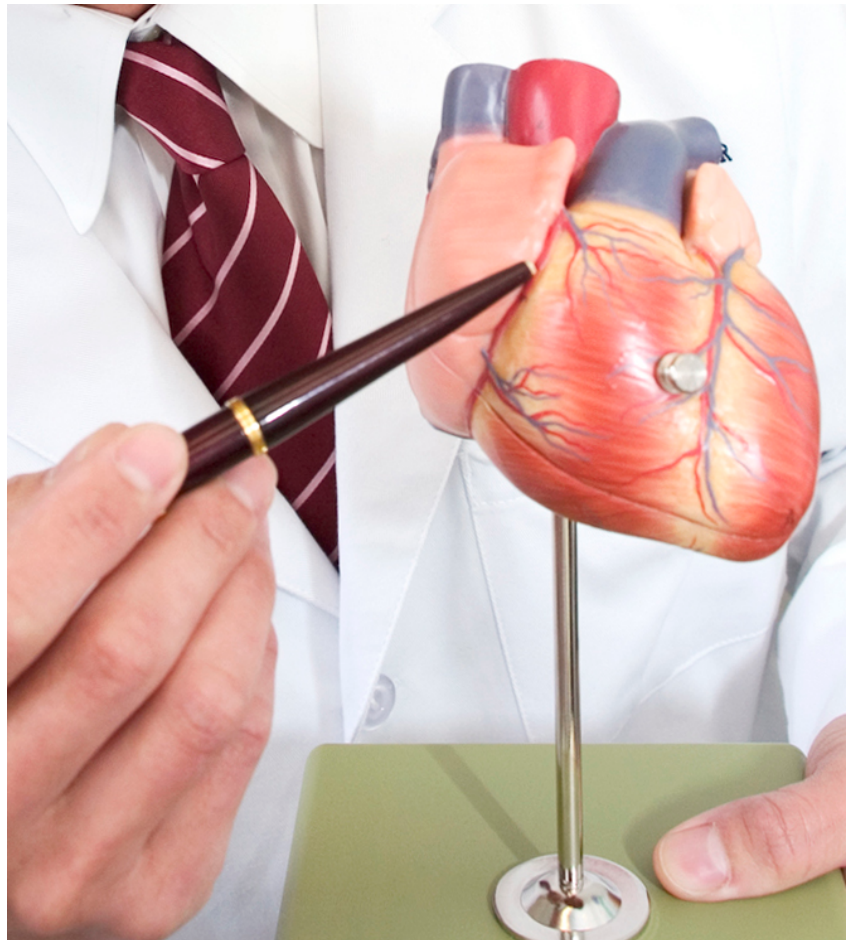


Heart Disease



This manual explains heart disease. It includes:

- *The structure and function of the heart*
- *Types of heart disease*
- *Risk factors*
- *Types of heart tests*
- *Resources to help you learn more*

Heart Disease

How the Heart Works

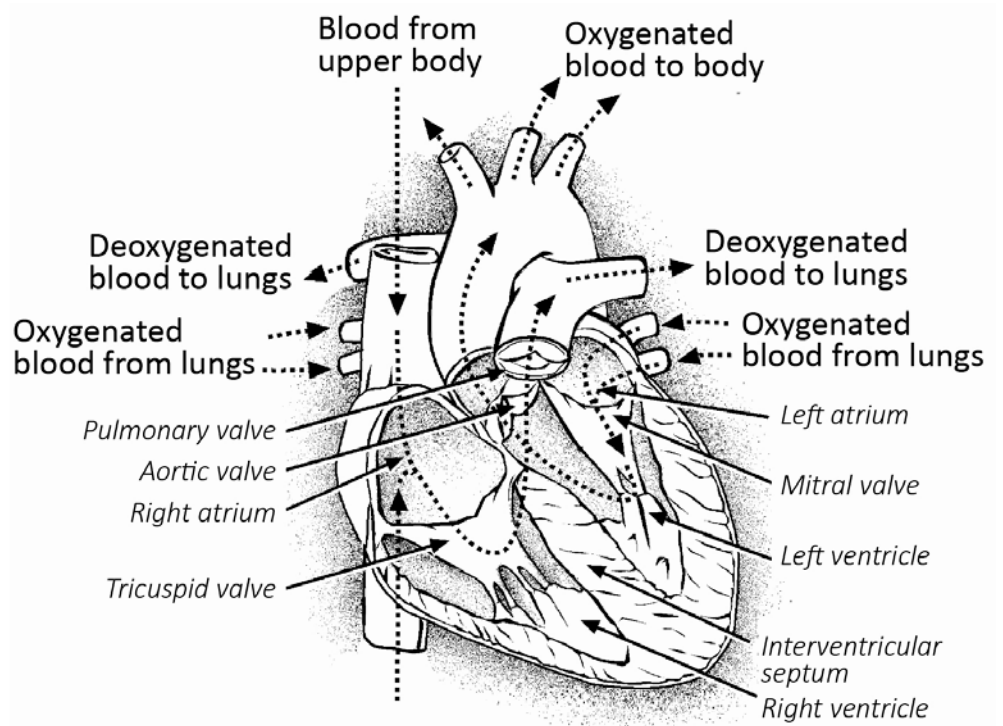
The heart is one of the main organs in the body. It lies in the chest, slightly to the left of center. It is protected by the *sternum* (breastbone) and rib cage.

The heart is a muscle. It pumps *oxygenated blood* (blood filled with oxygen) from the lungs to all parts of the body. Each minute, it pumps about 5 quarts of blood.

There are 4 chambers in the heart:

- The 2 chambers on top are the left and right *atria*.
- The 2 lower chambers are the left and right *ventricles*.

Each chamber is about the size of a fist. There are 4 one-way valves between these chambers that keep blood flowing the right way.



How blood flows through the heart

How Blood Flows in the Heart

Veins bring blood from all over the body to the right atrium. The blood flows from the right atrium to the right ventricle and is then pumped to the lungs.

In the lungs, carbon dioxide (CO₂) is removed and replaced with oxygen. The blood comes back to the heart into the left atrium. From there, it flows to the left ventricle and is pumped into the aorta. Arteries carry this oxygen-rich blood to the rest of the body.

How the Heart Beats

The heart relies on an *electrical impulse* to keep it beating. Special cells in the heart send out electrical currents that stimulate the heart muscle and cause it to contract. Steady electrical signals are produced by your heart's "natural pacemaker," the *sinoatrial* (SA) node. The SA node is in the upper right atrium.

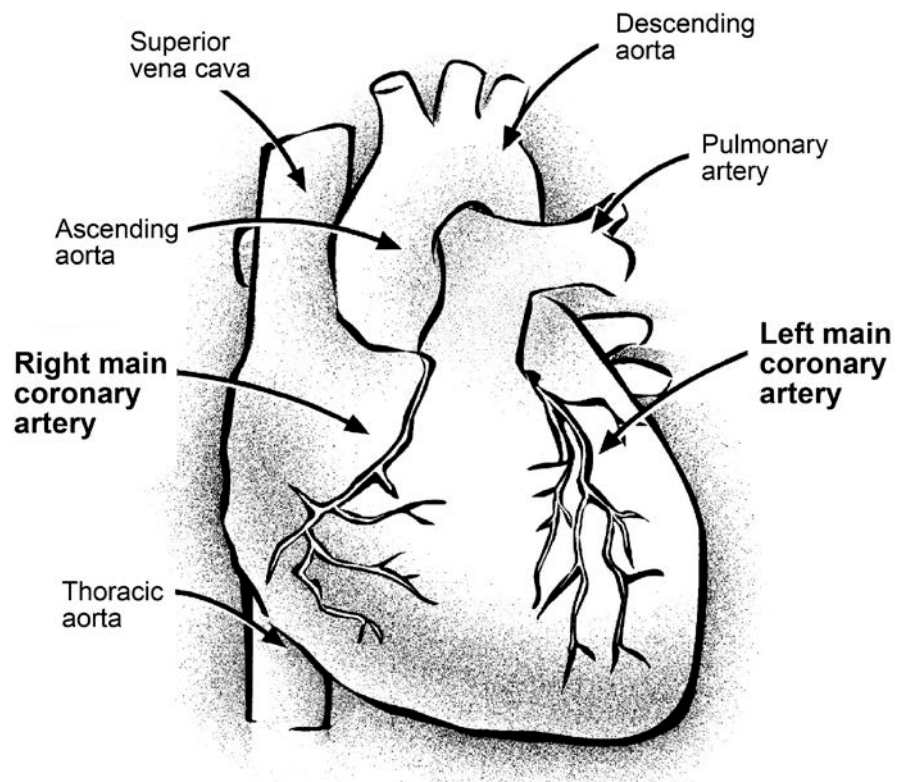
The electrical signal travels through the atria to an area in the middle of the heart called the *atrioventricular* (AV) node. Special pathways then carry the signal from the AV node to all parts of both ventricles, causing them to contract. This sequence of events is called *normal sinus rhythm*, and can be recorded during an electrocardiogram (ECG).

Normally, a heart beats 60 to 80 times per minute. The surge of blood with each beat is felt as a *pulse*. At times, the heart's electrical system may develop a problem that prevents the electrical signals from regularly reaching the pumping chambers or that causes the signals to be delayed or erratic. Abnormal rhythms such as these are referred to as "arrhythmias."

How the Heart Is Nourished

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

The *right coronary artery* supplies blood to the right side of the heart. The *left coronary artery* has 2 main branches – one extending to the front, the other to the back of the heart. *Coronary artery disease* occurs when the coronary arteries become blocked, which can cause *angina* or heart attacks.



The arteries of the heart

Coronary Artery Disease

Coronary artery disease (CAD) also refers to problems in the coronary arteries that restrict oxygen supply to the heart muscle. CAD is also called *coronary atherosclerosis* or *ischemic heart disease*. This is a slowly progressive disease (it gets worse over time). The inner layer of the artery becomes thickened and irregular, developing deposits of cholesterol and calcium.

These deposits are called *plaque*. As the plaque gets thicker, the artery narrows. This process causes blocks in the normal blood flow.

A spasm in the wall of the artery may also cause the blood vessel to narrow. Narrowing or blockage of a coronary artery from either a spasm or plaque can result in *ischemia*, a short-term decrease in the supply of oxygen-rich blood to a portion of the heart muscle.

Angina

The most common symptom of coronary artery disease is *angina pectoris*. Angina is pressure or tightness, often felt in the chest. At times, it is felt in the neck, arms, back, or jaw. It can vary from a mild ache to a severe crushing feeling throughout the chest.

Angina can occur:

- During exercise
- When exposed to cold
- After a heavy meal
- With emotional stress or fatigue

Angina occurs when heart rate and blood pressure increase because a partly blocked coronary artery keeps the heart muscle from getting the oxygen it needs. Angina usually lasts only a few minutes. It is often eased by resting, or by taking a medicine called *nitroglycerin*. Nitroglycerin quickly expands the coronary arteries and increases the blood supply to the heart.

- *Stable* angina is chest pain brought on by physical exertion or emotional stress, but goes away with rest.
- *Unstable* angina is chest pain that occurs at rest, lasts longer than a few minutes, or comes on with increasing or unpredictable frequency.

Treatment for angina includes medicines and procedures such as balloon and laser angioplasty, atherectomy, coronary stent placement, and coronary artery bypass graft (CABG) surgery.

Heart Attack

A heart attack occurs when blood supply to the heart is suddenly blocked. This damages the heart muscle. This is also known as *acute coronary syndrome*.

Coronary atherosclerosis is linked with heart attacks. Atherosclerosis is a disease in which deposits of cholesterol and other fatty substances begin to line the inner walls of arteries. This is called *plaque*. This plaque can burst and cause a blood clot to be formed. The clot stops blood flow and a heart attack occurs.

When you have a heart attack, part of your heart muscle dies because the supply of blood and oxygen is stopped or severely reduced. The heart muscle around this area may be injured as well. Some of your heart's ability to pump is reduced in a heart attack. The more damage occurs during a heart attack, the greater loss in heart function.

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, coronary stents, or coronary artery bypass graft surgery to help restore blood flow to certain areas of the heart.

While you are in the hospital after a heart attack, your activity will be restricted for the first few days. After that, activity is limited until your heart has had time to heal. After a heart attack, most people resume normal activities within a few weeks to months.

Signs of a Heart Attack

Symptoms that occur with a heart attack may include:

- Pain or pressure in the chest, jaw, shoulders, arms, or upper belly
- Sweating
- Feeling short of breath
- Nausea
- Feeling light-headed

Heart attacks can occur suddenly, and at any time. Most people have some or all the signs of a heart attack, but some do not have any signs at all. The symptoms may be severe or mild, or they may come and go.

If you or someone you know has any or all of these symptoms, get help **right away**. About 30% of people who have heart attacks die from them before they reach the hospital, because they delay calling for help.

Minutes count. They can mean the difference between life and death. Early treatment can increase the chances of surviving a heart attack and can help to prevent some of the damage to the heart.

Treatments After a Heart Attack

When your heart is damaged, it is more likely to have abnormal heart rhythms (*arrhythmias*). The most serious of these arrhythmias is *ventricular fibrillation* (VF), in which the heart stops pumping blood. While you are in the hospital, we will closely watch your heart rhythm. We can give you a “shock” to restore normal heart rhythm if VF occurs.

Some treatments can lessen the amount of permanent damage to the heart during a heart attack. These include:

- *Thrombolytic therapy*, an infusion of clot-dissolving medicines to restore blood flow
- *Percutaneous transluminal coronary angioplasty* (PTCA) or *balloon angioplasty* to increase blood flow to the affected part of the heart
- *Coronary stents*, implanted to help keep the coronary arteries open

These treatments work best if they are used in the first 1 to 2 hours after a heart attack. Seek medical attention right away if you have any symptoms that may be linked to a heart attack.

Cardiac Risk Factors

Coronary heart disease (CAD) is a slowly progressive disease. This means it gets worse over time.

Many factors can increase a person's risk of developing CAD. Risks for CAD are either *controllable* and *uncontrollable*.

- **You cannot control these risk factors:**

- Family history of CAD
- Male gender

- **You can control these risk factors:**

- Smoking
- High blood pressure
- Elevated blood cholesterol
- Diabetes
- Stress, being a "type A" person
- Weight
- Sedentary lifestyle

Family History/Heredit

Some people develop CAD when they are young adults. If heart disease runs in your family, do your best to reduce other risk factors you may have that can be controlled, such as smoking or stress. Encourage other family members to do the same, to lessen their risk of problems.

Male Gender

Heart disease is more common in men than women. But, when women reach menopause and their hormones change, their risk increases. Many people do not realize that heart disease is the most common cause of death in women.

Smoking: The Top Risk Factor

Smoking doubles a person's risk for having a heart attack. It also increases their risk of developing pneumonia, emphysema, lung cancer, and other respiratory diseases.

Quitting smoking is the **single most important thing you can do** for your heart and lungs. Studies show that exposure to 2nd-hand smoke also puts nonsmokers at risk for developing lung cancer and other respiratory illnesses.

When you stop smoking, your body starts to repair itself, unless the damage is extreme. Your risk for heart disease starts getting less on the day you quit smoking. It is similar to that of nonsmokers within 3 to 5 years.

Some ways smoking harms the heart:

- Reduces oxygen to the heart muscle
- Causes narrowing and spasm of the arteries, leading to higher blood pressure and heart rate, both of which make the heart work harder
- Increases chance of blood clots
- Leads to unhealthy blood cholesterol levels

Benefits of quitting smoking:

- Lower risk of developing heart disease, lung disease, and cancer
- Better sense of taste and smell
- Have more energy
- House and clothes won't smell of smoke
- Cleaner teeth and hands
- Save money

Tips to Quit Smoking

- **Decide to give up smoking forever.** A “cold turkey” method often works best. You can also use a slower approach, as long as you don't delay.
- **Set a quit date and stick to it.** Tell your family and friends about your decision and ask for their support.
- Remove all cigarettes, pipes, cigars, vape products, lighters, and ashtrays from your home and car. Getting your car “detailed” will help remove the smell of smoke.
- **Develop a nonsmoking environment around you.** Stay away from places or situations where you usually would smoke.
- **Drink a lot of water and fruit juice.** This helps remove the nicotine from your body.

- **Avoid caffeine** if you tend to link smoking with drinking coffee.
- **If you miss the feel of having something in your hand**, hold something else such as a pencil or paper clip.
- **If you miss having something in your mouth**, try toothpicks, hard candy, carrot sticks, apples, or gum.
- **Relieve stress** by taking deep breaths, exercising, or taking a warm bath.
- **Save the money** you would have spent on tobacco and treat yourself to something special.
- **Don't fool yourself by thinking "just one won't hurt," because it will.**

To learn more or if you need help to quit smoking, visit these websites:

- **American Cancer Society:** www.cancer.org/healthy/stay-away-from-tobacco/guide-quit-smoking.html
- **Centers for Disease Control and Prevention:**
www.cdc.gov/tobacco/campaign/tips/quit-smoking/index.html

Or, ask your nurse for a copy of our handout "Resources to Quit Smoking or Using Tobacco."

High Blood Pressure

As blood is pumped through the arteries, it pushes against the arterial walls. This force against the artery wall is called *blood pressure*. High blood pressure (*hypertension*) is a risk factor for CAD.

Your blood pressure is made up of 2 numbers – such as 120/80:

- The top number is the *systolic pressure*. It is the pressure in your arteries after the heart has pumped a new surge of blood.
- The bottom number is the *diastolic pressure*. This is the pressure in your arteries while your heart is at rest, before it beats again.

The harder it is for blood to flow through your vessels, the higher both numbers are. Higher numbers mean there is more strain on your heart.

For most adults:

- *Healthy blood pressure* is less than 120/80.
- If your systolic pressure is 120 to 139, or your diastolic pressure is 80 to 89, or if both are true, you have *prehypertension*.
- *High blood pressure* is a pressure of 140 systolic or higher and/or 90 diastolic or higher, which stays high over time.

When either the systolic or diastolic pressure is high, it adds to the workload of the heart. This increases a person's risk of developing CAD. Even slightly high blood pressure can damage the heart.

High blood pressure may have no symptoms. Once it has been diagnosed, it must be monitored and treated for life.

About 90% of high blood pressure has no known cause. There are many steps that can be taken to control high blood pressure:

- Control your weight
- Quit smoking
- Exercise regularly
- Eat a low-sodium (low-salt) diet
- Manage your stress
- Have your blood pressure checked regularly
- If your doctor has prescribed medicine for you, take it as directed

Cholesterol

People with high cholesterol have a higher risk of CAD. The liver produces all the cholesterol the body needs to work. When you eat food high in cholesterol, your body gets more than it needs. When this happens, your body may build up fatty substances, known as plaque, inside your artery walls. Over time, the plaque clogs the flow of blood to your heart.

Blood Test for Cholesterol

To find out your cholesterol level, you will need a blood test. To get an accurate reading, do not eat or drink anything (except water) for 12 hours before the blood draw.

The blood test give a total cholesterol level. An ideal total cholesterol level is less than 200. The test will also show your *low density lipoprotein* (LDL) and *high density lipoprotein* (HDL) cholesterol levels.

- LDL is known as “bad” cholesterol. We believe LDL increases fat buildup and cholesterol inside blood vessel walls. Ideally, for people with coronary artery disease, LDL should be less than or equal to 110.
- HDL is known as “good” cholesterol. We believe HDL removes fat and cholesterol from the bloodstream and artery walls and returns them to the liver for disposal. Higher blood levels of HDL are

usually found in people who exercise, maintain a healthy weight, and don't smoke. Ideally, one's HDL level should be greater than or equal to 40.

Treatment for high cholesterol levels usually starts with nutritional counseling. Reducing your total fat, saturated fat, and cholesterol intake can help reduce your risk of heart disease.

Have your cholesterol level checked every 1 to 3 months after you make dietary changes. If your levels are still high, your doctor may prescribe medicines to lower your cholesterol..

Diabetes

Diabetes is a risk factor for CAD. We know that having diabetes for years damages large and small blood vessels. A person with diabetes has a much higher risk of CAD if they also have other risk factors.

People with diabetes may be able to lower their risk for heart disease by eating a low-fat diet, controlling their weight, and quitting smoking.

Stress and Having a “Type A” Personality

Our personality traits may also be a risk factor for CAD. If you have a “Type A” personality, you may be:

- Competitive
- Time-conscious
- Impatient
- Aggressive
- Abrupt
- Highly motivated and successful
- Tense
- Reluctant to relax, due to guilt
- Always in a hurry

“Type A” people often feel a lot of emotional stress and tension. This causes their body to produce a hormone called *adrenaline*. Adrenalin makes the heart pump faster and harder, causing the blood vessels to clamp down or narrow. Tension may also cause high blood pressure and raise blood cholesterol during times of stress.

Changing a “Type A” Personality

Know your body’s signals of stress You may have stiff, tight shoulder or neck muscles, “butterflies” in your stomach, acid stomach, or you may find yourself getting sick more often. When you have these signals, you can use relaxation or imagery to help yourself relax.

Here are some tips to help you lower stress in your life:

- Identify and try to reduce the things in your environment that cause you stress.
- Maintain a balance of work, play, and rest in your life.
- Exercise at least 3 times a week.
- Try meditation or relaxation training.
- Set small, concrete goals. Work on 1 goal at a time.
- Avoid hurrying. Adopt a leisurely pace. Breathe.
- Do 1 activity at a time. Make sure you leave some time for yourself.

To learn more about relaxation and reducing stress, visit the “Stress Management” page of the American Heart Association website:
www.heart.org/en/healthy-living/healthy-lifestyle/stress-management.

Weight

Being overweight can increase your risk for CAD. It can also increase your risk of high blood pressure, diabetes, high blood cholesterol, and other health problems. Too much weight makes the heart work harder and may cause bone and joint injuries.

Maintaining an ideal weight can lower your risk for CAD. The keys to weight control are eating in moderation, eating a variety of healthy foods, exercising, and and taking care of other health issues that contribute to weight gain.

Tips to Losing Weight

- **Lose weight slowly.** Your long-term success depends on having new and better eating habits. A steady loss of 1 to 2 pounds a week is safe and more likely to be maintained.
- **Eat in moderation.** Include a variety of healthy foods that contain all the nutrients your body needs. Eat less fat and fatty foods. Eat less sugar and sweets. Avoid alcohol.
- **Avoid crash diets.** Avoid diets that limit you to eating less than 1,000 calories a day. You may want to work with a dietitian. Together you can create a diet plan that is right for you.

- **Slowly increase your daily physical activities.** When you are ready, begin regular aerobic exercise such as walking or swimming. A long-term exercise program is crucial for losing pounds and for maintaining a healthy weight. Check with your doctor before starting any exercise program to be sure it is right for you.
- **Reward yourself with items other than food.** As you lose weight, you might buy new clothes, see a movie, go on a trip, or do something else you enjoy that is not related to eating.

Sedentary Lifestyle

When someone gets little or no physical activity in their work or leisure time, we say that they have a *sedentary lifestyle*. These people are more likely to suffer angina and have a heart attack if they also have other risk factors.

Regular exercise means doing an activity for 20 to 30 minutes, 3 to 4 times a week. This kind of exercise can help lessen the workload on your heart. As your body becomes conditioned, your heart will work better. Other exercise benefits include:

- Better blood flow
- Better joint motion and muscle tone
- More strength and endurance
- Better blood cholesterol levels
- Weight loss
- Lower blood pressure
- Able to handle stress better
- Easing of tension
- More feelings of well-being
- Less stress and depression

Talk with your doctor before you start an exercise program. Slowly increase your exercise level.

Alcohol and Your Heart

Many people wonder if drinking alcohol is safe for those with heart disease. Alcohol can have varying effects on the heart, depending on your specific problem. Please talk with your doctor if you have any questions about drinking alcohol.

Drinking a lot of alcohol:

- Increases your risk of hypertension, stroke, cancer, and cirrhosis of the liver
- Can also damage the heart muscle, causing defects that lead to arrhythmias (disruptions in the normal, regular heartbeat)

Alcohol increases your heart rate and slightly decreases the strength of your heart muscle's contraction. This is why you should avoid exercise or other strenuous activity after drinking.

Heart Tests

Cardiac Catheterization (Coronary Angiography)

What it does: This test checks the coronary arteries, which supply blood to the heart muscle. A *catheter* (narrow tube) is inserted into an artery in the groin or arm, and is carefully guided to the heart with the use of a *fluoroscope* (special X-ray machine). *Contrast* dye is injected through the catheter into the coronary arteries and their images are recorded on film. These images show the arteries that are narrowed or blocked.

Takes about: 1 to 3 hours. Requires special instructions as well as your written consent.

Place done: Cardiac Cath Lab

Coronary Computed Tomography Angiogram (Coronary CTA)

What it does: This procedure studies the inside of your tiny heart vessels without physically going inside your heart. A *computed tomography* (CT) scanner can scan the entire heart during only 5 beats. A radiologist and a technologist will give you a nontoxic contrast through an IV into your vein. When the contrast reaches your heart vessels, the CT scanner takes thousands of pictures in a very short time. The images are then pieced together and the radiologist is able to evaluate them for blockage of an artery.

Takes about: 30 minutes

Place done: Radiology

Electrocardiogram (ECG, EKG, 12 Lead)

What it does: An ECG is a recording of your heart's electrical function. Electrode patches are attached to each wrist and ankle, and at six points on your chest. A recording is then made, giving your doctor 12 views of your heart's electrical activity. This way, your doctor can tell if the heart is experiencing any irregularities, stress, or damage.

Takes about: 5 to 10 minutes. No special preparation needed.

Place done: At your bedside or Heart Institute

Echocardiogram (Echo, Cardiac Ultrasound)

What it does: This test uses sound waves to create images of your heart. A small device (*transducer*) is held to your chest. Sound waves bounce off your heart structures and record images on film. These images show problems in the heart muscle or valves, as well as any fluid around the heart.

Takes about: 30 minutes to 1 hour

Place done: At your bedside or Heart Institute

Electrophysiology Study (EP Study, EPS)

What it does: This test provides more precise information about the electrical function of your heart. It is done by a specially trained cardiologist. A *catheter* (narrow tube) is inserted into an artery in the groin and carefully guided to the heart using a *fluoroscope* (special X-ray machine). Once the catheter is in place, we can measure your heart's electrical activity.

Takes about: 2 to 4 hours. Special instructions are needed before and after this procedure, as well as your written consent.

Place done: EP Lab, 2nd floor of UWMC - Montlake

Holter Monitor (Ambulatory Monitor)

What it does: This device records your heart's electrical activity over a set period. It may be worn at home or in the hospital. *Electrode* patches are placed on your chest, with wires going to a small device about the size of a small, portable tape recorder. You will wear this device on a shoulder or belt strap.

Takes about: We will ask you to keep a diary of your daily activities, symptoms, and medicines during the recording period. We will relate your recorded heart rhythms to your activities.

Place done: Heart Institute

Magnetic Resonance Imaging (MRI) Heart Scan

What it does: This scan uses radio waves and a strong magnetic field instead of X-rays to provide clear detailed pictures of the heart. An MRI exam typically consists of 2 to 6 sets of pictures, each lasting 2 to 15 minutes. Each set shows a cross-section of the heart.

Takes about: 30 minutes to 1 hour

Place done: Radiology

Radionuclide Ventriculogram (RNVG), Multi-gated Analysis (MUGA), Cardiac Nuclear Medicine Exam

What it does: These tests tell us about how well your heart muscles pumps. We will inject a very small amount of radioactive material into your vein. A special camera records the movement of the radioactive material through your heart with each heartbeat.

Takes about: 1 to 2 hours

Place done: Nuclear Medicine Department

Pulmonary Function Test (PFT)

What it does: This test measures your lung function. You will be asked to breathe in and out several times into a machine.

Takes about: 30 to 45 minutes

Place done: Lung Function Testing Lab

Telemetry Monitoring

What it does: Telemetry uses radio signals to send your heart's electrical activity to a monitor at the nurses' station or in your room. Electrode patches placed on your chest are connected to a small battery-powered telemetry box (about the size of a small, handheld radio). You will carry this device in a pouch around your neck or in your pocket. It allows us to monitor your heart rhythm at all times while you slowly increase your activity.

Takes about: Ongoing during your hospital stay

Place done: Bedside

Stress Tests

Stress tests help us diagnose CAD or angina. These are the types of stress tests we use most often:

Exercise Tolerance Test (ETT, Treadmill)

What it does: This test checks how well your heart tolerates activity. It records any abnormal heart rhythms or lack of blood flow to your heart during exercise. Electrode patches are placed on your chest and connected to a treadmill *electrocardiogram* (ECG) computer, which will record electrical signals from your heart during exercise. While you are walking and/or running on a treadmill, we will record your ECG, blood pressure, and pulse.

Takes about: 45 minutes to 1 hour

Place done: Heart Institute

Thallium Stress Test, Sestamibi Stress Tests, Persantine/Adenosine, Dobutamine Stress Test

What it does: These tests compare the amount of blood flowing through the heart muscle during stress and at rest. *Thallium* and *sestamibi* stress tests involve walking and/or running on a treadmill. *Persantine* and *dobutamine* stress tests involve causing stress on the heart by giving a medicine, not by actual physical exercise. Both types of stress tests use radioactive scans to detect the presence and extent of CAD. We will take pictures of your heart about ½ to 1 hour after we inject a very small amount of radioactive materials. We will do this while you are at rest, and again during exercise or medicine-induced stress. The exercise portion of the study may be done first.

Takes about: The total scanning time (picture-taking) takes about ½ hour. The entire test can be done over 1 to 2 days, and may need special instructions.

Place done: Nuclear Medicine Department

Stress Echocardiography Test (Exercise Echo, Dobutamine Echo)

What it does: This test checks how well the heart works at rest and under stress. When blood flow to the heart is reduced, the motion of the heart muscle changes. Echocardiography allows us to watch these changes (see “Echocardiogram” on page 14). This test begins as an exercise tolerance test,

either with actual physical exercise or *intravenous* (IV) medicine (dobutamine) to stress the heart muscle. Images of the heart are recorded by the echocardiography technician before and after the stress portion of the test.

Takes about: 1½ hours

Place done: Heart Institute

Resources to Learn More

There are many books that can teach you how to increase physical activity, reduce stress, manage your weight, and improve your overall health. You can borrow them from the library, or buy them from a bookstore or online bookseller. Ask your provider to suggest specific books, as well as helpful websites.

Books

Eating/Cooking/Weight Loss

There are many excellent cookbooks and magazines about cooking light and eating well. To start, try titles by the American Heart Association, Dean Ornish, Joseph Piscatella, and Brenda Ponichtera.

Emotional/Personal Concerns

- *The Healing Heart* by Norman Cousins
- *Transitions: Making Sense of Life's Changes* by William Bridges

Exercise

- *Burning Fat, Getting Fit: Exercise and Your Heart, A Guide to Physical Activity* by the American Heart Association
- *Fitting in Fitness* by the American Heart Association

Sexuality

- *Heart Illness and Intimacy* by Wayne Sotile
- *The Sensuous Heart: Guidelines for Sex After a Heart Attack or Heart Surgery* by Suzanne Cambre

Stress Management

- *Don't Sweat the Small Stuff* (any in the series) by Richard Carlson
- *The Relaxation Process* by Herbert Benson
- *The Relaxation and Stress Process* by Martha Davis, et. al.

Websites

American Heart Association

www.americanheart.org

This site provides links to dozens of other well-respected sites including government agencies, universities and research centers, scientific organizations, and other resources.

Harvard Heart Letter

www.health.harvard.edu

Suggested by UWMC clinicians, this site offers detailed information about many aspects of heart disease, rehabilitation, and a heart-healthy lifestyle. Click on “Heart Health” in the menu bar.

Questions?

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

Heart Institute at UW Medical Center/Cardiovascular Clinic:
206.598.4300