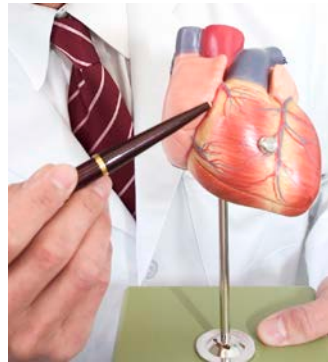


Managing Your Heart Condition



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After Your Heart Procedure

Self-care at home

This handout explains self-care at home for patients who have had a heart procedure.

Medicines

- **For 1 year**, you must take both of these **every day**:
 - An *anticoagulant* (blood-thinning medicine)
 - Aspirin
- **After 1 year**, you will keep taking daily aspirin for the rest of your life.



Take your medicines exactly as prescribed.

When to Call

In the first 30 days after your procedure, call to talk with a nurse or doctor if you:

- Have chest pain
- Cannot eat or drink well
- Gain 3 to 5 pounds in only 1 to 2 days
- Have more swelling in your ankles
- Have more trouble breathing, or need to use more pillows to breathe while sleeping
- Have a new cough
- Have a pulse higher than 100 beats per minute or lower than 55 beats per minute
- Have heart palpitations
- Have blood pressure lower than 100 or higher than 160
- Have changes in your puncture site:
 - Pain gets worse
 - Sudden, firm swelling (about the size of a golf ball)

- Warmth
- Oozing
- Bruising that moves upward (it's normal for bruising to be pulled downward by gravity)
- Have any questions or concerns

Who to Call

To talk with a nurse or doctor:

- Weekdays from 8:30 a.m. to 5 p.m., call the Heart Institute at **206.598.4300** and press 2 when you hear the recording
- After hours or on a weekend or holiday, call **206.598.6190** and ask to page the doctor on call for your interventional cardiologist.

Urgent Care

Call 911 **right away** if you have any of these symptoms:

- Severe or sudden shortness of breath
- Chest pain that is not eased by rest or *nitroglycerine*
- New confusion, or you cannot think clearly
- Severe dizzy spells or you have fainted
- Sudden, severe bleeding or swelling at your puncture site

Daily Log

Use the table on the next page to:

- Record your blood pressure and heart rate 2 times a day. Do this:
 - Before you take your morning medicines
 - AND
 - 6 hours after taking your blood pressure medicine
- Check your weight:
 - At the same time every day
 - Wearing the same amount of clothes every time

We suggest you weigh yourself every morning after you first wake up, without any clothing.

- Also write down how your puncture site looks each day. It may be bruised and sore for 1 week or longer.

Sample CareMap

This chart, called a “CareMap,” shows our usual care plan in the days after a heart procedure. Your care plan may differ.

Day 0: Day of Procedure	Day 1	Day 2: Day of Discharge
<p>After your STEMI (ST-elevation myocardial infarction) heart procedure:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Move from Cath Lab to Critical Care Unit (CCU) or Telemetry Unit <input type="checkbox"/> Bed rest <input type="checkbox"/> Out of bed to chair, move in room if blood pressure stable <input type="checkbox"/> Eat ice chips, if you can <input type="checkbox"/> Make sure you have a primary cardiologist (heart doctor) to manage your care <input type="checkbox"/> Meet with social worker, if needed 	<ul style="list-style-type: none"> <input type="checkbox"/> Take usual home medicines <input type="checkbox"/> Pain under control <input type="checkbox"/> Begin eating and progress diet, as able <input type="checkbox"/> Receive antiplatelet plan for discharge <input type="checkbox"/> Start on new drugs to protect your heart <input type="checkbox"/> Occupational Therapy (OT) and Physical Therapy (PT) evaluation and training: <ul style="list-style-type: none"> - Activities of daily living (ADLs) - Walking 3 times a day - Learn safety precautions <input type="checkbox"/> Discharge date given <input type="checkbox"/> Work on discharge goals <input type="checkbox"/> Patient and family learn about mobility precautions, diet, wound care, medicines <input type="checkbox"/> If your discharge goals are met, you may leave the hospital today 	<ul style="list-style-type: none"> <input type="checkbox"/> Follow-up visits scheduled <input type="checkbox"/> Wound is clean and dry <input type="checkbox"/> Able to move safely within precautions <input type="checkbox"/> Patient and family education on follow-up visits, knowing who and when to call after leaving the hospital <input type="checkbox"/> Shower and dress in own clothes <input type="checkbox"/> Discharge from the hospital

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Heart Institute at UWMC:

Weekdays from 8:30 a.m. to 5 p.m., call 206.598.4300 and press 2 when you hear the recording.

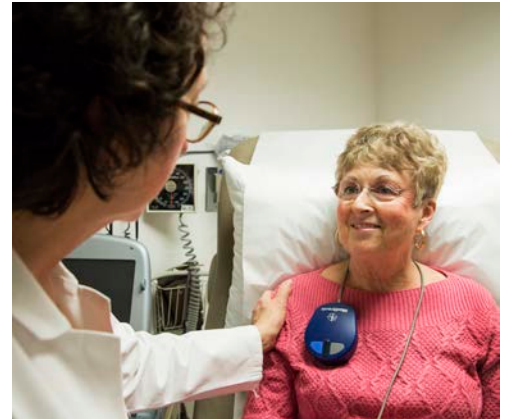
After hours or on weekends or holidays, call 206.598.6190 and ask to page the Cardiologist on call.



After Your Coronary Intervention Procedure

Steps to a healthy heart

This handout gives guidelines for activity, diet, follow-up care, and medicines after your cardiac intervention procedure. It can also help you get started on reducing your specific risk factors for future heart problems.



Your Cardiologist:

Phone: _____

Talk with your cardiologist if you have any questions after your procedure.

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About Your Procedure

At UW Medical Center, heart procedures are done by a special team in the cardiac catheterization laboratory. These procedures are called *coronary interventions*. There are many different interventions that open the heart arteries. Your doctor will choose the one that is best for you.

After your intervention, your heart will get more blood and oxygen. This will help it work better. This handout describes what *you* can do for your heart after you have had the procedure.

What You Can Do: Taking Charge

If there has been heart disease in your family, it increases your risk for having heart problems. You and your doctor cannot control this factor.

But, you can make many changes to improve the quality of your life, and even help you live longer. Do all that you can to change your lifestyle and lower your risk factors for heart disease.

Diabetes and high blood pressure are risk factors that you can control with healthy lifestyle choices and regular medical care. Some other risk factors for heart disease that you have control over are:

- Smoking
- High cholesterol
- Excess weight
- Food choices

Diet

You may resume eating your regular foods, unless your doctor or nurse advised you to change your diet. If you have questions about these changes, you can ask your primary care provider (PCP) for a referral to a dietitian. The dietitian can help you plan meals and snacks for your new food plan.

Pain Control

- You will most likely be sore for 1 to 2 days at the puncture site where the catheter was inserted.
- You may take acetaminophen (Tylenol) to relieve pain. Follow the dose instructions on the package.
- **After your procedure**, stop taking all anti-inflammatories such as ibuprofen (Advil, Motrin) or naproxen (Aleve, Naprosyn). **Do not take them again** unless your cardiologist says it is OK to take them.
- If your doctor prescribed aspirin for your heart, you may take it as usual. But do **not** take extra aspirin for pain control.

Site Care

- You may remove the dressing 24 hours after your procedure.
- Keep the area clean and dry.
- After you remove the dressing, gently clean the site with mild soap and water. Do **not** scrub or rub the area. Pat dry with a clean towel.
- For the next 3 days, watch for signs of infection. Call the cardiologist who did your procedure if you see:
 - Redness around the site
 - Fever higher than 101.5°F (38.6°C)
 - Drainage at the site
- You may have a bruise where the catheter was inserted. If the catheter was inserted through your groin, the bruise may spread down your leg. It may take 2 to 3 weeks for the bruise to go away

When to Call for Help

If you have sudden, heavy bleeding or a lot of swelling that you cannot control, apply firm pressure to the site and call 911.

Call 206.598.6190 and ask to page the Cardiology I Fellow on call if you have:

- **Drainage** from the site
- A lot of **redness** around the site

Bleeding

If you have light or moderate bleeding or swelling at the site, use clean fingers to apply pressure on it for 10 minutes.

- If bleeding does not stop or swelling does not go down in 10 minutes, **call 911 right away**. Keep applying pressure until help arrives.
- **If your catheter was placed in your arm:** If the bleeding stops or the swelling goes down, sit quietly for 2 hours. Do **not** bend the affected wrist. Call the Cardiology I Fellow who did your procedure as soon as you can.

Other Concerns

Also call the cardiologist who did your procedure if you have:

- Any of these **signs of infection**:
 - Redness
 - Fever higher than 101.5°F (38.6°C)
 - Drainage
 - Change in the bruise or lump at the insertion site
- **Numbness** in your arm or wrist (if a catheter was placed in your wrist)
- **Severe pain** that is not relieved by acetaminophen (Tylenol)

Medicines After Your Procedure

- If you had a stent placed, you will take:
 - Aspirin to prevent blood clots in the artery where the stent was placed.
 - A blood-thinning medicine similar to aspirin that will help prevent blood clots. One of these is called clopidogrel (Plavix), but your cardiologist may prescribe a similar medicine with a different name.
- For minor pain, you may take acetaminophen (Tylenol), either regular (325 mg) or extra strength (500 mg). Do **not** take more than 4 gm (4,000 mg) in a 24-hour period.
- Resume all your prescribed medicines. Call your doctor if you have side effects. Do not stop taking the medicines unless your doctor tells you to.
- **Carry a list of your medicines with you at all times.**
- **Bring all your medicines with you whenever you see your doctor.** This includes vitamins and herbal supplements.

Follow-up Care

- Schedule a follow-up visit with your heart doctor (cardiologist) or primary care provider (PCP). **Do not miss this appointment.**
- Your first follow-up visit will be with a provider from the Interventional Cardiology Team. This visit will be about 1 week after your discharge from the hospital.
- Keep taking your prescribed medicines unless your provider tells you otherwise.
- After your procedure, the artery in your heart can become blocked again. Watch for the same symptoms that you had before the procedure. Call your doctor right away if your symptoms return.



If You Have Angina Symptoms

Remember the American Heart Association's advice on using nitroglycerin:

1. Place a nitroglycerin pill under your tongue.
2. If the angina does not go away in 5 minutes, place a 2nd nitroglycerin pill under your tongue.
3. Wait 5 minutes, and if you still have angina, place a 3rd nitroglycerin pill under your tongue.
4. If you still have pain after 15 minutes and you have used 3 nitroglycerin pills, do **NOT** drive yourself to the hospital! **CALL 911.**

Risk Factors

Smoking

Smoking is one of the greatest risks for heart disease:

- The tar and nicotine in tobacco smoke cause your arteries to narrow and *spasm* (contract).
- Carbon monoxide in the smoke reduces the natural blood-thinning effects of your artery walls. This can lead to the artery that your doctor opened becoming blocked again.

If you smoke, you need to stop NOW. You should also avoid being in the same room with anyone who is smoking.

If you use nicotine patches or nicotine gum to stop smoking, **do NOT smoke** while you are using them. Smoking while using nicotine products may cause a stroke or heart attack.

Local Stop-smoking Programs

The American Cancer Society has a list of stop-smoking programs in the Seattle area. If you live outside the Seattle area, they will be glad to refer you to a program or agency in your area.

Call the Washington Division of the American Cancer Society at 800.ACS.2345, or call or write to one of these agencies:

- **American Cancer Society**
206.937.7169 (www.cancer.org)
4535 California Ave. S.W., Seattle, WA 98116
- **American Heart Association**
206.632.6881 (www.heart.org)
4414 Woodland Park Ave. N, Seattle, WA 98103
- **American Lung Association**
206.441.5100 (www.lung.org)
2625 Third Ave., Seattle, WA 98121

Diet, Weight, and Cholesterol

What you eat (your diet) is a very important part of treating and preventing artery blockages after your procedure. By eating the right foods and exercising, you can also control or lose weight.

For heart patients, we advise you to:

- **Restrict your intake of both saturated and unsaturated fats.** The goal is to decrease the level of fats in your blood. These fats can cause blockages in your arteries.

- **Eat foods that are low in cholesterol.** Ask your PCP if you need medicine to lower your cholesterol.
- **Avoid foods that are high in sodium (salt)** to prevent high blood pressure.
- **Limit coffee, tea, and other drinks that contain caffeine.** Caffeine stimulates your heart and makes it work harder.
- **Lose extra weight.** Follow a healthy weight-reducing diet with your doctor's help.
 - Plan to lose weight by changing your lifestyle and eating behaviors.
 - Do **not** go on a crash diet. Most people who lose weight on crash diets gain back the weight when the diet is over. And, crash diets can damage your heart and other organs.
 - For diet suggestions, visit the American Heart Association website at www.heart.org. Click on "Healthy Living" and then "Healthy Eating."

Exercise

Aerobic exercise requires your body to use more oxygen. This type of exercise will help you lose weight. It will also help you feel better. Make aerobic exercise a part of your daily routine. Talk with your PCP before starting any new exercise, and add new activities slowly.

- **Walking** is a great way to exercise. Start with a 5-minute stroll at an easy pace, and add a minute or so every few days. Slowly work up to a 30- to 60-minute brisk walk, 4 to 5 times a week.
- **Swimming** is also a great workout for your heart, but weight loss from swimming will be slower. This is because your body produces fat to insulate you from the water. If you like to swim, include it in your exercise program, but also keep walking.

Changes in Your Diet Can Make a Big Difference!

Improve your heart health by choosing foods from the “OK” column in the table on the next page. The foods in the “Avoid” column may be harmful to your heart and blood vessels

Foods to Eat and Foods to Avoid

Food	OK	Avoid
Vegetables	Fresh, frozen, or canned vegetables without saturated fat; baked beans with no bacon or fat	Buttered, creamed, or fried vegetables; pork and beans
Fruit	Fresh, frozen, canned (packed in juice), or dried fruit or juices, avocado in small amounts	Coconut
Breads, Grains, Cereals, and Pastas	Whole grain, raisin, French, white, and rye breads; bagels, graham crackers, pretzels, and other low-fat crackers; cold and hot cereals and other grain products such as pasta, rice, barley, oats, and others	Egg noodles, rolls or bread made with egg yolks or saturated fats (most store-bought baked goods)
Dairy	1% or nonfat milk, buttermilk, nonfat yogurt, 1% or nonfat cottage cheese, sherbet, nonfat frozen yogurt	Ice cream, cream cheese, sour cream, whipped topping, cream substitutes that contain coconut or palm oil, chocolate milk, evaporated milk, condensed whole milk
Protein Foods	Chicken and turkey (without skin), lean beef, veal, pork, lamb, fish and shellfish (boiled, baked, or steamed), tofu, legumes, egg whites, egg substitutes	Egg yolks, heavily marbled or fatty meats (luncheon meat, bacon, sausage), organ meats (liver, brain, kidney, sweetbreads)
Fats	Safflower oil, corn oil, cottonseed oil, sunflower oil, sesame oil, canola oil, olive oil, soybean oil, peanut butter, soft margarine	Butter, cream, lard, bacon, meat drippings, cocoa butter (chocolate), coconut oil, palm oil
Beverages	Fruit and vegetable juices, water, buttermilk, carbonated beverages, decaf coffee and tea, low-fat (1%) milk, skim milk	Cream, whole milk, evaporated whole milk, coffee and tea with caffeine
Desserts	Angel food cake, Jell-O, meringue pies, frozen yogurt, nonfat ice creams, and baked goods made with allowed ingredients, such as polyunsaturated fats, skim milk, egg whites	Baked goods that contain whole milk, saturated fats, egg yolks, cashews, macadamia nuts, chocolate
Sweets and Snacks	Jams, jellies, honey, syrup, fat-free candy, popcorn with no butter added	Chocolate, caramel, butter mints, fudge, buttered popcorn

Stress

Tension, anxiety, emotional upset, pressure, and strain are all forms of stress. When you are under stress, your blood pressure rises and your heart beats faster. This makes your heart work harder.

You can't always control stress in your life, but you can control how you respond to it. Think about going to a class or workshop to learn ways to cope with stress. Check with local colleges and community groups such as the American Heart Association (see page 5). Ask your doctor or nurse for more information.

If you are feeling stressed, try using one of these methods to help you relax and lower the effects of stress on your body:

Deep Breathing

When we are tense, we often breathe faster, more shallowly, and out of rhythm. To lower stress:

- Breathe in slowly through your nose. Let your abdomen expand like a balloon.
- Breathe out slowly through pursed lips. Let your jaws relax.
- Repeat this relaxed breathing until you feel the tension going away.

Relaxing Your Muscles

Starting with your toes and slowly moving up to your face, tighten and then relax 1 group of muscles at a time. When you are finished, notice how much lighter your muscles feel.

Imagery

Visualize a situation that has been calming to you in the past. Imagine, as clearly as you can, doing whatever relaxes you most. You may see yourself lying on a beach with the sun warming you, hearing the sounds of the waves, and feeling the warm sand. As you imagine this pleasant setting, your tension will lessen and go away.

Or, you might imagine that a bright light is shining down on you. Imagine that you slowly lift your face and look at the source of the light. Feel the white light flood through your body. As it fills you, picture your tension as red light leaving your body through your feet.

To Learn More

Talk with your nurse or doctor if you have any questions. For instance, you may want to know about when to return to work, or you may have questions about resuming intimacy and sexual activity.

Your doctor can also refer you to a dietitian. A dietitian can help you create an eating plan that will work for you.

Take good care. The best of health to you.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

- **For general questions** weekdays from 8 a.m. to 5 p.m., call the Heart Institute at UWMC at 206.598.4300. Press 2 when you hear the recording.
- **For questions related to your procedure** weekdays from 6:30 a.m. to 8 p.m., call Cardiac Procedures at 206.598.7146. Ask to talk with a nurse.
- **For urgent concerns related to your procedure**, or if it is after hours or on a weekend or holiday, call 206.598.6190 and ask to page the Cardiology I Fellow on call.

Anti-Platelet Medicines

What they do, how to take them, and precautions

This handout explains why you may be prescribed clopidogrel, prasugrel, or ticagrelor after your percutaneous coronary intervention (PCI). It includes precautions and when to call the doctor or nurse.

What are anti-platelet medicines?

These medicines are *platelet inhibitors*. They work like aspirin. They keep platelets in your blood from clumping together (*clotting*) in the inner lining of your blood vessels, in your heart, and in other areas of your body. Anti-platelet medicines are also called blood thinners.

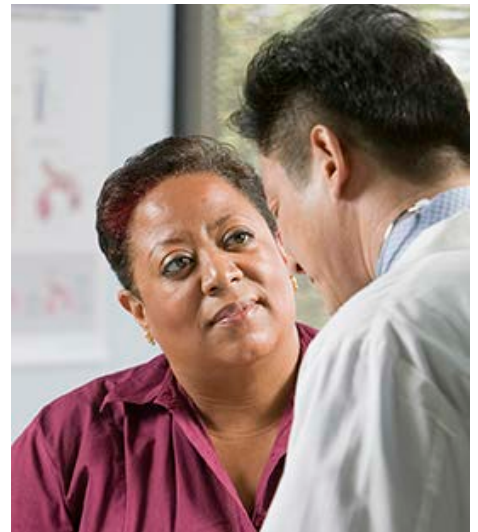
Anti-platelet medicines help prevent blood clots. They will help keep your stent open. In patients who have had *percutaneous coronary intervention* (PCI) or have had a heart attack, these medicines have reduced future heart attacks.

These medicines are not advised for patients who are allergic to them or have an active bleeding condition. Two of these are bleeding in the brain or bleeding in the digestive system (*gastrointestinal tract*).

Your provider may instruct you to take aspirin along with this medicine.

How to Take Your Medicine

- You were prescribed:
 - Clopidogrel (Plavix)
 - Prasugrel (Effient)
 - Ticagrelor (Brilinta)
- Take _____ mg a day for _____ (month/s).
- If you forget to take a dose at your usual time, take it as soon as you remember that day.
- Resume all your other medicines as instructed.



Talk with your provider if you have any questions about taking your medicine.

Precautions

- While you are taking this medicine, bleeding will take longer to stop. Try to avoid rough sports or activities where you could injure yourself.
- You may also have nosebleeds, or you may have blood in your urine or stool. Call the provider who prescribed your anti-platelet medicine if this happens.
- Tell your dentist and other providers who treat you that you are taking anti-platelet medicines.
- Keep taking your anti-platelet medicine until your cardiologist or the healthcare provider who prescribed it for you tells you to stop. Do **not** just stop taking it.
- Caution is advised in certain situations. Tell your provider if you:
 - Know you are allergic to your anti-platelet medicine
 - Are pregnant
 - Are breastfeeding
 - Have kidney or liver problems
 - Have a bleeding condition (see page 1)

When to Call

Call your provider who prescribed your anti-platelet medicine if you have any of these symptoms:

- Skin rash
- Allergic reaction such as itching or swelling in your hands, face, or throat
- Trouble breathing
- Blood in your stool (stool will look black or tarry)
- Fever, chills, or sore throat
- Swelling in your ankles, hands, or feet
- Red or dark brown urine
- Sudden weight gain
- Chest pain that is not related to your disease
- Severe pain in your stomach

Also, tell your provider if you do not have health insurance or if you lose your coverage. You may be eligible for financial aid to cover the cost of your anti-platelet medicine.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

For questions about your procedure, call Cardiac Procedures weekdays from 6:30 a.m. to 9 p.m.:
206.598.4300

After hours and on weekends and holidays, call 206.598.6190 and ask to page the Procedural Cardiology Fellow on call.

Cardiac Rehabilitation

The next step in your heart recovery

This handout explains what to expect from cardiac rehabilitation.

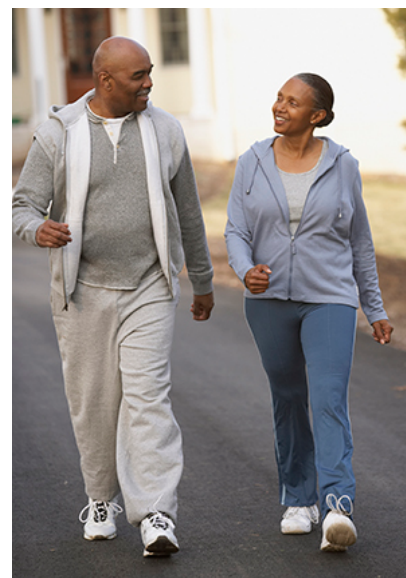
What is cardiac rehabilitation?

Cardiac rehabilitation (cardiac rehab) is a program for patients who are recovering from heart surgery or other heart conditions. It includes exercise and education. The Heart Institute at University of Washington Medical Center (UWMC) and the American Heart Association advise heart patients to take part in cardiac rehab.

Cardiac rehab is supervised and taught by a team of healthcare providers, including a cardiologist.

Cardiac rehab includes:

- Exercise training
- Learning about physical activity
- Learning about managing blood pressure, cholesterol, weight, and diabetes
- Counseling on making healthy food choices, quitting tobacco use, and managing stress



In cardiac rehab, you will learn about heart-healthy exercise.

Why should I consider cardiac rehab?

Your care team suggests that you exercise regularly as part of your recovery. Cardiac rehab is the next step in returning to a more active lifestyle.

Studies show that cardiac rehab offers many benefits to heart patients. These benefits may include a longer life and a lower risk of having a future heart event.

You will take part in phase I (inpatient) cardiac rehab while you are in the hospital. When you leave the hospital, your doctor will refer you to phase II (outpatient) cardiac rehab to continue your recovery.



In cardiac rehab, you will learn how to monitor and reduce your blood pressure and other risk factors.

What can cardiac rehab do for me?

Cardiac rehab can help you:

- Get stronger and healthier
- Learn to make healthy choices and develop a lifestyle that helps you live a longer, more enjoyable life
- Be part of a group for exercise and support as you make lifestyle changes

These positive changes can make a big difference for you, and for your family.

Phases of Cardiac Rehab

Cardiac rehab is divided into 3 phases:

Phase I (Inpatient)

In phase I, your care team in the hospital will:

- Teach you more about your heart condition(s)
- Suggest ways for you to reduce your risk factors
- Teach you to move safely, while following any restrictions that your doctor advises
- Teach you how to safely start a walking (or other exercise) program

The focus of phase I cardiac rehab is to help you get back to your normal lifestyle. It also prepares you for phase II cardiac rehab.

Phase II (Outpatient)

Before you leave the hospital, your doctor will refer you to an **outpatient cardiac rehab program**. This is phase II cardiac rehab. It involves:

- Up to 12 weeks of ECG-monitored exercise
- Ongoing education about reducing your risk factors
- Resources to support your lifestyle changes

In phase II, you will:

- Exercise using a treadmill, stationary bike, rowing machine, or walking or jogging track
- Start slowly and build a safe exercise program that will help you get stronger
- Slowly move into a more intensive program that lets you work out longer and harder

- Have your heart rate, blood pressure, and ECG monitored by your health care providers
- Attend classes in healthy lifestyle changes, nutrition, and reducing cardiac risk factors

Phase III

Phase III cardiac rehab is a continued outpatient exercise and education program. It provides exercise training with some ECG monitoring. The goal is for you to progress to an exercise program you can do on your own. The length of this phase will depend on your needs and progress.

How do I qualify for outpatient cardiac rehab?

To qualify for outpatient cardiac rehab (phase II and phase III), you must have 1 or more of these conditions:

- Heart attack in the last 12 months
- Coronary artery bypass surgery (CABG)
- Stable *angina pectoris* (chest pain)
- Heart valve repair or replacement
- *Angioplasty* or *coronary stenting* (procedures to improve blood flow in arteries)
- Heart transplant
- Heart failure*

* To qualify for outpatient rehab after heart failure, you must be medically stable for at least 6 weeks and have an *ejection fraction* (EF) of 35% or less. Ask your cardiologist if you have any questions about whether you qualify.

Questions?

Your questions are important. Your physical therapist will answer your questions about exercise during your therapy sessions in the hospital.

Call your doctor or healthcare provider if you have questions or concerns about your medical care.

Will health insurance cover all phases of cardiac rehab?

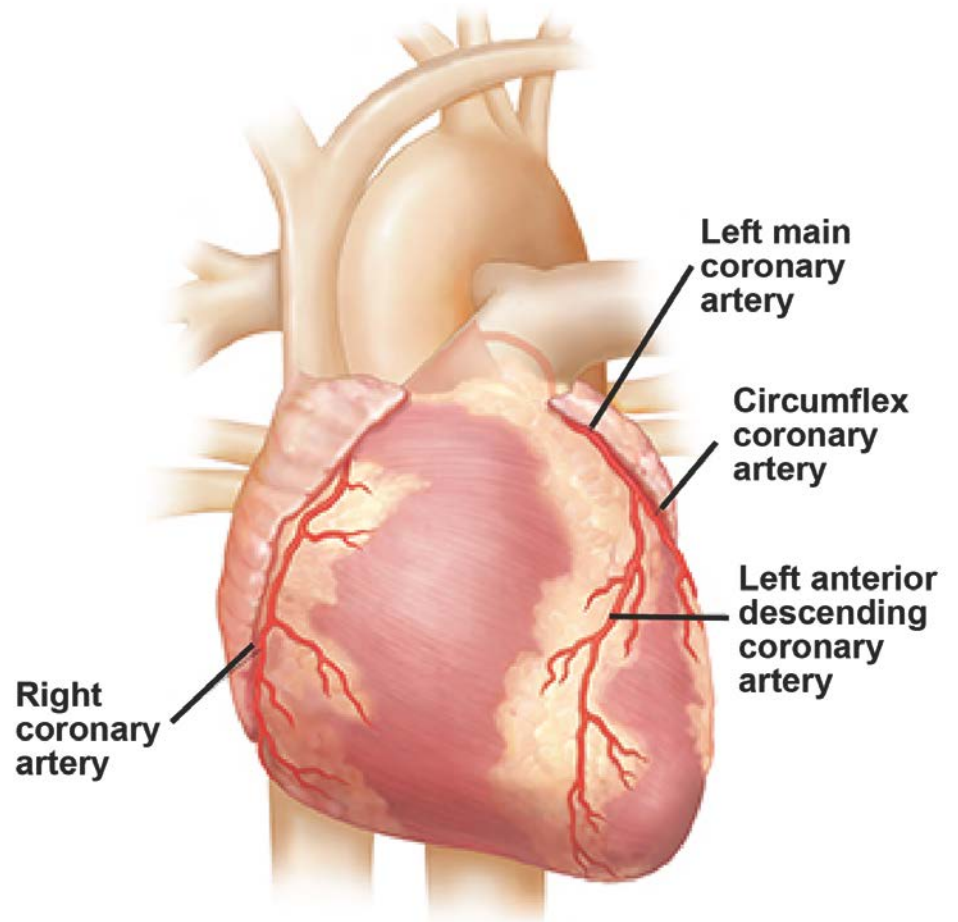
Health insurance companies usually cover phase I and phase II cardiac rehab for the conditions listed above. Most people must pay for phase III themselves.

If you have questions, talk with your insurance company or with the staff of the cardiac rehab program. Ask them what your insurance will cover.

The Heart and Heart Disease

How the heart works and what happens when arteries are blocked

This handout explains heart disease. It describes the structure and function of the heart, types of heart disease, risk factors for heart disease, and what happens during a heart attack.

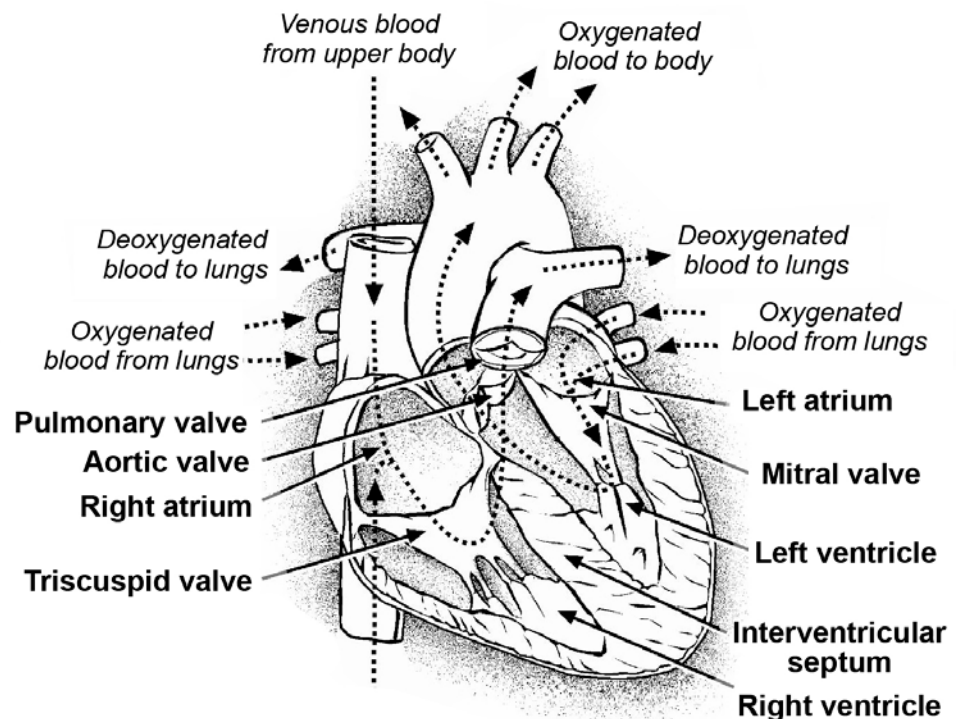


The Heart and How It Works

The heart is a muscle. It lies a little to the left of center in your chest. It is protected by the *sternum* (breastbone) and rib cage.

The heart's job is to pump oxygen-rich blood from the lungs and send it to all parts of the body. It pumps about 5 quarts of blood each minute.

The heart has 4 chambers that are each about the size of a fist. The 2 chambers on top are called the *atria*. This is where the blood collects. The lower chambers are called the *ventricles*. Blood is pumped out of these chambers. The heart has 4 one-way valves that keep blood flowing in the right direction.



Text in italics shows how blood flows through the heart.

The heart muscle needs oxygen and nutrients to work well. It receives nourishment from a system of arteries called the *coronary arteries*. They branch and divide so that the entire heart is provided with oxygen-rich blood.

Heart disease, or *coronary artery disease* (CAD), occurs when the coronary arteries become blocked. This can cause *angina* (chest discomfort) or heart attacks.

About Coronary Artery Disease

Coronary artery disease is also called *coronary atherosclerosis* or *ischemic heart disease*. In these conditions, changes occur in the heart arteries that restrict oxygen supply to the heart muscle. This is a slowly *progressive* disease (it gets worse over time).

As the disease gets worse, the inner layer of the artery becomes thick and irregular. Cholesterol and calcium start to build up on the artery wall. This buildup is called *plaque*. As plaque builds, the artery narrows. This blocks the normal blood flow.

A spasm in the wall of the artery may also cause the blood vessel to narrow.

When a coronary artery is blocked from either a spasm or plaque, it can cause *ischemia*. This is a short-term decrease in the supply of oxygen-rich blood to part of the heart muscle.

Angina

The most common symptom of coronary artery disease is *angina pectoris*. This discomfort is often felt in the chest. It can also occur in the neck, arms, back, or jaw. Angina is often described as “pressure” or “tightness.” It can vary from a mild ache to a severe crushing feeling. It may go away and come back many times.

Angina can occur during exercise, from being out in the cold, after a heavy meal, with emotional stress, or when you are overly tired. At these times, the heart muscle needs more oxygen than the partly blocked coronary artery can supply.

Most times, angina lasts only a few minutes. It is often eased by resting or by taking *nitroglycerin*. This medicine quickly expands the coronary arteries and increases the blood supply to the heart.

There are 2 types of angina:

- *Stable angina* is chest pain that occurs when you are physically active or under or emotional stress. This type of angina goes away when you rest.
- *Unstable angina* is chest pain that occurs when you are at rest. It lasts longer than a few minutes. Over time, it may start to occur more often, and when you do not expect it.

Heart Attacks

A heart attack occurs when the blood supply to the heart is suddenly blocked. This causes damage to the heart muscle. A heart attack is also called *acute coronary syndrome*.

Coronary atherosclerosis is linked with heart attacks. Atherosclerosis is a disease in which *plaque* (deposits of cholesterol and other fatty substances)

begins to line the inner walls of arteries. Sometimes, this plaque bursts and causes a blood clot to form. The clot stops blood flow, which causes a heart attack.

When you have a heart attack, part of your heart muscle dies because the supply of blood and oxygen is stopped or greatly reduced. The heart muscle surrounding the area may be injured, too. After a heart attack, your heart may not be able to pump as well. The more heart damage there is, the more your heart loses its ability to work.

As the damaged part of your heart heals, scar tissue forms in the area. The healing process takes about 4 to 6 weeks, but it will depend on the extent of heart injury and how fast you heal. Some people may need *angioplasty* or *coronary stents* to help restore blood flow to certain areas of the heart. (See page 6 to learn about these treatments.)

In the hospital, we will restrict your activity for the first few days after your heart attack. After that, you must limit your activity until your heart has time to heal. After a heart attack, most people can resume their normal activities within a few weeks to months.

Symptoms

A heart attack can occur suddenly, and at any time or place. Most people do feel symptoms, but you can have a heart attack and not have any symptoms.

If you have a heart attack, you may:

- Feel pain or discomfort in your chest, jaw, shoulders, arms, or upper abdomen
- Sweat
- Be short of breath
- Have nausea
- Be lightheaded

These symptoms can be quite severe for some people. For others, the symptoms may be mild or come and go.

- **Women:** It is common for women to have chest pain or discomfort when they have a heart attack. But, women are a little more likely to feel short of breath, have nausea and vomiting, and have back or jaw pain.
- **Older adults:** Your heart attack symptoms may include fainting, weakness, or confusion. Do not ignore these symptoms. Get them checked right away to avoid serious illness or death.

What to Do

Early treatment can increase the chances of surviving a heart attack. It can also help to prevent too much damage to the heart muscle. About 30% of people (30 out of 100 people) who have heart attacks die before they reach the hospital because they waited too long to call for help.

- If you have any heart attack symptoms, **get help right away**. Getting help quickly can mean the difference between life and death.
- If you think someone else is having a heart attack, **call 911 right away**. Do **not** take the time to drive the person to the emergency room.
 - The 911 dispatcher may tell you to give the person aspirin while waiting for help to arrive. If the dispatcher does not tell you to do this, do **not** give the person aspirin. Aspirin can be harmful in some heart attacks.

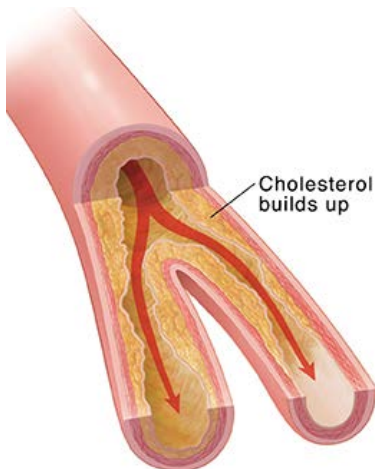
After a Heart Attack

If you have already had a heart attack, you are at risk for having another. Your provider may prescribe a medicine such as nitroglycerine for you to take if you have chest pain.

Remember to take all medicines exactly as your provider prescribes. Do **not** stop taking them without talking with your provider first.

If You Have Diabetes

Over time, high blood sugar can damage the nerves in your body. This may keep you from feeling pain, leading to a “silent” heart problem. If you cannot feel symptoms, you may not realize that you are having a heart attack. Talk with your provider about how to lower your risk for silent heart problems.



Cholesterol can build up in your arteries and limit blood flow.

If You Have High Cholesterol

Cholesterol is a fatty substance that builds up in your bloodstream. It combines with other substances to form plaque. Too much plaque narrows your arteries and limits blood flow.

High cholesterol can cause any artery in your body to become narrow. When you have high cholesterol, you have a higher risk for heart attack (*acute myocardial infarction*), heart disease, or stroke.

If your cholesterol is high, you can take steps to bring it down. Eating the right foods and getting enough exercise can help. Some people also need medicine to control their cholesterol. Talk with your provider about a plan to control your cholesterol.

