Heart Surgery at Sanford Health

SANFORD HEALTH

Getting Ready for Surgery

Welcome to Sanford Health. Thank you for choosing Sanford for your surgical care. Following these steps can help you have a safe surgery and a successful recovery.

About 2 weeks before surgery

Talk to your doctor about all of your medicines. You may need to stop taking certain medicines before surgery. Your surgery may need to be rescheduled if you do not follow these directions.

- ☐ See your doctor for an exam before surgery as recommended by your surgeon. Ask about when to take or stop taking these medicines. Write instructions below.
  - Blood thinners: ______________________________
  - NSAIDs (such as Advil or Aleve) or aspirin: ______________________________
  - Herbal medicines or supplements: ______________________________
  - Diabetic medicine changes: ______________________________
- ☐ Stop or cut down on smoking or tobacco products. Talk to your doctor about using nicotine replacement therapy.
- ☐ Arrange a ride with an adult or another safe way home from the hospital or surgery center.
- ☐ It is advised that you ask someone to stay with you for 1 week after you leave the hospital.

The day before surgery

- ☐ Stop drinking alcohol. No liquor, beer, or wine for 1 day before surgery.
- ☐ Stop eating, using tobacco, sucking on hard candy, or chewing gum as directed.
- ☐ Stop drinking fluids as directed.
- ☐ Shower before bed as directed.
  - Do not use any lotions, powders, perfumes or deodorants.

The morning of surgery

- ☐ Remove all body piercings. Use plastic inserts as needed.
- ☐ Shower again as directed.
  - Do not wear any makeup, lotions, powders, perfumes, or deodorants.
- ☐ Brush your teeth and/or use mouthwash. Do not swallow any water.
- ☐ Take your prescription medicines with a sip of water.
  - Do not take those that you have been asked to stop such as blood thinners, aspirin, NSAIDS, or herbal medicines and supplements.
- ☐ Remember not to eat, drink, use tobacco, suck on hard candy, or chew gum.
- ☐ Leave any valuables, such as jewelry and watches, at home.

Questions and answers

When you speak to the nurse before surgery, write the answers to these questions.

Questions	Answers
Who is my surgeon?	Name:
What surgery am I having?	
What time is my surgery scheduled?	
What time should I arrive?	
Where am I having surgery?	Address:
Where should I park?	
What medicines should I take in the morning with a sip of water?	
When do I stop eating, drinking, using tobacco, sucking on hard candy, or chewing gum?	• **Eating** food, using tobacco, candy, or gum Stop time: ________________ • **Drinking** clear liquids Stop time: ________________
How will my medicine be reviewed?	_____ Bring all medicines in their bottles _____ Bring a list of your medicines
Should I bring my CPAP machine or tubing?	• Bring CPAP **machine** ____ **Yes** ____ **No** • Bring CPAP **tubing** Settings: ________________

Questions I have for the surgery nurse:

____

____

____

____

Videos

Are you interested in video learning? Much of the information in this book is presented in short online videos that you can watch on your home computer or smart phone using a QR code reader app. Most videos are between 4-7 minutes long. To watch a video, type in the URL or scan the bar code. Check off the videos that you watch.

Getting Ready for Surgery

Pages 22 - 23

☐**Coronary Artery Bypass Grafting (CABG)** (5:13)
http://bit.ly/1TNbxj3

☐**Coronary Artery Disease** (5:03)
http://bit.ly/1TNbKCM

☐**How Your Heart Works** (3:18)
http://bit.ly/1TNagsd

☐**Signs of a Heart Attack** (5:49)
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☐**What Are Vital Signs** (7:57)
http://bit.ly/1TNbN1o

☐**Quitting Tobacco** (6:24)
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Recovering from Surgery
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☐**Exercise: Cardiac Rehabilitation** (6:16)
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☐**Healthy Eating Guidelines** (5:33)
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☐**Healthy Eating with Heart Disease** (5:58)
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Managing Your Risk Factors
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☐**High Cholesterol** (5:52)
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☐**Diabetes: Healthy Eating to Control Diabetes** (5:50)
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☐**Diabetes: Meal Planning** (6:12)
http://bit.ly/1TNcyYt

☐**Diabetes: Understanding Type 1** (5:37)
http://bit.ly/1TNdeNe

☐**Diabetes: Understanding Type 2** (5:37)
http://bit.ly/1TNd5JH

☐**Exercise: How to Start a Physical Activity Routine** (3:41)
http://bit.ly/1TNc1FN

☐**High Blood Pressure** (7:34)
http://bit.ly/1TNcc3V

☐**High Blood Pressure: Healthy Eating for Control** (5:01)
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☐**Quitting Tobacco: Overcoming Relapse** (4:04)
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☐**Obesity** (4:57)
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☐**Weight Loss: How to Manage Your Weight** (4:52)
http://bit.ly/1TNckAA

☐**Weight Loss: Staying on Track with Your Weight Loss Plan** (4:21)
http://bit.ly/1TNebFu

Heart Disease and Heart Surgery

What is Coronary Artery Disease?

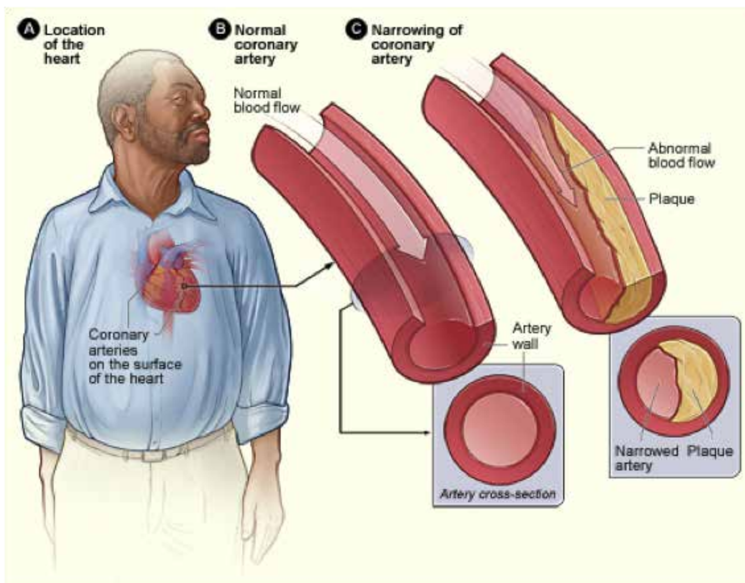
Healthy coronary arteries are flexible and smooth inside. Over time, the coronary arteries may become stiff, narrowed, or clogged. When this happens, the blood supply to the heart muscle can be partly or entirely blocked.

Other names for Coronary Artery Disease

- Atherosclerosis
- Coronary heart disease
- Hardening of the arteries
- Heart disease
- Ischemic (is-key-mik) heart disease
- Narrowing of the arteries

Plaque (plak)

Blockages in the arteries are caused by plaque. Plaque is fatty layers that build up inside the walls of the coronary arteries. Plaque can also build up in the arteries of the neck, brain, legs, or kidneys. Another term for these blockages is atherosclerosis. When blockages happens in the heart vessels, it is called coronary artery disease or CAD.



Vasospasm (vaze-oh-spaz-um)

Another form of blockage happens when the coronary arteries are irritated and squeeze together. This is called vasospasm. It is like a cramp of the artery. The irritation can be triggered by:

- Stress
- Caffeine
- Exposure to cold
- Tobacco use
- Use of illegal drugs

Do I have coronary artery disease?

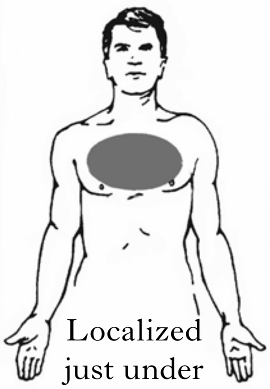
If plaque has narrowed your arteries, you have coronary artery disease. There is no cure for CAD, but there is treatment. With surgery and a healthy lifestyle, many people go on to live a normal life.

Angina

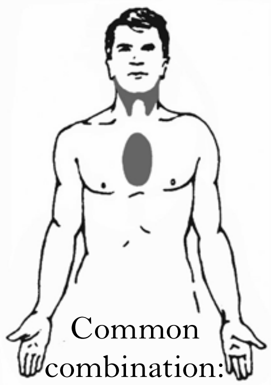
When the heart muscle does not receive the oxygen it needs, it lets you know. The discomfort you feel is called angina. Angina can be caused by a narrowing of the coronary arteries by plaque or by vasospasm. The heart muscle is letting you know that it needs more blood and oxygen.

Angina may be felt as:

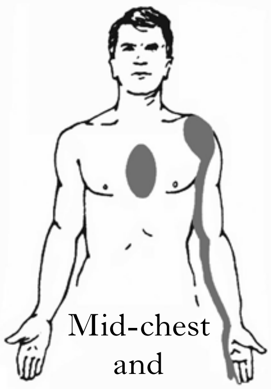
- Chest tightness, fullness, heaviness, numbness, squeezing, ache, or pain
- Ache in the jaw, neck, back in or between the shoulders or the arm
- Indigestion, heartburn, or nausea
- Sweatiness not related to weather or room temperature



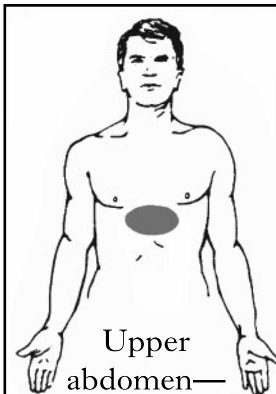
Localized just under breastbone; or in larger area of mid-chest; or entire upper chest



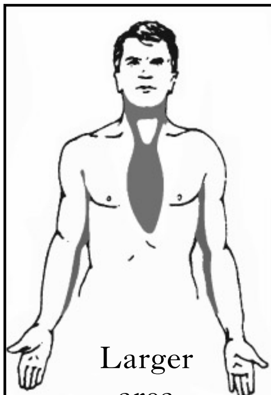
Common combination: mid-chest, neck and jaw



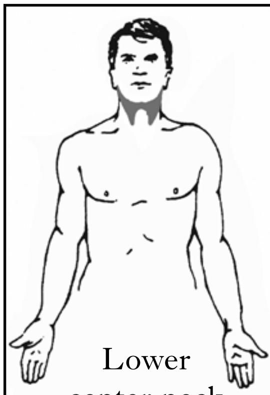
Mid-chest and inside arms; left arm and shoulder more frequent than right



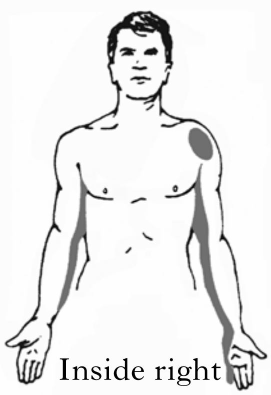
Upper abdomen—where most often mistaken for indigestion



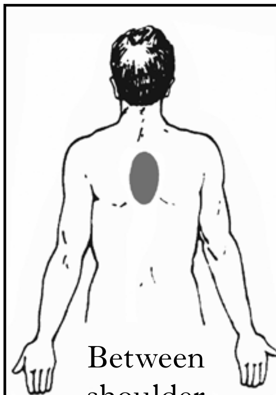
Larger area of chest, neck, jaw and inside arms



Lower center neck to both sides of upper neck; and jaw from ear to ear



Inside right arm from arm-pit to below elbow; inside left arm to waist; left arm and shoulder more frequent than right



Between shoulder blades

What should I do when I have angina?

Each person may feel angina differently. Learn your own body's messages. When you feel angina, take notice of what you are doing or how you are feeling.

Try things that will help your heart rest.

- Stop activity
- Rest
- Relax

Try things that will give your heart more oxygen.

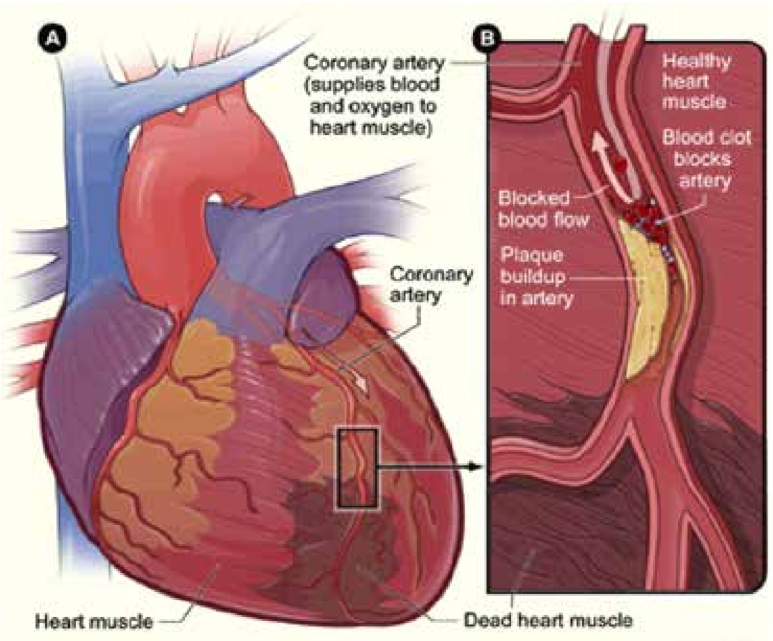
- Take nitroglycerin – a medicine prescribed by a doctor that helps angina because it can help open the coronary arteries. Sometimes, it can be taken before activities to prevent angina.
- Breathe deeply
- Use extra oxygen if you have it prescribed

Remember, angina is your body's way of telling you that your heart needs more blood and oxygen. Your doctor may order tests to see if your best treatment plan is to open or bypass the blockages in the arteries.

What is a Heart Attack?

A heart attack happens when the coronary artery becomes totally blocked by a blood clot. When the supply of blood is totally blocked, heart cells sicken and die.

Another name for a heart attack is a myocardial infarction. An infarct is an area of dead or dying tissue caused by a lack of blood supply to the area.



Heart muscle

The area of damage looks like a bad bruise. Once the heart attack is over, your body starts a healing process that may take 6 to 8 weeks. When fully healed, the area of injury will have a scar. The scar is stiffer and weaker than normal, healthy heart muscle.

Signs of a Heart Attack

Heart attack pain may feel like angina. The only difference may be that angina goes away. Heart attack pain may:

- Not get better with nitroglycerin
- Last more than 10 to 20 minutes
- Be stronger
- Include cold, clammy sweats
- Cause you to feel fear and dread

Call 911

If you think you are having a heart attack, call 911 or an ambulance right away. Sometimes, family can get you to a hospital faster than an ambulance. But, if your heart should stop, your family cannot drive and do CPR at the same time.

Your best chance of survival is getting the help of skilled caregivers.

Do not waste time

It may take 4 to 6 hours for heart attack damage to occur. The faster you are able to get medical care, the less damage to your heart. In some cases, medicine can be given to dissolve the blood clot and open the artery so blood can flow again. In other cases, you may go directly to a heart procedure lab.

Denial

Very often, fear causes people to tell themselves they are not having heart problems. This is called denial. Denial may cost you precious time. No one will ever call you foolish for a false alarm. Fast action may save your life.

What is Coronary Artery Bypass Surgery?

Hearing that you need heart surgery can be frightening. You will be learning a lot of new information from the heart surgery team. It is okay to ask us questions. We want you to understand what is happening in your body and how surgery will help you.

Coronary Artery Bypass Grafting means taking a blood vessel from another part of your body and moving it to supply blood to your heart. The new vessel will go around or bypass any narrowed or blocked arteries that should be giving blood to the heart muscle. The number of blood vessels that need to be bypassed may not be known until the surgery is complete.

Some people call Coronary Artery Bypass Graft surgery by other names:

- CABG – sometimes pronounced "cabbage"
- Bypass surgery – general name for CABG surgery

Why do I need bypass surgery?

If a build-up of plaque has narrowed your arteries, then you have coronary artery disease. Without treatment, you could have a heart attack. Your surgeon has decided that bypass surgery is the best way to improve the blood flow to your heart muscle. In your situation, other procedures such as stenting or angioplasty will not improve the blood flow enough. Heart surgery is needed.

Benefits of bypass surgery

Bypass surgery is major surgery but - the benefits of having the surgery are great.
The 2 main benefits are:

- Improving blood flow to the heart
- Preventing a heart attack that could lead to serious health problems or death

The results of bypass surgery usually are excellent. The surgery improves or completely relieves angina symptoms in most patients. Although symptoms can come back, many people remain symptom-free for as long as 10 to 15 years. Bypass surgery also may lower your risk of having a heart attack and help you live longer.

Risks of bypass surgery

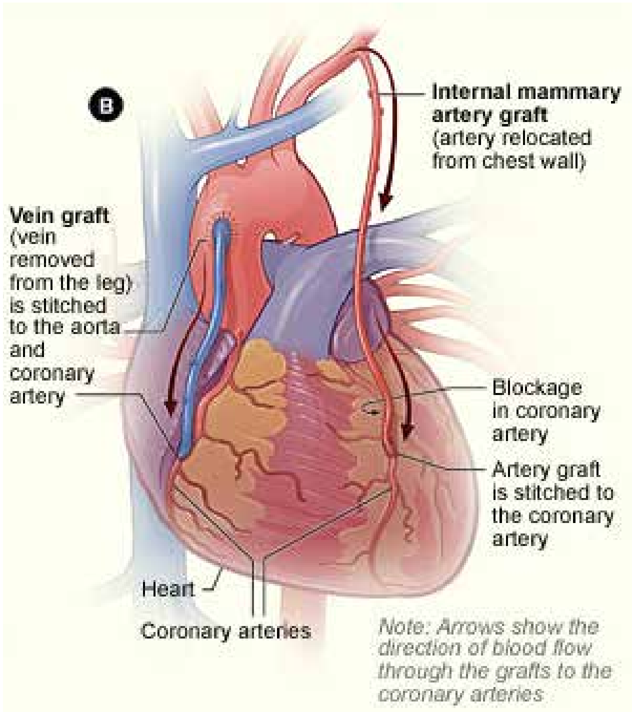
Your surgeon will talk to you more about the possible risks and problems caused by surgery.
These may include:

- Bleeding too much
- Breathing problems
- Fast or irregular heartbeat
- Heart attack, stroke, or death
- Infection at the incision site
- Memory problems or confusion
- Nerve injury or muscle spasms
- Pneumonia (lung infection)

What does the bypass graft look like?

This picture shows 2 bypass grafts.

- The blue vein on the left was taken from a leg vein (saphenous vein). The top of the vein is sewn with special stitches to the aorta and to the coronary artery below the blocked area.
- The red artery on the right shows the use of an artery in the chest (internal mammary artery). This is taken from where it branches off the aorta and sewn with special stitches to the coronary artery below the blocked area. Arteries from the arm (radial artery) can also be used.
- The purple arrows show how the blood flows through the new pathway to the heart muscle.



What happens to the blockages?

The blockages you have in your arteries remains there. The bypass grafts direct blood flow around the blockage.

How long will the bypass grafts remain open?

The grafts often stay open for about 10-15 years. Eating a heart healthy diet and exercising helps prevent blockages in the grafts. Bypass surgery does not cure coronary artery disease. It is still important to make healthy lifestyle choices about diet, exercise, and smoking.

Types of Coronary Artery Bypass Grafting

Valve Disease and Valve Surgery

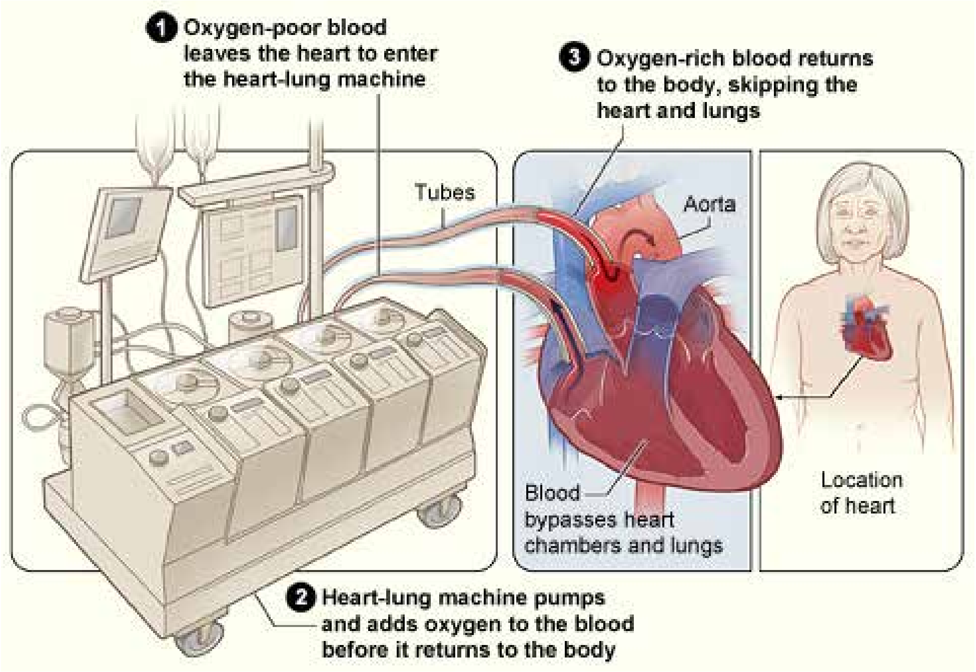
There are several types of coronary artery bypass grafting (CABG). Your doctor will recommend the best option for you based on your needs.

Traditional coronary artery bypass grafting

Traditional CABG is used when at least one major artery needs to be bypassed.
During the surgery:

- Your breastbone is opened to access the heart.
- The vein or artery that will be used as the graft is removed by part of the surgery team.
- Medicines may be given to stop or slow the heart.
- A heart-lung bypass machine keeps blood and oxygen moving throughout the body during surgery. This allows the surgeon to operate on a still heart.
- After surgery, blood flow to the heart is restored. Usually, the heart starts beating again on its own. Sometimes mild electric shocks are used to restart the heart.
- Your breastbone is put back together with special wire. The wire remains in place forever. It takes 6-12 weeks for your breastbone to heal.
- Your incision will have stitches below that skin that will dissolve. You will not see them.
- Sometimes people need extra blood during surgery or as they recover from surgery. The blood is carefully screened and safe.

Heart lung machine



Off-pump coronary artery bypass grafting

This type of bypass surgery is similar to traditional CABG because the chest bone is opened to access the heart. Sometimes, off-pump bypass surgery is called Beating Heart Bypass Grafting. The differences are:

- The heart is not stopped.
- A heart-lung bypass machine is not used.

Minimally invasive direct coronary artery bypass grafting

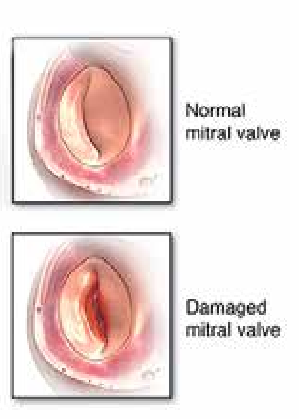
This type of surgery differs from traditional CABG because the chest bone is not opened to reach the heart. Instead:

- Several small cuts are made on the left side of the chest between the ribs.
- This type of surgery mainly is used to bypass blood vessels at the front of the heart.
- It is not right for everyone, especially if more than one or two coronary arteries need to be bypassed. Your surgeon will help decide the best procedure for you.

Valve Disease and Valve Surgery

There are several causes of valve disease. Some people are born with weak valves. For other people, infections like rheumatic fever can damage the valve.

Valves may become stiff and rigid or weak and floppy. When this happens, they cannot open and close freely. As valves become leaky, blood backs up. Your heart may become stretched and weak.



Types of damage

- **Stenosis –** the valve opening is narrow and stiff
- **Insufficiency –** the valve leaks because it cannot close tightly (regurgitation)
- **Prolapse –** parts of valve flop backward

Severe valve disease

Severe valve disease may cause the left ventricle of the heart to thicken. This thickened muscle can become stiff and not work very well.

Signs of valve disease

As blood backs up, your heart becomes overloaded. Signs of overload will depend on the amount of valve damage that you have. Common signs of valve disease:

- **Palpitations –** fluttering or pounding in your chest
- **Chest pain –** related to stress more than to activity
- **Fatigue –** feeling of being tired or rundown
- **Swelling –** puffy hands and feet
- **Shortness of breath –** caused by fluid building up in the lungs

When these symptoms get worse, your valve may need to be replaced or repaired.

Heart Valve Surgery

Why do I need heart valve surgery?

Surgery is done only if the valve is not working well and blood is flowing back into the atrium. The main goal of surgery is to improve symptoms and reduce the risk of heart failure, blood clots, and other health problems.

The benefits of heart valve surgery

Valve surgery will prevent a back flow of blood leading to heart failure. Heart failure is a serious, ongoing health condition. When you have heart failure, the heart is not able to pump as well as it should. Blood and fluid may back up into the lungs, and some parts of the body do not get enough oxygen-rich blood to work normally.

The risks of heart valve surgery

Your surgeon will talk to you more about the possible risks and problems caused by surgery. These may include:

- Bleeding too much
- Blood clot
- Breathing problems
- Fast or irregular heartbeat
- Failure of the new or repaired valve
- Heart rhythm problems
- Infection
- Kidney problems
- Pneumonia (lung infection)

Special precautions after valve surgery

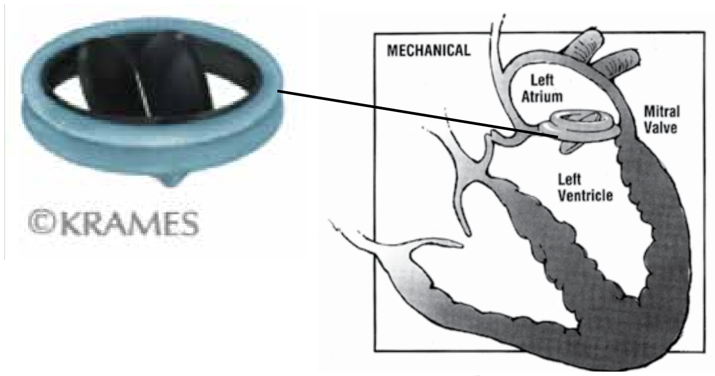
If you have had valve repair or replacement, you may need antibiotics before dental work and surgery. These procedures can allow bacteria to enter your bloodstream. Antibiotics can help prevent infective endocarditis, a serious heart valve infection. Discuss with your doctor whether you need to take antibiotics before such procedures.

What is a valve repair or replacement?

In valve surgery, the valve is repaired or replaced. Valve repair is preferred when possible. Repair is less likely than replacement to weaken the heart. Repair also lowers the risk of infection and decreases the need for lifelong use of blood-thinning medicines. If repair is not an option, the valve can be replaced. Mechanical valves or tissue valves are used as replacement valves.

Mechanical valves

Mechanical valves are man-made and can last a lifetime. People who have mechanical valves must take blood-thinning medicines for the rest of their lives. Blood can stick to the valves and form blood clots.

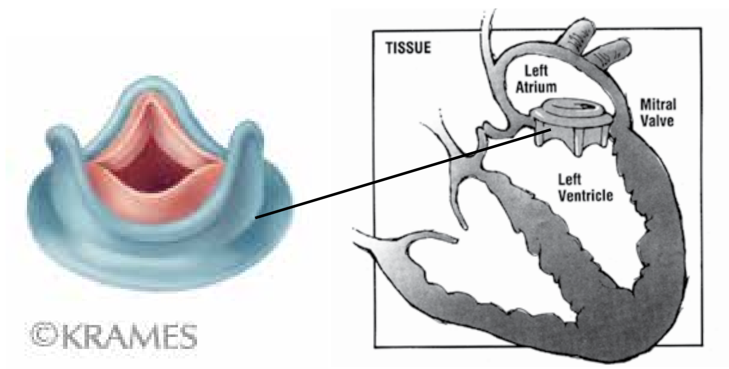


Mechanical valve
man-made from plastic or special metal.

Tissue valves

Tissue valves are taken from cows or pigs or made from human tissue. Many people who have tissue valves do not need to take blood-thinning medicines for the rest of their lives. The major drawback of tissue valves is that they weaken over time and often last about 10 years. Tissue valves may be a good choice for you if:

- You cannot take a blood thinner medicine for health reasons.
- You work in a physical job like construction, where the risk of taking a blood thinner is high.
- You are a woman who wants to become pregnant.



Tissue valve
Made from tissue from a pig or cow. Human valve may be used at times.

How is Valve Surgery Done?

During surgery, the damaged valve is removed, and a new valve is sewn in its place. Valve surgery is similar to bypass surgery.

- The breast bone is opened to access the heart.
- Medicines are given to stop the heart.
- A heart-lung bypass machine keeps blood and oxygen moving throughout the body during surgery. This allows the surgeon to operate on a still heart.
- After surgery, blood flow to the heart is restored. Usually, the heart starts beating again on its own. Sometimes mild electric shocks are used to restart the heart.
- Your breastbone is put back together with special wire. The wire remains in place forever. It takes 6-12 weeks for your breastbone to heal.
- Your incision will have stitches below that skin that will dissolve. You will not see them.
- Sometimes people need extra blood during surgery or as they recover from surgery. The blood is carefully screened and safe.

Minimally invasive approach

A small but growing number of surgeons are using another approach that involves one or more small cuts through the side of the chest wall. This results in less cutting, reduced blood loss, and a shorter hospital stay. However, not all hospitals offer this method.

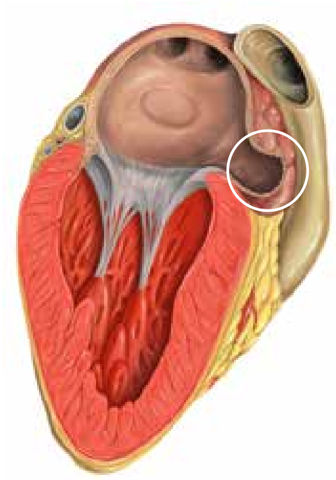
Other Reasons for Heart Surgery

Left Atrial Appendage Ligation

Sometimes the atria start to quiver or fibrillate. This means that instead of pumping the blood out strongly, the blood may stay in the heart and form a blood clot. This can lead to a stroke if the blood clot moves to the brain. Heart valve disease is another cause of blood clots.

In the normal left atrium, there is a small pouch called an appendage. When hearts pump strongly, this is not a concern. When the heart pump is weak or quivering, blood can clot in this pouch.

To prevent this from happening, your doctor may recommend closing the pouch during your heart surgery. The left atrial appendage can be tied closed or blocked with a medical device.



Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist.

Atrial Fibrillation – Maze Surgery

Atrial fibrillation (A-tree-al fi-bri-LA-shun), or AF, is the most common type of arrhythmia (ah-RITH-me-ah). One procedure to restore a normal heart rhythm is called maze surgery. For this procedure, the surgeon makes small cuts or burns in the atria. These cuts or burns prevent the spread of the disorganized electrical signals that cause AF. This procedure is usually done when a person requires heart surgery for other reasons.

Heart Muscle Aneurysm

The wall of the heart can become weak after a heart attack. The muscle or the lining of the heart may bulge. This bulge is called an aneurysm (an-u-rism). It may make it hard for the heart to pump well. Surgery may need to be done to repair the bulging area.

Atrial Myxoma

An atrial myxoma is a tumor growing inside the heart. It is not cancer. But, it can get in the way of normal blood flow through the heart. When it is found, it is removed by surgery.

Atrial or Ventral Septal Defects (ASD or VSD)

With ASD and VSD there is an opening in the wall between the right and left sides of the heart. This allows the blood to flow between the heart chambers instead of following the normal pathway through the heart. ASD and VSD are heart defects present at birth. This may or may not need surgery to correct it, depending on the size of the hole and the condition of the person.

Getting Ready for Surgery

Your surgery team

Sanford Health is proud of our highly skilled surgery teams. We are looking forward to caring for you. The team has many members:

- Your surgeon
- Anesthesiologist and/or Certified Registered Nurse Anesthetist (CRNA)
- Nurses
- Surgical assistants

Be an active member of your surgical team

Ask questions when things are not clear. Know:

- Why you need surgery
- Risks and benefits of surgery
- Choices other than surgery

Before Surgery

Tests you may need before surgery

Your surgeon may want you to have some tests before surgery. You may need some or all of these tests.

- **Artery and vein ultrasound** uses sound waves to look at the blood flow through the vessels that may be used for the bypass graft.
- **Blood and urine tests**
- **Chest CT scan looks** at your aorta.
- **Chest x-ray**
- **ECG or EKG** looks at the electric signals that move through your heart. It can show if your heart has been damaged by a heart attack.
- **Echocardiogram** uses sound waves to look at the blood flow through your heart.
- **Pulmonary Function Tests** measures how well your lungs work.

Length of stay in the hospital

You will likely stay in the hospital for 4 – 6 days.

Good nutrition

During the weeks before and after surgery, eat more foods that give your body lots of nutrients. This will help with your recovery from surgery. Eat these types of foods at each meal:

- Protein foods
- Colorful fruit and vegetables
- Whole grains

See www.choosemyplate.gov for more information about nutritious food.

Emotions

It is normal to feel anxious before surgery. We will listen to your concerns and help to make you and your family comfortable. It will help to talk about your feelings and concerns.

Spiritual care

Spiritual resources can provide strength and direction during difficult times. Sanford Health has chaplains to help you find spiritual resources.

Religious life is nurtured by many traditions. Serious illness may awaken and deepen spiritual values. Chaplains will respect your religious traditions, appreciate your unique history and values, and seek to provide spiritual support.

Advance care planning

Advance care planning is the process of deciding your own future health care. It makes sure your wishes will be carried out if you cannot speak for yourself. These choices about your future can be hard to make. It helps to talk with your health care providers, family members, and others who are important to you when making choices about your future health care. Completing an advance care plan and talking with others about your health care wishes can lower fear, remove doubt about decisions, and decrease the guilt these decisions may create.

If you have any questions about the forms or their use, please contact:

Bemidji:
Advance Care Planning Program
Phone: (218) 333-6060
Email: acp.bemidji@sanfordhealth.org

Bismarck:
Advance Care Planning Program
Phone: (701) 323-1227
Email: acp.bismarck@sanfordhealth.org

Fargo:
Spiritual Care
Phone: (701) 234-6980
Email: acp.fargo@sanfordhealth.org

Sioux Falls:
DeGroot Center
Phone: (605) 312-3520
Email: acp.siouxfalls@sanfordhealth.org

Safety at Sanford Health

To keep you safe

- We will place an ID band on your wrist. We will check the band before we give you medicine, do tests, or treatments.
- We will ask your name and birthdate many times.

To prevent infections

Clean your hands with soap and water or use an alcohol hand rub often.

- If you do not see us clean our hands before caring for you-remind us!
- Ask your family and friends to clean their hands.

If you become ill before surgery

Call your doctor if you get a fever, cold, cough, rash, or stomach flu before surgery. Illness can affect the way your body responds to anesthesia and other medicines. A recent illness may also make it harder for your body to heal from surgery.

- **For your safety, your surgery may be postponed even if you feel well on the day of surgery.**

What should I do if my surgery is changed to a different day?

- Call your regular doctor to talk about any medicine changes needed.
- Call your surgeon to reschedule the surgery.
- You may need to go through all the steps of preparing for surgery again.

For your safety:

- Make sure you arrange a safe way home.
- We highly recommend that you ask an adult to stay with you for 1 week after your surgery.

Medicines

What medicines do you take? Some medicines, vitamins or herbal supplements may affect the anesthesia or other medicines you need during and after surgery. They can also affect how much you bleed during surgery. Be sure to tell the doctors and nurses which medicines, herbal supplements, and vitamins you take.

- **Certain medicines, such as blood thinners, aspirin, or supplements may need to be stopped or changed before surgery.**

Tobacco use

Stop using or cut down on tobacco use. People who do not use tobacco heal faster than people who do. Talk to your doctor about options to help you quit. You may want to see a tobacco cessation counselor to learn more.

For more information

- Smokefree.gov/talk-to-an-expert
  - (800) Quit Now (800) 784-8669
- State Quitlines:
  - Iowa: www.quitline.iowa.org/ (800) QUIT NOW/(800) 784-8669
  - Minnesota: www.quitplan.com/ (888) 354-PLAN/(800) 354-7526
  - Nebraska: www.quitnow.ne.gov (800) QUIT NOW/(800) 784-8669
  - North Dakota: www.ndhealth.gov/ndquits (800) QUIT NOW/(800) 784-8669
  - South Dakota: www.sdquitline.com (866) SD-QUITS/(866) 737-8487
- National Cancer Institute Smoking Quitline: (877) 44U-QUIT/(877) 448-7848

The Day Before Surgery

Alcohol use

Alcohol may interact with the anesthesia or medicines that you receive.

- **Do not drink alcohol for 1 day before your surgery.**

Bathe or shower before surgery

Any surgery needing an incision cut into the skin has a chance of infection. Bathing or showering before surgery may help lower the chance of infection. If you are unable to shower or bathe safely, please ask a trusted family member or friend to help you.

Special soaps

Surgeons may recommend different soaps to use before surgery. Both methods reduce the chance of infection after surgery. You surgeon may ask you to bathe or shower with:

- Chlorhexidine gluconate (CHG) liquid soap or
- Antibacterial soap, then use CHG wipes after your shower

Night shower

1. Use a good amount of antibacterial soap or half the bottle of CHG to shower or bathe. **Showering is preferred.**
2. Use a clean washcloth and towel.
3. Do not shave the area of your body where your surgery will be performed.
4. Wash your hair as usual with your normal shampoo.
5. Rinse your hair and body after you shampoo.
6. Step away from or turn the water off before you apply the soap to prevent rinsing the soap off too soon.
7. Apply the soap to your entire body **only from the neck down**. Do not use near your eyes or ears to avoid permanent injury to those areas. Avoid getting soap in open wounds, mucous membranes or body openings such as the rectum, vagina or urinary opening. Wash thoroughly, paying special attention to the area where your surgery will be performed.
8. Wash your body gently for at least 2 minutes. Do not scrub your skin too hard. Do not wash with your regular soap after the special soap is used.
9. Turn the water back on and rinse your body thoroughly.
10. Pat yourself dry with a clean, soft towel.
11. Do not apply lotion, powder or deodorant after you shower.
12. Dress in clean clothes or sleepwear.

Eating and drinking

Do not to eat, drink, use tobacco, suck on hard candy, or chew gum as directed.

Bowel medicines

You may be asked to use a suppository or enema the night before surgery. Use the medicine as directed. The medicine may make you have a bowel movement.

Before You Come in for Surgery:

Morning shower

1. The morning of your surgery, repeat the procedure listed above.
2. Use antibacterial soap or use the rest of the bottle of CHG.
   - Use the CHG wipes if your surgeon has provided them.
3. Use a clean washcloth and towel.
4. Dress in clean clothes.
5. Do not apply lotion, powder or deodorant after you shower with special soap or use the CHG wipes.

Before you leave home

- Remove all jewelry including wedding rings and all piercings.
- Leave any valuables, such as jewelry and watches, at home.
- Do not wear any makeup.
- Wear clean, loose, comfortable clothing.
- Do not to eat, drink, use tobacco, suck on hard candy, or chew gum.
- Take your prescription medicines with a sip of water.
  - Do not take those that you have been asked to stop such as blood thinners, NSAIDS and herbal supplements.
- For females of childbearing age, try not to use the toilet for about an hour before you arrive. We may ask for a urine sample to do a pregnancy test. If you have become pregnant, your surgery may need to be rescheduled. Some treatments and medicines can harm unborn babies.

What to Bring with You

People to bring with you

- A parent or legal guardian must be present if you are under 18.
- A support person of your choice to be with you.

Paperwork

- Insurance forms, if needed.
- Any forms needed by your employer.
- You may need your checkbook or a credit card for payment when admitted or to pay for medicines when you go home. Do not keep these items in your hospital room.
  - Have a family member keep your cell phone, checkbook, wallet, credit cards, cash, jewelry or special items.
  - Ask your nurse if a hospital safe is available for your valuables. Please note: if you place items in the safe, checking out will take extra time.
- A copy of your Healthcare Directive, Living Will or Power-of-Attorney for Healthcare, unless already given to your doctor or hospital.

Medicine and medical equipment (see page 2)

- Bring all the medicines that you take or a list of medicines as directed.
- If you use a CPAP machine for sleep apnea, please bring it or the tubing as discussed.
  - Know the settings for your machine.
- Bring devices you use to walk such as a cane or walker.

Personal items

- Bring your glasses or contact lenses to use later.
- Cases for your glasses, dentures, and/or contact lenses.
  - Let your nurse know if you wear contacts, glasses, hearing aids or dentures.
  - Label the containers with your name to keep them safe when not in use.
- Items that help you feel comfortable and support your healing (music, pictures, spiritual material). Your family should keep these items for the first day or two.

Checking In

You will be taken to an admission area. There you will meet the staff who will help you get ready for surgery.

- Before surgery, you will change into a hospital gown or a special warming gown.
- Remove your glasses, contact lenses, and dentures.
- Leave your personal belongings with a relative or friend.
- Your doctor will visit with you and use a pen to initial the site to be operated on, if needed.

Notes for Family and Friends

- After the patient goes to the OR, you will be taken to the surgical waiting room.
- Our staff and volunteers will tell you about how the surgery is going. Please let us know if you leave the waiting room.
- Some sites have electronic tracking boards for you to follow the surgery progress.

Anesthesia Care

Your anesthesia care team includes a doctor (anesthesiologist), a nurse anesthetist (CRNA), or both, working as a team. The anesthesia provider will talk with you before surgery, review your medical history, your medicines, and ask about reactions you may have had in the past to medicines or anesthesia. During the surgery the anesthesia team will:

- Give you anesthesia medicine and other medicines.
- Watch all your vital signs like heart rate and blood pressure.

What is anesthesia?

Anesthesia is medicine that keeps you comfortable during surgery. The anesthesia team will talk with you to decide which kind of medicine is the best for you. You may be given:

- Medicine to help you relax.
- Medicine to prevent pain.
- Medicine to keep you sleeping and comfortable during the surgery.

The Operating Room (OR)

Please feel free to ask questions throughout your stay. Tell us ways we can make you more comfortable.

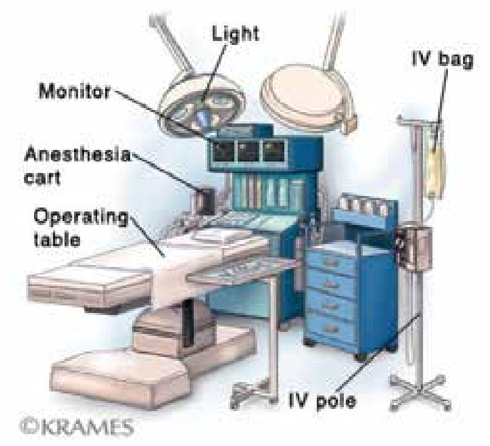
Surgery team

The surgery team will wear hair covers and may wear masks over their noses and mouths.

- **Please ask us to speak louder if you have trouble understanding us through our masks.**

About the OR

- The OR will be brightly lit.
- You may be asked to lie down on a narrow operating table
- A safety strap may be used.
- We will provide ways to keep you warm.
- Sticky patches will be placed on your chest and side to monitor your heart.
- A cuff will be placed on your arm to measure your blood pressure.
- A small monitor will measure your oxygen level.
- Air-filled sleeves may be used to squeeze your lower legs gently to prevent blood clots from forming.



Preventing infection

To help prevent infection of your incision:

- Surgical instruments and equipment are sterilized.
- During surgery, care is taken to make sure the instruments, gloves, and drapes are kept sterile.
- You may be given an antibiotic before your surgery.
- You will be shaved from neck to toes.
- Your surgery site will be cleaned with an antiseptic right before surgery.
- After surgery, you may have a dressing over the incision to help keep it clean.

Care After Surgery

After surgery, a nurse will watch you closely as the anesthesia wears off. We will check your blood pressure, pulse rate, breathing, oxygen level, how alert you are, and your comfort.

As you wake up

- Do not try to get out of bed.
- You may be given oxygen if needed.
- You may have a mild sore throat if a tube was placed in your throat during surgery.
- You will have an IV in your hand or arm for fluids or medicine.
- If you feel sick to your stomach ask for medicine to help you feel better. Sometimes the medicines used in surgery can upset your stomach.
- You may wake up with a tube (catheter) in your bladder to drain urine.

For family and friends - visiting the hospital

- Visiting hours are based on your physical and emotional needs. Visits may be limited for various reasons at times.
- To promote rest, visitors are limited to family and special friends only.
- We encourage family to leave the hospital for rest breaks.
- Ask your family to leave a telephone number where they can be reached.
- Your family is welcome to call at any time for an update.

Notes for Family and Friends

- Your loved one will be in the operating room several hours.
- Please stay in the hospital during the surgery.
- You may want to bring things to do while waiting.
- We will tell you how the surgery is progressing.
- The surgeon will talk to you when the surgery is done.

Tubes and Equipment

You may have several tubes inserted during surgery, or have machines in use for your care. This is a list of common tubes and equipment that you may need after surgery. Not all of the equipment may be used. It depends on your condition.

NG tube (Nasogastric tube)	An NG tube is placed through your nose into your stomach that drains your stomach juices. When your stomach is empty, you are less likely to be sick to your stomach or throw up.
ET tube (Endotracheal tube)	An ET tube goes from your mouth into your windpipe (trachea). It is connected to a ventilator that helps you breath. Usually, the ET tube and ventilator will be removed when you are awake and breathing on your own.
Oxygen	Oxygen may be given through a facemask, nasal prongs (cannula) or a ventilator.
Heart monitor	Heart monitors may look like computer screens. They show your heart rhythm (EKG), blood pressure and other pressures.
IV (Intravenous)	Medicines and fluids are given through a small plastic tube into your blood vessels. You may have 1 or more IV lines.
Art line (Arterial line)	An arterial line is inserted into an artery in your wrist. It provides us with constant blood pressure (BP) readings.
Swan-Ganz catheter	A Swan-Ganz is a tube that measures the pressures in your heart. It is inserted through a blood vessel in your neck.
Chest tubes	Chest tubes remove bloody drainage from around the heart and lungs and allow your lungs to expand.
Foley (urinary catheter)	A Foley catheter is inserted into your bladder to measure and drain urine.
Warming blanket	A warming blanket filled with warm air will help warm your body because your body temperature will be cooler from the surgery.
Balloon pump or (Intra-aortic Balloon Pump or IABP)	An IABP may be used to take over some of the heart's pumping function if needed. This lets the heart rest and recover. Balloon pump therapy usually lasts from 2 hours to several days after surgery. You will likely be sedated until the IABP is removed.
Compression stockings or inflatable sleeves	Special compression stockings or inflatable plastic sleeve devices will be used to help prevent blood clots.

Other things you may notice

Alarms
Most of the equipment has alarms. The alarms may sound when you move around. The alarms also sound to alert the nurse of changes. Alarms may be heard in your room and at the nurse's station.

Medicines
Medicines can cause sleepiness, nausea or confusion. You may be receiving several types of medications. These can include:

- Antibiotics – to prevent infection
- Sedatives – to promote rest
- Pain medicine – to promote comfort
- Insulin – to maintain a normal blood sugar level. Even those who do not have diabetes may need regular blood sugar tests and insulin after heart surgery.

Pain Management

Pain is the body's normal response to an injury or surgery. It helps the body protect the hurt area. It is normal to have pain after surgery. The best way to manage pain is to plan for your comfort before your surgery.

Our goal is to manage your pain at a level that is comfortable for you. It may not be possible to stop your pain fully. You should be comfortable enough to do the things that will help you heal:

- Take part in your healthcare planning
- Walk or do other activity
- Go to therapy or doctor visits
- Eat, rest, and sleep

Working together to manage your pain

Good pain management means you and your healthcare team work together.

- We will ask about your pain. You will be asked to rate your pain on a scale of zero to ten.
  - Zero (0) means no pain.
  - Ten (10) means the worst pain imaginable.
- We will use a different way to rate your pain if you cannot rate your own pain.
- We include you in planning your care, a part of which is managing your pain.
- We will ask about your pain after treatment to check if you feel better.
- We will teach you about pain and pain control options.

What you can do to have good pain control

- Tell us about ways you have managed your pain in the past.
- Medicines take time to work. Unless your pain is near "0," make sure to ask for your next pill before the last one wears off. Waiting too long can make it hard to control your pain.
- If you have concerns about addiction to pain medicines, please talk to your surgeon.
- Tell us if the medicine or treatment helped to control your pain. We will work together to manage your pain.

Many ways to manage pain with medicine

There are many ways to manage pain. Pain pills can work as well as medicine given in an IV. The following methods are often used to help surgery pain:

- **Pain pills** help lessen pain all through your body. They are swallowed and take about 30 minutes to work. If possible, take with food. Take your pain pills before activities that may increase pain like taking a walk. Pain pills will give longer pain control than IV medicines.
- **IV medicines** help pain within minutes. Medicine is given through your IV into a vein.
- **Patient controlled analgesia** (PCA) gives a more constant level of pain relief. You can give yourself pain medicine when you need it by pushing a button. Medicine is given through a pump that is connected to your IV. A computer controls the pump, so you cannot give yourself too much.
- **Nerve blocks** are injections given to manage pain right after surgery. The pain relief may last up to 24 hours.

You have other options to help your pain besides medicines.
Talk to your nurse about the availability of these options in your area.

- Ice or heat to the sore spot
- Back rubs or massage
- Listen to soothing music
- Changing position
- Think of peaceful surroundings or use guided imagery
- Keep busy with reading, needlework, or other hobbies, talking with friends or watching TV
- Breathing for relaxation
- Dim the lights
- Meditation or prayer
- Aromatherapy

After Surgery

Leaving the hospital

Your return home will take planning and preparation time.

- Over several days, you will meet health care experts who will teach you skills you need to have a successful recovery.
- Take advantage of your time with them. Make sure you understand how to take care of yourself.
- We want you to ask questions and talk to us about any concern that your have.

Using the deep-breathing tool

The deep-breathing tool is called an incentive spirometer. A nurse or respiratory therapist will teach you how to use the breathing tool. Using it often will help prevent pneumonia.

To use the breathing tool:

1. Breathe out normally.
2. Put your lips around the mouthpiece.
3. Breathe in. Slowly, fill your lungs with air. On your left, you will see a yellow cup. This cup will measure in the best range when you breathe in with enough effort. The white piston rises up the chamber as you breathe in. Make it rise as high as you can.
4. Hold your breath for 5 or 6 seconds.
5. Breathe out normally, again.

Repeat these steps 10 times for 1 set of breathing exercises. Slide the pointer to the highest point you were able to raise the piston.

You will begin using the breathing tool right after surgery. You will be encouraged to cough, take deep breaths, and use the breathing tool every hour while you are awake.

- Hug a pillow when coughing and deep breathing.
- Ask for pain pill, when needed.

Bring the breathing tool home to help your recovery. Use the tool for 2 weeks after surgery. Then throw it away.

Activity

While in bed, you should begin ankle exercises. Do these exercises every hour while you are awake.

- Start with your toes pointed. Flex your foot at the ankle. Hold for count of 5. Then relax.
- Repeat 10 times with each foot.

The amount of activity that you do in the hospital will increase each day. Your vital signs such as pulse, oxygen level, and blood pressure may be checked with activity. Your hospital activities may include:

- Sitting in the chair.
  - Do not cross your legs.
  - Try to keep your legs elevated whenever sitting.
- Walking first with help, then by yourself, as you get stronger.
  - Try to increase the distance with each walk.
  - Walk in the hall, with or without help.

Helpful hints for activity

- Ask for pain medication 15-30 minutes before you begin activity.
- Your body will need frequent rest periods. Rest between activities:
  - Rest between eating and walking.
  - Rest after showering.
  - You may want to limit the number of visitors. Even pleasant social calls take energy. Let us know if you would like a sign on your door or to have your phone turned off.
- Use good posture.
- Shifting your position often will improve your circulation.
- A good night's rest will help restore your energy.
- Talk with the nurse or doctor if you have problems sleeping.

Preventing Falls

Remember, always ask for help when you need it. When someone is ill or in the hospital, falling is more likely. Here are some tips to keep you safe in the hospital.

Keep things within reach

- Keep the things you use often within easy reach, like tissues, water, remote control, light cord, and call bell.
- Know how to turn the light on and off from your bed.
- Know how to use the bed control.

Get help to move around

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- Do not get up on your own, even to use the bathroom. Nurses will be checking on you at least every hour when you are awake. Use the bathroom before you really need to.
- Sit up slowly and with help.
- Do not try to move IV poles or other equipment on your own.
- Use your walking aid as instructed by the staff. Be sure to use handrails in bathrooms or in hallways.
- The staff may use a gait belt to keep you safe as you move around. This fits snugly around your waist. It allows another person to support you as you walk together.

Showering and brushing teeth

During the first day or so after surgery, the nurse will give you a bed bath and will help you brush your teeth.

Daily showers often start on the second day after surgery. Gently wash your incision with a mild, antibacterial soap and warm water. Use a different wash cloth for each incision. Pat your incisions dry. At home, you may want to use a shower chair. Do not take tub baths for 6 weeks.

Being well-groomed can lift your spirits.
We encourage you to:

- Shampoo your hair
- Brush your teeth
- Shave
- Apply make-up

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Care of Your Incisions

Most often, you will not have any stitches or staples that need to be removed on your chest incision. You may have other incisions on your arms or legs, depending on the surgery you had. If there are stitches, they will be removed at your clinic appointment.

Cleaning your incisions

- Wash your incisions every day in the shower with a mild, anti-microbial soap.
- Use a different cloth for each incision.
- Gently pat your incisions dry with a clean towel.
- Avoid getting ointment, powder, lotion, deodorant or perfume on your incisions.

Check your incision every day

Look at your incisions each day. Drainage from your incisions should get better each day. In the next 6 to 8 weeks as they heal, it will be normal for the area around the incisions to be:

- Tight, itchy or numb
- Bruised
- Swollen and tender

Let your doctor know right away if you have signs of infection such as:

- Increased drainage, swelling or pain
- Drainage that is green and thick, like pus
- Drainage that smells bad
- Incisions that are red and warm to the touch
- Open areas along the incision line
- Chills
- Fever of more than 101 degrees Fahrenheit (38.3 Celsius)

Nutrition After Surgery

Soon after surgery you will be able to drink small amounts of water and juice. As you continue to recover, you can resume eating solid foods. Fluids may be limited because of swelling. Ice chips may help quench your thirst.

Poor appetite

Healing requires good nutrition, yet many people have a poor appetite after heart surgery. At first, you may not feel much like eating. Follow these guidelines:

- Eat foods that appeal to you.
- Use only a small amount of salt in cooking, but none at the table.
- Try 6 small meals, instead of 3 large ones.
- Include foods from all the main food groups: meat, fruits, vegetables, milk and whole grain breads and cereals.

If you are unable to eat much, you may want to try a supplement. The following is a list of common supplements that may be purchased from grocery stores, drug stores or discount stores:

- Carnation Instant Breakfast
- Ensure, Ensure Plus
- Boost, Boost Plus or other equal generic brands

Later, as your appetite improves:

- Start making some heart-healthy diet changes. See see page 50 of this book for more information.
- If you have questions or concerns about the foods you are eating please call the dietitian.

Good nutrition helps you heal

Good nutrition will help your incisions heal. Vitamins in fruits and vegetables and protein in meat and fish will build new tissue and fight infection.

Your recovery is not the time for drastic weight loss. If needed, you can start a weight loss program after you have healed.

Before You Leave the Hospital

Before you leave the security of the hospital, a nurse, case manager, or social worker will talk with you about a discharge plan. We will work together to make sure you know how to have a successful recovery. Your discharge plan will include the following topics:

Medicines

While you are in the hospital, some of your medicines will be changed and some of the dosages may be adjusted. When you leave the hospital, you will be taking different medicines than when you came in. It is very important that you take your medicine correctly.

- Before you leave the hospital, a nurse or pharmacist will explain your medicines.
- You will receive a list and schedule of the medicines you are to take at home. Always keep a current list of your medicines with you in your wallet or purse.
- It is a good idea to have the same pharmacy fill your prescriptions. The pharmacist can watch for interactions and keep track of your medicine history.
- If you need to take over-the-counter pills for a cold or headache, talk to your pharmacist or doctor.
- **Know your medicines.** Know the:
  - Name
  - When you take them
  - Dose
  - Reason you are taking
  - Side effects. Do not delay calling your doctor if you have side effects. Other medicines may work as well that do not cause problems.

Food for healing and living well (see pages 50-65)

- A registered dietitian is available on request to talk about your diet.
- You may also see the dietitian in the clinic to learn about a heart-healthy food plan.

Activity for healing and living well (see page 66-75)

- A cardiac rehabilitation nurse or therapist will talk with you about beginning a home activity program.
- You will learn what activity is safe to do while you are healing.
- You may also arrange to start a rehab exercise program.

Caring for yourself

- The nurses will teach you how to care for your incision, talk about common concerns, and teach you when to call the doctor.

Choose comfortable clothing

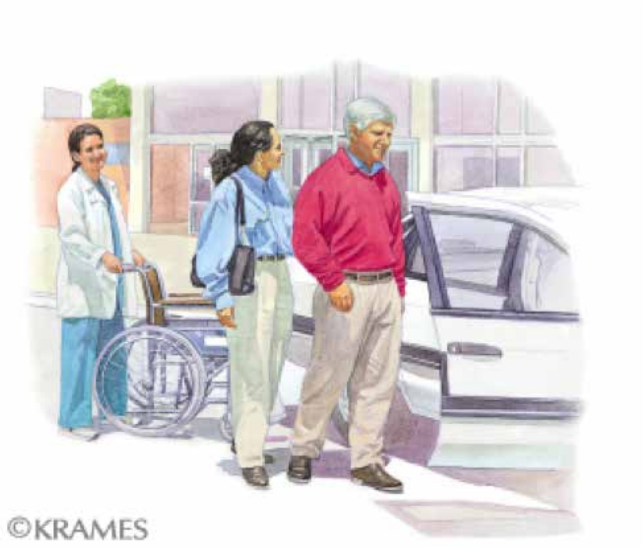
- Wear loose clothing that is easily washed and does not rub or irritate the incisions.
- Avoid pullover shirts and pants with tight elastic around the ankles.
- Women can get breast support by using Ace wraps or sports/exercise bras.

Rest

- It is normal for you to feel tired. Plan rest periods between activities. Your energy level will improve in the days and weeks ahead.

Leaving the hospital

- After your discharge papers and instructions are completed, you will be ready for the trip home.
- Remember to ask for a pain pill before you leave the hospital. This will make the ride home more comfortable.
- Have your family bring a pillow or blanket along so you can rest in the back seat.
- If you are traveling a long distance, plan to get out of the car and stretch every hour.
- Always wear your seat belt. A small pillow between the belt and your chest will help with comfort.



Common Concerns After Going Home

Trouble sleeping

Once you have returned home you may find it hard to sleep at night. This is normal and does not usually last long.

- You may find it hard to get comfortable.
- You may feel like your heart is pounding.
- Your daily routine has changed.
- Getting in and out of bed may be painful.
- Sweating while sleeping is very common.

Things that can help you sleep better at night:

If these suggestions do not help, please let your doctor know. Getting enough rest is important for your recovery.

- Take naps early in the day. Avoid taking evening naps.
- Take a pain pill before you go to bed.
- Sleep in a recliner.
- Use pillows to support your body.
- Take a relaxing shower before bed.
- Drink a warm glass of milk.
- Sometimes evening rituals such as reading a book, prayer or soft music can help.

Constipation

Some people become constipated after heart surgery. A decrease in activity and some medications can lead to constipation.

To avoid constipation try to:

- Eat high-fiber foods like fruits and vegetables.
- Drink enough liquids every day: 6-8 glasses of water each day can help relieve constipation.
- If you find yourself getting constipated, try:
  - Milk of Magnesia
  - Metamucil
  - Stool softeners
- Do not give yourself an enema while you are recovering.

Avoid straining and holding your breath.

Remember to breathe out and use your stomach muscles when pushing. If problems continue, call your doctor.

Activity While Healing

Activities you will be able to start

Beginning with gentle activity will allow your breastbone to heal. If you feel a sudden snap or painful pop at your chest/incision site, **stop** immediately and call your surgeon as directed.

Do activities like these only as you feel you can handle them:

- Walk on level ground
- Ride a stationary bike
- Play cards
- Light dusting
- Light paperwork
- Cook small meals
- Self-care activities, like bathing and shaving
- Work on jigsaw puzzles
- Organize photo albums
- Play video games

Remember to balance activity with rest. When you are tired, it is very important to rest.

Setting goals and doing daily tasks is a way to help you recover. You will be able to see your improvements.

Ask others to help you with:

- Moving heavy objects like furniture or a stalled car
- Vacuuming floors
- Raking or mowing the lawn
- Shoveling snow
- Scrubbing the walls, windows or floors
- Pushing or pulling heavy doors
- Changing bedding
- Moving to new home

Your heart and breastbone need time to heal. This healing takes 2–3 months. Take care when lifting and reaching.

Activities to avoid at home

Do not lift more than 5 to 10 pounds, as directed by your surgeon. This means you should not:

- Carry groceries, laundry baskets, heavy purses, or small children
- Twist a tight jar lid
- Run
- Swim
- Ride a moving bicycle
- Sleep on a waterbed

When you lift

- Use both hands to lift the object. This places equal pressure on both sides of the sternum. Do this even when you are lifting only 5 to 10 pounds.
- Keep arms at your sides. Lift with your forearms only by bending your elbows.

Reaching

- Do not reach backwards. Keep all arm activity in front of your body.
- Keep your elbows at your side as much as possible with lifting activities.
- Avoid turning or twisting of the upper body.

Can I take a bath?

- If possible, take a shower. A shower is easier than a bath. Getting out of the bathtub is hard work.
- Have someone nearby to help you if you need it. Do not lock the bathroom door.
- Use warm water. Do not use hot or cold water.
- Rest after your shower. It is tiring.

Can I climb the stairs?

If you feel you are able, you may climb stairs. When you do climb stairs:

- Put both feet on a step before going on to the next step.
- Go slowly and take deep breaths.
- Stop and rest when needed. Climbing stairs is hard work.
- Do not carry extra objects. You are already lifting the weight of your body with each step.

How long do I wear the compression stockings (TEDs)?

Swelling of the lower legs is expected after surgery. Compression stockings decrease this swelling. Your doctor will evaluate the continued need for the stockings at your return appointment.

- Wear them all day and night for 1 week. You can take them off once a day to bathe.
- After 1 week, wear the stockings during the day. You can take them off at night.
- Do not put them on or take them off by yourself.

Other ways to decrease lower leg swelling include:

- Do not cross your legs.
- Limit being on your feet for long periods of time.
- Keep your feet elevated when you are sitting.
- Lie down with your feet elevated several times a day.

If soiled, compression stockings may be hand washed in warm water with mild soap. Hang them up to dry.

When can I drive?

Driving can be physically and emotionally stressful. Reaction time is slowed. You should not drive for several weeks. **You can drive again when your doctor says you are ready.**

- You may go for short rides in the car as a passenger.
- Always wear your seatbelt. A small pillow over your chest will help with comfort.
- If you need to make a long trip, stop and stretch your legs at least once every hour.

When can I go back to work?

Each person has different physical, mental and emotional work demands.
Discuss returning to work with your doctor.

When you return to work:

- It may be on a part-time basis
- Take stretch and rest breaks
- Pace yourself
- Continue your exercise program
- Eat regular meals
- Do not hesitate to ask for help

Do not make career decisions during this recovery time. Most people return to the work they know and enjoy.

Can I drink alcohol?

Alcohol may interact with the pills you are taking. Please ask your doctor. If you drink alcohol, limit yourself to 1 drink a day.

1 drink equals:

- 1 ounce of hard liquor **or**
- 8 ounces of beer **or**
- 5 ounces of wine

When can I resume sexual activity?

Sexual activity can be emotionally intense, but the physical demands are no greater than climbing 2 flights of stairs. **When you are comfortable climbing 2 flights of stairs, you will safely be able to enjoy sex again.** Be well rested before enjoying sex. It may take 4 to 6 weeks to be ready for this. You may be ready earlier or it may take longer. If you are concerned, talk with your doctor.

- Discuss your feelings about sex with your partner. Physical attention can be as satisfying as the act of intercourse. Find time to sit and enjoy a special quiet time to express your love.
- Use positions that put the least pressure on your breastbone.
- Do not get up too quickly after sexual activity, as you might be lightheaded. Rest a bit and get up slowly.
- Some medicines may affect your sexual desire. If you notice this, talk to your doctor.

When you are comfortable climbing 2 flights of stairs, you will safely be able to enjoy sex again.

Tips for preserving your energy

Sometimes, what you do is not as important as how you do it.

- **Take power naps.** 20 to 30 minutes of rest in a quiet place with your feet up can really refresh and renew.
- **Do not do all your heavy work in 1 day.** Break larger jobs into smaller tasks and take rest breaks before you feel tired. Do your work when you have the most energy.
- **Watch the weather.** Hot, humid days and cold, windy days are more stressful. Dress for the weather. Cover your head. Think about the weather when making plans for work or play.
- **When doing work, use good posture and shift position from time to time.** Overhead work, working in a crouched or cramped position, and work that involves keeping your muscles tensed, can strain your heart. Sit, instead of kneeling or standing.
- **Work smarter, not harder.** Organize your tools and supplies so they are within easy reach. Move heavy items with a wheeled cart instead of lifting, pushing or pulling. Plan activity to avoid unnecessary steps.
- **Breathe normally as you work.** Holding your breath when you push, lift or strain at something is dangerous. If you feel short-of-breath, you need to rest or work at a slower pace.
- **Rest to digest.** Rest for an hour after every meal.
- **Get up to stretch and move a little after sitting for more than an hour.** Do not cross your legs. It blocks the blood in your legs from returning to your heart.
- **Play and recreation are important.** If you get frustrated or if your desire to win is so strong that the activity stops being fun, it is time to stop. Choose hobbies that are pleasurable and can help you unwind.
- **Give to others by letting them give to you.** Family and friends will want to help, so let them. Asking for help can build stronger relationships.

Emotions

When you are tired and uncomfortable, and when changes disrupt your routine, you may feel sad.

- Heart disease is stressful. It affects both you and your family.
- Some of the normal feelings you may experience are:
  - Shock/numbness
  - Fear
  - Denial
  - Anger
  - Depression

Depression is a very common emotion after heart surgery. Many people have a let-down feeling after a heart event. This is normal. Know that you will have good days along with some bad days. It is also common to feel tired and easily worn out. This will gradually improve in the weeks following your surgery.

Things that may help when you are feeling depressed:

- Get back into your normal routine as soon as possible.
- Make sure to get enough sleep.
- Get dressed every day.
- Start your home exercise program.
- Set daily goals.
- Record your progress on paper.
- Talk about your feelings.
- Balance rest with activity.
- Eat a well-balanced, low-fat diet.
- Get involved in a cardiac rehabilitation program near your home.
- Connect with loved ones.
- Take care of your entire health – physical, emotional, and spiritual.

Eating for a Healthy Heart

What can I eat?

You do not have to give up any of your favorite foods. There are no bad foods. But, you should choose healthy foods more often. You are not starting a diet, you are making a lifestyle change. A diet is temporary; a lifestyle change is permanent. The following information will help you make healthy food choices.

Eating well with heart disease

A healthy diet is one of the best weapons for fighting heart disease. This means it is important to watch what you eat. Eating to slow or prevent heart disease means changing how you eat. It may seem tough at first, but you will see that small changes can make a big difference in your heart health.

First you will need to pay attention to 3 things:

- How much fiber you eat each day
- How much sodium you eat each day
- The kinds of fat you eat at each meal

The American Heart Association recommends eating a variety of fruits, vegetables, lean protein, low fat dairy, whole grains, and healthy fats.

General guidelines

- Eat at least 2 cups of fruit and 2 to 3 cups of vegetables every day. Fruit and vegetables are packed with the vitamins, minerals, and fiber your body needs to stay healthy. Plus, they are naturally low in calories, and can be fat- and cholesterol-free – depending on how they are cooked.
- When it comes to meat, think lean. Lean is a measurement of saturated fat and cholesterol.
  - Most turkey, chicken, seafood, and fish are considered lean protein. Pork and several cuts of beef are, too.
  - Non-meat sources of protein are good because they do not have any cholesterol. Most do not have any saturated fats. Try to have at least 1 no-meat day each week.
  - Plan to eat seafood and fish at least 2 times a week.

- Cut back on foods made with partially hydrogenated vegetable oils, trans fat, and saturated fat.
- Cut back on sugary drinks like soda or pop and juice with added sugar.
- If you drink alcohol, the recommendation is for no more than 1 drink per day for women and no more than 2 for men.
- Watch out for sodium. Sodium is found naturally in some foods. But, most of the sodium you eat is added to your food when it is made in a factory or restaurant. Most Americans eat more than 3,400 milligrams (mg) of sodium every day. That is quite a bit more than the 1,500-2,300 mg of sodium we're supposed to have.
- Learn how to cook. When you cook at home, you get to choose which ingredients go into a meal. And, you can better control your portion sizes. This will help you keep your waist size in line, too.

You can find heart-healthy cooking tips on websites like the American Heart Association, and the Academy of Nutrition and Dietetics.

5 tips for eating well with heart disease

1. Read nutrition labels and choose foods with low levels of sodium, saturated fat, and cholesterol.
2. Eat 2 cups of fruit and 3 cups of vegetables every day.
3. Avoid foods with saturated fat, trans fat, and hydrogenated oils.
4. Try to go without meat 1 day each week.
5. Learn to cook the heart-healthy way.

The next pages will give you more information about which foods to choose as part of a heart healthy diet.

Beverages

- Choose caffeine-free beverages most often.
- If you have diabetes or want to lose weight, choose sugar free beverages.
- Alcohol can increase triglyceride levels. Drink little to no alcohol if your triglycerides are high.

Healthy choices:

- Decaffeinated coffee or tea
- Caffeinated coffee or tea – try to limit to 200 to 300 mg of caffeine each day. (two 6 ounce cups of coffee)
- Skim or 1% milk or chocolate milk
- Buttermilk made from skim milk
- Powdered non-fat milk
- Cocoa made with skim milk
- Soy milk
- Diet soda / pop
- Sugar-free drink mixes such as Crystal Light
- 100% fruit juice (1/2 cup a day)

Foods to limit:

- Caffeinated coffee or tea – limit caffeine if recommended by your doctor.
- Soda / Pop
- Whole milk or 2% milk
- Eggnog
- Milkshakes
- Alcohol (limit to 1 drink a day – 1 ounce hard liquor, 8 ounces of beer, or a 5 ounce glass of wine)
- Sports drinks like Gatorade

List some of your favorite beverages. Are they healthy choices? What could you try instead?

My favorite beverages	**Is it a healthy choice?**	**What can I try instead?**
Example: chocolate milkshake	No	1% chocolate skim milk

Breads, Cereals, and Starches

- 6 to 11 servings each day, depending on your calorie needs.
- Choose whole grain foods, such as whole wheat bread, brown rice, and whole grain crackers, as often as possible.

Healthy choices:

- Whole grain foods:
  - Bread and dinner rolls
  - Crackers, unsalted saltines soda crackers, and graham crackers
  - English muffins and bagels
  - Muffins
  - Waffles, pancakes, and French toast
  - Pastas and tortillas
- Air popped popcorn
- Baked potato chips
- Snack crackers with less than 3 grams of fat per serving
- Brown rice
- Pretzels (choose low-sodium levels)

Foods to limit:

- White bread
- White rice
- White flour tortillas
- Frosted bread or rolls
- Regular snack crackers
- Cheese breads
- Doughnuts
- Sweet rolls
- Rice or pasta dishes made with butter, cheese, whole milk, or cream
- Croissants
- Regular:
  - Waffles, pancakes, and French toast
  - muffins and biscuits
- Potato chips

List some of your favorite breads, cereals, or starches. Are they healthy choices? What could you try instead?

My favorite breads	**Is it a healthy choice?**	**What can I try instead?**
Example: Doughnuts	No	Whole grain muffin

Dairy

- Choose 3 servings each day.
- Choose cheeses with 300 mg sodium or less per serving.

Healthy choices:

- Skim and 1% milk
- Nonfat or 1% buttermilk
- Evaporated skim milk
- Low-fat or fat free yogurt
- Low-fat or fat free cheese (0 to 4 grams fat per ounce)
- 1% or fat free cottage or ricotta cheese
- Fat free cream cheese
- Fat free sour cream
- Low-fat or fat free frozen yogurt
- Low-fat or fat free frozen dairy desserts (like Healthy Choice, Edy's Grand Light and Guilt Free)

Foods to limit:

- 2% or whole milk
- Regular yogurt
- Evaporated 2% or whole milk
- Sweetened condensed milk
- Light or regular cream, half & half, or coffee creamer
- Light or regular hard cheese like Monterey jack, cheddar, Swiss, Colby, etc. (over 6 grams fat per ounce)
- Whole milk mozzarella
- 2% or 4% cottage cheese
- Cream cheese
- Sour cream
- Ice Cream
- Gourmet frozen yogurts

List some of your favorite dairy products. Are they healthy choices? What could you try instead?

My favorite dairy products	Is it a healthy choice?	What can I try instead?

Fats

- Limit to 6 to 8 teaspoons each day – this includes the fat used in cooking.
- Consider eating 1/8 to 1/4 cup of unsalted nuts, such as almonds or walnuts, on a regular basis.

Healthy choices:

- Canola, olive, soybean oil
- Tub margarine with no trans fat
- Margarine with plant sterols
- Unsalted nuts
- Unsalted seeds
- Margarine sprays
- Non-stick cooking spray
- Light or fat free versions of:
  – Half and half
  – Cream cheese
  – Sour cream
  – Salad dressing
  – Mayonnaise
  – Miracle Whip

Foods to limit:

- Butter
- Margarine with trans fat
- Shortening
- Cream
- Cream cheese
- Sour cream
- Salad dressing
- Mayonnaise
- Miracle Whip
- Bacon
- Coconut products

List some of your favorite ways to use fats. Are they healthy choices? What could you try instead?

My favorite fats	**Is it a healthy choice?**	**What can I try instead?**

Fruits and Vegetables

- Prepare vegetables in healthy ways: steamed, grilled, roasted, or sautéed with oils listed in the healthy choices of the fats section.
- Servings 3 cups per day of vegetables and 2 cups of fruits.

Fruits

- Apples
- Apricots
- Avocado
- Blackberries
- Blueberries
- Cantaloupe
- Cherries
- Cranberries
- Green grapes, red grapes
- Guava
- Honeydew melon
- Kiwi
- Mango
- Nectarines
- Orange juice
- Oranges
- Papaya
- Peaches
- Pears
- Pineapple
- Pink and yellow grapefruit
- Prunes and plums
- Raspberries
- Strawberries
- Tangerines
- Watermelon

Vegetables

- Acorn and yellow squash, zucchini
- Artichokes
- Asparagus
- Beets
- Bok choy
- Broccoli
- Brussels sprouts
- Cabbage and Chinese cabbage
- Carrots
- Cauliflower
- Celery
- Chives
- Corn
- Cucumbers
- Eggplant
- Green, yellow, and red bell peppers
- Green beans
- Green peas
- Kale
- Leeks
- Mushrooms
- Collard, mustard, and turnip greens
- Onions
- Potatoes, sweet potatoes
- Pumpkin
- Romaine, leaf lettuce, endive
- Spinach
- Swiss chard
- Tomatoes, Tomato juice, V-8 juice

How many fruits and vegetables do you eat each day?
List some new ones you will try.

Meat and Meat Substitutes

- Choose a variety of meats throughout the week.
- Eat protein with every meal.
- 3 to 4 ounces of meat is the size of a deck of cards.
- 3 to 4 ounces of fish is the size of a checkbook cover.
- Eating fish 2 times each week can help provide healthy omega-3 fatty acids.
- Replacing meat with soy products like tofu, veggie burgers, and soy nuts can help reduce cholesterol levels.
- Limit red meats (beef, pork) to 2 to 3 servings each week.

Healthy choices:

- Lean red meat (refer to list below)
- Chicken and turkey without the skin
- Canned low-salt tuna or salmon
- Fresh or frozen fish, or low-fat frozen breaded fish
- Luncheon meat with less than 5 grams of fat and less than 15% DV (daily value) sodium per serving
- Peanut butter without added sugar or salt
- Eggs
- 1% or fat-free cottage cheese
- Cheese with less than 200 mg sodium per serving

Foods to limit:

- Corned beef
- Sausage
- Liver and other organ meats
- Spare ribs
- Domestic duck or goose
- Frozen pre-breaded meat, poultry, or fish
- Cheese and luncheon meats with more than 5 grams of fat and more than 15% DV sodium per serving
- Bacon

Lean meat cuts

Beef:

- Top round
- Bottom round
- Eye of round
- Tip
- Sirloin
- Tenderloin
- Top loin
- Chuck arm
- Brisket, point portion

Pork:

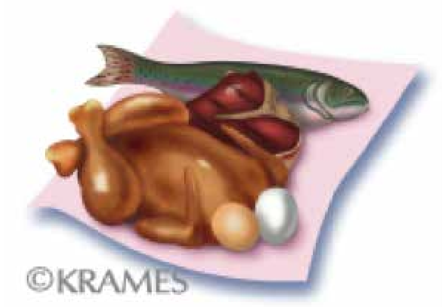
- Whole leg
- Leg, rump half
- Loin, center loin roast or chop

Veal:

- Cutlet
- Arm steak
- Blade steak
- Sirloin chop
- Loin chop
- Rib roast

Lamb:

- Shank half leg roast
- Sirloin roast
- Loin chops
- Blade chops
- Foreshank
- Rack–rib



List some of your favorite meats. Are they healthy choices? What could you try instead?		
My favorite meats	**Is it a healthy choice?**	**What can I try instead?**

Soups

- Cook with low-fat, reduced sodium cream soups.

Healthy choices:

- Broth-based homemade soups
- Reduced sodium, broth-based soups
- Reduced sodium, low-fat, cream soups
- Soups made with skim or 1% milk
- Refrigerate prepared stock, then remove fat

Foods to limit:

- Soups made with whole or 2% milk, or cream
- Soups containing high-fat cheese
- Commercially canned cream soups

List some of your favorite meats. Are they healthy choices? What could you try instead?		
My favorite beverages	**Is it a healthy choice?**	**What can I try instead?**

Snacks

- Limit snacks if weight loss is desired.
- Consider choosing fruits, vegetables, and nuts as snacks,
- Choose low sugar or sugar-free snacks if you have high triglycerides or diabetes,

Healthy choices:

- Gelatin
- Pudding made with skim milk
- Low-fat cake, muffins, breads and cookies
- Angel food cake
- Popsicles
- Fudgsicles
- Fruit juice bars
- Sherbet
- Frozen yogurt
- Low-fat ice cream
- Baked potato chips
- Air-popped popcorn
- Unsalted nuts

Foods to limit:

- Candy
- Baked goods made with added fat, such as whole milk, cream, coconut, chocolate, butter, lard, or shortening
- Ice cream
- Regular snack crackers
- Regular potato chips or tortilla chips
- Use high sugar foods in moderation

List some of your favorite snacks. Are they healthy choices? What could you try instead?

My favorite snacks	Is it a healthy choice?	What can I try instead?

Foods and Supplements

New information about foods and supplements that may be good for heart health appears often. This table lists recent findings at the time this book was created.

What it is	What it impacts	Foods
Dietary Fiber	Fiber can help lower cholesterol and prevent coronary artery disease. Increase the amount of fiber you eat slowly to prevent bloating and gas. **How much?** 20 to 35 grams each day. **For more info:** Search for "fiber" at www.eatright.org	• Bran • Whole grains • Nuts • Beans • Oatmeal • Whole fruits and vegetable
Soy Protein	Soy products offer a complete protein which is fat-free. Soy has been shown to reduce LDL (bad) cholesterol. **How much?** 25 to 50 grams each day **For more info:** Search for "soy" at www.webmd.com	• Edamame • Soy burgers and sausage • Soy nuts • Soy milk • Tofu • Tempeh • Miso
Plant sterols and stanols	Eating foods with plant sterols and stanols may lower your LDL (bad) cholesterol. **How much?** Try for 2 grams each day. Eat the sterol or stanol foods at mealtimes or with other foods for the most benefit. **For more info:** Search for "sterols" or "stanols" at www.webmd.com	• Some foods have added sterols and stanols: – Margarine – Juices (limit to ½ cup per day) – Cereals

What it is	What it impacts	Foods
Omega-3 fatty acids Fish oil supplements	Omega-3s have been shown to help lower triglyceride levels, reduce the risk of blood clots, and lower blood pressure. Talk to your doctor before starting a fish oil supplement. **How much?** 1 gram of omega-3 fatty acids from a combination of EPA and DHA every day **For more info:** Search for "omega-3" at www.eatright.org	**Alpha linolenic acid:** • Canola and soybean oils • Walnut oil • Nuts • Seeds • Soy foods **EPA and DHA:** • Salmon • Tuna • Mackerel • Sardines
Flaxseed	Flax is a plant source of essential omega-3 fatty acids similar to those found naturally in fatty fish. **How much?** 10 to 25 grams of flaxseed a day provides maximum health benefits. That equals about 1-1/2 to 3 whole flaxseed or 1/2 level tablespoons of ground seed. **For more info:** Search "flaxseed" at www.webmd.com	The seeds should be ground before using. The seeds are easily ground in a blender, coffee grinder, or food processor. Whole seeds store for 6 to 12 months at room temperature, but the ground product should be refrigerated and eaten within a couple of weeks or frozen for up to 6 months.

Can I Still Cook My Favorite Foods?

Following a heart-healthy diet does not mean you have to throw your favorite recipes away. By making a few changes in your recipes, you can make them heart healthy.

- Substitute low-fat or fat-free ingredients whenever possible.

Instead of:	Try:
1 whole egg	2 egg whites or 1/4 cup egg substitute
Whole or 2% milk	Skim milk or 1% milk
1 cup shortening, margarine, butter, or lard	3/4 cup canola oil, 1 cup applesauce, or 1 cup plain low-fat yogurt
1 cup sour cream	1 cup plain nonfat yogurt, 1 cup blenderized cottage cheese, or 1 cup reduced-fat or fat-free sour cream
1 cup light or heavy cream	1 cup evaporated skim milk or 1 cup fat-free half and half
1 cup white flour	1/2 cup white flour and 1/2 cup whole wheat flour
1 ounce baking chocolate	3 tablespoons cocoa powder plus 1 tablespoon oil
1 cup mayonnaise	1/2 cup light mayonnaise plus 1/2 cup plain yogurt or 1 cup light mayonnaise
1 cup sugar	1/2 cup sugar
Salt	Reduce amount or omit completely. Only yeast breads need a small amount of salt.

Adding Flavor without the Salt

Note: Before using a salt substitute, talk with your doctor.

- Try using a salt-free spice blend like Mrs. Dash. You can use the spice blend on the table instead of a saltshaker or in cooking.
- Choose spices carefully. Garlic powder is dehydrated, ground garlic. Garlic salt is garlic powder mixed with salt.
- Conversion: 1 tablespoon fresh herb = 1/2 tsp dry = 1/4 tsp powdered
- When doubling a recipe, add only 50 percent more seasoning.
- Freshen herbs by crushing or rubbing between your fingers before adding to recipe.
- In dishes such as stews requiring long cooking times, add herbs toward the end of cooking.
- In chilled foods such as dips, salads and dressings, add herbs several hours ahead.
- For maximum freshness, purchase herbs and spices in small quantities and keep in airtight containers.
- Add fresh flavor to many foods by using lemon juice.

For more information on cooking with herbs and spices:

- American Heart Association
  www.heart.org/ Search for "herbs and spices"
- Food & Nutrition
  www.foodandnutrition.org/ Search for "herbs and spices"

Dining Out—the Healthy Way

How often do you dine out? Dining out includes any meal or snack eaten away from home or take-out ordered to be served at home. You do have healthier choices when dining out. The more you dine out, the more you will need to control what you eat. The following tips will make dining out a healthier experience.

- Plan ahead: Do not go to the restaurant starving. Eat a snack if you are going to eat later than usual. Choose a snack from the fruit or milk group to eat at your usual mealtime.
- Menu choices: Knowing which items are the healthiest will make your choice easier. Choose items with healthy descriptions more often.

Healthy choices

- Broiled
- Garden fresh
- Roasted
- Boiled
- Grilled
- Marinated in juice/wine
- Steamed
- Poached
- Charbroiled
- Tomato sauce
- Marinara

Less healthy choices

- Cheese sauce
- Crispy
- Breaded
- Gravy
- Au gratin
- Marinated in oil/butter
- Fried/deep fried
- Scampi style
- Buttery/butter sauce
- Meat sauce
- Creamed
- Alfredo

- **Special requests:** Request that items such as gravy, salad dressing, sour cream and margarine be served on the side. This way you can add the desired amount.
- **Potatoes, pasta, and breads:** Remember to skip or limit high-fat toppings and spreads.
- **Slow down:** Try to be the slowest eater at the table. You will be less tempted to help yourself to more if you are still eating when everyone else is finished.
- **Portion control:** To resist the temptation of having to clean your plate:
  - Have your waiter remove your plate as soon as you feel full.
  - Request a container for the leftovers as soon as you are full so you are not tempted to start nibbling again.
  - Request a container as soon as your meal is served. Place half of the meal in the container so it is out of your sight.
  - Order half an order or share one order with another person.

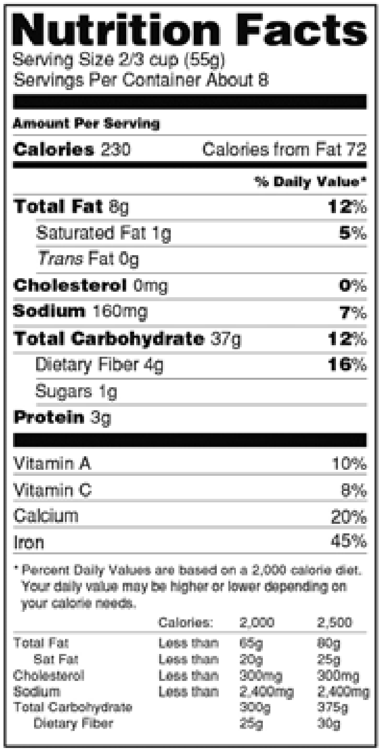
Heart-Healthy Eating: Label Reading Tips

Look for the following on the food label

- **Serving size:** All the information on the label about calories and nutrients is for 1 serving. If you eat more than 1 serving, you get more calories and nutrients.
- **Calories:** Choose foods that help you get the nutrients you need without going over your daily calorie goal. Too many calories leads to weight gain.
- **Total fat, saturated fat, and trans fat:**
  - Choose foods with less than 5 grams (g) of total fat per serving. 50 to 75 g per day is a good range for someone who needs to eat 2,000 calories per day. Try to pick foods with heart-healthy fats such as monounsaturated and polyunsaturated fats.
  - Choose foods with less than 3g per serving of saturated fat and trans fat because these are not heart healthy. A person who needs to eat 2,000 calories per day should eat no more than 15g of saturated fat and trans fat (combined) in one day.
  - Read ingredients. If a food contains partially hydrogenated oils, then it has trans fat. If it has less than half a gram per serving, the label may still say there are no trans fat.
- **Sodium:** Look for foods that are low in sodium. Each day, eat less than 2300 mg sodium or the limit set for you by your healthcare team. For those with heart disease this may be 1500 mg of sodium a day. One way to meet your goal of eating less sodium is to eat:
  - 400-500 mg each meal (3 meals a day)
  - 100-200 mg each snack (2 or 3 snacks each day)
- **Total carbohydrate and sugars:** If you have high triglycerides, choose foods with less than 30g total carbohydrate and less than 15g sugars per serving.
- **Dietary fiber:** Aim to get 25 to 30g of dietary fiber each day. To meet this goal, include foods with at least 5g fiber per serving.

Changes are coming to the food label

- The image on the left is the current style of food label.
- The food label on the right shows the coming changes to make key items on the labels easier to see and use.



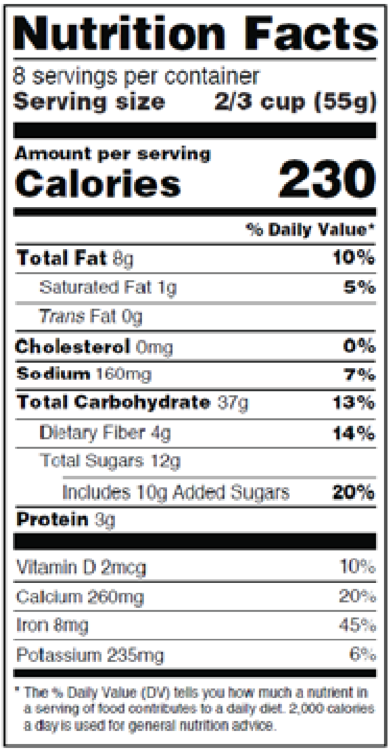
Nutrition Facts

Serving Size 2/3 cup (55g)
Servings Per Container About 8

Amount Per Serving	
Calories 230	Calories from Fat 72
	% Daily Value*
Total Fat 8g	**12%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**12%**
Dietary Fiber 4g	**16%**
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g



Nutrition Facts

8 servings per container
Serving size 2/3 cup (55g)

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Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**13%**
Dietary Fiber 4g	**14%**
Total Sugars 12g	
Includes 10g Added Sugars	**20%**
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Adding Exercise to Your Life

Beginning to Exercise

When you return home, you should do activities similar to those in the hospital for 2 to 3 days. You will be showering, napping, deep breathing, and walking from room to room.

After this, you begin your home exercise program. When we talk about a home exercise program, we are referring to aerobic exercise.

Cardiac Rehabilitation Program

We encourage you to join an outpatient cardiac rehabilitation program near your home. These programs can help you live a fuller, healthier life. The services provided usually include:

- Risk factor modification
- Supervised exercise
- Communication with your doctor

One of the benefits that is difficult to measure, but is so important, is the support from other patients who have been through this.

Most of the major insurance companies cover some of the cardiac rehabilitation charges. You can check with your insurance company to see how much they pay for this service.

Home exercise program

Aerobic exercise involves moving large muscle groups like those in the arms and legs. To benefit your heart, you need to do this for at least 20 minutes. You will start with 5 minutes of exercise and build up to 20 or more minutes. Some examples of aerobic exercise:

- Stationary biking – no moving handlebars for 6 to 8 weeks
- Walking

When you exercise, you should always:

- Stretch
- Warm up
- Take your pulse
- Watch your exertion
- Cool down
- Record your exercise

Guidelines when exercising

- Try to exercise without stopping.
- You should always be able to exercise and talk. If you cannot, slow down.
- Swing arms at an even pace when walking.
- Wear comfortable, loose-fitting clothing and comfortable shoes.
- Consider the weather. Do not exercise outdoors if the weather is humid or very windy. The temperature should be 30 to 80 degrees Fahrenheit to exercise outdoors.
- Walk on a flat surface. Walking on hills or a raised incline increase the workload of your heart.
- Wait at least 1 hour after meals before exercising.
- Always cool down.
  - Walk at a slower pace for 5 minutes.
  - If riding a stationary bike, reduce speed to less than 10 mph and turn off the tension for 5 minutes.
- Stop exercising if you feel any of the following:
  - Chest pain
  - Any pressure, pain or numbness in neck, teeth, jaw or arms
  - Lightheadedness
  - Extreme fatigue
  - Shortness-of-breath
  - Pain in joints or muscles
  - Headache
  - Nausea

Notify your doctor if these symptoms do not improve with rest.

Warm-up and cool down exercises

Use the exercises on the next pages as beginning exercises as well as warm-up and cool-down exercises.

- Shoulder shrug
- Arm circles
- Knee raises
- Leg extension
- Rowing
- Front arm lifts / touchdown

Exercises for Recovery

Do not start these exercises unless your doctor or cardiac rehab specialist tells you to.

- These exercises should be done using slow and regular movements. Do not use fast or jerky movements.
- Only do the exercises that have been marked.

If you feel a snap or pop at your incision site, stop exercising immediately and call your surgeon's office.

☐ Shoulder Shrug

Begin with your shoulders relaxed, your back straight, and your head centered your spine.

1. Slowly bring your shoulder up and down.
2. Repeat slowly several times.

Instructions: ______________________________

____

____

☐ Arm Circles

Sit or stand with your arms raised to shoulder height.

1. Slowly make small circles with your arms, forward then back.
2. Repeat slowly several times.

Instructions: ______________________________

____

____

☐ Knee Raise

While sitting.

1. Alternately, lift your knees as high as comfortable.
2. Repeat slowly several times.

Instructions: ______________________________

____

____

☐ Leg extension

Sit with the back of your knees against the edge of the seat.

1. Alternatively straighten your legs.
2. Lower each leg slowly after straightening.
3. Repeat slowly several times.

Instructions: ______________________________

____

____

☐ Rowing

Sit or stand up straight.

1. Reach forward with both arms at shoulder height. You should feel a gentle stretch in your back.
2. Pull both elbows back until you feel a gentle stretch across the middle of the chest.
3. Repeat slowly several times.

Instructions: ______________________________

____

____

☐ Touchdown / front arm lifts

While sitting or standing.

1. Extend both arms in front of your body.
2. Reach up above your head as far as is comfortable.
3. Keeping your arms straight, slowly lower your arms.
4. Repeat slowly several times.

Instructions: ______________________________

____

____

Taking Your Pulse

Taking your pulse is an important skill for you to learn.

The pulse rate reflects the flow of blood through the artery each time the heart beats. Heartbeat can be measured by counting each pulse in a given period of time.

You will find your pulse at the radial artery. This artery is located on the wrist, just below the thumb.

Place 2 fingers along the artery and press firmly; then gently release the pressure until the pulse is felt. Using a watch with a second hand, count each pulse for the specific length of time.

1. Count your pulse for 15 seconds and multiply the number by 4. Example: If your pulse is 20 beats in 15 seconds, multiply the 20 x 4 to get 80 beats per minute.
2. A normal pulse should be between 60 to 100 beats per minute while at rest. It may increase with activity.
3. It is okay for your pulse to go up 20 to 30 beats with exercise.
4. Some medications may slow your pulse. Even with exercise, your pulse rate may not increase.
5. If you are unable to feel your pulse, please use the perceived exertion scale on the next page.

15-second pulse count scale

14 = 56
15 = 60
16 = 64
17 = 68
18 = 72
19 = 76
20 = 80
21 = 84
22 = 88
23 = 92
24 = 96
25 = 100
26 = 104
27 = 108
28 = 112
29 = 116
30 = 120
31 = 124
32 = 128
33 = 132
34 = 136
35 = 140
36 = 144
37 = 148
38 = 152

Borg's Perceived Exertion Scale

If you want to judge how hard you are working, learn to use this scale. While you are exercising, think about how hard you feel you are working.

6	
7	Very, very light
8	
9	Very light
10	
11	Fairly light
12	**Target workout level**
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Very, very hard
20	

Stationary Bicycles and Treadmills

Stationary bicycles and treadmills are excellent for aerobic exercise. They may be easily used in cold weather, early morning, or late evening.

Before buying a stationary bicycle or treadmill, try it out to see if it is comfortable.

Exercise guidelines for stationary bicycles:

- The bike should come equipped with tension control. Do not use a bike with moving handlebars for the first 6 to 8 weeks.
- **Always** warm up without tension and at a slower speed for 3 minutes.
- Adjust the tension during the next stage. This stage will vary 5 to 30 minutes depending on your fitness level. Try to pedal at a faster speed during this stage.
- Cool down without tension and at a slower speed for 3 minutes.

Exercise guidelines for treadmills:

- The treadmill should have adjustable speed.
- **Always** warm up at a slow speed and on a flat walking surface.
- Adjust the speed during the next stage. This stage will vary 5 to 30 minutes depending on your fitness level.
- Do not adjust the incline of the treadmill. Walking uphill increases the workload on your heart.
- Cool down at a slower speed for 5 minutes.

Exercise Program—Week 1

Exercise 5 minutes, 4 times a day.
Increase your exercise 1 minute per day only as tolerated.

Date	Time of day	Type of exercise	How many minutes	Comments

Exercise Program—Week 2

Exercise 10 minutes, 2-3 times a day.
Increase your exercise 1 minute per day only as tolerated.

Date	Time of day	Type of exercise	How many minutes	Comments

Your exercise program continues to grow

As you continue your exercise program, remember to follow the guidelines discussed in the previous pages.

Week 3:
Exercise 15 minutes, but cut back to 1 to 2 times a day. Remember to continue increasing 1 minute a day, only as tolerated.

Week 4:
Exercise 20 minutes, but cut back to 1 time a day. Remember to continue increasing 1 minute a day, only as tolerated.

Week 5:
Exercise 25 minutes 1 time a day.

Week 6:
Exercise 30 minutes a day.

Goal

30 to 45 minutes of regular daily exercise, 4 to 5 times a week.

Remember:

- Keep a record. Your exercise records help your doctor see how your recovery is progressing at home.
- Pace yourself according to how you feel.
- You should always be able to walk and talk at the same time.

Control Your Risk Factors

The causes of CAD are called risk factors. Most risk factors are related to choices you make. Some risk factors you cannot control: family history, gender, and age.

My Risk Factors

Mark your risk factors.

_____ Family history

_____ Age – older than 50

_____ Male or postmenopausal female

_____ High total cholesterol

_____ Low good cholesterol

_____ High blood pressure

_____ Lack of regular aerobic exercise

_____ Tobacco

_____ Stress

_____ Obesity

Which risk factor are you ready to change?

- Do not try to make too many changes at once. Choose one to start.
- Make a plan. Outline small changes that you know you can do.
- Keep at it. Small changes will add up to big improvements in time.
- Ask your doctor or nurse for more information.

High Cholesterol

High total cholesterol not only comes from your diet, but cholesterol that is produced by your liver. Although cholesterol is a necessary nutrient, too much in your blood can collect on your artery walls. This build-up of cholesterol causes blockages. Cholesterol is measured by doing a fasting blood test. This will be done 2 to 3 months after your cardiac event.

Ways to help lower your cholesterol

- Eat a low-fat diet. Eating a low-fat, low-cholesterol diet may help reduce your cholesterol level.
- Stay at your ideal weight. If you are overweight, your cholesterol level may decrease if you lose weight.
- Do regular aerobic exercise. This can help regulate cholesterol.
- Medications. The doctor may order medication when other actions are not enough to control your cholesterol.
- Do not use tobacco.

Bad cholesterol

Low density lipoprotein (LDL) is the bad cholesterol. The fatty layers on the artery wall are LDL cholesterol. A high total cholesterol is due to excess of the bad cholesterol. One way to remember LDL as the bad cholesterol is: L is for lousy.

Good cholesterol

High density lipoprotein (HDL) is the good cholesterol. HDL clears excess bad cholesterol from the arteries. One way to remember HDL as the good cholesterol is: H is for healthy.

What are desirable cholesterol levels?

If you have coronary artery disease, have had a stroke, or have diabetes:

Total cholesterol	HDL cholesterol	LDL cholesterol	Triglycerides
Less than 200 mg/dL	40 mg/dL or more-men 50 mg/dL or more - women	100 mg/dL or less	150 mg/dL or less

High Blood Pressure (Hypertension)

Blood pressure is the force of blood inside the arteries. Constant high pressure damages the artery walls. This damage may cause blockage to form. The exact cause of high blood pressure is not known for many people. But, we do know that proper treatment can bring blood pressure into an acceptable range. High blood pressure is defined as 140/90 (mm Hg) or higher.

To control your blood pressure:

- Know your usual blood pressure. If it is high, have it checked often.
- Take your medication as prescribed by your doctor.
- Do regular aerobic exercise.
- Lower your stress levels by taking time to relax.
- If you smoke or chew tobacco, stop now.
- Try to maintain your ideal weight.
- Eat a low-salt diet. A dietitian is available to help you understand your best food choices.

Lack of Regular Exercise

Regular aerobic exercise can reduce many of the other risk factors, such as:

- Promoting weight loss
- Reducing blood pressure
- Managing stress
- Raising HDL or good cholesterol
- Lowering triglycerides

You may also develop:

- Better muscle tone
- New heart arteries formed (collateral circulation)
- Renewed energy

Tobacco

If you smoke, chew, or use tobacco in any form, make every effort to stop now.

- Tobacco use increases your risk of heart disease.
- More smokers die from heart disease than lung disease.
- Smoking robs you of oxygen.
- If you continue to use tobacco after surgery, your bypasses are likely to become blocked more quickly than if you stop using tobacco.
- Nicotine damages the heart in the following ways:
  - Causes blood clots
  - Lowers HDL or good cholesterol
  - Damages arteries

Tips to help you stop using tobacco:

- The time to quit is **now**, before more damage occurs.
- Ask family and friends not to use tobacco around you.
- Find a friend to quit with you.
- Get adequate rest, especially the first week.
- Note the times when you are most likely to use tobacco. Find something else to do at this time. You could:
  - Strike up a conversation, rather than a match
  - Do relaxing exercises
  - Go for a walk
  - Eat a fat-free snack
  - Take several deep breathes
  - Hold a straw
- Some people may choose to use tobacco rather than risk weight gain. Nicotine is far more dangerous than extra pounds.
- List the reasons to quit using tobacco.
- Buy yourself a treat to celebrate being smoke-free.
- Attend a smoking cessation class.
- Know the **withdrawal symptoms will go away**. Physical dependence on nicotine lasts several weeks. If you are struggling, talk to your doctor or tobacco counselor about nicotine replacement patches or gum.

Stress

Stress is the body's normal response to change. The stress hormone, adrenaline, makes your heart pump faster and harder. Your blood pressure rises and you breathe faster. Over time, constant stress can cause wear and tear on your body, mind, and spirit.

Balance stress with relaxing choices:

- Learn to say no. Choose activities that are rewarding and life-giving.
- Playtime can renew your spirit. Make it light and fun.
- Find a quiet and comfortable place to rest for 15 minutes, 1 to 2 times a day.
- Listen to music.
- Share your feelings with someone you trust. This can build closeness with friends and family. Prayer may also help.
- Exercise will help relieve the pressure of stress. Your body, mind, and spirit will be relaxed and energized.
- Slow down. Do not rush your daily activities.
- Use relaxation exercises that have worked for you in the past.
- A good cry can be a way to wash your spirit of anger and sadness.
- If nothing seems to work, talk to your regular doctor.

Relaxation breathing

Relaxation breathing decreases the effects of stress. The benefits last throughout the day.

- Find a quiet, calm place where you are free from interruptions.
- Sit down. Find a comfortable position.
- Close your eyes.
- Relax your muscles. Start at your feet, work up your body to your face.
- Breathe normally through your nose.
- Focus on your breathing.
- As you breathe out, silently say the word one or another peaceful word or short phrase.
- If your mind wanders, just refocus on your breathing and your peaceful word or phrase.
- Continue this for 15 to 20 minutes.
- When you are ready to stop, open your eyes. Sit quietly for a few more minutes.

Obesity

Every extra pound of body weight gives the heart another mile of blood vessels to serve. That means, being overweight causes the heart to work harder.

- Work in partnership with health care experts to change your lifestyle.
- Be patient. Make gradual changes in habits that fit into your life.
- A goal of losing 1-2 pounds a week is best.

Weight-loss tips:

- Slowly, but steadily increase your exercise.
- Drink water every day.
- Start each day with a healthy breakfast.
- Tame your sweet tooth by eating 3 servings of fruit a day.
- Try eating every 2-3 hours including a fruit or vegetable every time you eat.
- Choose low-fat options whenever you can.
- Eat whole grain foods instead of processed food
- Stop eating before you get too full.

Diabetes

Diabetes is a disease that can cause many other health problems. It is important to keep your blood sugar under control in order to:

- Decrease damage to your blood vessels, heart, and other organs
- Help your body heal after surgery
- Prevent infection after surgery

Talk to your regular doctor or diabetic educator about any questions you have about diabetes.

When to Call the Doctor

Infection signs

- Temperature of more than 101 degrees
- Chills
- Incision changes (chest, chest tube site, or graft incision)
  - Increase in pain or tenderness
  - Increase in redness or swelling
  - Area that has broken open
  - New drainage, especially foul smelling, odd color, or pus-like

Belly issues

- Throwing up (vomiting)
- Upset stomach (nausea)
- Watery or hard poop (stools)
- Pain in the belly

Fluid gains

- A gradual weight gain of 3 pounds in 1 day or 5 pounds in 3 days
- Increased swelling in hands and feet
- Shortness-of-breath

Breathing problems

- Shortness-of-breath
- Increased cough with yellow or green mucous

Heart problems

- Palpitations (a pounding heart)
- Irregular heartbeats or feeling your heart skip a beat
- Return of angina like before surgery that lasts

Medicine

- Strong pain that your medicine and other methods of pain relief do not help.
- Questions or concern about side effects.
- If taking a blood thinner, any signs of bleeding: blood on your toothbrush, bruising, bloody nose, blood in urine or stool.

Heart Drawings

Your surgeon may mark these drawings to show you more about your surgery.

Front view of heart

Back view of heart

Notes and Phone Numbers

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