restore a normal heartbeat.

Ventricular Tachycardia A rapid beating of the ventricles. This rapid beating reduces the heart's pumping efficiency and can therefore lead to fainting, dizziness, weakness, blind spots and unconsciousness. If this rhythm is not treated with medications or an electrical shock, it can lead to the more serious problem of ventricular fibrillation.

