

Your Heart Education Guide

Heart to Heart



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Compiled and reviewed by the Regional Cardiac Education Committee, clinical staff and physicians in Providence Health & Services' Portland Service Area

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www.providence.org/heart

Introduction



This manual was prepared for you and your loved ones. It's normal to feel overwhelmed or anxious when you, a family member or a friend must be in the hospital for a heart-related problem. In this manual, you will find important information that will help you better understand what to expect while you are at the hospital and what to expect when you return home. The doctors, nurses, dietitians and other health professionals who provide care during your hospital stay all played a role in putting this heart education guide together. Your heart health is in good hands!



After you go home

Call your doctor about:

- Symptoms like those that brought you to the hospital
- Difficulty breathing or unusual shortness of breath
- Angina discomfort that does not go away with nitroglycerin
- Pain that does not get better with pain medications
- Gain of 3 to 4 pounds overnight
- Fever or chills. Nausea or vomiting that does not get better
- An incision that gets red, feels warm, smells bad or begins to leak



Recovery plan:

- Get out of bed every morning, use the bathroom and then weigh yourself. Write your weight down.
- Take a shower and get dressed every day.
- Start slowly and each day do a little bit more.
- **Walk almost every day.** Make it a priority! Walk on level ground at first. (See page 29.)
- When sitting, put your legs up; get up every hour and walk around for 5 to 10 minutes.
- Eat healthy foods at meals. Focus on getting stronger and healing.
- Talk to a supportive person about your feelings.

Medications:

- Do not stop taking any medication without talking to your doctor **first**.
- Do not take medication you took before you came to the hospital unless it's written on your discharge medication list.
- Call your doctor if you have any questions.

If you have an incision:

- Wash daily with gentle soap and warm water, rinse gently and pat dry.
- Shower, but do not take a bath, sit in a hot tub or go swimming.
- Do not use lotion, cream or powder on your incision unless your doctor gives the okay.

Don't forget to ask

Questions for your doctor, nurse and other health care providers

Doctor:

Phone:

Next appointment:

Questions:

1.

2.

3.

4.

5.

6.

7.



Providence health services

Cardiac rehabilitation

- **Cardiac Rehabilitation Center at Providence St. Vincent Medical Center:** A medically supervised program of exercise and education, designed to help cardiac patients recover. Call 503-216-1250 for information.



Exercise

- **Providence health and lifestyle fitness classes:** Call 503-574-6595 or visit www.providence.org/classes for information or registration.
- **Heart strong cardiac physical therapy:** Call 503-216-5410 for information.

Health education classes

- Diabetes education
- Smoking cessation
- Weight management

Call 503-574-6595 or visit www.providence.org/classes for information or registration.

Group information and support

- “No Fibbers” ICD (implantable cardioverter defibrillator) educational group, Providence St. Vincent Medical Center, meets quarterly. Call 503-216-2180 for information.
- Support groups: Call 503-574-6595 or visit www.providence.org/classes for information.

Online health information

- Heart, www.providence.org/heart
- Diabetes, www.providence.org/diabetes

Audio information

- **Providence AudioLibrary:** Call 503-216-4720 or 800-700-0561 for recorded information on more than 1,000 health-related topics, 24 hours a day.

Providence Resource Line

Call 503-574-6595 or 800-562-8964 for information on Providence services, programs, classes and physician referral.

Providence health services

Other Portland-area health resources

Cardiac rehabilitation

- Providence Hood River Hospital, 541-387-6326
- Legacy hospitals: Good Samaritan, Meridian Park, Mount Hood, Salmon Creek, 503-413-6723
- Adventist Medical Center, 503-251-6260
- Tuality Healthcare, 503-681-1848
- Southwest Washington Medical Center, Vancouver, 360-514-1600

Exercise

- Clark College Community Education, 360-992-2808
- Parks and Recreation: wide variety of classes available
 - Portland, 503-823-7529
 - Tualatin Hills, 503-645-6433
 - Vancouver, west side, 360-487-7100, and east side, 360-487-7001
 - Portland Community College Community Education, www.pcc.edu
 - Mall walking clubs: informal walking clubs available at local malls

Group information and support

- Cardiac rehab support group, Adventist Medical Center, spouses welcome, 503-251-6260

Health resources outside the Portland area

For information about resources in your local community, please contact your primary care physician or cardiologist.



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Part 1: The first few weeks at home

Read the following section to:

1. Discover why it's important once you get home to take your medications exactly as your doctor prescribed them.
2. Learn how to manage any pain you have.
3. Learn more about the medications you may take as you recover from a heart attack or heart surgery.
4. Explore how to deal with your feelings now that you are at home.
5. Be prepared for your first few weeks of recovery following an angioplasty or stent placement.
6. Be prepared for your first few weeks of recovery following a heart attack or heart surgery.
7. For patients who had a heart valve replaced, learn about preventing infections.

Medications

Just what the doctor ordered

Once you are home, it's very important you take your medications exactly as your doctor told you to. Different types of medications have different effects on your heart. Some may slow down or even prevent any further damage to your heart. Others may protect you from developing a blood clot. If you've had a heart attack, the medications you take can help prevent you from having another one.

Want to feel better and take care of your heart at the same time? Do your part!

- Know what medications you are taking: learn the names, what they look like and why you are taking them.
- Write down all the medications you are taking and carry this list with you at all times. (See page 5.)
- Take your medications exactly the way your doctor told you to.
- Check with your doctor FIRST before you stop taking any medication.
- Ask your doctor if it is safe to drink alcohol while you are taking medications for a heart problem.

Take the pain away

Most people who come to the hospital with a heart problem will go home on some type of **pain medication**. Some medications typically given to control pain after surgery or a cath lab procedure are Percocet-5, Vicodin, acetaminophen (Tylenol), ibuprofen (Advil, Motrin) and oxycodone (Oxycontin).

Here's what you need to know about your pain medication:

- Take your pain medication as written on your discharge orders. If you are to follow a regular schedule and you miss a dose, take it as soon as you remember. If it is almost time for your next dose, however, skip the missed dose and continue with your regular schedule.
- Contact your doctor if you are having pain that interferes with your recovery. For example, if you can't sleep, find a comfortable position once you're up, do your deep-breathing exercises or follow your daily walking plan. You have the right to be comfortable – do not wait until your next appointment with your doctor.
- As you feel better and have less pain, slowly reduce the amount of pain medication you take. For example, if you are sent home from the hospital taking medication for pain 3 times a day, move to taking it twice a day. Then take it only at bedtime. Only **you** can determine when you are feeling better and having less pain.
- Be aware that many pain medications, such as Vicodin and Percocet-5, contain some acetaminophen (Tylenol). To avoid liver damage, do not take more than 4 grams of acetaminophen (Tylenol) a day. * Your doctor will talk to you about this. If he or she does not, **ask!**



** This means no more than: 12 Percocet-5 or 8 Vicodin or 12 regular-strength acetaminophen (Tylenol) or 8 extra-strength acetaminophen (Tylenol) in 24 hours.*



- Pain medications can cause nausea or an upset stomach. Take them with food.
- **Constipation** is a common side effect of taking pain medication. For example, if you had surgery, it's normal to not have a bowel movement every day. If you do not have a bowel movement at least every other day, you may consider taking milk of magnesia (check the label for the correct amount) or 1 or 2 docusate capsules at bedtime. If you're still having problems (more than 3 days without having a bowel movement), contact your doctor. Once you are off your pain medication, try Citrucel or Metamucil.

As you feel better, you can prevent constipation. Eat a high-fiber breakfast cereal every day, as well as plenty of fresh fruits and vegetables. (A glass of warm prune juice, or warm water with lemon, can be very helpful too.) Be as active as you can throughout the day. If your doctor allows, drink 6 to 8 glasses of water a day.



If you had a heart attack

The American Heart Association recommends that following a heart attack, you have four different types of medications (plus other medications as needed). The four are as follows:

1. Anti-platelet

Anti-platelet drugs such as aspirin work by preventing blood clots from forming. You will most likely need to take aspirin for the rest of your life. If you can't tolerate aspirin, you may receive clopidogrel (Plavix) or prasugrel (Effient). Some people will go home on aspirin as well as clopidogrel or prasugrel.

2. Beta-blocker

This drug has been shown to lower your chance of having another heart attack. Beta-blockers work by lowering your heart rate and blood pressure, and they are also used to treat high blood pressure.

Examples: metoprolol (Lopressor), carvedilol (Coreg), atenolol (Tenormin)

3. ACE inhibitor and ARB

These drugs can help preserve the pumping function of your heart after a heart attack. They treat high blood pressure and heart failure, and prevent kidney damage in people who have diabetes.

ACE inhibitor examples: lisinopril (Prinivil, Zestril), enalapril (Vasotec), ramipril (Altace)

ARB examples: losartan (Cozaar), valsartan (Diovan)

4. Cholesterol (lipid)-lowering drug

This drug is thought to work by preventing fatty deposits (called plaque) from breaking away from the lining of your coronary arteries – which can lead to a heart attack. Even people with a normal cholesterol level may benefit from a cholesterol-lowering drug after a heart attack.

Examples: atorvastatin (Lipitor), lovastatin (Mevacor), pravastatin (Pravachol), simvastatin (Zocor), rosuvastatin (Crestor)



If you had heart surgery

The medications you need to take following surgery will depend on the type of heart surgery you had. Besides pain medication, your doctor will most likely send you home on aspirin, a beta-blocker, an ACE inhibitor and a cholesterol-lowering drug (see page 15). Listed below are other medications you may also need.

- **Diuretics or “water pills”**

A diuretic removes excess water from the body so your heart doesn't have to work as hard. You will make more trips to the bathroom to urinate the first week; after that your body should adjust. To avoid nighttime trips to the bathroom, always take your diuretic first thing in the morning. If you take a diuretic twice a day, take the second dose no later than 3 p.m.

Weigh yourself daily at the same time of day, using the same scale. If you gain more than 2 to 5 pounds over 3 days, call your doctor. You may or may not need a potassium supplement while you are taking a diuretic. Discuss this with your doctor.

- **Digitalis (digoxin)**

Digoxin is used to treat abnormal heart rhythms. While taking this medication, you should take your pulse daily* (right before you take the medication) and call your doctor should it drop below 60. You may have blood tests to monitor the level of digoxin in your body.

** If you don't know how to check your pulse, see page 55 or ask to be taught at your next doctor's appointment. Many automated blood pressure cuffs also measure pulse.*

- **Nitroglycerin**

Nitroglycerin works quickly to open up blood vessels so more blood and oxygen can get to the heart. **If you have angina (chest pain), carry nitroglycerin tablets or spray with you at all times.** At the first sign of angina, sit or lie down and place a nitroglycerin tablet or spray under your tongue and let it dissolve. Do not chew or swallow the tablet. Wait 5 minutes and if the discomfort persists, take a second tablet or spray. If the pain or discomfort is still present, wait 5 more minutes and take 1 more tablet/spray.

If the chest pain does not go away with rest and/or taking 3 nitroglycerin tablets or sprays – **call 9-1-1. Do not drive to the hospital. You may be having a heart attack.**

For more on nitroglycerin, see page 91.

- **Warfarin (Coumadin)**

Warfarin is a blood thinner that can help stop blood clots from forming and keep clots from getting larger. How much warfarin you take is determined by a special blood test called protime or INR. **When you first start warfarin therapy, you will need to have your INR done at least twice a week.**

After your blood level becomes constant, you will most likely be tested once a month. Your doctor will adjust your dose to keep your INR between 2.0 and 3.0 (or, if you have a mechanical heart valve, between 2.5 and 3.5). Check with your doctor about what your target range should be.

Some medications and foods may interact with warfarin, and this interaction could make your blood either “too thick” or “too thin.” Remind all your doctors, as well as your dentist, that you are taking warfarin. If you are sick and unable to eat for 2 days or more, or if you have vomiting and diarrhea that last for 24 to 48 hours, contact your doctor because your warfarin dose may need to be changed.

Take your warfarin at the same time each day. If you forget to take a tablet, call your doctor. Do not take 2 tablets the next day to “catch up.”

Warfarin interactions with food:

Vitamin K is needed for normal blood clotting. Warfarin works by reducing the amount of vitamin K in your blood. High amounts of vitamin K in the foods you eat may interfere with how warfarin works. **You do not have to stop eating foods that are high in vitamin K; however, you should keep eating the same amounts** because it’s important to be consistent with your vitamin K intake. The following foods are high in vitamin K:

- **Green leafy vegetables:** broccoli, Brussels sprouts, endive, green cabbage, lettuce (except for iceberg), kale, parsley, spinach, turnip and collard greens, watercress*

** Eat the above foods in the same amount from day to day. In other words, **don’t** load up on a huge plate of leafy green vegetables once a week when you eat at a restaurant and then not eat any, or eat very small amounts, the other days of the week.*

Contact your doctor if the foods you eat from day to day or your regular activity level changes. For example, if you plan to travel out of the country or take a cruise, you may need to have an INR test before you leave or to have one during your trip.



Warfarin interactions with beverages:

Alcohol: It's best not to drink alcohol or alcohol-containing products while you are taking warfarin. Discuss this with your doctor. If you do choose to drink alcohol, drink limited amounts – 1 drink per day for women and 2 drinks per day for men. (A drink is considered one 12-ounce beer, 4 ounces of wine or 1½ ounces of hard liquor.)

Green tea: If you drink green tea, drink the same amount every day – 1 cup. Be aware that most Asian restaurants serve green tea. Ask **before** you order tea.

Buyer beware: vitamins and herbals

Many herbs and supplements, including vitamins, can interfere with the medications you take. Let your doctor know if you are taking or considering taking any herbal or supplement. As a reminder, write them down on your medication list (see page 5).

If on warfarin, contact your doctor immediately if you develop any of the following:

- Unusual bleeding, as indicated by:
 - Bleeding gums (when you brush your teeth), nosebleeds or cuts that do not stop bleeding after you have applied 10 minutes of firm pressure
 - Red or black color in your stool
 - Dark brown urine
 - Throwing up blood or material that looks like coffee grounds
 - Unusual bruising (reddish or purplish skin spots) for unknown reasons
 - More bleeding than usual when you get your menstrual period
- Sudden, severe headache, dizziness or lightheadedness
- Unusual pain or swelling in the joints



If you had a heart valve repaired or replaced

If you have a new heart valve, you can get a serious heart infection called **bacterial endocarditis**. This infection can happen following dental work (even getting your teeth cleaned), medical exams where tubes or objects are inserted into your body, or surgery, or if you come down with another infection.

To protect yourself from bacterial endocarditis:

- Always tell your doctor or dentist that you have had heart valve surgery. You may need to take antibiotics **before and after** the medical procedure or dental exam.
- Take good care of your teeth. Brush and floss your teeth gently, and visit your dentist on a regular basis.
- Have a flu shot each year.
- Wear a medical alert bracelet or necklace that says you have an artificial heart valve and that you take a blood thinner, such as warfarin (Coumadin).

Do you want peace of mind?

For peace of mind, wear a medical alert bracelet or necklace. It should contain a brief and easy-to-read summary of your key medical facts, such as the type of heart condition you have and if you are on a blood thinner such as warfarin. Emergency personnel are trained to look for medical alert jewelry in an emergency. Save your life – get a medical alert bracelet or necklace today!



Check with your local pharmacy for a mail-in application or contact your doctor.



Dealing with your feelings

Emotions of the heart

At this point, you may be feeling anxious, depressed or even angry about having a heart problem. If you've paid little attention to your health in the past, you may also feel guilty. These are all perfectly normal feelings to have, especially as you recover from a heart attack or open heart surgery.

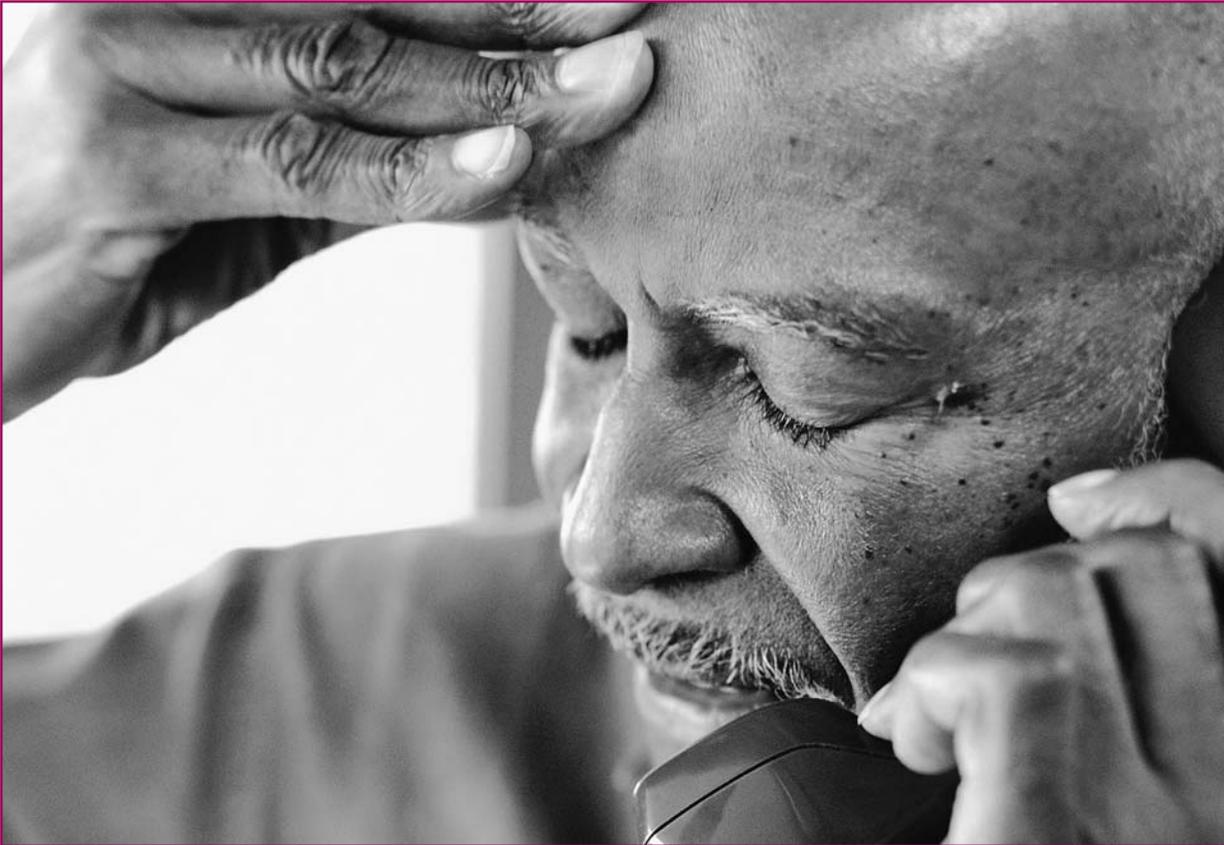
You will feel better in time. However, negative or unpleasant feelings that keep you from doing the simple things you need to do, like getting out of bed every day and getting dressed or having dinner with family or friends, can be harmful when they last too long. Here's a plan of action to help you reduce stress and deal with negative or unpleasant feelings.*

- 1. Talk to someone.** Share your feelings with family members and friends whom you trust. This will help them feel better, too! Other people you can talk to include your spiritual adviser, such as a priest, minister or rabbi, and colleagues at work. Joining a support group means you can talk to others who have gone or are going through the same things you are. (See page 9 for information on a cardiac rehab support group that meets monthly in the Portland area.)
- 2. Get the facts.** We often make a situation worse than it is because we don't have all the facts. Remember – what you don't know **can** hurt you! It can make you feel more anxious or depressed than you need to be. Learn as much as you can about your health and what you can do to help yourself recover.

You can also write down questions for your treatment team – your doctor, surgeon, nurse, physical therapist, etc. – and bring the questions with you to your appointments. Use page 7 to get started. As soon as you feel up to it, attend a Providence HeartWise Living class. Classes are free and spouses are welcome. Call 503-215-8039 for the most up-to-date schedule.

- 3. Make a plan.** Once you have the facts, you can make a plan. You will feel better as you focus on what you **WILL DO** instead of doing nothing at all or dwelling on what you can't do. A positive attitude plays a big part in how well you recover.

** If you're still feeling depressed or "out of sorts" after going home, tell your doctor. You may benefit from medication or a short period of counseling.*



As a friend or family member, what can I do to help?

- 1. Make it easy for your loved one to ask for help or understanding. Encourage your loved one to talk about what he or she is feeling. Take it upon yourself to bring up the topic of “feelings,” and share your own feelings, too.**
- 2. Be patient. People cope in different ways. Respect these differences and be able to talk about them. As long as the two of you keep talking to each other, the recovery process can move forward.**
- 3. Show your support. Actions speak louder than words. Ask what you can do to be supportive and then do it. Making major lifestyle changes – such as not smoking, or eating at restaurants with healthier choices – will be easier and more likely to succeed if you work on it together.**
- 4. Be helpful, but not overprotective. Your loved one may already be feeling “weak” or “useless,” or even guilty for “causing so much trouble.” Provide help when it’s really needed, but don’t overdo it. Remember – your loved one’s “job” right now is to work at getting to a healthier place!**



What to expect at home as you recover from a cath lab procedure

Activity

First day: Rest.

- If the catheter was placed in your arm, do not reach, lift or push with this arm. Keep the sling or dressing on for the rest of the day.
- **If the catheter was placed in your groin (upper leg), do not lift anything that weighs more than 10 to 15 pounds for 1 week. If you're not sure – DON'T LIFT IT!**

Second day: Take short walks.

Third day: Resume usual activities (unless your doctor says to rest).

Bathing: You may take a shower. No baths, hot tubs or swimming for 1 week.

Driving: Do not drive for 24 hours.

Returning to work: Discuss this with your doctor before you leave the hospital.

Medication

- Take all medication exactly as you were told to.
- Do **not** stop any medications before discussing it with your doctor.
- Keep in mind that **aspirin** and **clopidogrel** (Plavix) may cause you to bruise and bleed easily.

Diet

- Drink extra fluids.
- Eat normally. Choose heart-healthy foods. (See pages 56 to 78.)

Puncture site care

You may have some bruising (purplish spots) at the place where the catheter was inserted. You may get a **small** swelling and/or a hard knot (almond-sized) that feels slightly tender when you touch it. This is normal! (The purplish color may spread and it may last up to a month.)

- Take acetaminophen (Tylenol) for pain, if needed.
- Cover the puncture site with a hot pack or a cool pack (10 to 15 minutes at any one time) to reduce discomfort.
- Keep the puncture site clean and dry – cover with a Band-Aid if you wish.
- Do not wear tight clothing.

Contact your doctor if any of the following occurs:

- The puncture site is warm, red, swollen, painful, tingling or numb.
- The puncture site is leaking smelly or cloudy yellow-to-green fluid.
- The arm or leg changes color (turns pale), or is unusually cold when you touch it.
- You have a temperature over 100°.



If you have any bleeding after a groin procedure

This is a medical emergency!

- **Lie down flat.**
- **Immediately apply FIRM pressure.**
- **Call 9-1-1.**



Be concerned if you have angina (chest pain) that does any of the following:

- Feels like the angina you had before the procedure
- Is severe
- Lasts for several minutes
- Wakes you from a nap or sleep
- Causes shortness of breath
- Goes to your neck, arm, shoulder or elbow
- Causes you to sweat

TAKE NITROGLYCERIN

If angina goes away, call your doctor.

If angina does NOT go away, call 9-1-1 or have someone take you to the emergency room. Do not drive!

What to expect at home as you recover from open heart surgery

Incision care

You will have at least one incision (on your chest) to take care of. You may also have an incision(s) on your leg or arm. The area around the incision can be red, itchy, sore and somewhat numb for many weeks. You may also have bruising (purplish spots), especially on your inner thigh if you have a leg incision. The incision may leak pink, clear or brown fluid for a week or two.

- Gently wash your incision every day with soap and warm water. You may do this in the shower.
- Do not put lotion, cream or powder on the incision.
- If you have small white paper strips across your incision, they may fall off on their own. Otherwise, do not remove them until told to do so by your doctor.
- If your incision is leaking or draining, you may apply a light gauze dressing such as the nurse did during your hospital stay. Change it every day, or more often if needed.
- If the incision leaks smelly, cloudy yellow-to-green fluid, or becomes red or hot to the touch, or if you have a temperature over 100°, call your doctor's office immediately.
- Your upper back, neck and shoulders may be sore for a while. For relief, try using a heating pad set on low. If you have soreness in your chest, try sleeping on your side with a pillow between your arms.



Medications

You most likely will be taking several different medications, such as ones to improve blood flow to your heart, treat high blood pressure and reduce pain. All these medications are important! **It's easy to become confused – so a labeled pillbox is helpful. As needed, have someone help you sort out your medications and place them in this pillbox each week.**

- Take your medications exactly as the nurse reviewed with you before you left the hospital. Know the names of all your medications, the time of day to take them, and whether you must take them with food. See the medication list on page 5. Always carry a copy of this list with you.
- Check with your nurse, doctor or a pharmacist **first** before taking vitamins, herbs, or any medications you buy “over the counter.”
- Check with your nurse or doctor **before** you take medications for medical problems you had before you came to the hospital for open heart surgery.
- Do not stop taking any medication or change the amount you take without checking with your doctor **first**. Tell your doctor about any unpleasant side effects; it may be possible to switch to another medication.

Support stockings

Your doctor may want you to wear elastic support stockings after your surgery. These stockings are worn to control swelling in your legs, ankles and feet.

- Put the stockings on as soon as you get out of bed in the morning. Wear them all day long and then remove them at bedtime. If you have a leg incision, have someone help you put the socks on.
- Wear a clean pair of stockings each day. At night, wash by hand or in the washing machine with a mild detergent. Air dry or use a dryer set on low heat.

Bathing

You may take a shower once you are home. Don't take a tub bath unless your surgeon tells you it's okay.

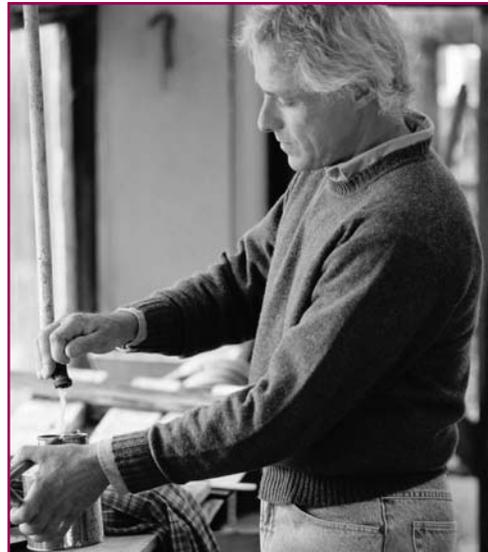
- Use warm, not hot, water. Hot water may make you dizzy and lightheaded.
- A shower stool to sit on is a good idea. Look in the Yellow Pages under "Medical Equipment & Supplies" to find one at a drug store near you.
- At first, have someone nearby to help you.
- Do not sit in a hot tub, sauna or swimming pool until you have met with your doctor at your follow-up appointment.

Daily activities

You may tire easily the first few weeks at home. This is normal. Plan to rest a few times throughout the day, especially after a meal. It's also normal to notice, or feel as if, your heart is beating more loudly. When sitting, put your legs up on a stool or the arm of the couch (above your heart is best); get up once an hour and walk around for a few minutes.

Your breastbone (underneath your chest incision) takes 3 months to fully heal – **so you will need to stay away from activities that involve pushing, pulling, twisting or turning for the first 2 to 3 months.** If you're not sure an activity is "safe," ask your doctor **before** you do it.

- Get out of bed every day, shower and get dressed. **Do not sit around in your pajamas or robe all day!**
- **Do your breathing exercises (using the incentive spirometer you got while in the hospital) at least 4 times a day.**
- If you have swelling in your legs, put your legs up for at least 30 minutes. Do this 3 times a day.
- At first you may read, watch TV, play games, do puzzles, enjoy crafts, do computer work, sew or knit. As you feel stronger, you can do light household chores and light yard work. Grocery shopping is fine, too – as long as you don't carry the bags!





I've just had open heart surgery. I'm afraid to make my heart work too hard. What can I do the first few weeks?

You can:

Dust
Load/unload the dishwasher
Do light laundry
Water small plants
Grocery shop (do not carry bags)
Prepare simple meals
Bake
Walk
Practice putting a golf ball

You should not:

Push a vacuum, broom or mop
Do heavy cleaning
Change sheets on the bed
Garden with a hoe or rake
Rearrange furniture
Move trash cans
Shovel snow
Drive
Swing a golf club

- To strengthen your heart, make a plan to walk most days of the week (5 or 6 days).* In the beginning, walk on level surfaces. It's okay to climb a few flights of stairs, too. Rest as often as you need to. Walk at least 2 times a day or take 1 longer walk each day. The goal is to gradually increase the number of minutes that you walk each day.

** Be careful on really cold or really warm days – walk inside an enclosed shopping mall or fitness center.*

Home walking program

The following is an example of a home walking program. *By the END of each week following your surgery, you should be walking:

How long?

Week 1: 10 minutes at a time

Week 2: 15 minutes at a time

Week 3: 20 minutes at a time

Week 4: 30 minutes at a time

Week 5 (and beyond): 30-45 minutes at a time

How often?

2 or 3 times a day

2 or 3 times a day

2 times a day

Once a day

4 to 6 times a week

* *If you start a supervised exercise program, follow the program's guidelines or follow any other guidelines your doctor gave you.*

Lifting

During the first 8 weeks, do not lift anything that causes you to feel soreness in your chest.

- Do not carry grocery bags, suitcases or children. Even a gallon of milk (8.6 pounds) can be too much the first month after surgery!
- Don't push open any heavy doors. (If possible, turn around and back through the door, or have someone open it for you.)
- Do not open windows or jar lids.

Lifting guidelines for the first 3 months:

First month: 5 to 10 pounds at most

Second month: 10 to 15 pounds at most

Third month: 15 to 20 pounds at most



Diet

Eating a wide variety of healthy foods will give you the nutrients you need for a speedy recovery. Concentrate on eating well at mealtimes and drinking healthy beverages, like water, milk and 100% fruit juice.

- If you are not hungry and you have lost weight since the surgery, focus on regaining your strength. Eat whatever foods appeal to you until your appetite returns. Do not eat highly salted foods, however, such as ham, bacon, potato chips and canned soup; and do not add salt to foods at the table.
- Choose liquid meals such as Ensure, Boost or Carnation Instant Breakfast when you aren't hungry or you feel too tired to eat solid foods. These products are easy to prepare and digest. If you are taking Coumadin, check with your doctor first.
- Even if you need to lose weight, do not "go on a diet" the first 4 to 6 weeks after surgery – you'll be too weak to fight off infections, and your incisions won't heal properly. When you're feeling stronger, don't try to drop pounds quickly by going on a fad diet. This type of weight loss is stressful on your heart.
- Take stock of the way you ate leading up to your surgery. Begin to think about the changes you are willing to make in your eating habits to improve your health.

Your daily weight

Some people have a tendency to "hold on" to fluid after having surgery. If you gain 2 to 3 pounds in one day, this is most likely your body holding on to fluid; it is not fat. But if you gain more than 3 pounds in 24 hours, call your doctor.

Your doctor may want you to weigh yourself daily. If so, remember to:

- Weigh yourself first thing in the morning.
- Use the same scale each time.
- Remove your clothes or wear about the same amount of clothing each time.
- Empty your bladder first.
- Keep a daily record of your weight. Bring it to your next doctor's appointment.

Cutting down on the amount of salt in your daily diet can help decrease the amount of fluid your body holds on to. If your doctor has not talked to you about a low-sodium diet, ask if you should be on one. See page 61 for simple tips on reducing the sodium in your diet.



Travel and driving

Do **not** drive a car, motorcycle, tractor or any other motor vehicle until **after** you return to see the doctor at your follow-up appointment. Most people resume driving 2 to 6 weeks after surgery.

- Your doctor must give you the okay before you can drive. **It's against the law to drive while taking strong pain medication (narcotics)!**
- Always wear your seat belt. (You could hurt your breastbone if it should hit the dashboard during an accident.)
- You may take short car rides. Don't plan any long trips until you discuss it with your doctor. Stop every hour and walk around to help prevent swelling in your legs.

Review any travel plans with your doctor **first**. It's usually best to stay close to home for the first month or two.

- Take enough medication with you to last the entire trip, and keep it with you at all times.
- Never put your medications in the luggage that you check.
- Avoid large crowds of people, especially during the cold and flu season.
- Wash your hands with soap and water frequently. This is the best way to prevent catching a cold or other upper respiratory infection.



Sex

It's normal to worry about having sex after open heart surgery. Most people can resume having sex with their usual partner 2 to 4 weeks after surgery; however, there is no set timetable. You must be ready physically AND mentally to enjoy having sex.

- You may not have any desire for sex during the early part of your recovery. You may feel depressed, sad or angry or be worried about money or your job. You may have physical discomfort, or your medications may affect your desire or ability to have sex. These concerns usually go away with time.
- If you can take a brisk walk or climb 2 flights of stairs without getting short of breath, your heart is ready to handle the physical demands of sex. Choose a position that doesn't strain your arms and chest.
- Wait 3 hours after eating a large meal or drinking alcohol before you have sex.
- Choose a time when you are rested and feeling good. If you can't relax, wait until you feel better.

Report to your doctor any angina (chest pain) that occurs during or after sex!

Returning to work

When you return to work depends on your overall health and on what type of job you have. If you have a desk job, you may be able to go back sooner than if your job involves physical labor or a lot of standing or walking.

- Your doctor will discuss with you at your first follow-up appointment when you can go back to work.

Contact your doctor if you experience any of the following:

- Your heart feels as if it is “running” in your chest, beating too fast or too slowly, or skipping or missing beats.
- You have chest pain (like the pain you had before the surgery).
- You feel short of breath and it does not get better after you stop and rest for a few minutes; or you feel short of breath when you lie flat in bed (if either sensation is new for you).
- You have fainting spells or dizziness that come on quickly.
- You feel unusually weak or tired.
- Your incision:
 - Becomes increasingly red, painful, hot or swollen.
 - Looks as if it is pulling apart.
 - Is leaking smelly or cloudy yellow-to-green fluid.
 - Is leaking and you have a fever over 100°.





Common questions

- Why am I so cold?
- Why can't I sleep?
- Why do things look slightly blurry?
- Why doesn't any food taste good?
- When will I get my energy back?

It's not every day that you have major surgery. Your body needs time to adjust and get back to normal. For example, it can take up to a month for your taste buds to start working and for foods to look and smell appealing. (You need to eat anyway in order to recover.) You also should be sleeping more normally within 3 to 4 weeks. Be sure to take your pain medication before going to bed, and cut down on the number of naps you take during the day if being up at night is a real problem.

It's common to feel colder than normal following surgery. No one is sure why this happens, but it passes with time. Dress warmly and carry an extra coat or sweater with you, even if it's summertime. It's also common for your vision to be slightly blurry after surgery. Your vision should go back to how it was before surgery within a month or two. Do not replace your glasses or contacts right away.

You may be anxious or depressed about your lack of energy. Give yourself time – most heart surgery patients report that it takes almost 3 months before they can say: "I feel like myself again."

Do your part to recover from heart surgery – get plenty of sleep, avoid undue stress (get help dealing with stress if you need to), choose healthy foods, and walk daily. And – don't be surprised if you feel better than ever!

Stop smoking!

If you smoke, the best thing you can do is **stop now!** You know smoking is bad for your health. What you may not know, however, is that your body starts to undo the damage that smoking causes within hours of your smoking your last cigarette. For example, your chance of having a heart attack decreases within 24 hours of your last smoke!



If you're a longtime smoker, you may need help to stop smoking. Discuss the various available options and programs with your doctor, or use the following information to get started.

Providence Resource Line: Call 503-574-6595

Providence online resource: www.providence.org/stopsmoking

QuitNet: www.quitnet.com

Oregon QuitLine: www.oregonquitline.org

Toll-free QuitLine: Call 1-877-270-STOP (7867)



What to expect at home as you recover from having a heart attack

During a heart attack, a part of your heart muscle did not get enough blood and oxygen, so it may be permanently damaged. Healing from a heart attack takes place over several weeks. Scar tissue forms over the damaged area, and new, smaller blood vessels begin to grow from the original artery that was blocked. These new blood vessels will do their best to take over and supply blood to the area around the damaged heart muscle. If an area of your heart was permanently damaged, it is dead and can no longer do its share of work.

Your recovery depends on several factors: what part of your heart was damaged; how severe the damage was; and what, if anything, was done in the hospital following the heart attack, such as angioplasty or open heart surgery.

Exercise

Check with your doctor before you start an exercise program. Generally, walking is safe as long as you walk on a level surface or a treadmill. Avoid walking outside on days that are either cold or very warm. If you do walk outside, choose the most comfortable time of day. Plan to stop often to rest. Ask your doctor for guidelines on how often and how long you should walk or about using a stationary bicycle. See page 29 for a sample home walking program.

If a supervised exercise program is recommended, call the **Cardiac Rehabilitation Center** at Providence St. Vincent Medical Center, 503-216-1250, or see page 9 for other options.

Emotions

Following a heart attack, you may be unusually worried or depressed. A heart attack does not have to mean the “end” of your life – rather, think of it as the beginning of a new lifestyle. Talk with your doctor if you’re having trouble getting back into your life. You may need medication or counseling for a short period of time.

Chest pain

Do **not** ignore any chest pain you have – especially if it feels like the pain that brought you to the hospital. Call 9-1-1 immediately or go directly to the emergency room of the closest hospital. **Do not drive!**

Contact your doctor if:

- You feel worse day after day – more tired; more short of breath; weak; dizzy; or
- You have chest pain (angina) that doesn't go away after you use nitroglycerin. (See page 91.)





What to expect as you recover from getting a pacemaker

It takes about 2 weeks for the incision that was made during the procedure to heal completely. Your first pacemaker check will be 7 to 14 days after you leave the hospital. After that, it's very important to have regular pacemaker checks. Your doctor will tell you when to schedule these checkups.

As soon as possible, buy a medical alert bracelet or necklace. Have the following information engraved: Implanted Pacemaker with the company name.

Incision care

- Check your incision site twice a day. If your incision gets redder or warmer, or leaks cloudy yellow-to-green fluid, **call your doctor immediately**.
- You may shower after 3 days, but do not soak the wound (no tub baths) until the incision is completely healed. In some cases, your physician may allow you to shower sooner than 3 days.
- Do not scrub the incision or apply any lotions or ointments directly.
- If you have small pieces of tape over the incision, they normally should fall off. If they are still attached after 14 days, please remove them.
- If the incision causes you discomfort, take Tylenol or try an ice pack. If your doctor gave you pain medication, follow the directions when taking it.
- Skin "glue" may have been used to protect the wound and provide a water barrier. It will wear off gradually over a 2-week period. If after 2 weeks the glue remains on your skin, a gentle scrubbing with a soapy washcloth should remove the glue.
- You may see a thread (suture) or staples at the incision, do not attempt to remove them. Either the suture will be absorbed or the suture and staples can be removed by your doctor. Please contact your doctor if redness or drainage develops around the suture or staples.

Activity

- Do **not** raise the arm on the incision side above shoulder level or extend it behind your back for 3 to 4 weeks. Otherwise, to avoid stiffness, use your arm as normally as possible.
- Wear the sling that you were sent home with for the first 3 days after your

implantation. Wear the sling at night as well, since it will remind you to keep your arm below your shoulder.

- Do not drive for 2 weeks. It's illegal to drive while taking strong pain medication (narcotics)! Your doctor will let you know when you are ready to drive and return to work.
- Do not lift more than 10 pounds for 4 weeks (1 gallon of milk weighs 8.6 pounds).
- Do not swim, golf, bowl or swing a tennis racket until your doctor has cleared you to do so.



Follow-up appointments

After your pacemaker is implanted, you should call the clinic to schedule appointments for 1 week, 1 month and every 3 months, unless otherwise instructed. It is important to have your pacemaker evaluated at regular intervals to ensure that it is working correctly and the battery energy is adequate. At these appointments the doctor can adjust the device to your individual needs.

Please keep a current list of your medications with you, and present the list when you go to all of your doctor appointments.

Contact your doctor if you experience any of the following:

- Your incision becomes red, painful, swollen or is leaking fluid.
- You develop chills, a fever over 100°, or you begin to sweat.
- Your chest muscles or shoulder muscles twitch a lot or you develop hiccups.
- You have trouble breathing, feel faint or dizzy, or have any of the other symptoms that led to your getting a pacemaker.
- You notice new discoloration (bleeding or bruising under the skin) at the pacemaker incision.





What to expect as you recover from getting an implantable cardioverter defibrillator (ICD)

An ICD can be a lifesaving device; however, you will have to make some adjustments in your daily activities. Before you leave the hospital, an electrophysiology (EP) nurse will meet with you and carefully explain what you need to know about living with an ICD.

Incision care

- Check your incision site twice a day. If your incision gets redder or warmer, or leaks cloudy yellow-to-green fluid, **call your doctor immediately!**
- You may shower after 3 days, but do not soak the wound (no tub baths), until the incision is completely healed. In some cases you may be able to shower sooner than 3 days.
- Do not scrub the incision or apply any lotions or ointments directly.
- If you have small pieces of tape over the incision, they normally fall off themselves. If they are still attached after 14 days, please remove them.
- If the incision causes you discomfort, take Tylenol or apply an ice pack. If your doctor gave you pain medication, follow the directions when taking it.
- Skin “glue” may have been used to protect the wound and provide a water barrier. It will wear off gradually over a 2-week period. If after 2 weeks the glue remains on your skin, a gentle scrubbing with a soapy washcloth should remove the glue.
- You may see a thread (suture) or staples at the incision; do not attempt to remove them. Either the suture will be absorbed or the suture and staples can be removed by your doctor. Please contact your doctor if redness or drainage develops around the suture or staples.

Activity

- Do **not** raise the arm on the incision side above shoulder level or extend it behind your back for 3 to 4 weeks. Otherwise, to avoid stiffness, use your arm as normally as possible.
- Wear the sling that you were sent home with for the first 3 days after your implantation. Wear the sling at night as well, since it will remind you to keep your arm below your shoulder.

- Do not drive for 2 weeks. It's illegal to drive while taking strong pain medication (narcotics)! Your doctor will let you know when you are ready to drive and return to work.
- Do not lift more than 10 pounds for 4 weeks (1 gallon of milk weighs 8.6 pounds).
- Do not swim, golf, bowl or swing a tennis racket until your doctor has cleared you to do so.



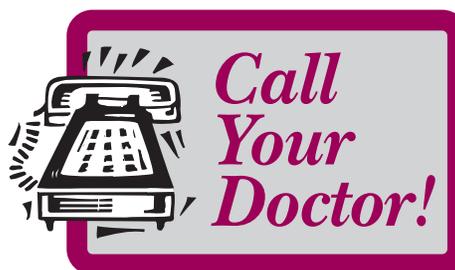
Follow-up appointments

After your ICD is implanted, you should call the clinic to schedule appointments for 1 week, 4 to 6 weeks and every 3 months, unless otherwise instructed. It is important to have your ICD evaluated at regular intervals to ensure that it is working correctly and the battery energy is adequate. At these appointments the doctor can adjust the device to your individual needs. Make an appointment to see your defibrillator doctor (electrophysiologist) yearly.

Please keep a current list of your medications with you, and present the list when you go to all of your doctor appointments.

Contact your doctor if:

- You receive any shock from your device.
- Your incision becomes red, painful, swollen or is leaking fluid.
- You develop chills, a fever over 100°, or you begin to sweat a lot.
- Your muscles twitch a lot or you develop hiccups.
- You have trouble breathing, feel faint or dizzy, or have any of the other symptoms that led to your getting an ICD.





If you receive a shock

If you feel a shock from your ICD, please contact your doctor and alert the nursing staff in the ICD clinic.

- If you receive more than 1 shock or feel lightheaded, dizzy, short of breath or otherwise unwell in association with the ICD shock, **call 9-1-1.**
- Tell your family and friends that if the ICD shocks you and you become unconscious, **they should call 9-1-1.**
- We encourage all family members and caregivers to become CPR certified. If you need CPR, shocks from your ICD will not harm the person touching you.

Traveling

- Wear your medical alert bracelet and carry your ICD identification.
- Carry your current list of medications with you.
- When traveling by air, inform security agents that you have an ICD. Ask them not to use the wand, as it contains a magnet.

About magnets

Avoid close contact with magnets. Magnets interfere with the operation of your defibrillator. A distance of at least two feet is recommended.

Some sources of magnets are:

- Stereo speakers
- Power plants and large transformers
- Running car engines
- Operating electric generators
- Diathermy equipment
- Electrocautery equipment
- MRI scanners
- Security systems at airports
- Department store security systems (pass through entrances and exits without delay, staying toward the middle of the doorway)
- Magnetic lapel nametags (should be worn on the side opposite your ICD)

What to expect at home after an electrophysiology study or an ablation

During your procedure, catheters were inserted through the vein, and possibly the arteries in your groin. It is likely another catheter was inserted through the vein on one side of your neck.

Incision care

- A **small** (pea-size) lump under the skin at the catheter insertion site(s) is normal. Bruising is also normal; it may become quite colorful and extend into the surrounding tissue. The tissue should remain soft to the touch during the healing process. The bruising will fade and resolve in 1 to 3 weeks.
- Mild discomfort in the area is normal, but you should be able to sleep and to move freely with an over-the-counter pain medicine such as Tylenol or ibuprofen.
- You may remove the Band-Aids at the catheter insertion sites and shower the day after the procedure.

Activity

- Limit activity for the first few days, but move about freely. Bed rest is not necessary.
- Walking is fine, but hold off on strenuous activity and gym workouts. Don't strain yourself or lift anything heavier than a gallon of milk for 48 to 72 hours.
- Avoid sitting in one position for longer than an hour at one time. If your drive home is longer than an hour, it is important to get out and walk around for a few minutes every hour to help prevent blood clots.
- You may gradually resume activity over the course of a week.
- Do not drive for at least 24 hours.
- Return to work when the doctor advises.

Contact your doctor if:

- The lump in your groin becomes larger than a walnut.
- You have redness, swelling or tenderness in your calf or another part of your leg.
- There is a temperature change in your calf or leg.
- You have a **sudden** or **progressive increase** in pain.
- You notice active bleeding at the catheter site. (Lie down flat and apply direct pressure to that area; your doctor will likely direct you to the emergency room.)

Your heart rhythm

- After an ablation, it is not unusual to experience the feeling that your fast heart-beat is starting again. Skipped heartbeats and palpitations are common, and will subside after several months.
- If you are concerned about your fast heartbeat, call your doctor.



Part 2: What the future holds – it's up to you!

Read the following section to:

1. Understand which aspects of your life have put you most at risk for heart disease or a heart attack.
2. Learn how to get the most out of your exercise program.
3. Learn how to eat the heart-healthy way.
4. Learn how to protect your heart by managing the daily stress in your life.

The time is right

If you've been diagnosed with heart disease, suffered a heart attack or had open heart surgery, now is the time to take control of your health. The choices you make on a daily basis, such as what to eat for dinner and how you will react to stress, have an impact on your heart. Examine what you have been doing up to this point, and be honest about the choices you've made that haven't been good for your heart. The next step is to decide what changes you are willing to make in the way you live.

Certain habits or conditions, called **risk factors**, lead to poor heart health. For example, having a family history of heart disease, being a man over age 45 and being a woman over 55 are all risk factors for heart disease. Obviously, these are risk factors that you can't change! On the other hand, you can control many risk factors for heart disease, such as smoking, lack of exercise and being overweight.

Here are the most important things you can do to reduce your risk of heart disease or to help keep your health from getting worse.

1. Smoking

Smoking reduces the amount of oxygen in your blood, damages artery walls and raises your blood pressure. Smoke a pack a day? You have more than twice the risk of having a heart attack than someone who has never smoked. Also, in the event of a heart attack, a smoker is more likely to die than a nonsmoker.

What you can do:

- Avoid secondhand smoke.
- If you smoke, **quit!**

You may need help to stop smoking. Discuss the various available options and programs with your doctor, or use the following information to get started.

Providence Resource Line: Call 503-574-6595

Providence online resource: www.providence.org/stopsmoking

QuitNet: www.quitnet.com

Oregon QuitLine: www.oregonquitline.org

Toll-free QuitLine: Call 1-877-270-STOP (7867)

2. High blood pressure

High blood pressure (140/90 or higher) damages artery walls and makes your heart work too hard. A heart-healthy goal: below 120/80.

What you can do:

- Have your blood pressure checked frequently. Keep a record of your readings to show your doctor.
- If you are on medication to control high blood pressure, take it exactly as your doctor told you to. Do not stop taking it without speaking to your doctor **first**.
- Exercise, such as taking a walk, most days of the week. (See page 49.)
- Do not smoke.
- Eat a heart-healthy diet: high-fiber, low-fat and low-sodium. (See page 56.)
- Limit yourself to 1 alcoholic drink a day: one 12-ounce beer, 4 ounces of wine or 1½ ounces of hard liquor.
- Manage stress in your life in a more healthy way. A stress management class can help.



3. High cholesterol

Cholesterol is a fatty substance that is made in the liver. Your body uses it to make hormones, bile (to digest fatty foods you eat) and vitamin D. You also get cholesterol from certain foods that you eat, such as eggs and meat. As cholesterol travels in your bloodstream, some of it, called **LDL or bad cholesterol**, sticks to the inside of your artery walls. This forms **plaque**. Plaque damages artery walls and makes it harder for blood to flow through the artery, which puts a strain on your heart. The more LDL (bad) cholesterol you have, the greater your chance of getting heart disease.

If an artery to your heart becomes totally blocked and blood and oxygen cannot reach your heart, you suffer a heart attack. To protect itself against heart disease, your body also makes **HDL or good cholesterol**. HDL (good) cholesterol travels in your bloodstream, too, but it picks up cholesterol from your arteries and brings it back to the liver so your body can get rid of it. For HDL (good) cholesterol, having a higher number is better. **Triglycerides** are another type of fat that travels in your bloodstream. The more triglycerides you have, the more likely you will have heart trouble.

What you can do:

- Eat a heart-healthy diet: high-fiber, low-fat, low-saturated-fat and low-cholesterol. (See page 56.)
- Exercise, such as taking a walk, most days of the week. This is the best way to raise your HDL (good) cholesterol. (See page 49.)
- If you are on medication to control high cholesterol, take it exactly as your doctor told you to. Do not stop taking it without speaking to your doctor **first**.
- Eat every 3 to 5 hours during your waking hours. Don't skip meals during the day and then eat a large meal in the evening. To further lower high triglycerides, drink less alcohol and eat fewer foods high in sugar.
- Know your numbers! Have your total, LDL and HDL cholesterol and your triglycerides checked at least once a year.



	Where you want to be	Spells trouble	Your numbers
Total cholesterol	Below 200	240 or higher	
LDL (bad)	Below 100 Below 70 with heart disease or diabetes	160 or higher	
HDL (good)	60 or higher	Below 40 (men) Below 50 (women)	
Triglycerides	Below 150	200 or higher	

4. Diabetes

Type I diabetes occurs when your body can't make any **insulin**, a hormone that keeps your blood sugar level within normal limits. Type II diabetes happens if you don't make enough insulin or your body stops "listening" to the insulin you make. In either case, if your diabetes is not well controlled – if your average blood sugar level is too high – you have a greater chance of dying from heart disease.

The key to living well with diabetes involves a balancing act. You will feel best when you choose to eat healthy foods, exercise daily, check your blood sugar level several times during the day, and take your insulin or other medications. The bonus: all these things are smart for your heart, too!

What you can do:

- Check your blood sugar level several times during the day or follow the schedule that your doctor provided for you. Write down your readings so you can share them with your doctor. If you are having symptoms (feeling unusually thirsty or making more trips to the bathroom than usual to urinate), or if your blood sugar is over 200* or under 60 more than a few times, call your doctor.

** Any incisions you have will not heal properly when your blood sugar level runs too high.*

- If you take insulin or other medications to help control your blood sugar level, take them exactly as your doctor told you to. Do not stop, or change the amount you take, without speaking with your doctor **first**.
- Of all the foods you choose to eat, know which ones affect your blood sugar level the most, and understand how to fit these foods into your eating style. To learn



how to do this, get a referral from your doctor and call 503-215-6265 to take a diabetes education class or to make an individual appointment.

- Exercise daily, such as taking a walk, or follow the schedule your doctor provided for you. (See page 49.)
- Know your number! A special blood test, called A1C (A-one-C) – short for hemoglobin A1C – measures your average blood sugar over the last 3 months. This test lets you and your doctor know how well your program (diet, exercise and insulin/medication) has been working! Have your A1C measured at least twice a year or as requested by your doctor.

	Where you want to be	Spells trouble	Your number
Hemoglobin A1C	Less than 7*	More than 8	

* An A1C of 7 equals an average blood sugar of 150.

5. Being overweight

If you're carrying around extra pounds, especially around your middle,* you have a greater chance of having something go wrong with your heart. Being overweight also tends to increase your cholesterol level, your blood pressure and your risk for developing diabetes – all of which spells trouble for your heart!

* Use a tape measure to measure your waist at its fullest point.

What is your waist size?

	Spells trouble
Men	Over 40 inches
Women	Over 35 inches

What you can do:

- Eat a heart-healthy diet: high-fiber, low-fat and low-cholesterol. (See page 54.)
- Exercise daily, such as taking a walk, or follow the schedule your doctor has provided for you. (See page 49.)
- If you use food to cope with problems or unpleasant feelings (for example, you overeat when you feel anxious or stressed), or if you need help losing weight, call 503-574-6595 to take a weight management class, or register online at www.providence.org/classes. You can make an appointment to see a registered dietitian by calling 503-216-2368 (west side) or 503-215-5160 (east side).

Exercise the heart-healthy way

“Those who think they have not time for EXERCISE will sooner or later have to find time for ILLNESS.”
– Edward Stanley, 15th Earl of Derby

When it comes to your heart, the above quote says it all. Although you may be unsure or even afraid of working your heart too hard after having a heart attack or heart surgery – physical activity or exercise is exactly what your heart needs! Remember, your heart is a muscle, and like the other muscles in your body it becomes weak and flabby if it doesn't do enough work. The best gift you can give your heart is to commit to exercising most days of the week. Make sure you choose something you enjoy!

How do I get started?

Once your doctor clears you for exercise, you can begin to explore your options. In some cases, your doctor will give you a home walking program (see page 29 for an example); or you may be referred to a supervised exercise program. For supervised exercise, call the **Cardiac Rehabilitation Center** at Providence St. Vincent Medical Center, 503-216-1250, or see page 9 for other options.

In most cases, walking or jogging (on a treadmill or outside on a level surface), riding a bike or swimming is a good activity to begin with. The key is to choose activities that involve large muscle groups (this means your legs) and that you can work up to doing for at least 30 minutes at a time.



Whether you hop onto a stationary bike at the gym or go on a walk from your front door, always start slowly for at least the first 10 minutes. Give your heart and muscles time to ease into the activity. This **warm-up period** also protects your muscles and joints from injury. As you warm up and “check in” with your body, gradually increase the pace. At the end of your workout, slow down again for several minutes to give your heart a chance to recover. During this **cool-down period**, don't stop moving and don't come to a complete standstill. This can cause too much blood to pool briefly in your legs and not enough to reach your head and your heart, making you feel dizzy or lightheaded.



Am I doing enough?

When it comes to exercise, some is better than none, and more is better than some! If you've never exercised before, start slowly. Don't overdo it! You can always increase the number of minutes or the number of times you exercise a week as you become stronger. Use the **F.I.T. (Frequency, Intensity, Time) Principle** to help you decide if your heart is getting the full benefit from your exercise program.

Frequency: How often?

- Exercise most days of the week (4 to 6 times per week).

Intensity: How hard?

- Check yourself with the **"talk test."** You should be able to talk while you exercise, but not sing!
- A brisk pace* (where you break a light sweat) delivers the most benefits, but even lower-key activities can be helpful.
 - * *What's brisk? Think about walking to a post office that closes in 5 minutes. You must get there!*
- Use the **Rate of Perceived Exertion (RPE) Scale** to monitor yourself while you are exercising. (See next page.)

Time: How long?

- Exercise for at least 30 minutes a day. You can break it up into several shorter bouts throughout the day. For example, you can walk 15 minutes from your car to the office in the morning and then walk 15 minutes back from the office to your car in the evening.
- If possible, work up to the goal of exercising for at least 30 continuous minutes.* Start off doing what you can. Add a minute or 2 to the total time each week. (For a sample walking program, see page 29.)
 - * *What's continuous? This means you do not start, then stop and then start again. In other words, when you're out for a walk, you wave at your neighbors as you pass by and say you'll speak to them after you've completed your walk. If you're walking at a mall, you walk for 30 minutes and then run errands and visit the shops.*

Rate of Perceived Exertion (RPE) Scale

Use the RPE Scale to figure out how much effort you are using during exercise. On the low end of the scale (6), you're not working hard enough to benefit your heart. At the upper end (20), you're working too hard and you can easily end up overdoing it. The goal: Keep your efforts between 11 and 13 – in other words, "fairly light" to "somewhat hard."

6
7 Very, very light (least difficult)
8
9 Very light
10
11 Fairly light
12
13 Somewhat hard (do not go past this point)
14
15Hard
16
17Very hard
18
19Very, very hard (most difficult)
20

Where you want to be:

Breathing deeply;
able to talk

Feeling warm all over

Perspiring/sweating
at least a little

Energized

Where you DON'T want to be:

Gasping for breath;
unable to talk

Overheated

Feeling cold and
clammy

Exhausted



How will I know if I should stop exercising?

Listen to your body! If you feel dizzy or lightheaded, feel nauseous, have chest pain (angina), or are unusually tired or short of breath – **slow down immediately and then stop the exercise you are doing!** If you don't feel better after resting for a few minutes, call your doctor.

Give yourself the best chance at feeling good when you exercise:

- Wait at least 1 hour after meals before you exercise.
- Don't exercise outside on extremely cold days or on hot days.
- Wear comfortable clothing and proper footwear.
- Drink plenty of water before, during and after exercise.
- Don't stop what you are doing quickly and stand still. (This is likely to make you feel dizzy or lightheaded.)

What about stretching – do I have to do that too?

Spending a few minutes doing some gentle stretching movements **after** you exercise (when your muscles are warm) can really pay off. You will feel less stiff or sore the next day, and it helps protect your muscles and joints from harm.

Look at the following pictures for some easy stretches to do. Hold each stretch for at least 15 seconds. Stretch slowly and smoothly – do not bounce or jerk. You may feel some tightness, but do not stretch to the point of feeling any pain. And most important of all – don't forget to breathe as you stretch!

Arm stretch



Gently pull elbow (with arm bent) across chest toward opposite shoulder. Switch arms.

Shoulder stretch



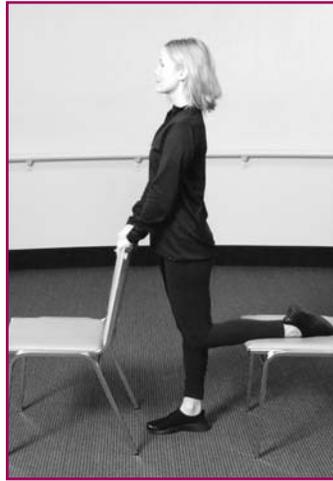
With arms overhead, hold elbow of one arm with the hand of the other arm. Gently pull elbow behind head. Switch arms.

Quadricep stretch



Stand with support, and pull lower leg toward buttocks, grasping pant leg or ankle. Keep upper leg and hip straight, knees together. Switch legs.

Modified quadricep stretch



If unable to hold ankle or pant leg, place leg on chair that is at or slightly above knee height.

Hamstring stretch



Extend one leg; keeping torso straight, lean forward, sliding hands down leg until a stretch is felt in back of thigh. Switch legs.

Calf stretch



Stand with hands supported on wall, elbows slightly bent, front knee bent, and back knee straight. Keep feet parallel and both heels on the floor. Lean into wall by pushing hips forward. Switch legs.



I've started exercise programs before, but I never can stick with it. What can I do different this time?

Make exercise a priority! Don't "find time" for it – **make** time for it. Actually write it down and schedule it into your day just as you do other appointments and commitments. Keep a record of what you do (for example, track how many minutes you walk) and look at it often. Be proud of what you accomplish! See page 6 for a place to write down what you do.

Get involved in activities you enjoy, such as golf, bowling or dancing. Dislike doing it on your own? Join a class, or ask a friend or family member to exercise with you. Having a few activities you enjoy means you won't get bored in a few weeks. You'll also have a Plan B (and maybe even a Plan C and D!) to get around roadblocks, such as a cold, rainy day that keeps you from going outside.

Get ready, set, walk!

You can get fit, improve your blood pressure, lower your cholesterol, make your heart stronger and lose weight all at the same time – just by walking! Little changes can make a big difference. For example, take the stairs instead of the elevator, or pick a parking spot farther away from the restaurant.

For a 150-pound person walking 3.5 miles per hour (17 minutes/mile):

<u>A little change you can make</u>	<u>Calories burned yearly</u>	<u>Weight loss</u>
Climb an extra flight of stairs each day.	1,750	½ pound
Park 100 yards farther away at work.	1,750	½ pound
Walk 1 extra bus stop away.	8,500	2½ pounds
Walk 8 extra minutes a day.	14,000	4 pounds
Walk 10 extra minutes a day.	17,500	5 pounds
Walk 15 extra minutes a day.	28,000	8 pounds
<u>A big change you can make</u>		
Walk 60 extra minutes a day.	105,000	30 pounds

I'm interested in learning more about my heart. How do I take my pulse? What does it mean?

Checking your heart rate is another way to figure out how hard you (and your heart) are working. For example, during exercise, you want to work hard enough to strengthen your heart, but you don't want to overdo it. Learn how to take your pulse as a way to measure your heart rate. Follow the advice given here, or ask your nurse or doctor to show you how to do it. (See "Put your finger on the pulse!" below.)

If you have trouble finding and counting your pulse, you may want to purchase a **heart monitor** that measures it for you. Wear it while you exercise and you'll be able to check your pulse whenever you want. (A heart monitor includes a slim strap that is worn around your chest, underneath your clothing. Electrodes on the strap pick up your heartbeat and send it to a watch that you wear on your wrist.) Check your local sporting goods store to purchase a heart monitor.

It's a good idea to know what your heart rate is while you are at rest – sitting in a chair quietly, for example – and what it is when you exercise. As a general rule, you want your heart rate during exercise to be about 20 to 30 beats above your resting heart rate. Write down your numbers and show them to your doctor so he or she can help you determine if you're working hard enough or if you're overdoing it. Remember – your heart rate is only a guideline. Always listen to your body, and keep the **RPE Scale** in mind, too. (See page 51.)

Put your finger on the pulse!

To take your pulse:

1. Look at a watch or clock with a second hand.
2. Lightly place the first 2 fingers (not your thumb) of your left hand on the thumb side of your right wrist, right below where your wrist bends. Don't press too hard. You should feel a light beating sensation – this is your pulse. (You can also check your pulse on the side of your neck.)
3. Count the number of beats or "pulses" in a 15-second period. Start with 0, then 1, 2, 3 ...
4. Multiply by 4 to get your heart rate for 1 minute.





Eat the heart-healthy way

What you choose to eat – or not eat – affects your overall health as well as your heart. Be good to your heart; eat more heart-healthy foods, like whole grains, fruits, vegetables and fish, and less of heart-unhealthy foods like fatty meats and high-fat snacks.

How do I get started?

Concentrate on eating more of the heart-healthy foods that will protect your heart.

Step 1: Choose foods that are high in fiber – fruits, vegetables, dried beans and whole grains.

Eating 20 to 30 grams of fiber a day can lower your blood cholesterol, triglycerides and blood pressure and help prevent constipation. Fiber-rich foods also make you feel full longer, which means you'll be less likely to overeat, especially between meals.

Vegetables: 3 to 5 servings a day

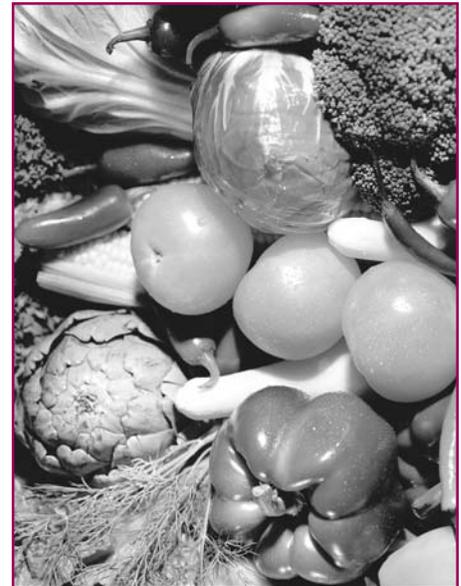
Serving: ½ cup fresh, frozen, canned;
1 cup leafy greens/salad

Fruit: 2 to 4 servings a day

Serving: average-size apple, orange, pear; medium banana; ¼ melon; ½ cup fresh, frozen or canned fruit; ¼ cup dried (such as raisins, figs, apricots)

Whole grains:* work up to 3 servings a day

Serving: 1 cup whole-grain or bran ready-to-eat cereal; ½ cup cooked or 1 packet instant oatmeal; 1 slice whole-wheat bread; ½ cup brown rice or whole-wheat pasta; 5-6 small whole-grain crackers; ½ cup bulgur, pearl barley or quinoa; one 7-inch whole-grain corn tortilla; 2 cups (popped) low-fat popcorn



* *How do you find whole-grain bread, cereal or crackers? The key word is "whole." Check the ingredients list on food packages and choose foods that list a whole grain as the **first ingredient**. For example: whole rye, whole wheat or whole oats. It is ideal if you consume products that are 100% whole-grain.*

Dried beans/peas: 2 or 3 times (or more) a week

Serving: ½ cup cooked kidney, pinto, navy, garbanzo, black beans or lentils (as part of soups, stews, salads, chili or burritos); ½ cup baked beans

Mild Three-Bean Chili = Heart Smart

Nutrition Facts	
Serving Size 1 cup (225g)	
Servings Per Container 2	
Amount Per Serving	
Calories 160	Calories from Fat 10
% Daily Value*	
Total Fat 1g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 320mg	13%
Total Carbohydrate 28g	9%
Dietary Fiber 12g	48%
Sugars 0	0%
Protein 13g	26%



Take the slow route with fiber

As you increase the amount of fiber in your diet, it's best to take it slow. Add just a small amount (a few grams) at a time to allow your digestive system to adjust. Otherwise, gas, bloating, and diarrhea or constipation may result. To lessen the chance of these side effects:

- Drink enough fluid (especially water) at the same time you add fiber to your diet.
- Don't cook dried beans in the same water you soaked them in.
- Use enzyme products, like Beano[®], that help digest fiber and reduce gas.



Step 2: Eat fatty fish (rich in omega-3 fatty acids) at least twice a week.

Omega-3 fatty acids help prevent blood clots and offer protection against arrhythmias (abnormal heart rhythms).

Serving: 3 ounces of cooked* salmon, mackerel, herring, sardines, striped bass, rainbow trout, halibut or albacore tuna

* 3 ounces (cooked) = size of a deck of cards. Fried fish is not heart-healthy. Choose fish prepared in other ways.



What about fat? I was told to eat less fat, but I'm confused about the different types.

When it comes to your heart, all fats are not equal. Eat less **saturated fat** and **trans fat** – unhealthy fats that clog or block arteries. Saturated fats tend to be solid at room temperature, like butter and chicken skin. Stick to 10 to 15 grams a day (women) and 15 to 20 grams a day (men). Trans fats are found in foods made with hydrogenated vegetable oil. Limit foods that list hydrogenated oil as one of the first 3 ingredients.

To further help lower total and LDL (bad) cholesterol, eat small amounts of **monounsaturated (heart-healthy) fat** in place of saturated fats.

Eat less saturated fat and trans fat:*

- Butter, stick margarine
- Regular cheese, cream cheese
- Whole milk, 2% milk, cream
- Bacon, sausage, hot dogs, fatty ground beef
- Chicken and turkey skin, chicken wings
- Egg yolks
- Lard, Crisco
- Goose, duck
- Fat visible on meats
- Corned beef, ribs, porterhouse steak
- Organ meats: liver, kidney, sweetbreads
- High-fat deli meats/lunch meats: bologna, salami, etc.
- High-fat ice cream, frozen desserts
- Palm oil, palm kernel oil, coconut oil: found in coffee creamers, crackers, chips, cookies, baked goods and other snack foods

***Hidden sources of trans fat: hydrogenated or partially hydrogenated vegetable oils** in microwave popcorn, fried food, fast food, cookies, crackers and snack foods

Ritz Bits Sandwiches = Heart Unhealthy

Nutrition Facts

Serving Size 1 package
Servings Per Container 8

Amount Per Serving

Calories 220 Calories from Fat 110

% Daily Value*

Total Fat 13g **20%**

Saturated Fat 4.5g **23%**

Trans Fat 0.5g

Polyunsaturated Fat 3.5g

Monounsaturated Fat 3g

Cholesterol <5mg **1%**

Sodium 480mg **20%**

Total Carbohydrate 24g **8%**

Dietary Fiber <1g **3%**

Sugars 6g

Protein 3g

Ingredients: Enriched flour soybean and/or palm oil, whey, sugar, partially hydrogenated cottonseed oil, high fructose corn syrup, milk fat and/or sunflower oil, salt, cheddar cheese, leavening, buttermilk.



Substitute monounsaturated fat.

You'll get the most benefit if you replace foods high in saturated fat with SMALL amounts of monounsaturated fat. Simply adding monounsaturated fat to the foods you already eat won't work – plus, it will make you gain weight!

Each of the following is a serving of monounsaturated fat:

- Olives (6 small or 4 large at a time): choose lower-sodium varieties.
- Avocado (2-3 slices or ¼ of an average-size avocado)
- Nuts, seeds (1 ounce, unsalted): peanuts, walnuts, almonds and sesame seeds are especially good sources.
- "Natural" peanut butter (1-2 tablespoons): this type contains no hydrogenated oil, so it will separate.
- Peanut, canola or olive oil (1-2 tablespoons): use in cooking and in low-fat salad dressings.

Oil is a high-calorie food (120 calories and 14 grams of fat per tablespoon).
Use as little as possible.

I have high cholesterol – so shouldn't I just focus on eating less cholesterol?

All foods from animals, such as meat, milk and eggs, contain cholesterol that can raise your blood cholesterol level. (Foods from plants, such as peanut butter and vegetable oils, **do not** contain cholesterol, although they can still be high in fat that you do not need.)

When it comes to lowering your blood cholesterol, however, saturated fat is the real bad guy. So really limit those foods that contain both saturated fat and cholesterol – such as whole milk and ice cream, regular cheese, fatty meats (like hot dogs, sausage, ground beef and ribs), egg yolks* and organ meats. Healthy choices for your heart include low-fat dairy foods and lean cuts of red meat, poultry (no skin) and fish. Try having 1 or 2 meals a week that contain no meat at all – like vegetarian chili or bean burritos.

* **Limit:** 3 whole eggs a week; after that choose egg whites or an egg substitute.
In baking: 2 egg whites = 1 egg.

What about salt? My doctor said I have to follow a low-sodium diet, too!

Eating less salt means you'll need to do things a bit differently, especially when you eat away from home. Don't get discouraged – give your taste buds a chance to get used to the flavors of unsalted foods! (For cookbooks and other resources, see page 78.)

**Heart-healthy goal: 2,400 milligrams of sodium or less per day
(1 teaspoon of salt = 2,300 milligrams of sodium)**

At home:

- Take the salt shaker off the table.
- Cook without adding salt.
- Try using herbs, lemon juice, fresh garlic or garlic powder, vinegar, or onion or onion powder in place of salt.
- If you want to try a salt substitute, check with your doctor first.
- Read food labels carefully. Learn to recognize ingredients that contain hidden sodium: MSG (monosodium glutamate), soy sauce, salt brine, sodium citrate, sodium nitrate, sodium benzoate, baking soda (sodium bicarbonate), baking powder, calcium disodium phosphate, bouillon, meat tenderizer.
- When it comes to your favorite foods:
 - Vegetables:
 - Fresh, frozen (no sauces or seasonings), or no-added-salt or low-salt canned vegetables
 - No-added-salt or low-salt tomato products
 - Unsalted vegetable juices
 - Canned beans: rinse well with water and drain.*
 - *The most heart-healthy way is to soak and prepare your own.*
 - Canned soup: choose reduced- or low-sodium varieties.
 - Frozen dinners: select ones with 600 milligrams or less per 7-13 ounce meal.
 - Pretzels, popcorn, low-fat crackers, low-fat chips: choose unsalted or lower-sodium varieties.



Sodium alert!

The following foods are high in sodium – limit how much you eat and how often you have them. Be aware that many common over-the-counter medicines are high in sodium, too.

- Broth (bouillon cube)
- Pickles
- Sauerkraut
- Olives
- Cheese
- Cottage cheese
- Smoked or cured meats: bacon, corned beef, jerky, ham, luncheon meats, sausage, hot dogs
- Boxed foods and dinners (for example, macaroni and cheese)
- Fast food
- Chinese food
- “Deli” salads
- Other: Alka-Seltzer, baking soda





I'm used to eating out a few times a week – how do I go about making healthier choices?

Heart-smart dining in most restaurants is a challenge! Here are some simple guidelines to follow when you eat away from home.

- 1. Eat the way you would at home.** If you eat out more than 2 times a month, don't consider it a treat! Follow the same heart-healthy guidelines that work at home. Choose items that are high in fiber and lower in fat and sodium. Speak up and ask for foods to be prepared the way you want. You may need to explore new restaurants to find heart-healthy options.
- 2. Bigger isn't always better or cheaper.** Is paying less for more fat, more calories and more health problems really a bargain? Most restaurants dish up huge portions. So try these options: Set half of your order aside and take it home (ask your waiter to put it in a doggy bag for you at the beginning of the meal); order an appetizer and a salad instead of a main dish; or order a main dish and split it with a companion. At fast-food restaurants, order the "small" or "medium" size of everything, including drinks. Stay away from the "combo" or "supersize" items.
- 3. Build a better salad.** Salads can be good for your heart (and waistline) as long as they are not loaded down with high-fat meat (like fried chicken tenders), cheese, eggs, bacon bits and croutons. Go for dark greens and other colorful vegetables, like tomatoes, peppers and carrots. Stay away from salads with the dressing already added. Instead, order the salad dressing on the side – to use less, dip your fork in before each bite. Skip salads made with mayonnaise (like potato salad, macaroni salad and coleslaw).
- 4. There's no free lunch.** This includes the bread or tortilla chips that many restaurants greet you with. Do you pass around a basket of bread or bag of chips before dinner at home? It's easy to overeat these items, so ask your server not to bring them to your table. If you're hungry, munch on a salad (order the dressing on the side) as you look at the menu.

- 5. Baked isn't always better.** Choosing a baked potato instead of French fries means you're thinking about what's good for your heart – until you pile on bacon bits, sour cream, butter or cheese. You simply add back the fat and calories you were bypassing in the first place. Ask that your potato be topped with salsa or steamed vegetables, or ask for the sour cream or butter on the side and use only a small amount.
- 6. Check out the chicken.** Before you automatically order the chicken, ask how it is prepared. While a grilled chicken sandwich is a heart-smart choice, fried or breaded chicken (or fish) or roasted chicken that includes the skin is not. Topping a low-fat choice with high-fat foods like mayonnaise, special sauce, bacon and cheese doesn't do your heart any good either.

Eating away from home	
Heart smart	Heart unhealthy
Seafood cocktail Garden salad (salad dressing on the side)	Cream-based soup Garden salad covered with salad dressing
4-6 ounces of baked chicken Plain baked potato Steamed vegetables	Chicken pot pie
Plain angel food cake Fresh fruit or sorbet	Carrot cake



How can I use the food label to find foods that are good for my heart?

Use the food label to compare the fat, saturated fat, cholesterol, sodium, sugar and fiber in two or more foods and choose the one that has the best numbers.

You want to eat:

- LESS fat, saturated fat, cholesterol, sodium and sugar
- MORE fiber

Sandwich Meat

Heart Smart

Heart Unhealthy

Oven Roasted Chicken Breast

Nutrition Facts

Serving Size 4 slices (2 ounce)
Servings Per Container About 3.5

Amount Per Serving

Calories 60 **Calories from Fat** 15

% Daily Value*

Total Fat 1.5g	2%
Saturated Fat 0.5g	3%
Trans Fat 0g	
Cholesterol 25mg	8%
Sodium 450mg	19%
Total Carbohydrate 3g	1%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 3g	

Beef Bologna

Nutrition Facts

Serving Size 1 slice (1 ounce)
Servings Per Container 8

Amount Per Serving

Calories 90 **Calories from Fat** 70

% Daily Value*

Total Fat 8g	12%
Saturated Fat 3.5g	18%
Trans Fat 0g	
Cholesterol 20mg	7%
Sodium 310mg	13%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 10g	

Heart-healthy recipes

Vegetable and beef stir fry over brown rice

4 servings

2 cups onion, cut into ¼-inch slices
 2 cups broccoli, cut into bite-size pieces
 2 cups green cabbage, shredded
 2 cups red or green bell pepper, cut into julienne strips
 1 pound beef flank steak, cut into 1/8-inch strips
 2 teaspoons fresh ginger, minced
 4 garlic cloves, minced
 1 tablespoon peanut oil, divided
 1 tablespoon chicken stock
 1 tablespoon water
 1 tablespoon cornstarch
 6 tablespoons unseasoned rice wine vinegar
 3 tablespoons light soy sauce

Cook brown rice according to instructions on package; 1 cup dry rice yields about 3-4 cups cooked rice.

Prepare cut vegetables.

Prepare beef by cutting beef lengthwise (with the grain) into several long strips about 2 inches wide. Holding your knife on an angle to the board, cut the strips crosswise against the grain into broad ribbons ⅛ inch thick.

Prepare sauces. In a small bowl, combine chicken stock, water and cornstarch to form a slurry. Set aside. In another small bowl, combine soy sauce and rice vinegar. Set aside.

Heat wok or large heavy skillet over medium-high heat until a bead of water evaporates on contact. Add 2 teaspoons of the peanut oil; swirl to glaze the pan. Reduce heat to moderate, adding ginger and garlic. Cook briefly. Add broccoli and onion. Cook approximately 3 minutes, tossing to avoid sticking to pan (add small amounts of water if vegetables stick to pan). Add pepper and cabbage. Cook until cabbage is wilted. Add about two-thirds of soy sauce mixture to pan. Bring to simmer, stirring. Quickly stir the cornstarch slurry into pan. Stir for about 15-20 seconds.

Remove pan from heat and place vegetables in large serving bowl. Return pan to heat and add remaining 1 teaspoon peanut oil to pan. When hot, add flank steak, tossing to avoid sticking. When cooked to desired doneness, add remaining soy sauce mixture. Toss, and allow to come to simmer. Remove pan from heat. Add beef to vegetables. Serve over generous serving of rice.

Approximate nutritional information per serving:

Stir fry plus 1½ cups brown rice:

Calories: 436
 Total fat: 6 g
 Saturated fat: 1 g
 Trans fat: 0.5 g
 Percentage of calories from fat: 12%
 Carbohydrates: 86 g
 Protein: 11 g
 Cholesterol: 0 mg
 Sodium: 470 mg
 Fiber: 5 g

Hints:

The vegetables in this recipe are just suggestions. Use whatever you have in the refrigerator or whatever is seasonally fresh in your local market. Think color and texture!



Company turkey meat loaf

10 3-ounce servings
(9 x 5 x 2½-inch loaf pan)

1½ cups chopped onion
1 tablespoon olive oil
1½ teaspoons freshly ground pepper
1 teaspoon dried thyme (1 tablespoon fresh)
2 teaspoons dried rosemary (2 tablespoons fresh)
Zest 1 lemon
2 tablespoons + 2 teaspoons Worcestershire sauce
¼ cup + 2 tablespoons chicken stock
1 teaspoon tomato paste
2½ pounds ground turkey breast
1½ cups unseasoned stuffing mix
½ cup skim milk
2 eggs, beaten
¼ cup + 2 tablespoons catsup

Preheat the oven to 350°.

In a small bowl, soak the stuffing mix in skim milk until ready to use. Heat olive oil in a nonstick skillet over medium-low heat.

Saute the onions, pepper, thyme and rosemary until the onions are translucent. Add the lemon zest, Worcestershire sauce, chicken stock and tomato paste. Mix well. Allow to cool to room temperature.

Combine the ground turkey, soaked stuffing mix, eggs, catsup and onion mixture in a large bowl. Pat into 9 x 5 x 2½-inch baking pan that has been coated with non-stick cooking spray. Bake for approximately 1 hour, or until the internal temperature is 160°.

Approximate nutritional information per serving:

Calories: 240
Total fat: 5 g
Saturated fat: 1 g
Trans fat: 0 g
Percentage of calories from fat: 19%
Carbohydrates: 18 g
Protein: 32 g
Cholesterol: 88 mg
Sodium: 421 mg
Fiber: 1 g

Hints:

Be sure the label says ground turkey **breast** – not ground turkey. Fill most of your plate with vegetables. Keep the meat loaf to a 3-ounce portion.

Steak and onions

4 servings

1 pound top round cubed steak
2 teaspoons olive oil
6 cloves garlic, chopped
1 white onion, halved and sliced
1 green pepper, cut into thin strips
1 red pepper, cut into thin strips

Slice the steak into thin, stir-fry strips, following the lines made in the meat by the butcher's tenderizing machine. In a nonstick pan, heat olive oil. Add steak and garlic, and brown 1-2 minutes. Add onion and cook 3-4 minutes or until onion begins to soften. Add peppers and cook 2-3 minutes. Serve at once.

Approximate nutritional information per serving:

Calories: 204
Total fat: 8 g
Saturated fat: 2 g
Trans fat: 0 g
Percentage of calories from fat: 35%
Carbohydrates: 5 g
Protein: 27 g
Cholesterol: 71 mg
Sodium: 55 mg
Fiber: trace

Noodle casserole with tuna

8 servings

Serve this dish with broccoli so your kids can dip the vegetables into the sauce. It will help teach them to like all vegetables, even broccoli.

- 1 pound elbow macaroni
- 2 10¾-ounce cans reduced-fat Campbell's Cream of Chicken Soup*
- 1 cup nonfat milk
- 1 6-ounce can water-packed tuna
- 1 8-ounce can sliced water chestnuts, drained
- 2 tablespoons freshly grated Parmesan cheese

Cook macaroni according to package directions. Drain and set aside.

Meanwhile, in a saucepan, heat Cream of Chicken Soup; gradually stir in nonfat milk and cook, stirring, until mixture is smooth and bubbly. Gently stir in tuna, water chestnuts and the cooked macaroni. Transfer to a 2-quart casserole. Bake at 375° for 15 minutes; sprinkle with Parmesan. Bake 5 minutes longer. Serve at once.

* Simply using reduced-fat cream of chicken soup yields fat and calorie savings that make this old favorite fit into today's eating plan. Substitute Campbell's Healthy Request Cream of Chicken Soup for the reduced-fat soup to save an additional 1 gram of fat and 200 mg of sodium per serving.

Approximate nutritional information per serving:

Calories: 314
 Total fat: 4 g
 Saturated fat: 1 g
 Trans fat: 0 g
 Percentage of calories from fat: 12%
 Carbohydrates: 48 g
 Protein: 18 g
 Cholesterol: 17 mg
 Sodium: 646 mg
 Fiber: 3 g

Mashed Yukon Gold potatoes

4 servings

- 6 medium Yukon Gold potatoes, unpeeled (about 2 pounds)
- 5 garlic cloves, peeled and halved
- ½ teaspoon salt
- Pepper to taste
- 2 teaspoons olive oil
- ¼ cup low-sodium chicken broth
- 1 - 1¼ cups potato water

Place potatoes and garlic in a large saucepan of boiling water. Lower heat and simmer uncovered for 25 to 35 minutes, or until potatoes are completely tender. Drain potatoes and garlic, reserving the liquid.

In a small bowl, combine potato water, chicken broth, olive oil, salt and pepper. Pour this mixture over potatoes and mash with fork or potato masher until desired consistency is reached.

Approximate nutritional information per serving:

Calories: 161
 Total fat: 3 g
 Saturated fat: 0 g
 Trans fat: 0 g
 Percentage of calories from fat: 17%
 Carbohydrates: 32 g
 Protein: 4 g
 Cholesterol: 0 mg
 Sodium: 335 mg
 Fiber: 3 g



Potato wedges

4 servings

4 baking potatoes or sweet potatoes, scrubbed and patted dry
1 tablespoon olive oil
½ teaspoon pepper
½ teaspoon ground sage
½ teaspoon dried thyme
4 tablespoons grated Parmesan cheese

Preheat oven to 400°.

Cut the potatoes into long wedges, rinse with cold water, and drain. Press paper towels over potatoes to dry thoroughly. Place the potatoes in a bowl, add the oil, and toss to coat evenly; sprinkle with pepper, sage, thyme and cheese.

Spread in a single layer on a large nonstick baking sheet and bake for 20-30 minutes or until golden, turning the baking sheet once to ensure even browning.

Approximate nutritional information per serving:

Calories: 274
Total fat: 5 g
Saturated fat: 1 g
Trans fat: 0 g
Percentage of calories from fat: 16%
Carbohydrates: 51 g
Protein: 79 g
Cholesterol: 4 mg
Sodium: 109 mg
Fiber: 3 g

Buttermilk dressing

Makes 1⅓ cups

⅔ cup buttermilk
⅔ cup fat-free mayonnaise
1 tablespoon fresh lemon juice
1 teaspoon lemon zest
¼ teaspoon apple cider vinegar
¼ cup fresh dill, chopped
⅔ cup green onion, sliced diagonally

Whisk the buttermilk, mayonnaise, lemon juice, zest and vinegar until blended. Add the dill and green onions and stir to blend.

Approximate nutritional information per tablespoon:

Calories: 10
Total fat: 0 g
Saturated fat: 0 g
Trans fat: 0 g
Carbohydrates: 2 g
Protein: 0 g
Cholesterol: 0 mg
Sodium: 69 mg
Fiber: 0 g

Hint:

For thinner consistency, use more buttermilk. The dressing is great on coleslaw.

Spring green dressing

Makes 1 cup

½ cup buttermilk
1 tablespoon lemon juice
2 tablespoons olive oil
½ cup parsley, finely chopped
¼ cup dill sprigs, chopped
1 green onion, thinly sliced
1 garlic clove, minced

Whisk the buttermilk and lemon juice until blended. Slowly whisk in the olive oil. Add the parsley, dill, green onion and garlic. Stir to blend.

Approximate nutritional information per tablespoon:

Calories: 22
Total fat: 2 g
Saturated fat: 0 g
Trans fat: 0 g
Carbohydrates: 1 g
Protein: 0 g
Cholesterol: 1 mg
Sodium: 13 mg
Fiber: 0 g

Hint:

This tangy dressing is excellent on a green salad, pasta, chicken, fish or steamed vegetables.

Salsa dressing

Makes 1 cup

3 tablespoons apple juice concentrate
½ cup salsa
2 tablespoons balsamic vinegar
1 tablespoon olive oil

In a small bowl, combine apple juice concentrate, salsa and vinegar. Slowly whisk in olive oil. Store in closed container in refrigerator.

Approximate nutritional information per tablespoon:

Calories: 16
Total fat: 1 g
Saturated fat: 0 g
Trans fat: 0 g
Carbohydrates: 2 g
Protein: 0 g
Cholesterol: 0 mg
Sodium: 36 mg
Fiber: 0 g

Hint:

This sweet dressing enhances a taco salad or basic green salad.



Best-ever chocolate shake

4 servings

Fat-free ice cream in combination with chocolate syrup makes a smooth and creamy shake.

¼ cup nonfat milk
¼ cup Hershey's Chocolate Syrup
1 quart fat-free vanilla ice cream, softened
¾ teaspoon pure vanilla extract

Combine milk, chocolate syrup and ice cream in a blender and blend until nearly smooth. Add vanilla and blend until smooth, about 30 seconds longer. Stir and pour into glasses.

Approximate nutritional information per serving:

Calories: 253
Total fat: 0 g
Saturated fat: 1 g
Trans fat: 0 g
Percentage of calories from fat: 0%
Carbohydrates: 57 g
Protein: 7 g
Cholesterol: 0 mg
Sodium: 197 mg
Fiber: 0 g

Hint:

Although this chocolate shake is low in fat, it's not low in calories. Save it to have as a special treat.

Berry cobbler

8 servings

¾ cup water
2 tablespoons cornstarch
½ cup granulated sugar
3 cups strawberries, raspberries, blueberries or blackberries

Topping:

1 cup all-purpose flour
½ teaspoon salt
1½ teaspoons baking powder
⅓ cup nonfat milk
3 tablespoons safflower oil

In a medium saucepan, combine water, cornstarch and sugar, and bring to a boil. Cook 1 minute, stirring constantly. Add berries and remove from heat. Pour into a 9- or 10-inch pie plate.

Combine flour, salt and baking powder. Mix milk with oil and add to flour. Using a fork or pastry blender, work dough into a ball. Drop by spoonfuls onto fruit.

Bake at 425° 25 to 30 minutes or until topping is lightly browned.

Approximate nutritional information per serving:

Calories: 172
Total fat: 5 g
Saturated fat: 1 g
Trans fat: 0 g
Percentage of calories from fat: 28%
Carbohydrates: 29 g
Protein: 2 g
Cholesterol: trace
Sodium: 203 mg
Fiber: 2 g

Heart-healthy shopping list

Fish, poultry, meats, vegetarian proteins

5 ounces a day – cooked weight. Eat fish and poultry without the skin more often than red meat. At least 2 servings of fish per week is recommended.

Choose

- **Legumes**

Dried peas and beans (split peas, black-eyed peas, kidney beans, navy beans, black beans, garbanzo beans, lentils, soybeans, soybean curd [tofu]) cooked without added fats

Fat-free and vegetarian refried beans

- **Fish and shellfish**

Fish and shellfish cooked without added fats, unbreaded fish, baked or broiled fish
Tuna canned in water

- **Poultry**

Poultry without the skin, lean ground chicken or turkey breast

- **Meats**

Lean cuts with fat trimmed:

Beef: sirloin, round, loin, flank, 10% or less fat ground beef

Pork: tenderloin, leg, loin, ham,*
Canadian bacon*

Lamb: leg, arm, loin, rib,

Veal: all trimmed cuts except ground

Wild game: venison, elk, rabbit

Limit

Beans prepared with lard, bacon, fatty meats

Regular refried beans (contain lard)

Fried fish, fish sticks, caviar, roe

Tuna canned in oil

Fried chicken, chicken skin, chicken wings, giblets

Prime-grade and other heavily marbled fatty meats (corned beef,* regular ground meats, short ribs, spareribs, porterhouse steak)
Organ meats, such as liver, kidney, sweetbreads
Regular high-fat deli meats/lunch meats* (bologna, salami, etc.)

Goose, duck

Eggs

Choose

Egg whites, cholesterol-free egg substitutes

Tip: Substitute 2 egg whites for 1 whole egg in recipes.

Limit

Egg yolks, 3 per week

* These items higher in sodium



Dairy products

2 or more servings a day

Choose

Fat-free or 1% milk, low-fat buttermilk,* evaporated or condensed fat-free milk, nonfat dry milk, 1% chocolate milk, low-fat hot cocoa

Fat-free or low-fat yogurt, sour cream, soy or rice beverages

Fat-free or reduced-fat whipped toppings

Fat-free non-dairy creamers, low-fat non-dairy creamers made with allowed oils

Fat-free, part-skim or reduced-fat cheeses* (labeled no more than 6 grams of fat per ounce)

Low-fat cottage cheese

Limit

Whole milk, 2% milk, evaporated or condensed whole milk

Whole-milk yogurt, sour cream, imitation sour cream that contains coconut or palm oil

Whipping cream, cream, half and half

Non-dairy whipped cream and non-dairy creamers that contain coconut or palm oil

High-fat cheeses* (cream cheese, most other natural and processed cheeses such as cheddar, American, Swiss, blue, jack, Brie, etc.)

Whole milk cottage cheese

Fats and oils

Limit to 3-5 teaspoons a day – in other words, use sparingly!

Choose

Cooking sprays
Heart-healthy vegetable oils (preferably canola and olive; but also safflower, sunflower, corn, soybean, peanut, sesame seed, cottonseed)

–

Tub margarine or low-fat margarine made with the above oils

“Fat-free” or reduced-calorie mayonnaise and sandwich spreads

“Fat-free” and “no oil” salad dressings,* low-fat salad dressings*

Limit

Heart-unhealthy oils and fats: butter, lard, bacon fat, solid vegetable shortenings like Crisco

Products made with coconut, palm kernel or palm oil (if one of the first 3 ingredients)

Stick margarine

Regular mayonnaise and sandwich spreads

Regular salad dressings*

* These items higher in sodium

Breads, cereals, pasta, rice

6 to 11 servings a day; include several servings of whole-grain products daily.

Choose

Breads such as whole-grain, rye, pumpernickel; pita, bagel, whole-grain English muffin, sandwich bun, dinner roll

Low-fat crackers, whole-grain (breadsticks, saltines,* Rye Krisp,* pretzels,* graham crackers, animal crackers, zwieback, matzo, melba toast); baked low-fat whole-grain snack foods; rice cakes

Best choice: 0 to 2 grams fat per 1-ounce serving

Acceptable choice: 2 to 4 grams fat per 1-ounce serving

Popcorn (air-popped or microwave light)

Hot cereals, most cold dry cereals, low-fat granola

Pasta (whole-grain noodles, spaghetti, macaroni)

Rice (whole grain, brown or wild), quinoa

Corn or flour tortillas

Pancakes, waffles, low-fat muffins
(Tip: higher-fat items, so eat small portions!)

Limit

Croissants, corn bread, butter rolls, sweet rolls, Danish pastry, doughnuts

Most snack crackers and chips* (cheese crackers, butter crackers, potato chips, corn chips, etc.)

Buttered popcorn*

Regular granola-type cereals

Packaged pasta and rice products prepared or served with cream, whole milk, butter or cheese sauce

Taco (hard) shells

Bakery-type muffins

Fruits and vegetables

5 or more servings a day

Choose

Fresh, frozen or canned* vegetables (avocados and olives* are high in total fat content – use sparingly)

100% vegetable juices (low-sodium)

Fresh, frozen, canned, or dried fruit

100% fruit juices (8 ounces or less)

Limit

Vegetables prepared in butter, cream or sauce
French fries, onion rings, packaged potato products* that contain whole milk or cheese

100% vegetable juices (regular)*

Coconut, banana chips

Fruit ades, drinks

* These items higher in sodium



Sweets and snacks

No recommended number of servings – just be sensible.

Choose

Low-fat frozen desserts (sherbet, sorbet, fruit ices, fruit and juice bars, Popsicles, fat-free or low-fat ice cream or frozen yogurt)

Acceptable choice: 4 grams fat or less per ½-cup serving – eat small portions!

Homemade cakes made with small amounts of healthy oils, angel food cake

One-crust pies

Low-fat cookies, such as gingersnaps, fig bars, vanilla wafers

Low-fat candy, such as jelly beans, hard candy, gumdrops

Jell-O, low-fat pudding

Sugar, honey, syrups, jams, jellies

Dry cocoa powder

Limit

High-fat frozen desserts (especially gourmet ice cream and frozen yogurt), ice cream bars

High-fat cakes, like most store-bought, pound and frosted cakes

Store-bought pies, two-crust pies

Most store-bought cookies, granola bars, coconut snacks

Most candy, like chocolate bars

Mousse, pudding made with whole milk

–

Baking chocolate and chocolate chips used in recipes

If you have diabetes:

Use lower-sugar treats and/or adjust your meal plan to accommodate the carbohydrate content of this group.

- Choose sugar-free versions of high-sugar items. For example, select sugar-free Popsicles and sugar-free Jell-O.
- Foods with less than 20 calories and 5 grams of carbohydrate in 1 serving are considered free foods.

Beverages

Choose

Water, coffee, tea, decaffeinated coffee and tea, diet carbonated drinks

Recommendation: limit coffee to 2 to 3 eight-ounce cups per day.

If having 100% juice, limit to 4 to 6 ounces per day.

Limit

Soda, high-fat beverages (milkshakes, floats, egg-nog)

* These items higher in sodium

Fast-food restaurant and deli products*

Choose

Unbreaded items (chicken sandwich, etc.) prepared in a low-fat manner ("broiled," "grilled," etc.). Limit the mayonnaise.

Small hamburger with lettuce, tomato, catsup, mustard (without cheese and limit mayonnaise-based sauce)

Salads or salad bar items – concentrate on the vegetables and limit amount of dressing (check if fat-free or low-fat dressings are available)

Limit

Most fast foods (cheeseburgers, French fries, fried chicken, batter-coated products, fish and chips, breakfast sausage, egg muffins, milkshakes, etc.)

Pizza, nachos

Items that suggest large portions, such as "super" or "extra"

Salad bar items such as croutons, bacon bits and creamy salads (potato, macaroni, etc.)

Low-fat guidelines:

- **Avoid fried foods:** Choose baked, broiled or grilled menu items.
- **"Hold" the mayonnaise and mayonnaise-based dressings:** Choose other condiments like mustard, catsup, salsa or low-fat salad dressings.
- **"Hold" the cheese most of the time:** Order burgers, sandwiches and salads without cheese.

Miscellaneous

Choose

Most nuts* and seeds,* peanut butter (high-fat items, so eat in small portions!)

Reduced-calorie frozen dinners* (10 grams fat or less per entree)

Low-fat soups* (bouillon and broth-based soups)

Reduced-fat or regular cream soups* made with fat-free or 1% milk

Low-fat gravies* made with fat-free drippings or stock

Herbs and spices, vinegar, lemon juice, pickles,* relishes,* catsup, mustard, horseradish, salsa

Limit

–

Most frozen or prepackaged dinners*

Most cream soups*

Most regular gravies*

* These items higher in sodium



Heart-smart eating resources

Cookbooks:

American Heart Association Low-Fat, Low-Cholesterol Cookbook; Low-Salt Cookbook; Low-Fat & Luscious Desserts; Meals in Minutes, American Heart Association, 800-242-8721

Guide to Healthy Restaurant Eating by Hope Warshaw. McGraw Hill, 2005.

Looneyspoons: Low-Fat Food Made Fun by Janet Podleski. Perigee, 2000.

Moosewood Restaurant's Low-Fat Favorites (healthy vegetarian meals) by Pam Krauss. Clarkson Potter, 1996.

The Diabetes Food & Nutrition Bible: A Complete Guide to Planning, Shopping, Cooking and Eating by Hope Warshaw. ADA, 2001.

The New American Diet Cookbook by Sonja Conner, M.S., R.D., and William Conner, M.D. NAD Press, 2000.

Websites:

American Dietetic Association: www.eatright.org

Delicious Decisions from the American Heart Association: www.deliciousdecisions.org

Cooking Light Magazine: www.cookinglight.com

American Heart Association: www.americanheart.org

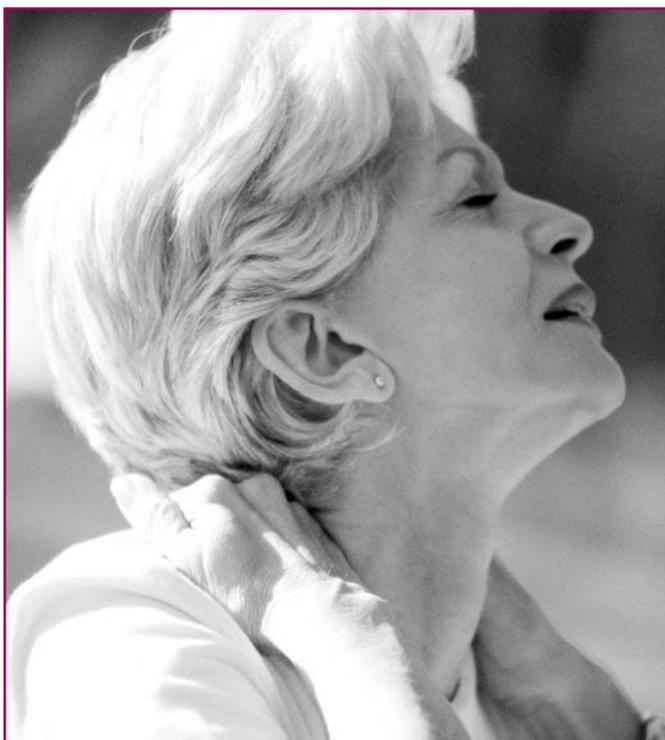
Manage stress the heart-healthy way

Stress by itself does not cause problems with your heart. Everyone has stress from day to day, and not all stress is bad. In fact, often the stresses we face challenge us to make a change or to think about something in a different way. Of course, too much stress over time can be harmful to your health. The bottom line: Whether stress is good or bad depends on how you deal with it.

You cannot get rid of all stress in your life. You can, however, decide how to deal with it. Dealing with feelings about having heart disease or a heart attack can be stressful. Although everyone is different, it's common to feel overwhelmed, anxious, depressed, and afraid of being overprotected by family or of becoming an invalid.

Part of your recovery will be to cope with these feelings. They usually do not last, and by knowing about them you will be better prepared to deal with these feelings. Keep in mind that people respond to stress in many different ways and what is best for you may not be best for everyone else. See page 9 for information on a cardiac rehab support group that meets monthly in the Portland area.

Feeling anxious: This is a normal reaction to a scary or unknown situation. You may feel nervous, uptight or irritable. These feelings usually come from not knowing what to expect as you recover or what your life will be like after a heart attack or while living with heart disease. The best thing you can do is talk about your feelings with the people around you. Talking with family members can be especially helpful, as they most likely feel afraid, too! How can you feel less anxious? Talk to your health care providers, read this heart-healthy book, take a class and/or attend a cardiac support group.





Being in denial: This is when you think or believe “it cannot happen to me.” Denial is a common reaction when you feel overwhelmed, because it temporarily protects you from a stressful situation. If you cannot, over time, accept your heart disease or that you’ve had a heart attack, you should seek counseling. Denial can keep you from making changes in your lifestyle that you need to make to live with heart disease and to prevent problems in the future.

Feeling depressed: Signs of being depressed include feeling sad, angry, guilty or lonely. These are common feelings to have with heart disease or following a heart attack. Feeling depressed is often made worse by boredom or inaction. Sitting around and doing nothing can leave you feeling weak, and unhappy about not getting better fast enough. Then the tendency is to become even less active and, therefore, weaker.

So what’s a good way to deal with feeling depressed? Stay active. Take one day at a time and set small goals for yourself that get more challenging over time. Focus on what you CAN DO, not on what you can’t do.

Feeling overprotected: Family members and friends may become overprotective, hoping to keep you from further harm. This reaction is normal, to a point. If you begin to feel frustrated, angry or worthless, however, you need to tell your family or friends. They must learn to be supportive rather than overprotective.

How will others know what you need? You must talk to them and involve them in your recovery. Share with them what is going on, and what to expect in the future, including changes in responsibilities around chores, child care and money. Talk about problems and come up with solutions together – it’s a lot better for your heart than going it alone.



Part 3: How a healthy heart works

Read the following section to:

1. Learn the names for parts of the heart.
2. Learn how a healthy heart works.
3. Learn about the heart's blood supply and electrical system.
4. See diagrams of a healthy heart.

Your heart

Your heart is an amazing organ. Roughly the size of your fist and weighing only 8 to 12 ounces, it is a muscular pump that moves blood throughout your entire body. The blood delivers oxygen and nutrients to cells and at the same time picks up waste products, such as carbon dioxide. Of course, the heart usually does its work without your even thinking about it. In fact, in the course of one day your heart beats more than 100,000 times and pumps 1,900 gallons of blood (2.4 ounces per heartbeat or 1.3 gallons per minute). This means that by the time a person is 70 years old, his or her healthy heart, on average, will have beat more than 2.5 billion times and pumped 48 million gallons of blood!

The major players are:

- The heart – a pump
- The blood vessels – a system of channels
- The blood – the fluid
- And four valves – gatekeepers that control the movement of blood within the heart, as well as out of the heart to the rest of the body

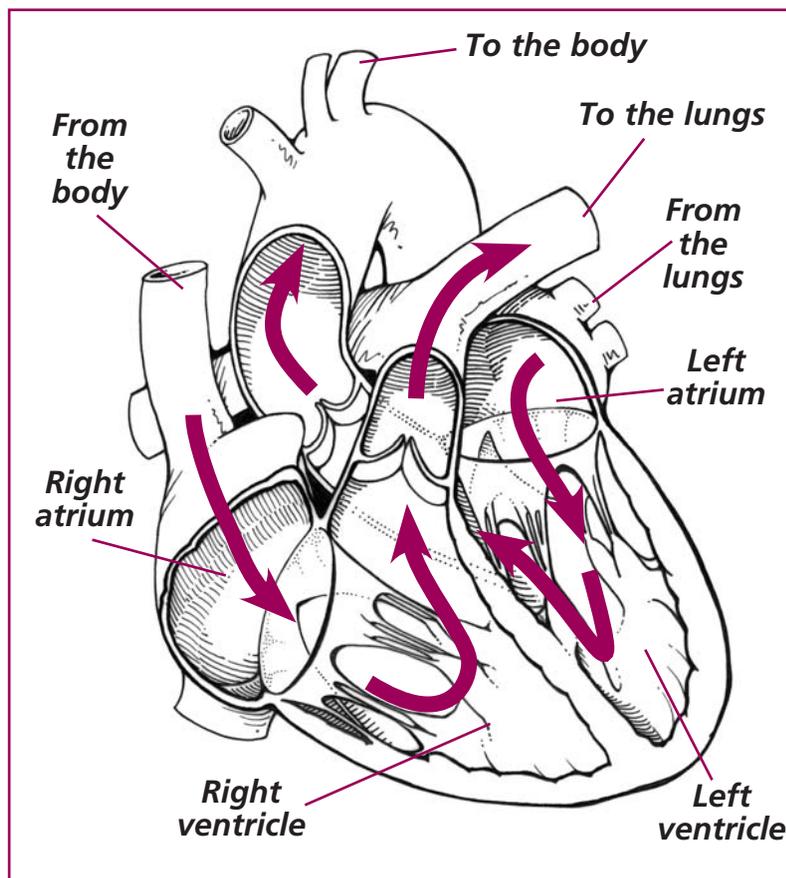
Your heart consists of four chambers – the **right** and **left atriums** that receive the blood, and the **right** and **left ventricles** that send or pump the blood. A heart valve that opens in only one direction separates the atrium from the ventricle. Two other one-way valves direct the flow of blood from the heart to the lungs and from the heart to the rest of the body. Valves prevent the backflow of blood and ensure that the blood can flow only one way through the heart.

How a healthy heart works

Blood that has traveled around the body – dropping off oxygen and nutrients and picking up waste products – returns to the heart via two large blood vessels. These two large blood vessels are the **superior vena cava** (carries blood from the upper part of your body) and the **inferior vena cava** (carries blood from the lower part of your body). These two large blood vessels channel all the oxygen-poor blood into the right atrium. The blood then passes through the **tricuspid valve** into the right ventricle. From there, it is pumped through another one-way valve (**pulmonary valve**) into the **pulmonary artery** that carries the oxygen-poor blood to the right and left lung.

After releasing carbon dioxide and picking up a fresh supply of oxygen in the lungs, the blood leaves the lungs through the **pulmonary veins** that return it to the heart – this time into the left atrium. The oxygen-rich blood then passes through the **mitral valve** into the left ventricle. The left ventricle pumps the oxygen-rich blood through another one-way valve (**aortic valve**) into the aorta.

The aorta is the main artery of the body. It ultimately directs the oxygen-rich blood to all body parts and systems, including your head, your internal organs and your lower body. Once again, after the blood makes its way around your body – delivering oxygen and nutrients and picking up waste products – it returns to the right side of the heart and the cycle begins again.



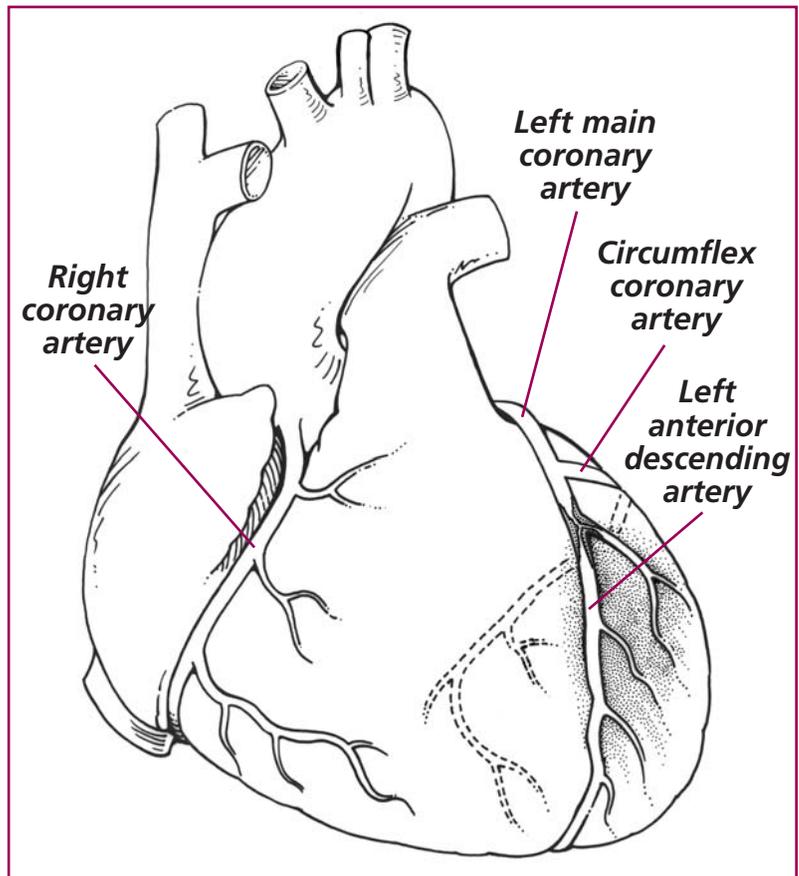
Blood flow through a healthy heart



The heart's blood supply

Just like any other organ, the heart requires a supply of blood so that it can do its work. It does not extract blood or other nutrients from the blood flowing inside it. The heart gets its blood from the **right** and **left coronary arteries**. These coronary arteries travel over the surface of the heart and then feed directly into the heart muscle itself.

The coronary arteries branch off from the main artery of the body, the aorta. Since the left coronary artery quickly divides into two branches (one to the front of the heart and one to the back of the heart), we usually speak of three main coronary arteries. Remember, the main pumping chamber of the heart is the left ventricle. It requires extra oxygen and nutrients to pump blood to the entire body through the aorta.



Coronary arteries

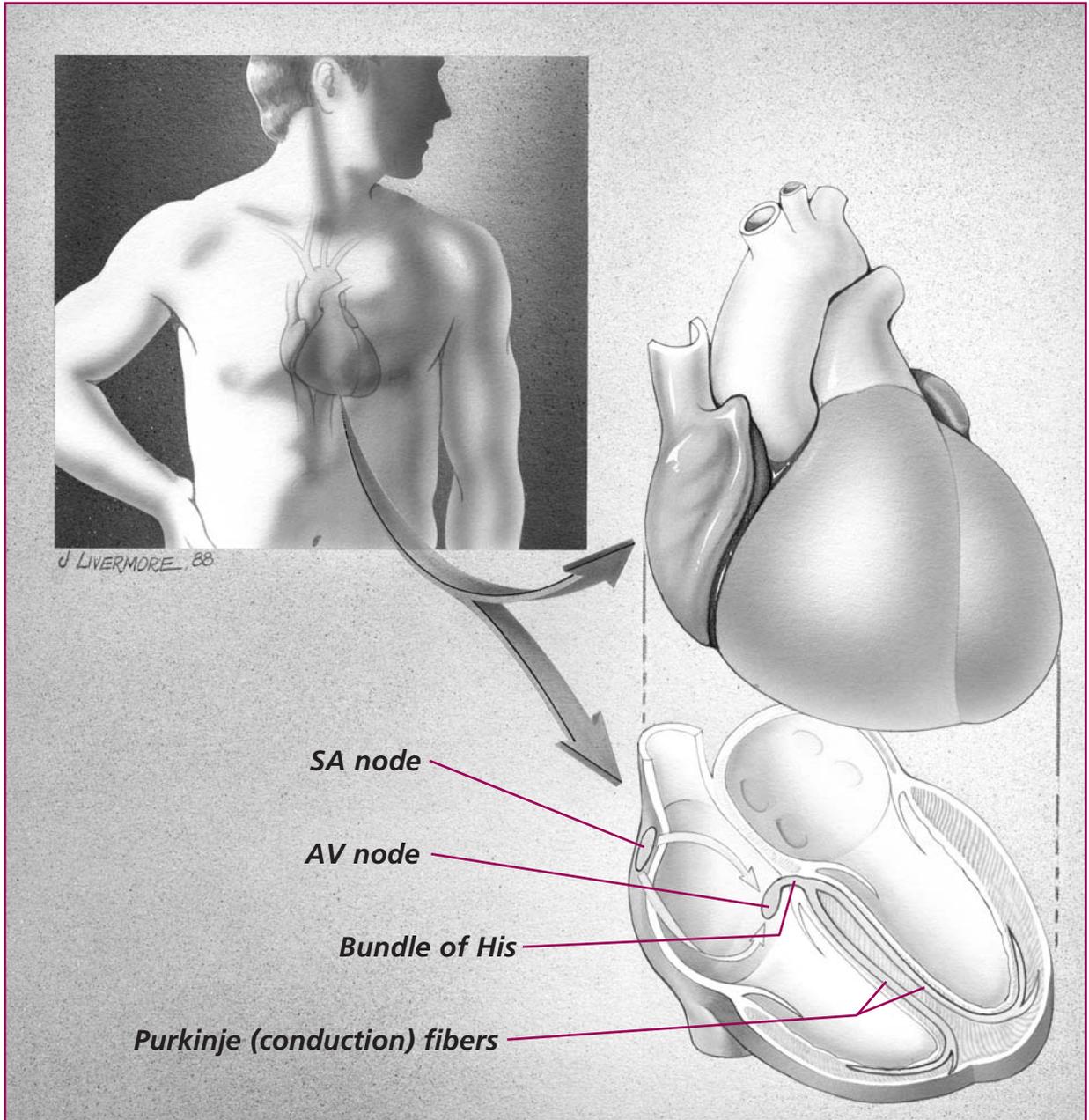
The heart's electrical system

Talking about the heart as a pump directing blood through the various blood vessels or “pipes” describes the heart from a plumber’s standpoint. What you may not know is that your heart has an electrical system, too. In other words – your heart is wired!

Your heart beats automatically, hour after hour, day after day, thanks to a special group of cells that have the ability to generate electrical activity on their own. These pacemaker cells produce electrical impulses that spread over the heart in a specific pattern, causing it to contract. The result is a normal heartbeat of, on average, 72 beats per minute.

The **sinoatrial node (SA node)**, located in the right atrium, is the natural pacemaker of the heart (see next page). Specialized fibers or “wires” conduct the electrical impulse from the pacemaker (SA node) to the rest of the heart. In a healthy heart, an electrical impulse leaves the SA node and travels to the right and left atriums, causing them to contract together. This results in the ventricles filling up with blood.

In the meantime, the electrical impulse has now traveled to the **atrioventricular node (AV node)**. From there it moves on to the **bundle of His**, where it divides and travels along the **right** and **left bundle branches**. From the bundle branches, **Purkinje fibers** rapidly spread the electrical impulse to the muscles of the right and left ventricles, causing them to contract at the same time. All of this electrical activity produces electrical waves that can be measured and represented as a graph called an **electrocardiogram (EKG)**.



Electrical system of the heart



Part 4: Your heart – when something goes wrong

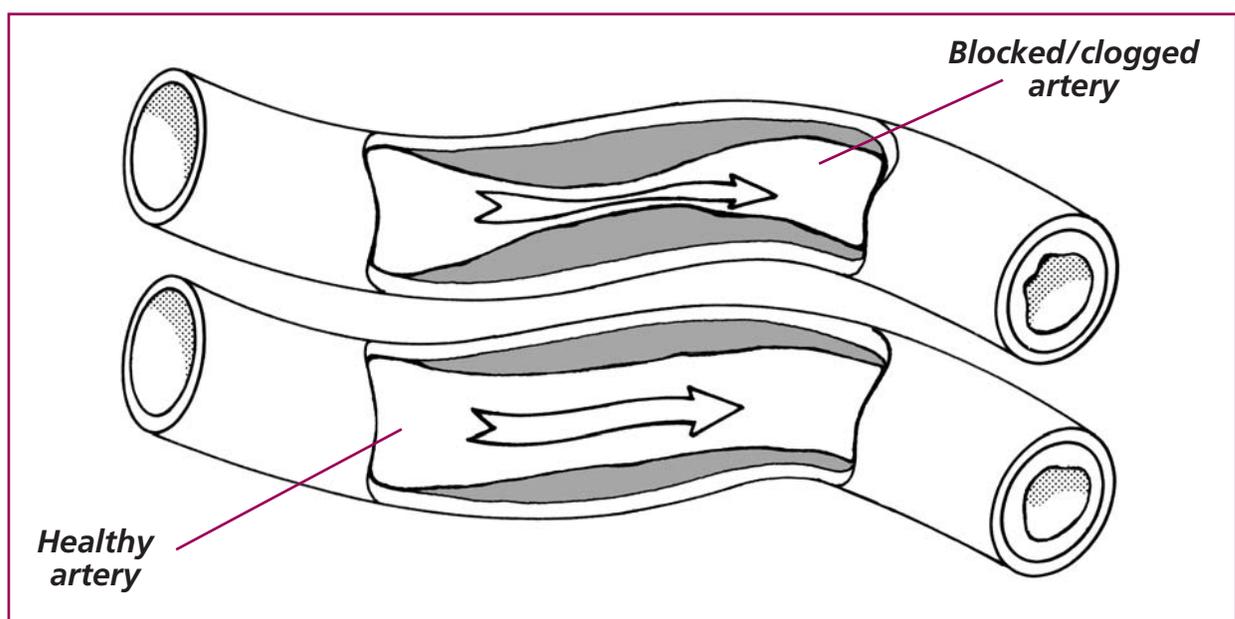
Read the following section to:

1. Understand heart disease (including important facts for women).
2. Learn about angina and how to take nitroglycerin medication properly.
3. Learn about heart attacks, including tests used to check for a heart attack.
4. Learn about arrhythmias.
5. Learn about congestive heart failure.

Heart disease

Your heart contracts (beats) and relaxes nonstop to keep your body supplied with oxygen-rich blood. Like any other muscle or organ in your body, your heart needs a steady supply of oxygen to do its work. The coronary arteries bring oxygen to the heart (see page 84). As long as these arteries remain healthy and unclogged, your heart gets all the oxygen and blood it needs.

If the coronary arteries become partly blocked, your heart doesn't receive enough oxygen. This condition is known as **coronary artery disease (CAD)**. CAD occurs when fatty deposits, called plaque, build up in artery walls. As the fatty deposits build up, the arteries narrow and less blood can flow through. This "narrowing of the arteries" is called **atherosclerosis**. Atherosclerosis can occur anywhere in the body, but your coronary arteries are a prime target. Because they are so small, it doesn't take much for the coronary arteries to become blocked.



Angina

When one or more of the coronary arteries are clogged, your heart has to function with less oxygen. When your heart muscle needs more oxygen than usual – for example, while you're climbing a flight of stairs or walking uphill – you may feel chest pain, pressure or discomfort. This pain or discomfort is called **angina**.

Angina may feel like:

- Discomfort, tightness or pressure in your chest, neck, shoulders, arms, jaw or back (between the shoulder blades)
- Fullness or upper-stomach indigestion
- Shortness of breath
- Tingling or numbness

Physical exertion, strong emotions, smoking, stress or eating a large meal may bring on angina. In some people, angina can also occur at rest. It usually lasts only a short period of time and it usually causes no permanent damage to your heart.



If you are having the signs of angina:

1. Stop and rest – sit or lie down. Wait 2 to 5 minutes to see if the angina goes away.

2. If the angina continues:

If you **are not** on nitroglycerin, call 9-1-1. **Do not drive to the hospital. You may be having a heart attack!**

If you **are** on nitroglycerin, place a tablet or spray under your tongue and let it dissolve. Do not chew or swallow the tablet.

3. Wait 5 minutes.

4. If your angina persists: Take 1 more nitroglycerin tablet or spray. Wait 5 minutes.

5. If your angina still persists: Take your nitroglycerin tablet or spray 1 more time. Wait 5 minutes.

6. **Call** 9-1-1 if the pain does not go away with rest and/or taking 3 nitroglycerin tablets or sprays.

Do not drive to the hospital. You may be having a heart attack!

How to use nitroglycerin

If you have angina, your doctor may prescribe nitroglycerin for you. Nitroglycerin is a medication that works quickly to open up blood vessels so that more blood and oxygen can get to the heart. It can be taken as a tablet (placed under the tongue) or a spray (sprayed under the tongue). It gets into your body through the blood vessels under your tongue.

Always carry nitroglycerin tablets or spray with you. Keep the tablets in their original container (with the lid on tightly) in a safe, dry place away from heat, humidity and light. Be sure to remove the cotton from the container because it can cause the nitroglycerin tablets to lose strength. **Never store nitroglycerin tablets in the same container with any other pills; this causes them to lose strength, and so they may not work when you need them.**

Headaches are a common side effect of taking nitroglycerin. If you have this problem, let your doctor know. Drinking alcohol will increase this side effect.

Reminder: Check the expiration date on your nitroglycerin – if it's past the date, get a new supply of nitroglycerin immediately and then throw away your old nitroglycerin!

Notify your doctor if your angina changes:

- If it comes on more quickly,
- If it lasts longer than normal,
- If you experience angina more often than usual,
- Or if it occurs when you are at rest





Heart attack

A heart attack happens when a coronary artery is completely or almost completely blocked. The blood flow to that part of the heart stops. That area of the heart becomes starved for oxygen within minutes and can be permanently damaged. Because damage to heart muscle occurs so quickly, always seek help as soon as you have any of the warning signs of a heart attack. You have a much better chance of recovering if you **get help within the first hour.**

Am I having a heart attack?

You may have one or more of the following signs:

- **Discomfort:** mild to intense. It may be steady or it may come and go.
- **Chest pain:** described as “pressure,” “burning,” “tightness,” “heaviness” or “squeezing” that does not go away with rest and/or nitroglycerin (tablet or spray given under the tongue every 5 minutes for a maximum of 3 doses)
- **Pain:** in the arms, shoulders, neck, jaw, upper abdomen or middle of the back between the shoulder blades
- **Shortness of breath or difficulty breathing**
- **Nausea,** indigestion, or a feeling of heaviness or fullness (sometimes mistaken for flu symptoms)
- **Cold sweats**
- **Abnormal heartbeat:** palpitations, skipped beats, a sudden very slow pulse or a sudden burst of rapid pulse
- **Weakness, dizziness or fainting**
- **Vague feeling of unease or unexplained fatigue**
- **Anxiety:** stronger than normal

Remember – a “heart attack” means that a lack of blood flow to your heart may have caused permanent damage. If you have any of the early warning signs and they do not get better within a few minutes with rest and/or nitroglycerin, **call 9-1-1 or go to a hospital emergency room right away. Do not drive yourself to the hospital! Don’t delay because you think it could be a false alarm!**

Medications exist that may help reduce the damage to your heart; however, they work best when given within 1 hour after the warning signs appear. Even if you've already had a heart attack, be certain that you and your family members recognize the early warning signs so you know what to do next time.

For women only

Do you know that:

- Heart disease is the number one killer of women in the United States?
- More than 250,000 women die each year from heart disease?
- More women die of heart disease than do men?
- More women die from heart disease than from all kinds of cancer combined, including breast cancer?
- Women with heart disease are diagnosed less frequently than men and are less likely to survive a heart attack?

Most women are not aware of these facts. On top of that, the warning signs of a heart attack are often less obvious in women. The bottom line: A woman who is having a heart attack often waits longer than a man to get help after the warning signs appear. As of today, don't delay – be the first to know the facts about women and heart disease, to recognize the early warning signs of a heart attack and to seek medical help!





Tests to check for a heart attack

Once you get help, you will be given tests to see if a heart attack actually happened. You may undergo one or more of the following heart attack tests at the hospital:

- **Electrocardiogram (ECG or EKG):** a painless test that measures the electrical activity of your heart. It can find out if the heart is beating normally or if heart damage has occurred. It's common for the first EKG to be normal or nearly normal. You may need more than one EKG to detect damage.
- **Blood tests:** blood work that looks for signs or "markers" that your heart muscle has been damaged. The most common blood tests measure levels of cardiac enzymes called creatine kinase (CK) and troponin.
- **Echocardiogram:** a painless test that sends harmless sound waves into your chest to "see" the size and shape of your heart. An echocardiogram shows whether the pumping power of your heart is normal and if all the heart valves are working properly.
- **Nuclear scan (thallium):** a test that shows areas of your heart that are damaged and not getting enough blood. A small amount of radioactive material is injected into your body, usually into a vein in your arm. A special scanning camera positioned over your heart records whether the heart muscle takes up the radioactive material (healthy areas) or not (damaged areas). Your body naturally eliminates the radioactive material over the next few days.
- **Coronary angiogram (heart catheterization):** a procedure done on the heart to show places where the blood flow is slowed or blocked. A doctor inserts a thin tube, called a catheter, through an artery in your arm or leg up into your heart. (Before this is done, you can be given something to help you relax.) Dye is put into the tube and travels into your heart. A picture (called an **angiogram**) is taken to show if you have any blocked coronary arteries, heart valve problems or other heart damage.

Your doctor uses the results from these tests to determine the amount of damage to your heart and to decide what to do next. Based on your test results, your doctor may order one or all of the following:

- Medical treatment:
 - Thrombolytics: drugs that help dissolve a blood clot in a heart (coronary) artery
 - Blood thinners and platelet inhibitors: drugs to keep a blood clot from growing
- Angiogram (if not already done): a test to see which coronary artery is blocked and how much
- Cath lab procedure (see page 100):
 - Balloon treatment to open the blocked heart artery
 - Stent placement to keep the artery open
- Open heart surgery (see page 106)



Arrhythmia

An arrhythmia is a problem with your heart's electrical system. (See pages 85 and 86.) This electrical system is responsible for producing the signals that cause your heart to contract (or beat) and pump blood. When you have an arrhythmia, your heart may beat too fast, too slowly, unevenly, or it may seem to skip a beat. Damage to the heart, such as a heart attack, can affect the electrical system and cause arrhythmia.

Signs of an arrhythmia

- Feeling dizzy, lightheaded or faint
- Shortness of breath that does not go away when you rest
- A very fast heartbeat
- Heart palpitations or "flutterings" in the chest or skipped heartbeats



If these symptoms are new or become worse, call your doctor or 9-1-1.

Heart failure

In a few seconds, a healthy heart can pump blood to all parts of the body. If your heart is weak and no longer capable of pumping enough blood to meet the needs of the rest of your body, you have **heart failure**. When this occurs, blood that should be pumped out of the heart backs up into your lungs as well as other parts of your body. This is why people with heart failure often have shortness of breath or swelling in the legs, feet and hands.

How do I know I have heart failure?

Pay attention to the signs that let you know something is wrong:

- Sudden weight gain (2 to 5 pounds in 1 to 3 days)
- Swelling of legs, ankles, feet or hands
- Pain or swelling in the abdomen
- Shortness of breath
- Frequent, hacking cough, especially when lying down
- Trouble sleeping when lying down (you require more pillows to sleep)
- Frequent trips to the bathroom during the night to urinate
- Lack of energy for normal activities, or excessive fatigue when exercising
- Loss of appetite or nausea
- Dizzy spells



If you have any of these signs, call your doctor.



Causes of heart failure

Heart failure usually develops slowly, over a period of years. This condition can be due to one factor or many factors. For example, anything that weakens the heart muscle by making the heart work less efficiently or by placing an extra workload on the heart muscle can lead to heart failure. Examples are:

- Blocked coronary arteries
- A heart attack
- Hypertension (high blood pressure)
- Heart valve disease

Having another medical condition such as the following can lead to heart failure:

- Lung or kidney disease
- A heart infection
- Alcoholism
- A heart defect you were born with

Other factors that increase your risk for developing heart failure include:

- Being overweight
- Having diabetes
- Having an arrhythmia (irregular heartbeat)

Treatment of heart failure

Your treatment plan may include a combination of the following:

- Medication
- Low-sodium (low-salt) diet
- Moderate exercise
- Monitoring of weight daily
- Stress management
- Smoking cessation



Part 5: What comes next – possible procedures or surgery

Read the following section to:

1. Learn about procedures to improve blood flow to the heart that take place in the cath (catheterization) lab.
2. Discover what to expect when you have a procedure done in the cath lab.
3. Learn about the different types of open heart surgery.
4. Discover what to expect the first few days in the hospital as you recover from open heart surgery.
5. Learn about how arrhythmias (abnormal heart rhythms) are treated and what to expect from your hospital stay.

Welcome to the cath lab

When something goes wrong with your heart, your doctor or a doctor from the emergency room will decide what must be done next. You may need to undergo a procedure that improves blood flow to your heart, such as an angioplasty or the placement of a cardiac stent. Procedures such as these, which improve blood flow to the heart but do not require open heart surgery, take place in the hospital's **cath (catheterization) lab**.

The cath lab is a special room in the hospital that deals only with heart problems. It is equipped with special equipment that allows the doctor to "see" what's happening inside your heart. During a procedure in the cath lab, you will be awake and able to talk. You may experience some pressure in and around your chest. Tell your doctor if you feel any discomfort or pain during the procedure.

The table you lie on will be hard and the room may feel cold to you. The doctor requires these conditions in order to perform the procedure. You may be given medication to help you relax. However, you will still be alert enough to respond to various instructions, such as "take a deep breath," "hold your breath" or "cough."



To begin, your doctor will take a picture, called an **angiogram**, of the coronary arteries that supply your heart with blood and oxygen. This step takes about 30 minutes to 1 hour to complete. First, you will be given a local anesthetic (this blocks the pain in just one area) to numb either your upper leg (groin) or your arm or wrist. After making a small puncture into the artery in the chosen area, the doctor will insert a long, flexible, hollow tube called a **catheter**.

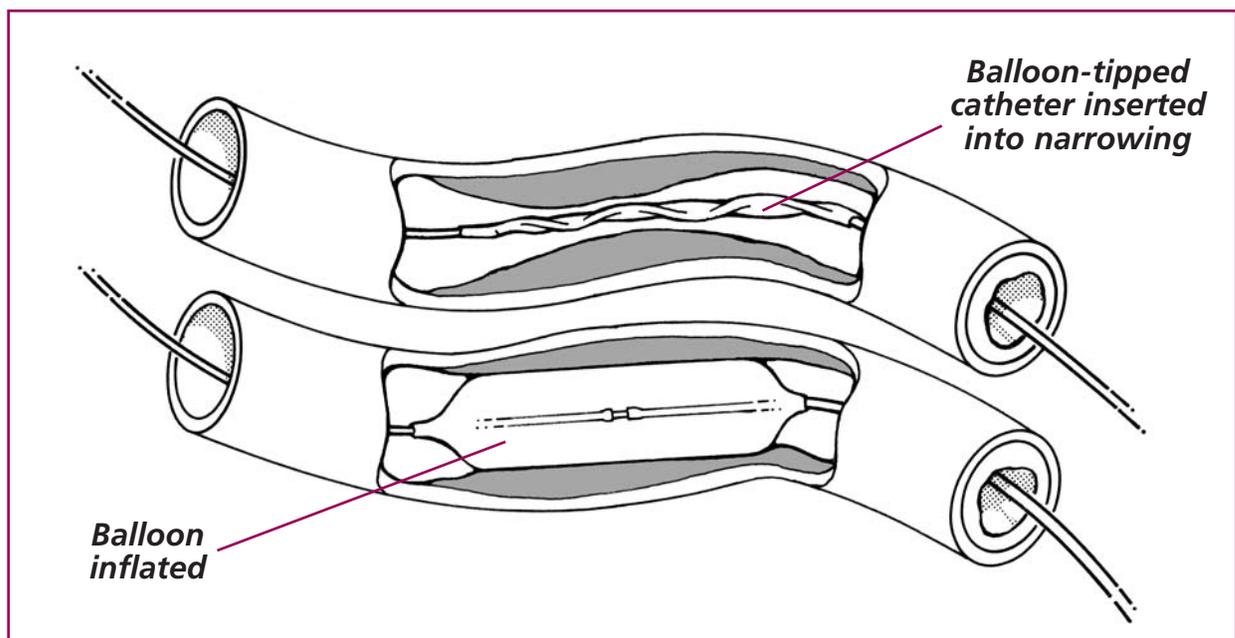
Following the artery's path, the doctor guides the catheter (using a video monitor) up to your heart into the opening of the left or right coronary artery. Through this catheter, the doctor injects a small amount of a special dye (called **contrast dye**). You may feel warm and flushed for a few seconds when the dye is injected. You may also get a funny taste in your mouth or feel nauseous. The doctor then uses a special camera to follow or "watch" the dye as your heart beats. If the coronary artery is too narrow or is blocked with cholesterol deposits (called **plaque**), the dye may not be able to pass through.

What the doctor "sees" in this angiogram will determine what happens next. If necessary, the doctor will perform another procedure (see next page) to improve the blood flow to your heart. This means you will be in the cath lab for another hour or so. **As a blockage is opened, blood flow in that coronary artery is stopped for a very brief period. You may experience some pressure or chest pain at this time, which is normal.**



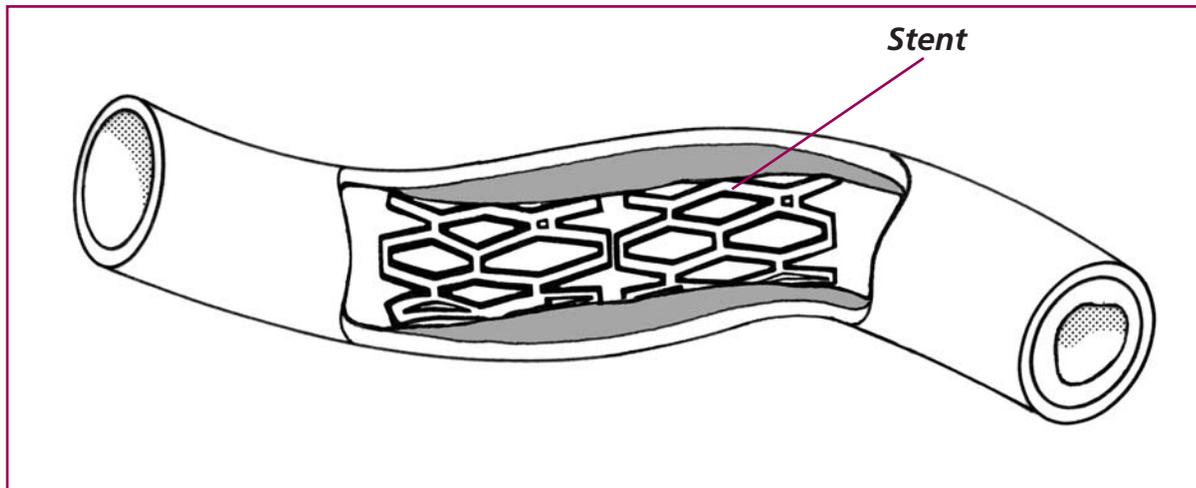
Procedures done in the cath lab

- 1. Balloon angioplasty:** a procedure designed to widen narrowed or blocked coronary arteries. This time, the doctor inserts a catheter with a deflated balloon on the end of it. The doctor guides the catheter up into your heart until the tip reaches the narrow or blocked part of the coronary artery. The balloon is then inflated, compressing the plaque (like snow crushed beneath your boots as you walk) and enlarging the inside of the artery so blood can flow more easily. (You may experience chest discomfort at this time.) The doctor repeats this process until adequate blood can flow through the artery. The balloon is then deflated and the catheter and balloon are removed from your body.



- 2. Cardiac stenting:** the placement of a small metal coil or mesh tube, called a **stent**, into a narrowed coronary artery to hold the artery open. This improves blood flow to your heart by helping to reduce the chance of the artery becoming narrow or blocked again. The doctor places the stent on the end of a balloon catheter (a long flexible tube with a deflated balloon on the end) and guides it into the heart to the blocked or narrowed artery. The balloon is then inflated, which causes the stent to fully expand. (You may experience chest pain at this time.) The catheter and balloon are removed, and the stent remains behind to hold the artery open. In time, new tissue grows over the stent and completely covers it.

Your doctor may decide to use a **drug-coated stent**. Coating the stent with a drug allows the medication to be delivered to the narrowed area of the artery over time. The goal is to prevent the formation of stent-related scar tissue that can relog the artery.



3. Atherectomy: a procedure that actually removes the harmful plaque in a coronary artery instead of crushing the plaque against the artery wall. This opens up the coronary artery so blood can flow more easily to your heart. The doctor has four types of atherectomy to use:

- a. Directional atherectomy: The catheter is tipped with a tiny cutter, which shaves off the plaque and collects the fragments.
- b. Rotablator atherectomy: The catheter is tipped with a high-speed rotator, which shaves off tiny pieces of plaque. Blood flowing through the artery washes away the shavings.
- c. Extraction atherectomy: The catheter features a device that cuts away plaque and vacuums it out of the artery.
- d. Laser atherectomy: The catheter is tipped with a tiny laser that uses laser energy to vaporize or “dissolve” the plaque.



Recovery following an angiogram or other cath lab procedure

After having a procedure done in the cath lab, you will immediately be taken to a recovery unit where you will be closely watched. Your heart rhythm, blood pressure and puncture site will be monitored. For several hours after the procedure, you'll stay attached to a heart monitor and to an IV line that delivers fluids and medications.

Here's what you can expect:

1. The catheter will be removed from your leg, arm or wrist. There are a variety of ways to do this and you may feel some discomfort. You will be given pain medication to help you deal with this discomfort. For example, to seal the puncture site and prevent bleeding, a technician may apply firm pressure to the spot for 10 to 15 minutes. Or if the puncture site is in your wrist, a clamp will be put on for the next several hours and then slowly loosened. For a puncture site in the upper leg (groin), you may also need to wear a belt or similar pressure device around your legs for several hours.
2. If your puncture site is in your wrist, your arm will be in a sling for the next 24 hours. You will be told not to move or use this arm in any way, as this could cause bleeding. If the puncture site is in your upper leg (groin), be prepared to lie quietly for as long as necessary. Bed rest may last 3 to 24 hours. You will be told not to move or bend your leg, as this could cause bleeding. Your family is welcome to stay with you. You should not try to get out of bed on your own, as you may get lightheaded or dizzy or cause the puncture site to bleed.
3. During the first few hours, a nurse will check your heart rate, blood pressure and puncture site several times. If you've had a stent placed in an artery, blood tests will be done periodically to monitor your response to the anticoagulating medication you were given during the procedure.

4. If your puncture site is in your upper leg, you will need to use a urinal or bedpan during bed rest. Let your nurse know if you are unable to empty your bladder.
5. Once you are settled and your doctor gives the okay, a nurse will order you a meal. You may also be asked to drink lots of clear fluids, like water or juice, to help flush the contrast colorless dye out of your body as quickly as possible.
6. Your doctor will let you know when you can go home. It will most likely be that same day. If you've had a stent placed, however, you will need to stay in the hospital at least overnight. Before you leave, you will be given specific instructions to follow at home for the next few days.
7. You may not drive for at least 24 hours. You must have a friend or family member drive you home following the procedure.
8. Any routine MRI testing should not be done for 8 weeks after your stent has been put in place. If you need an MRI during the first 8 weeks, talk with your doctor.
9. If you have had a stent placed, you will be given a card with information about the stent used, size, and date of implant. Carry the card with you.

While in the recovery room – call for a nurse immediately if you have chest discomfort or if you notice any bleeding, swelling or pain at your puncture site.

For more information on recovering from a cath lab procedure once you return home, see page 22.



Open heart surgery

Your doctor may recommend that you have open heart surgery to improve the blood flow to your heart. Often this is because one or more of your coronary arteries (the arteries that bring blood and oxygen directly to your heart) are blocked. Open heart surgery is also performed to correct problems with the heart valves, to remove tumors in the heart, or to correct a heart problem that you were born with.

Open heart surgery usually lasts from 3 to 6 hours. You will be put to sleep so that you will not feel any pain during the operation. In most open heart surgeries, the surgeon will make an incision down the front of your chest and then surgically divide the bone that lies beneath the skin (your breastbone) in order to reach your heart. In some cases, the surgeon may be able to perform the surgery through small incisions made over your ribs or breastbone and in your neck or upper leg (groin).

You most likely will be attached to a heart-lung bypass machine that takes over for your heart while the surgeon performs the operation. In other words, your heart and lungs are temporarily stopped. During this time, the heart-lung bypass machine cleans your blood and gives it a fresh supply of oxygen before pumping it back to your body. To decrease the amount of oxygen your body needs at this time, your body temperature is lowered. (In some cases, a heart-lung bypass machine may not be used because the surgeon can do the surgery while your heart is beating.)

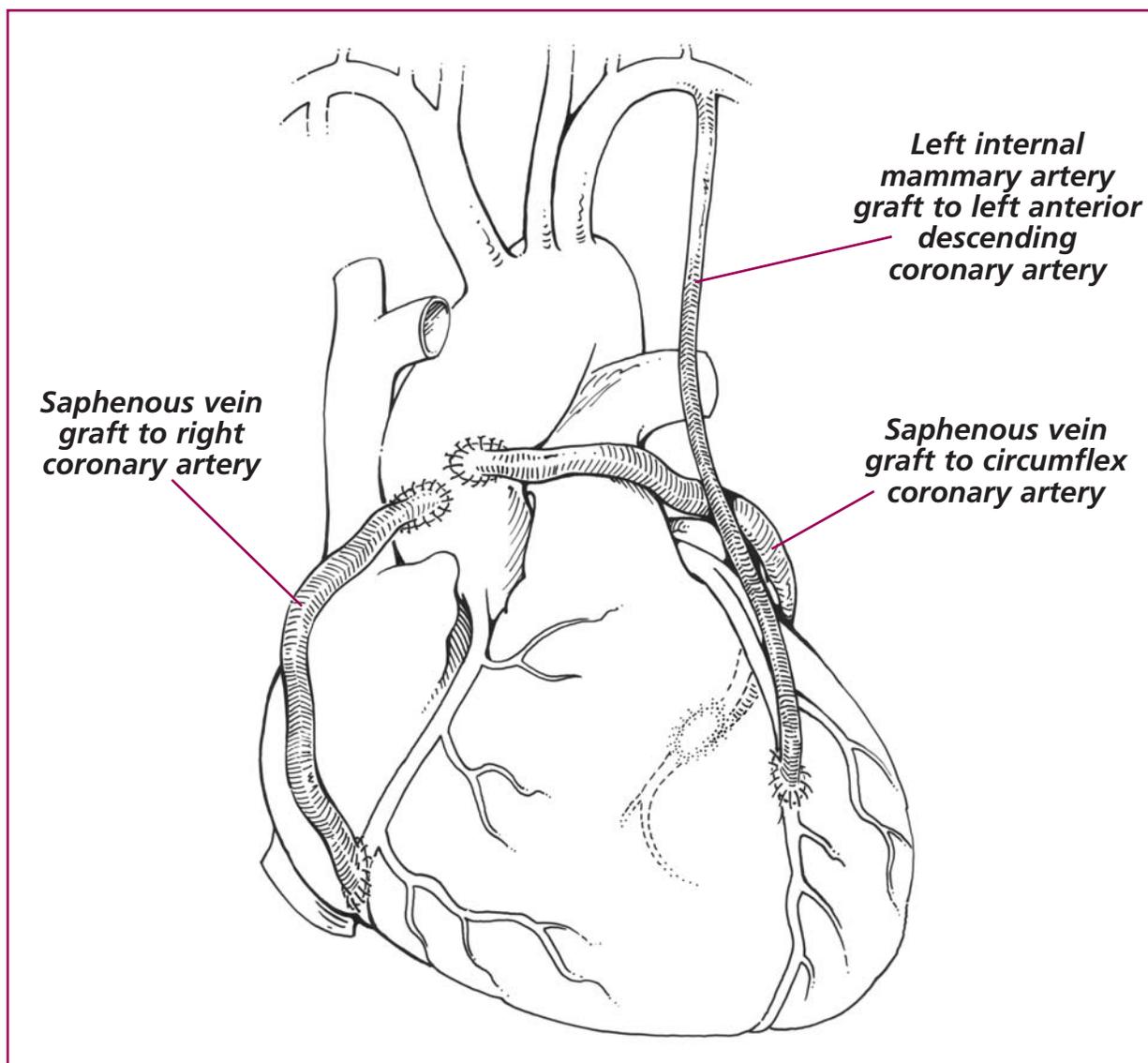
After the surgery is completed, your blood is gradually rewarmed, your heart and lungs are restarted, and the heart-lung bypass machine is removed. Your chest is closed and you are taken to a critical care unit to begin your recovery.

Listed here are the most common types of open heart surgery:

1. Coronary artery bypass graft surgery, or CABG (“cabbage”)

This surgery creates a new pathway in the heart to carry the blood around a blocked coronary artery. In this surgery, an artery or vein is taken from another part of your body and transferred to your heart. In the heart, the “new” artery or vein is carefully sewn to the large blood vessel leaving your heart (the aorta) and to your own coronary artery beyond the blockage. This creates a new path for the blood to follow, so that the blood bypasses or goes around the narrow or blocked point. You may require more than one bypass.

The most common arteries used are the mammary artery, which runs on the inside of your chest along your breastbone, and the radial artery from your arm (an incision is made from inside your elbow to your wrist). The saphenous vein, located just under your skin on the inside of your leg, is the most commonly used vein. (Several small incisions are made on the inside of the leg and a special instrument is used to remove the vein, or one long incision is made on the leg and the vein removed.) These arteries or veins are chosen because your body doesn't miss them once they are removed. Your surgeon will decide which artery or vein is best to use and will discuss this with you before surgery.



Coronary artery bypass graft surgery, or CABG ("cabbage")



2. Repair or replacement of a faulty heart valve

If one or more of the four valves in your heart don't open or close fully (see page 81), blood can back up into your lungs and cause congestive heart failure, or you can develop an irregular heart rhythm. You can take medication to treat these conditions, but eventually you must have surgery to correct the problem. If possible, your own heart valve will be repaired to make it work more normally. If this is not possible, your valve will be removed and an artificial valve will be sewn into its place.

An artificial heart valve can be made from animal or human tissue or it can be a mechanical valve – one made from a man-made material such as metal or plastic. A mechanical valve can last for a lifetime. You will need to take an **anticoagulant** (medication that thins the blood) for the rest of your life, however, as blood clots are more likely to form on this type of valve. Tissue valves typically last 10 years, but you only need to take an anticoagulant for a short time to prevent a blood clot from forming. Based on your medical history and the extent of your valve problem as well as your age, body type, lifestyle and hobbies, your doctor will decide what type of valve is best for you.

See page 19 for important information on living with a new heart valve once you return home.

3. Transmyocardial revascularization (TMR)

TMR, or laser heart surgery, may help patients who are unable to benefit from other treatments, such as angioplasty or open heart surgery. The surgeon uses a laser to open or "drill" 10 to 40 channels in the wall of the heart. These small channels (each the size of the tip of a ballpoint pen) restore blood flow and oxygen to the heart muscle, and thus you feel less angina (chest pain). Although the channels eventually heal shut, they stimulate new small blood vessels to grow in that area.

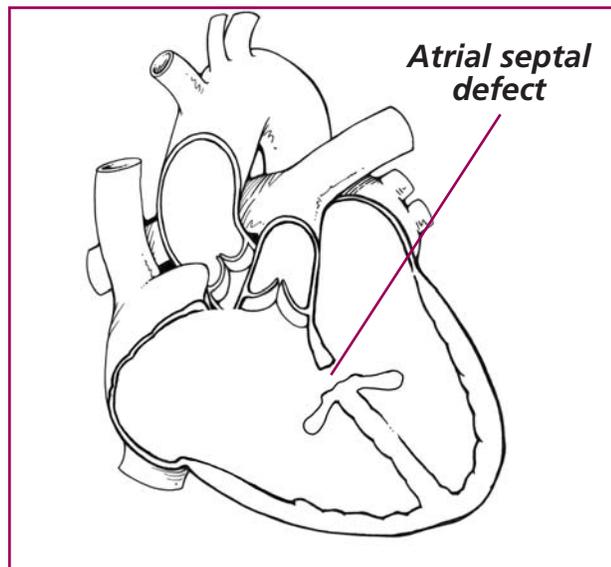
TMR is done while your heart is beating, so a heart-lung bypass machine is not needed. Your surgeon will reach your heart by making small incisions on the left side of your chest, rather than one long incision down the middle.

4. Removal of a myxoma (benign tumor)

A myxoma is a benign, or noncancerous, tumor located in the right or left upper chamber (atrium) of the heart. Complications can arise as blood clots form due to the tumor's growing and cutting off blood flow through the heart, or tumor cells' moving to another part of the body. (The tumor cells break off and travel with the clot.) Surgery removes the tumor and restores normal blood flow.

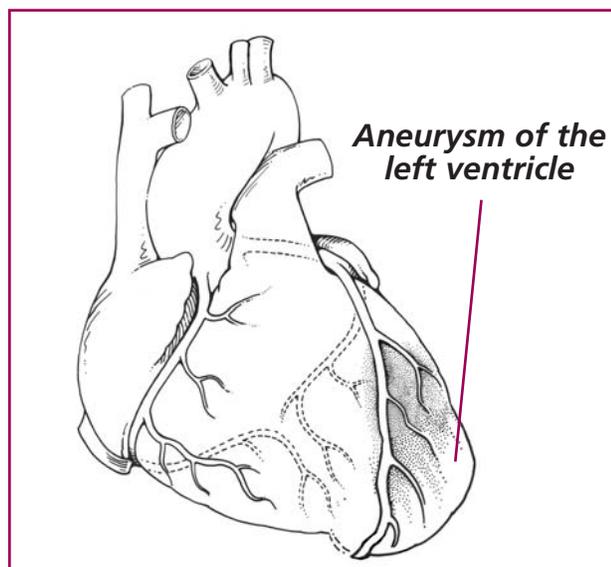
5. Repair of an atrial septal or ventricular septal defect

Some people are born with an **atrial septal defect**, an opening in the wall separating the two upper heart chambers, or a **ventricular septal defect**, a hole in the wall separating the two lower chambers of the heart. Most often these defects are detected and repaired during childhood or they close on their own. If the defect is left untreated, you may experience fatigue, shortness of breath and irregular heartbeats as an adult. The opening is patched using either a piece of your own heart (from the pericardium, or sac that surrounds the heart) or a piece of synthetic material.



6. Repair of an aneurysm of the left ventricle

An **aneurysm** is a weak spot in a blood vessel or in the wall of the heart itself. This weak spot tends to bulge as blood flows through, making the blood vessel or heart less efficient. An aneurysm of the left ventricle, the heart's main pumping chamber, can cause shortness of breath and irregular heartbeats. During surgery, the ventricle wall is patched and/or scar tissue is removed.





Recovery following open heart surgery

Your recovery from open heart surgery begins in the critical care unit. Your family may visit you briefly within an hour or two after your operation, although you'll most likely still be asleep. You'll regain consciousness shortly as the anesthetic wears off. The usual hospital stay after open heart surgery is 4 to 7 days.

Here's what you can expect in critical care AFTER you wake up:

Day of surgery:

- **You will have tubes and wires attached to your body.** A special IV line (called a PA catheter) will be in your neck. This is used to give you fluids and medications, as well as to take blood samples. Another catheter will empty your bladder. Several tubes will be in your chest to drain off fluid that typically accumulates during and after surgery. Small patches, or electrodes, on your chest will be attached to a machine that allows the nursing staff to continuously monitor your heart rhythm and heart rate.
- **You won't be able to talk at first.** A breathing tube will be in your mouth. This tube runs into your lungs and connects you to a respirator that delivers oxygen. You will not be able to talk as long as the breathing tube is in your throat. In most cases, it's taken out within 6 hours after the operation. Your nurse will help you find other ways to communicate, such as blinking your eyes or squeezing a hand to answer "yes" or "no" to questions. Once the breathing tube is removed, you will be hooked up to a plastic line or face mask that delivers oxygen through your nose.
- **You will have pain and you will be given medication to help control it.** Expect to have discomfort or pain wherever you have an incision – in your chest, and possibly in your leg or arm if a vein was removed to use for a bypass procedure. Each day after surgery, the pain should get less. You may be put in charge of your own pain medication (which you can give to yourself by pushing a button), or you may need to let your nurse know when you need pain relief.

You will be asked to rate your pain on a scale of 1 to 10, "10" being the worst pain you can imagine and "1" being very mild pain. This will help your doctors and nurses determine if your pain medication is strong enough. If it isn't, something else will be ordered to help you be more comfortable.

- **There will be lots of noise and activity.** The lights are on 24 hours a day in the critical care unit, and there is constant activity. Every machine has an alarm on it. These alarms often go off when you simply move or try to talk. You don't need to be frightened or concerned about the alarms – the nurses are familiar with these sounds and know which ones to respond to. You may be confused by all this noise and activity, especially at night. You'll be able to think more clearly and sleep more normally when you're moved to a quieter recovery unit within a day or two.
- **You will be given small amounts of clear liquids to drink.** It's normal to be very thirsty the first few days after surgery. Once your breathing tube is removed, you'll be given clear liquids, such as water, apple juice, Jell-O and broth. The amount of fluid you drink needs to be carefully measured and recorded, so family members should not give you anything to drink without checking with your nurse first. Sucking on ice chips will help you deal with your thirst.
- **You'll do breathing exercises.** As soon as the breathing tube is removed, you will be shown how to do coughing and deep-breathing exercises. This helps prevent pneumonia (an infection in the lungs) and other lung problems. Your nurse will give you a small handheld device, called an **incentive spirometer**, and teach you or remind you how to use it.

Coughing will not hurt your heart or the incision on your chest. Coughing and deep breathing is essential to keeping your lungs healthy, and it's the best thing you can do to speed your recovery. To help ease the pain you may feel, your nurse will show you how to squeeze a pillow to your chest while you do coughing and deep-breathing exercises.

Note: Be sure you take your pain medication the first few days after open heart surgery so you can cough and take deep breaths!

- **You will sit up on the edge of the bed or in a chair.** A nurse will help you do this. As soon as the breathing tube is removed, your nurse will help you move to a sitting position.



Day 1 after surgery, you will:

- Sit up in a chair for longer periods of time.
- Move to regular foods chosen from a heart-healthy menu, if you tolerate clear liquids without nausea or vomiting.
- Have drainage tubes and most IV lines removed.
- Continue breathing and coughing exercises.
- Move from the critical care unit to another recovery area. You will be monitored here for 3 to 5 more days before being discharged to go home.
- Once you are transferred, walk in the hallway with assistance from a nurse.

Day 2 after surgery, you will:

- **Need to help yourself recover.** You do this by taking control of your health. It's normal to feel sleepy and be forgetful – due to the anesthesia still in your system as well as the pain medication you are taking. This will pass and your strength and alertness will return.

For now, get out of bed and be as active as possible. You will be encouraged to help with your personal care – for example, taking a sponge bath, fixing your hair, shaving or applying makeup.

- **Continue your deep-breathing and coughing exercises.** Use your spirometer to help you breathe deeply and use all your lung power.
- **Take 3 or 4 short walks a day.** You most likely will no longer need extra oxygen, and most of the tubes in your body will be gone. You will be given a wireless heart monitor to wear as you walk. Walking will help you to feel stronger. It also helps prevent pneumonia, as well as the formation of blood clots in your legs.
- **Eat to get back your strength.** You will be eating regular foods prepared in a heart-healthy manner. Keep in mind that it takes time for your taste buds to get used to eating less salt and/or fat. Speak to your nurse if you are having trouble eating the meals served to you, or are unable to eat them.
- **Wear elastic stockings.** Your doctor may request that you wear elastic stockings to improve your circulation and to help prevent fluid from accumulating in your legs. The stockings will be left on for most of the day; they will be removed during bathing and at night.

- **Need to have a bowel movement.** If necessary, a laxative of your choice will be started to help your system return to normal. Your nurse will discuss this with you.
- **Realize that you might feel anxiety about going home.** As much as you're looking forward to leaving the hospital, you may also feel nervous or depressed about returning home. You most likely feel safe in the hospital with all the medical staff and equipment nearby.

Don't worry – you'll go home with specific written instructions, and you can phone your doctor's office if questions arise. Besides, your doctor won't send you home until he or she thinks you're ready!

Day 3 after surgery, you will:

- Possibly take a shower (once all wires attached to your body have been removed).
- Continue your deep-breathing and coughing exercises.
- Take longer walks in the halls.
- Along with your spouse or your caregiver of choice, meet with the nurse to begin learning about what you will do at home once you are discharged from the hospital.

Day 4 after surgery, you will:

- Meet with your nurse for your final discharge instructions.
- Most likely be discharged – **congratulations!**

If additional recovery days are needed, you will:

- Continue to walk and gain strength.
- Continue to strengthen your lungs with exercises and coughing so that you do not require supplemental oxygen.
- Speed your recovery by eating regular foods.

In order to be discharged from the hospital, you must be able to talk, as well as walk and eat with minimal help from others.



Turning to a chaplain for care and support



If you or family members are feeling frightened, upset or overwhelmed during your hospital stay, or if you simply would like some support, ask your nurse to contact **Pastoral Care** for you. A chaplain can be a good companion in times of illness, and he or she may help you find or rediscover your spiritual center. Providence chaplains respect the needs and wishes of people of all religious faiths and of people with no faith tradition.

Treatment for abnormal heart rhythms

When the electrical system that regulates your heartbeat (see page 85) suffers a short circuit, you develop an **arrhythmia**. Your heart may beat too quickly, too slowly, or it may skip or “drop” beats. Although most arrhythmias are not serious, some types are extremely dangerous and require treatment.

Your doctor may prescribe medication to control the irregular heartbeat (see page 12). If medications are not enough, a monitoring device to regulate your heartbeat may be permanently inserted into your body. The most common monitoring device is a **pacemaker**. A pacemaker monitors your heart’s natural rhythm and, when necessary, it generates a painless electrical impulse or signal (called a **pacing pulse**) that triggers your heart to beat. Essentially, the pacemaker becomes the new electronic control center of your heart.

A pacemaker consists of two important parts. A **pulse generator** (a small box that weighs about an ounce) is implanted under the skin below your collarbone. This pulse generator is programmed electronically before it is inserted, and it runs on a battery that lasts about 8 years. The pulse generator is attached to wires called **leads**. One or more of these leads are threaded through large blood vessels in your upper chest into your heart. Electrodes at the ends of the leads attach to the inner surface of your heart and pick up your heart’s natural electrical signals. The pacing pulse from the pulse generator also travels along these leads to your heart muscle.

The pulse generator keeps an electronic record of your natural heartbeat and the generator’s own activity. Its programming will be checked frequently as you begin to wear the pacemaker during everyday activities. Your pacemaker can be adjusted, as needed, by your doctor in his or her office. This is a painless procedure (it does not involve opening the skin) using a special magnetic wand attached to a special computer.



Having a pacemaker implanted in your chest

The procedure to implant a pacemaker takes about 1 hour. It usually takes place in the **cath (catheterization) lab**. An IV line will be started in your arm or hand so that fluids and medication, including something to help you relax, can be given to you during the procedure. You will also be given a local anesthetic to numb the area below your left or right collarbone.

Your doctor will make a small, 2- to 3-inch incision in the numbed area on your chest. This incision will allow your doctor to reach a very large vein located underneath your collarbone. The doctor will then thread the leads of the pacemaker through this large vein into your heart, where the electrodes will attach to the wall of the heart. A special type of X-ray will then be taken to confirm that the electrodes are in the correct place.

After your doctor tests the pacemaker's leads to confirm that they are working correctly, they will be attached to the pulse generator. Your doctor will then create a small pocket at the incision site and slip the pulse generator into this skin pocket. The incision will be closed with sutures (stitches). After surgery, you will be monitored closely and programming adjustments to your pacemaker will be made as needed. If all goes well, your hospital stay will be brief – 1 to 3 days.

Before going home, you will receive information about your pacemaker and instructions about returning to your normal activities. This is a good time to purchase a medical alert necklace or bracelet that identifies you as a pacemaker wearer.



For more information on recovering once you return home after having a pacemaker implanted, see page 38.

Having an implantable cardioverter defibrillator (ICD) implanted in your chest

Certain arrhythmias produce a severe abnormality in the heart's rate or rhythm. **Fibrillation**, for example, is when the heart's chambers quiver or "fibrillate" instead of beating normally. This type of abnormal heartbeat means the heart cannot pump blood out of the heart efficiently. In **ventricular fibrillation**, the large pumping chambers of the heart quiver and no real heartbeat is produced. This means too little blood flows to the brain and other organs. The person loses consciousness and can die within minutes if medical treatment is not immediately available.



Ventricular fibrillation is treated with defibrillation – giving the heart a measurable electrical shock to restore its natural rhythm. A possible treatment option for high-risk patients involves placing a permanent **implantable cardioverter defibrillator (ICD)** inside the body. This small box-like device (placed under the skin near your collarbone) with wires that go to your heart senses a life-threatening arrhythmia and delivers an electrical shock to stop it. Many patients report that this lifesaving shock feels like being punched in the chest, although the discomfort varies from person to person.

An ICD is implanted during a procedure similar to the one described for placing a pacemaker (see page 116). One difference is that you will be completely asleep during the testing of the ICD; your doctor needs to trigger arrhythmias on purpose to make sure the device is working properly. The entire procedure usually takes 1 to 2 hours. If all goes well, your hospital stay should be brief – 1 to 3 days.

ICDs are being used today to treat a variety of arrhythmias. Your doctor will further discuss ICDs with you as necessary.

For more information on recovering once you return home after having an ICD implanted, see page 40.



Having an electrophysiology study

Certain arrhythmias need further investigation and treatment, and so an **electrophysiology study** may be recommended. This procedure takes place in a special location within the hospital called an electrophysiology laboratory, or EP lab. The procedure will be conducted by a physician – a highly trained cardiac arrhythmia specialist known as an electrophysiologist – along with a team of specially trained technicians and nurses. EP studies can help locate the specific areas of the heart tissue that cause arrhythmias.

The study is performed after numbing of the area of insertion, generally a site in the groin and possibly also the neck. You will receive medication to keep you sedated and as comfortable as possible. You may feel a slight pressure when the catheters are introduced. At various times in the procedure, you may feel as if your heart is skipping beats. You may feel symptoms like the ones that caused you to seek treatment. Generally, you will be asleep and quite comfortable.

The procedure involves inserting catheters – narrow, flexible tubes – with electricity-monitoring electrodes into a blood vessel and winding the catheters into the heart with the guidance of X-ray. Once the catheters reach the heart, electrodes gather data; and a variety of electrical measurements are made. These data pinpoint the location of the faulty electrical site. During this “electrical mapping,” the electrophysiologist may restart the arrhythmia that you have experienced.

Once the damaged site or sites are confirmed, the electrophysiologist may administer different medications or electrical impulses to restore normal heart rhythm. Based on these data, as well as information gathered before the study, the specialist will place an implantable cardioverter device (ICD) or a pacemaker, or will perform a catheter ablation.

Catheter ablation

In an ablation procedure, a catheter is positioned inside your heart close to the heart tissue that is causing your arrhythmia. When the catheter is in place, electrical energy is passed through it. The energy causes the catheter tip to heat the heart tissue and neutralize the tissue so that it is no longer capable of producing an arrhythmia. The catheter ablation procedure can be quite lengthy, depending on your particular type of arrhythmia. Your family can speak with your physician when the procedure is finished.

After either the EP study or the ablation is complete, the catheter is removed and pressure is applied to the insertion site. Your vital signs and the catheter insertion site will be checked frequently. Be sure to let the nurses know if you feel any discomfort, wetness or swelling at the site, or if you have other needs.

Your doctor or nurse will give you specific discharge instructions before you go home. Your heart rhythm medications will be reviewed, as there may be some medication changes following the ablation.



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As people of Providence,
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