Guide to Cardiac Rehab

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Notes

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Using the Online Guide

Welcome to Cardiac Rehabilitation at Pioneer Medical Center!

The information in this publication is both an introduction to the world of cardiac rehabilitation and a guide to online resources. Once a month cardiac rehab staff will present a class on this material. The material in this publication has been adapted from **CardioSmart.org**, a website by the American College of Cardiology.

Web Links

Throughout these pages you will see links to online resources like this one:

Click on a link and you will be redirected to a trusted webpage. Most of these link to pages at **CardioSmart.org**,

Types of Web Links

This is an **Informational link**. This link will direct you to a web page with more detailed information on the section topic. On the Medications page, simply click on the drug name for additional information.

This is a **QUIZ! link**. This link will direct you to an online quiz that will test your understanding of the topic. The quiz format provides useful feedback along the way.

This is an **Action Set! link**. This link will direct you to a webpage that provides day-to-day practical steps for making a heart healthy lifestyle part of your every day life.

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Cardiac Rehab Basics

Why is Cardiac Rehab Important?

You will feel better, regain strength and likely live longer by participating in Cardiac Rehab. It works because you will have more success controlling your cardiac risk factors including high blood pressure and cholesterol. The program is comprehensive: looking at the whole you!

Why am I in cardiac rehab?

You have likely experienced a serious heart problem like a heart attack, or a heart procedure like coronary artery by-pass surgery or cardiac stenting. By attending cardiac rehab you decrease your chances of dying from a future heart event by 30%.

5 Components of Cardiac Rehab

1. Supervised Exercise Program
2. Heart Healthy Diet: Education and Support
3. Stress Reduction: Screening and Tools
4. Medication Adherence and Education
5. Risk Factor Modification (e.g. Smoking Cessation)

What is cardiac rehab?

Cardiac rehab is more than just exercise. Nutrition experts will guide you as you adopt a heart-healthy diet. Medical staff will monitor and answer questions about your medications and make sure you are using them correctly. We'll help you managing other cardiac risk factors and stress. All of these components are necessary to help you strengthen your heart and live a healthier life.

Understanding Cardiac Rehab

Cardiac Rehab Basics

What can I expect?

You will attend cardiac rehab sessions three times a week for monitored exercise. You will wear a cardiac telemetry device and the medical staff will be able to watch your ECG (electrocardiogram) on a computer monitor while you exercise. You will attend group counseling sessions with a medical nutrition expert. You will also have the opportunity to attend 3 to 4 educational sessions covering heart anatomy, disease, risk factor modification and emergency planning.

What to Expect

- **Up to 36 supervised exercise sessions, 3 per week, using exercise machines like a treadmill and stationary bike as well as strength training**
- **Personalized Instruction, both One-on-one and in groups, by a medical nutrition expert**
- **Education classes on heart structure and function, and your medical condition**
- **You will learn about your specific heart problem.**
- **You will receive emotional support and screening**

Welcome to Cardiac Rehab!

This is a period of building new skills. Cardiac Rehab programs typically last for up to three months. In that time you will develop heart healthy habits that you can continue long after cardiac rehab is over.

QUIZ! Cardiac Rehab

Risk Factors for Coronary Artery Disease (CAD)

What is Coronary Artery Disease?

Coronary artery disease (CAD) is the most common type of heart disease. It's also the number one killer of both men and women in the United States. There are many risk factors for CAD. These risk factors are conditions that make it more likely you will develop CAD. You can significantly reduce your risk with heart healthy lifestyle changes such as eating healthy foods, being active and not smoking.

Please see the Heart Conditions section in this booklet for detailed information about coronary artery disease.

Coronary Artery Disease

CAD Risk Factors

Some risk factors for CAD, such as your gender, age, and family history, cannot be changed. Other risk factors for CAD are related to lifestyle and often can be changed. Your chance of developing coronary artery disease increases with the number of risk factors you have.

Next we will explore each of the risk factors from this list, starting with the risk factors that can be improved.

CAD Risk Factors

Risk Factors You Can Control:

- High Blood Pressure
- High Cholesterol
- Diabetes
- Being Over Weight
- Lack of Exercise
- Smoking
- Stress

Risk Factors You Cannot Control:

- Family History
- Gender
- Age

Risk Factors

Risk Factors You Can Control!

High Blood Pressure is also called

hypertension. Blood pressure is a measure of how hard the blood pushes against the walls of your arteries as it moves through your body. Blood pressure readings consist of an upper number and a lower number (such as 120/70). High blood pressure is anything 130/80 or higher.

High blood pressure can be managed with lifestyle changes, like using less salt, and medicines, like beta blockers and ACE inhibiters.

When blood pressure is high it starts to damage the blood vessels, heart, and kidneys. This can lead to heart attack, stroke and other problems.

High-Blood-Pressure

QUIZ! High Blood Pressure

High Cholesterol is another risk factor you

can control. Cholesterol is a type of fat (lipid) in your blood. Your body needs some cholesterol but if you have too much, it can build up in your arteries and increase your risk of heart disease and stroke.

You can get high cholesterol by eating foods that have too much cholesterol and saturated fat or by having an inherited condition that causes high cholesterol.

You can control your cholesterol by changing your diet and by using statin medications as prescribed by a doctor.

High-Cholesterol

QUIZ! High Cholesterol

Diabetes is another CAD risk factor that can be controlled. People who have diabetes are 4 times more likely to have coronary artery disease. Managing your diabetes with diet and exercise and by using medications, if prescribed, can reduce your risk of CAD.

Diabetes

Risk Factors

Risk Factors You Can Control! (cont.)

Stop Smoking is probably the most important step you can take to decrease your chance of coronary artery disease (CAD) and a heart attack. Smoking causes blood to form clots more easily, coronary arteries to spasm, irregular heartbeats, and reduces the amount of oxygen in the bloodstream.

Secondhand smoke increases other people's risk of coronary artery disease.

If you stop smoking for a year you will cut your risk of heart disease in half!

Smoking and CAD

Quitting Smoking

Stress is the way we all react to change. It includes our mental, emotional, and physical responses to the pressures of everyday life.

Some stress is normal but excessive stress can be bad for your heart, causing coronary arteries to narrow leading to angina or heart attack. Stress can cause blood pressure to increase and dangerous heart arrhythmias.

You can lower your stress with exercise and meditation.

Stress Management

Being Overweight increases your risk for CAD. Working with your doctor and a Nutritionist are excellent places to start when it's time to lose weight.

Weight Management

Action Set! - Healthy Eating

Lack of Exercise can indirectly increase the risk of CAD, because it also increases the risk for diabetes and high blood pressure. Regular physical activity can help reduce your risk of CAD by helping you control cholesterol and blood pressure, regulate blood sugar (important for people with diabetes), and lose weight.

Exercise Guidelines

YouTube video "23 1/2 Hours" for a brief explanation of how 30 minutes of exercise a day offers unexpected health benefits.

YouTube —Dr. Mike Evans "23 1/2 Hours"

Risk Factors

Risk Factors Not in Your Control!

Family History People with one or more close relatives who have or had early coronary artery disease (CAD) are at an increased risk for CAD. For men, early CAD is being diagnosed before age 55. For women, early CAD is being diagnosed before 65.

Family History and Heart Disease

Gender and Age Men generally develop CAD 10 years earlier than women, although by age 60, CAD becomes the leading cause of death in both genders.

People over the age of 65 are more likely to have CAD.

What's Next?

Adopting a heart healthy lifestyle can benefit just about everyone. But for persons with heart disease, it can help them live longer and healthier by helping manage CAD risk factors.

Heart-Healthy Lifestyle

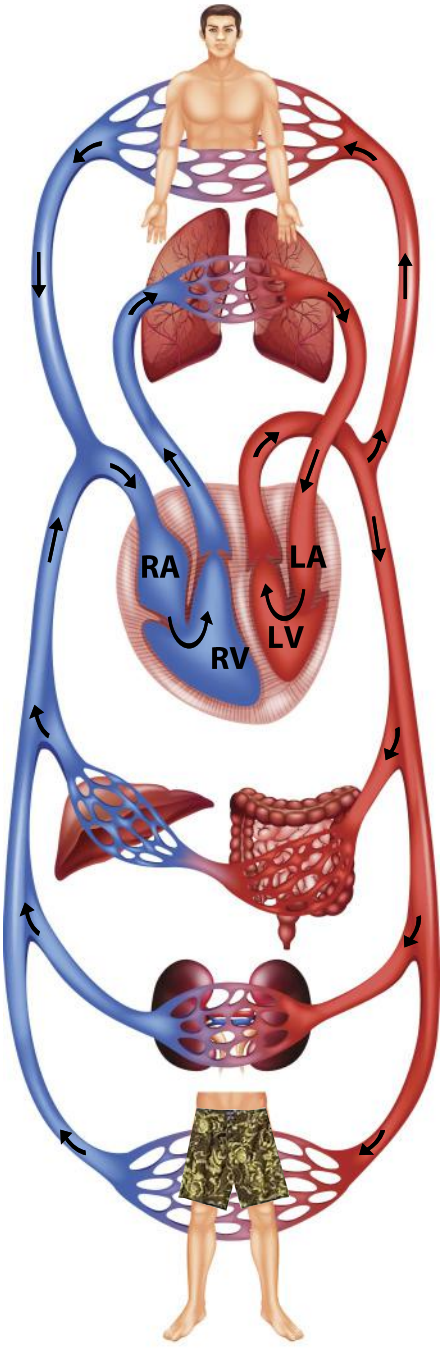
- Don't Smoke
- Eat Healthy Foods
- Be Active
- Reach and Stay at a Healthy Weight
- Visit your Doctor Regularly

The Heart and Heart Disease

What is the heart's function?

The heart is a fist sized organ that can be thought of as a double pump. The right side of the heart is one pump, receiving blood from your body and pumping it through the lungs to be re-oxygenated. The left side of the heart is a stronger, second pump that receives blood from the lungs and pumps it out to the body.

How the Heart Works



Circulation of Blood

Refer to the diagram and start with the right side of the heart in blue. Follow the arrows as blood flows through the right atrium (RA) and right ventricle (RV) and to the lungs. Oxygenated blood returns from the lungs to the left atrium (LA) and left ventricle (LV). The left side of the heart then pumps blood to the brain, vital organs and extremities delivering oxygen. Deoxygenated blood returning via the blue colored vessels begins its journey to the lungs again through the Left side of the heart.

What can go wrong with the Heart?

- **Coronary artery disease**
- **Atrial fibrillation**
- **Heart valve disease**

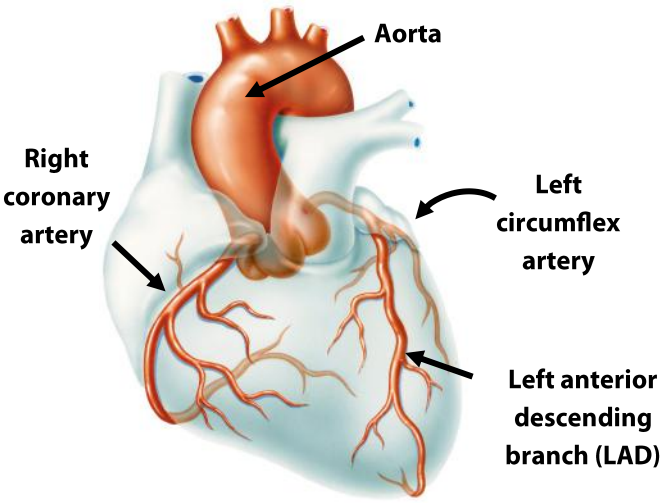
These are some of the most common heart conditions especially if you are an older adult. We will go through them one by one in this section., each starting with a short discussion of the normal anatomy and function .

The Heart and Heart Conditions

How does the heart get oxygen?

You might think that since the heart is in charge of pumping blood that it might just draw off oxygen as blood passes through its chambers. But this is not the case. The heart actually has its own network of blood vessels around the outside of the heart's muscular tissue. These arteries are called the coronary arteries. The coronary arteries branch directly off of the aorta.

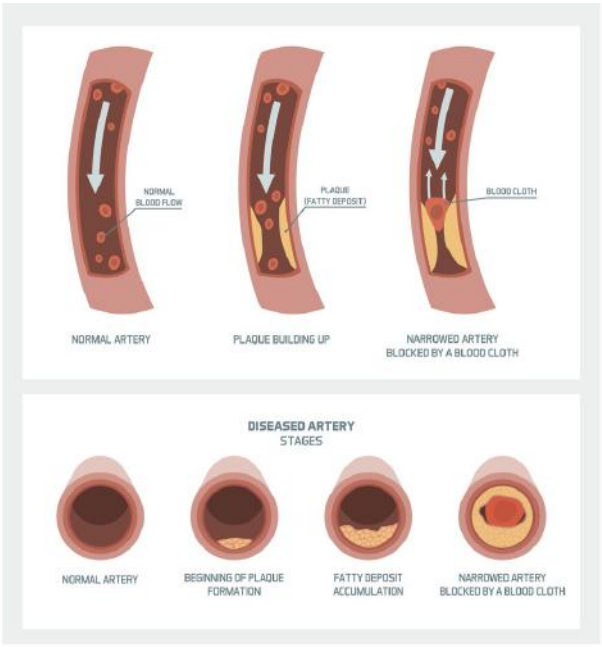
Coronary Arteries and Aorta



What is atherosclerosis?

Atherosclerosis is the build up of fat and cholesterol from the blood to form plaques inside the walls of arteries. Plaque in coronary artery walls can block or slow the flow of blood to the heart's muscle tissue. Atherosclerosis is the main cause of coronary artery disease (CAD).

Atherosclerosis

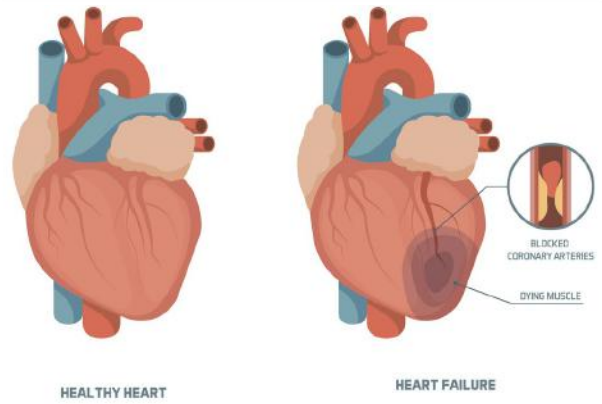


Heart Attack

A heart attack occurs most commonly when a plaque associated with coronary artery disease breaks open inside an artery causing a blood clot to form. This clot blocks the flow of oxygen-rich blood to the heart muscle. Very quickly, the heart muscle tissue can be damaged or die so immediate medical attention is critical.

Heart Attack

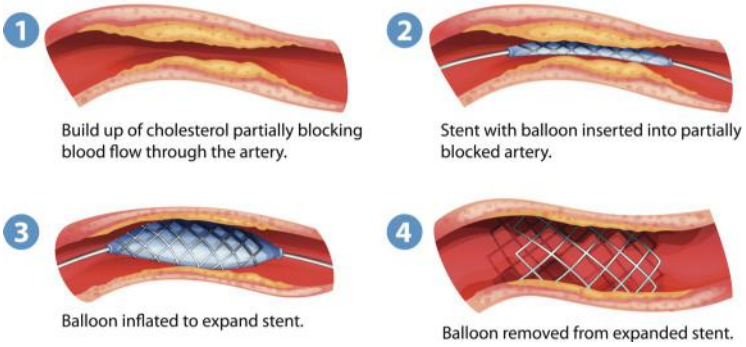
QUIZ! Heart Attack



The Heart and Heart Conditions

Angioplasty

In the event a coronary artery is blocked by plaque and or a blood clot an angioplasty may be performed. A physician will insert a thin catheter into a blood vessel in the groin or wrist. It is then carefully guided through blood vessels to the coronary artery. A tiny balloon is inflated, sometimes with a stent, to open the narrowed artery.



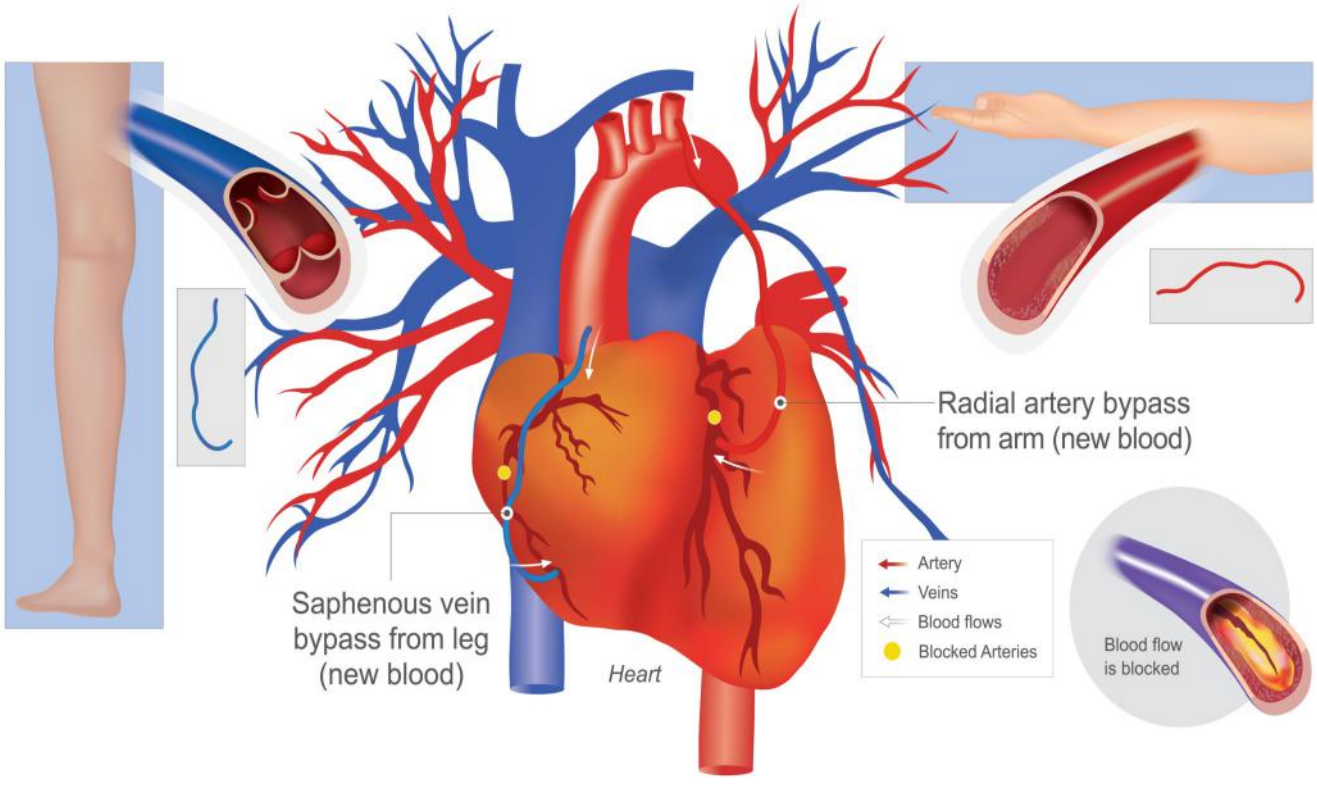
Angioplasty

Coronary Artery Bypass Grafting

Coronary artery bypass grafting (CABG) is an open-chest surgery. A blocked section of coronary artery can be bypassed using a portion of healthy blood vessel from elsewhere in the body, redirecting blood flow to the affected part of the heart.

CABG

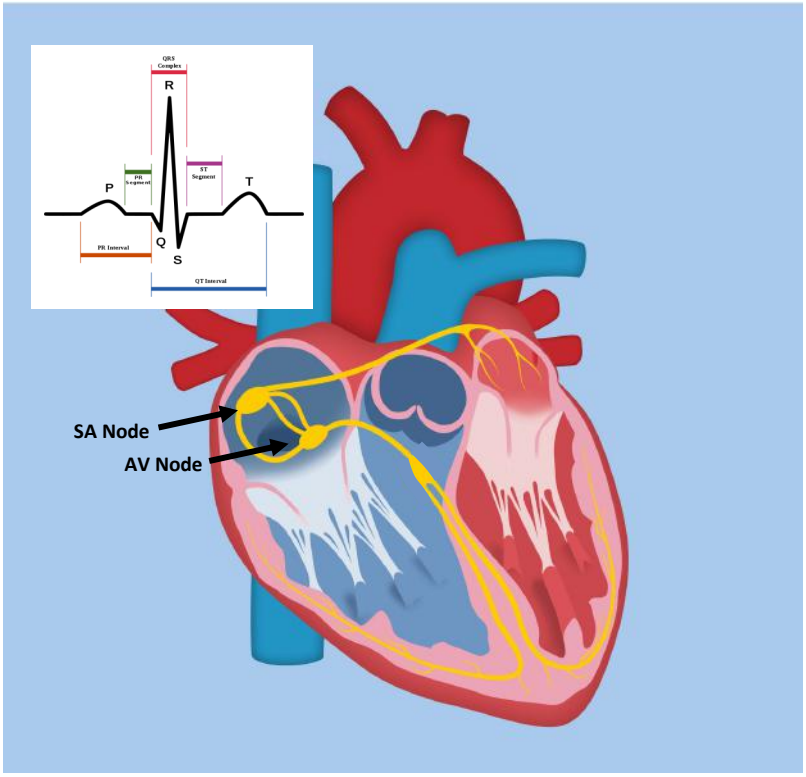
CABG Slide Show



The Heart and Heart Disease

How does the heart's electrical system work?

A special group of cells in the heart's right atrium called the SA Node sends out an electrical impulse that spreads throughout the heart along electrical pathways (in yellow). We can observe this activity with an ECG. The ECG is traditionally labeled with the letters P, QRS and T with the different waves and peaks representing electrical activity of different parts of the heart.



Electrical System of the Heart

Atrial Fibrillation

Atrial fibrillation (called AFib) is the most common heart rhythm disorder or arrhythmia. AFib can be thought of as a short circuit in the heart's electrical system disrupting the heart's normal steady beating. With AFib the heart is beating too rapidly and irregularly. Because the pumping action is disrupted, blood collects in the chambers of the heart and can develop clots. These clots can then travel to the brain causing stroke.

Some people with AFib don't have any symptoms. Those who do may report:

- Heart palpitation -- a thumping or racing heart, fluttering or skipping beats
- Feeling unusually tired or fatigued
- Unexplained shortness of breath
- Dizziness or fainting spells
- Chest pain (angina)

Atrial Fibrillation

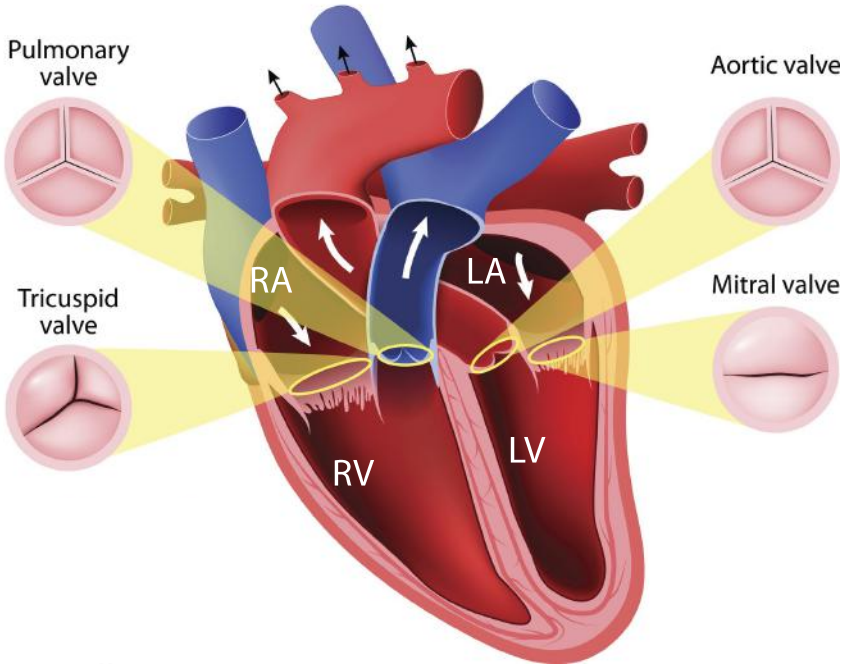
QUIZ! Atrial Fibrillation

The Heart and Heart Disease

What do Heart Valves do?

The heart valves separate the chambers of the heart and prevent blood from flowing the wrong direction when the heart contracts. The two valves in the right side of the heart separate the right atrium (RA) from right ventricle (RV) and keep the blood flowing toward the lungs. The two valves in the left side of the heart separate the left atrium (LA) from left ventricle (LV) and keep the blood flowing toward the extremities, vital organs and the brain.

Heart Valves



Most Common Valve Issues

There are two main problems that happen with heart valves, regurgitation and stenosis. **Mitral valve regurgitation** occurs when the mitral valve does not close all the way allowing blood to flow backward from the left ventricle into the left atrium. **Aortic valve stenosis** is a restriction of blood flow out of the left ventricle due to valve tissue getting stiff or too thick. These conditions may require a faulty valve to be surgically repaired or replaced but conservative management is sometimes all that is required.

Heart Valve Disease

QUIZ! Heart Valve Disease

Medications

Cardiac Medications

Medicine is one of the many tools your doctor uses to treat a health problem. Taking medicine as your doctor suggests will improve your health and may prevent future problems. If you don't take your medicines properly, you may be putting your health, and perhaps your life, at risk. Tell your doctor about all medications you use. This includes prescription, over-the-counter, vitamin, and herbal products. Do not start a new medication without telling your doctor.

Don't Stop Taking your Medications

It is important to continue taking your cardiac medications once you have started them. In many cases there are much greater risks for people that stop their medications compared to people that continue taking them. A good example of why you should continue taking your medications is aspirin. Discontinuing aspirin use can increase heart attack risk by 2/3 in patients who have had a heart attack or stroke.

Side-effects

All medicines have side effects. But many people don't feel the side effects, or they are able to deal with them.

Here are some important things to think about:

- Usually the benefits of the medicine are more important than any minor side effects.
- Side effects may go away after you take the medicine for a while.
- If side effects still bother you and you wonder if you should keep taking the medicine, **call your doctor**. He or she may be able to lower your dose or change your medicine. Do not suddenly quit taking your medicine unless your doctor tells you to.
- You feel that your medicine isn't working. Keep in mind that some medicines take time to work. Call your doctor and ask about it.

Call 911 or other emergency services right away if you have:

- Trouble breathing.
- Swelling of your face, lips, tongue, or throat.
- Fainting or severe dizziness.

Medications

medication: Brand Name	Why you take it, how it works and some possible side-effects.
aspirin: Anacin, Bayer, Bufferin, Ecotrin	**Aspirin** helps prevent heart attack (in people with known CAD) and stroke by preventing blood clotting. *Possible side effects*: Gastrointestinal problems and bleeding. See the list of serious side effects associated with bleeding. Be careful when also taking other NSAIDs (non-steroidal anti-inflammatory drugs) like ibuprofen because the risk of stomach bleeding is greater.
nitroglycerin: Nitrostat, Nitro Quick, Nitro-Dur, Nitro-Bid	**Nitroglycerin** is a vasodilator, a medicine that opens blood vessels to improve blood flow. It is used to treat angina, a type of chest pain or discomfort that happens when there is not enough blood flowing to the heart. To improve blood flow , nitroglycerin opens up (dilates) the arteries of the heart, which improves symptoms and reduces how hard the heart has to work. *Possible side effects*: Normal, temporary side effects of nitroglycerin include a warm or flushed feeling, headache, dizziness, or lightheadedness (be sure to sit or lie down before taking). You may also feel a burning sensation under your tongue.
antiplatelet: Plavix, Effient, Brilinta	If you had angioplasty and now have a stent, you will take **antiplatelet medicines** to help prevent another heart attack or a stroke. You will probably take aspirin also. *Possible side effects*: Bleeding is the most serious side-effect. See the list of serious side effects associated with bleeding.
beta blockers: Metoprolol, Atenolol, Carvedilol	**Beta-blockers** lower blood pressure by slowing the heart rate, decreasing the amount of blood the heart pumps out and lessening the force of the heartbeat. *Possible side effects*: Common side effects are dizziness, lightheadedness and feeling tired. You might also have trouble sleeping.
statins: atorvastatin(Lipitor), simvastatin(Zocor), rosuvastatin(Crestor)	Most **statins** can cut cholesterol levels in half. It does that by reducing the livers ability to make cholesterol. This lowers your risk of heart attack and stroke. *Possible side effects*: Muscle pain is the most common side effect and can often be remedied by lowering the dosage of medication. Other side effects may include liver damage, digestive problems, rashes, increased blood sugar and memory loss.
ACE inhibitors: Captopril, Lisinopril, Ramapril	**ACE inhibitors** lower blood pressure by relaxing blood vessels and increasing urine. *Possible side effects*: Dry cough and headache.
ARBs: losartan (Cozaar), valsartan (Diovan), irbesartan (Avapro), candesartan (Atacanda)	**Angiotensin II receptor blockers (ARBs)** lower blood pressure by keeping blood vessels from narrowing, allowing them to dilate. Also stimulates the increase of urine. *Possible side effects*: ARBs may interact with other medicines such as NSAIDs, antacids, potassium supplements, certain diuretics, and lithium. If you are taking one of these medicines, talk with your doctor before taking an ARB.

Heart Attack

What to do if you think you are having a heart attack?

Don't delay. Call 911 right away!

Half of people that die from a heart attack do so within the first hour of having symptoms!

Delay in getting treatment can lead to increased damage to the heart and a weaker heart in the future.

Women are more likely to delay getting help. They may not want to bother anyone. Sometimes women do not always experience chest discomfort when they have a heart attack and may not recognize what is happening.

What is life like after a heart attack?

If you have had a heart attack, you are at greater risk of having another one. Fortunately there are many things you can do to address this increased risk:

Talk with your doctor.

Ask about your risk for a second heart attack. A repeat heart attack might not feel the same as the first.

Some people have chest pain, called angina, when they exercise. Ask your doctor how to tell you the difference between this type of pain and the pain you might feel if you are having a heart attack.

Follow your care plan

Keep up with your lifestyle changes and your medications. Keep track of your "numbers": your blood pressure, cholesterol, weight, blood sugars.

Go to Cardiac Rehab

These programs include health education and supervised exercise. Going to cardiac rehab will lower your risk of dying or going back to the hospital.

Ask for support

Ask trusted friends and family to help you live a healthier life. They can come to appointments with you and be there as a source of comfort.

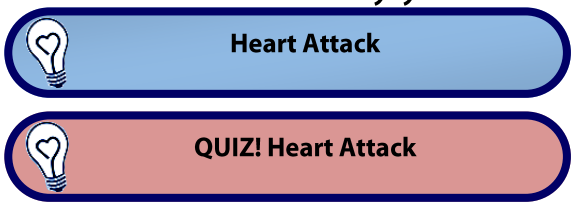
Heart Attack and Emergency Preparedness

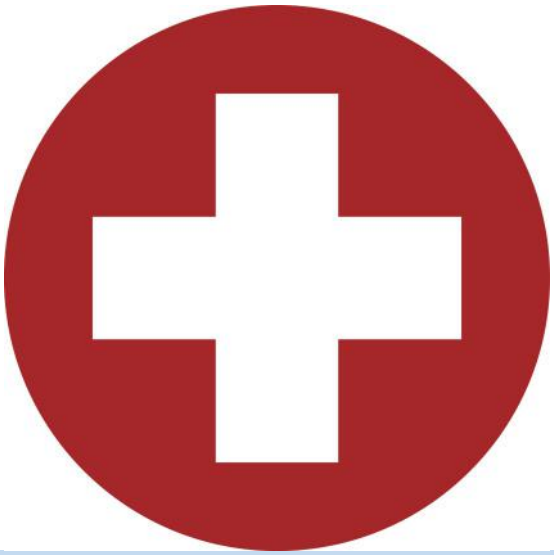
If you think you are having a heart attack, do not hesitate to call 911!

DO NOT drive to the hospital. CALL 911!

What is a heart attack?

A heart attack occurs most commonly when a plaque associated with coronary artery disease breaks open inside an artery causing a blood clot to form. This clot blocks the flow of oxygen-rich blood to the heart muscle. Very quickly, the heart muscle tissue can be damaged or die so immediate medical attention is critical. 730,000 people have heart attacks in the USA every year.





Signs and Symptoms of a Heart Attack

You are about to read through some of the signs of a heart attack and what it feels like. *Chest pain is the most common symptom of a heart attack but women especially may feel something different. And though chest pain is the most common, in one group of people studied, one third of people that had a heart attack DID NOT feel chest pain. So please look through all of these possible signs and symptoms.*

Possible Signs and Symptoms of a Heart Attack

- Chest pain, pressure or discomfort
- Discomfort or tingling in one or both arms, back, shoulder, neck or jaw
- Shortness of Breath
- Cold Sweat
- Unusual tiredness
- Heart-burn type feeling
- Nausea or vomiting
- Sudden dizziness
- Fainting

Heart Attack

Have an emergency plan in place

Fill in the table and keep this information with you.

Medications	#1
	#2
	#3
	#4
	#5
	#6
	#7
	#8
Healthcare Providers / phone #	Cardiologist
	Family Doctor
	Cardiac Rehab Specialist
Medical History	Cardiac Events
	Other medical history
	Surgical history
Emergency Contacts	