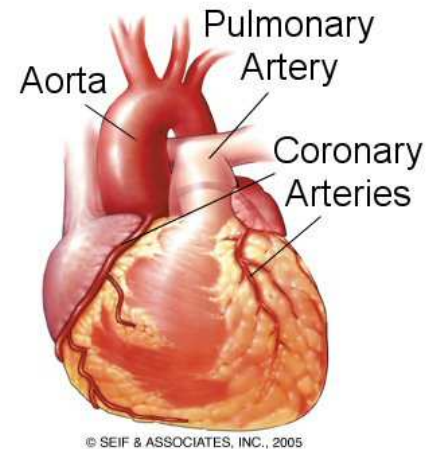


# Myocardial Infarction (Heart Attack)

A heart attack occurs when a blood vessel in the heart (*coronary artery*) becomes blocked and cuts off the blood supply to the heart muscle. This causes that area of the heart to die. **The heart muscle will be permanently damaged if the blockage persists for an extended period of time. Death can occur. It is very important to have immediate medical care for episodes of chest pain.**

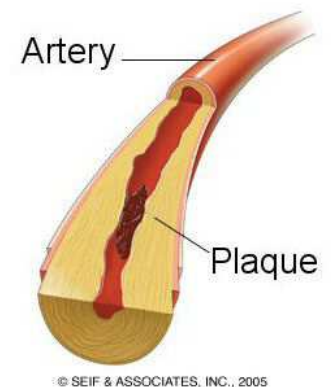
## CAUSES

A heart attack is most often caused by cholesterol buildup within the coronary artery that blocks the blood vessel. A blood vessel that is partially blocked by a plaque can cause a heart attack if the muscle requires more oxygen than can be delivered through this vessel. This can occur if the blood pressure is too low, if the oxygen level is too low, or if exercise, illness, or stress overwork the heart muscle.



## UNDERLYING CAUSES OF HEART ATTACK INCLUDE:

- Atherosclerotic plaques that have built up over many years, due to:
  - High blood pressure
  - Smoking
  - Diabetes
  - High cholesterol
  - Family history.
- A spasm (narrowing) of a coronary artery.
- Sudden changes in oxygen use. Examples are stressful situations or strenuous activities.
- Use of stimulants such as cocaine and amphetamines. These increase the work of the heart and can cause spasm of the artery.
- Risk increases with age. Men are more likely to have a heart attack than a woman.



## SYMPTOMS

- Chest pain, usually a crushing, squeezing, heaviness, or tightness sensation.
- The pain often radiates to, or is felt in, the left arm, neck, jaw, or teeth.
- The pain will often worsen with exertion and improve with rest.
- The pain may feel like indigestion. Consider all indigestion discomfort in anyone over thirty-five as possibly coming from the heart.
- Irregular or abnormal heart beats.
- Other problems may include profound sweating, *nausea* (feeling sick to your stomach), feeling faint, weakness or light headedness, and loss of normal color.

**SEEK IMMEDIATE MEDICAL CARE FOR ANY OF THESE SYMPTOMS. Death may be imminent. Immediately call an ambulance, 911, or the closest medical facility. THIS IS AN EMERGENCY. Do not attempt to drive yourself to the hospital.**

## DIAGNOSIS

Your caregiver will complete a history and physical exam and will make sure you are comfortable and stable. He or she will often perform some of the following tests:

- A heart monitor will display your pulse for signs of abnormal heart rates or rhythms.
- An ECG (electrocardiogram) is a painless procedure that measures and records the electrical activity of your heart. It gives information about areas of heart muscle that may be injured.

- Your blood oxygen level can be monitored by a sensor attached to your finger or ear.
- Blood tests are used to find out whether the heart muscle has been damaged.
- A chest x-ray can give some indication of how well the heart and lungs are functioning.
- A Doppler ultrasound (*echocardiogram*) is a type of scan used to examine your heart valves, muscles, and blood flow. It can determine how efficiently your heart is pumping.
- A stress test is sometimes performed as a measure of your heart's tolerance to exercise. An ECG is done while you exercise on a treadmill or stationary bicycle. This test shows whether the heart is getting enough blood. It can be used as a measure of your safe activity levels and what signs you need to look for during exercise after you are discharged.
- A coronary angiogram may be performed with cardiac catheterization. This is a procedure where dye is put into your coronary arteries and x-rays are taken. This determines which blood vessels are blocked.

## RISK FACTORS AND PREVENTION

Heart attacks can be prevented by addressing the underlying causes of heart disease:

- Maintain a healthy weight, eat a healthy diet, and exercise regularly
- Don't smoke; if you smoke, quit.
- Treat high blood pressure, diabetes, and high cholesterol to established goals.
- For some people, low-dose aspirin can prevent heart attacks. Check with your care provider about this.
- For some people, cholesterol-lowering medications can prevent heart attacks. Check with your care provider about this.

## PROGNOSIS AND COMPLICATIONS

The outcome after a heart attack depends on the amount of heart tissue damaged, its location, and the speed and effectiveness of therapy. People who have had a heart attack are at increased risk for another heart attack, for heart failure, for *arrhythmias* (abnormal heart rhythms), and for death. Risks can be minimized by proper use of medications and by following the advice in the paragraph above.

## TREATMENT

- Length of hospital stays vary from a couple days to a week. This depends on the amount of heart damage. You may be put in an intensive care unit for heart patients.
- Medications may be used for pain reduction, keeping your heart regular, helping your breathing, and controlling your blood pressure. These may include aspirin or other blood thinners. Beta blockers or ACE inhibitors help to lower blood pressure and help the heart beat more efficiently. Statins are used to lower the cholesterol. Oxygen is also used.
- Blood thinners are often used to dissolve clots that may be blocking the arteries to your heart.
- If you have a single small artery blockage and no heart damage, you may promptly have a balloon angioplasty. This procedure can remove the blockage and restore normal heart circulation when done early. It is a way to open up, or enlarge, a partially blocked artery. A *stent* (metal sleeve to keep the artery open) may be used. The *cardiologist* (specialized heart doctor) uses a *catheter* (a long, narrow, hollow tube) to do this. Certain medications are essential to prevent the blockage from reoccurring.
- More severe artery blockages may require bypass surgery. This is a procedure where the blocked arteries are bypassed with small grafts to improve the circulation of the heart. If certain critical arteries are involved, or if your chest pain continues, this surgery may be used as the best method insuring your longevity.
- You may require a device, such as a pacemaker or defibrillator, if your heart attack is complicated by abnormal heart rhythms.
- Physical therapists may help guide you on returning to a regular exercise program.

## ABOUT YOUR HOSPITAL STAY

- While you are in the hospital, you may be put on a low-salt, low-fat diet, and given a stool softener. The stool softener will keep you from straining during a bowel movement, putting stress on your heart.
- You may be given oxygen to help your breathing.
- Vital signs and fluid intake and output will be monitored.

- Medications may be prescribed while in the hospital to help your heart and lungs perform better.
- You may have an exercise ECG test before you leave the hospital. The results will help your caregiver evaluate your condition and plan your rehabilitation program.

### UPON LEAVING THE HOSPITAL

- Follow the treatment plan your caregiver prescribes.
- Your caregiver can help you with your post hospital care program. Follow your caregiver's advice regarding dieting and exercise. Maintain a normal lipid profile. **Smokers, stop smoking.** Use alcohol as directed.
- Carry medications such as nitroglycerine with you at all times.
- Return to the hospital immediately if there is any return of chest pain, nausea, vomiting, diaphoresis, weakness, or fainting episodes.
- Your caregiver may have you wear a small, portable ECG recorder called a Holter monitor. The Holter monitor can determine if the heart rhythm is still regular.
- Wear a medical alert bracelet if recommended by your caregiver.
- Keep medications and a list and dosages with you in case of an emergency.
- Try to maintain normal blood *lipids* (the fats & cholesterol in your blood).
- Take aspirin daily if recommended by your caregiver.

### HOME CARE INSTRUCTIONS

- **Activity Level** - Your caregiver will help you determine what type of exercise program may be helpful. It is important to maintain strength and increase it if possible. Pace your activities to avoid shortness of breath or chest pain.
- **Diet** - Maintain a heart healthy diet, with salt and cholesterol restriction as advised by your caregiver.
- **Discharge Medications** - You may be prescribed aspirin or other blood thinners. These are essential, especially if you have a stent. You may have been prescribed an ACE Inhibitor or a beta blocker to take for your heart failure. Take either as directed as this improves your heart function and your survival. Ask your caregiver if being on *statins* (cholesterol lowering drugs) would be helpful. If you have trouble remembering to take your medications, ask for help.
- **Weight Monitoring** - Weigh yourself prior to leaving the hospital. When you get home, compare this weight to your scale and record your weight. Then, weigh yourself first thing in the morning daily and record the weights. Any change of more than 4 pounds over a few days should be discussed with your caregiver. They may give you instructions on adjusting your medications based on weight.
- **Blood pressure monitoring** should be done twice per week. You can get a home blood pressure cuff at your drugstore or almost any department store. Record these values and bring them with you for your health checks. Notify your caregiver if you become dizzy or lightheaded upon standing up.
- If you are currently a smoker, it is time to quit. Nicotine makes your heart work harder and is one of the leading causes of *cardiac* (heart) deaths. Do not leave without a smoking cessation plan or instructions on help available to **quit smoking**.
- **Follow-up** - Be sure to make and keep an appointment with your caregiver. Appointments with your cardiologist and other caregivers may also be needed.

### SEEK IMMEDIATE MEDICAL CARE IF:

- You have severe chest pain, especially if the pain is crushing or pressure-like and spreads to the arms, back, neck, or jaw.
- You have sweating, *nausea* (feeling sick to your stomach), or shortness of breath. **THIS IS AN EMERGENCY. Don't wait to see if the pain will go away. Get medical help at once. Call 911 or 0 (operator). DO NOT drive yourself to the hospital.**
- Your weight increases by \_\_\_\_\_ pounds or more within four days.
- You notice increasing shortness of breath during rest, sleeping, or with activity which is unusual for you.
- You develop an increase in angina, or develop chest pain which is unusual for you.
- You develop *diaphoresis* (sweating) or nausea which is unusual for you.
- You are unable to sleep because you can't breathe.