

A GUIDE TO CARDIOVASCULAR WELLNESS

# Healthy Heart

Reference Provided by  
Central California Heart Institute  
Bakersfield Memorial Hospital



**Bakersfield Memorial Hospital**

A member of CHW | *Because Every Life Matters*



## WARNING SIGNS OF A HEART ATTACK

# KNOW THE SIGNS!

Heart attacks can strike suddenly with dramatic, obvious pain... but not always. In fact, most start slowly, with only discomfort or mild pain, that can cause people to wait before getting help.

Here are warning signs that it really might be a heart attack:

### CHEST DISCOMFORT

Most heart attacks have discomfort in the middle of the chest that lasts more than a few minutes. It can feel like uncomfortable pressure, squeezing, fullness or pain. It can go away and come back.

### DISCOMFORT IN THE UPPER BODY

Symptoms can hit different places above the waist, including pain or discomfort in one or both arms, the back, neck, jaw or stomach.

### SHORTNESS OF BREATH

This occurs with or without chest discomfort.

### COLD SWEAT, NAUSEA, LIGHTEADEDNESS

### WOMEN'S SYMPTOMS

Besides the major symptoms, women may be more likely to experience some of the other common symptoms, particularly shortness of breath, nausea/vomiting, and back or jaw pain.

### ACT FAST!

If you—or someone you're with—experiences chest discomfort, especially with one or more of the other signs, don't wait longer than a few minutes (no more than 5).

Call 911 right away and ask them to take you to Bakersfield Memorial Hospital.

Emergency personnel can start treatment immediately upon arriving on the scene.

You'll also be seen faster in the hospital if you arrive by ambulance.

### MIXED SIGNALS

True—not everything that feels like a heart attack is one. A panic attack, gastric reflux (from stomach acid), esophageal spasms, angina (decreased blood flow to the heart), even a gallstone can mimic a heart attack.

It helps to know if you have risk factors for heart attack or other conditions when you are feeling discomfort. In any case, if symptoms last more than a few minutes, take action.

### QUICK—CHEW AN ASPIRIN!

In an emergency, **AFTER** you call 911 or other emergency services, chew (don't just swallow) one adult-strength 325 mg aspirin or two to four low-dose 81 mg aspirins.

(This is for people who are not allergic to aspirin and can normally consume it.)

Aspirin slows blood clotting, so any clot that is causing a heart attack will remain smaller.



## Heart Health Quiz

### BE HEART SMART

#### 1. Which is a cause of heart disease?

- A. Stroke      C. Thickening of the arteries  
B. Arthritis    D. None of the above

#### 2. What can happen if blood flow in an artery is blocked or greatly restricted?

- A. Heart palpitations    C. Heart attack  
B. Stroke                D. B & C

#### 3. What is a borderline high level for total cholesterol?

- A. 150 mg/dL      C. 200 mg/dL  
B. 175 mg/dL     D. 240 mg/dL

#### 4. What is considered "high blood pressure?"

- A. 90/70              C. 140/90            E. C & D  
B. 100/80            D. 160/100

#### 5. How many minutes of daily exercise can help prevent heart disease?

- A. 5 minutes        C. 10 minutes  
B. 2 minutes        D. 30–60 minutes

#### 6. Drinking a small amount of alcohol is considered OK for your heart. What if you drink a lot more?

- A. Too much alcohol can raise blood pressure  
B. Too much alcohol can raise triglyceride levels  
C. Too much alcohol lowers LDL ("bad") cholesterol  
D. A & B

answers → → →

### Heart Quiz Answers

- 1.C** Thickening of the arteries (atherosclerosis) happens when fat and cholesterol build up in the arteries (plaque). Plaque makes arteries narrower and stiffer so less blood gets to the heart.
- 2.D** Both the heart and brain can be permanently damaged if they don't receive the blood they need.
- 3.C** A test called a lipoprotein profile gives information about total cholesterol, LDL ("bad") cholesterol, HDL ("good") cholesterol and triglycerides. High cholesterol levels are 240 mg/dL (total count) and above. Healthy cholesterol levels are under 200 mg/dL for a total count; with 100 mg/dL or lower for LDL cholesterol, and 40 mg/dL or higher for HDL cholesterol; plus less than 150 mg/dL for triglycerides.
- 4.E** (C & D): If one or both of the numbers in a blood pressure reading are high, you have high blood pressure (hypertension). "Prehypertension" is BP between 120-139 (top number), or between 80-89 (bottom number). When BP is high, the heart can enlarge and arteries can harden.
- 5.D** For healthy adults, 30 to 60 minutes of moderate-intensity aerobic exercise five days a week are suggested to keep the heart healthy.
- 6.D** Too much alcohol harms the liver and heart, raising blood pressure, triglycerides and weight. Moderate alcohol usage may slightly improve HDL levels, but you can get the same advantage through exercise and a healthy diet.

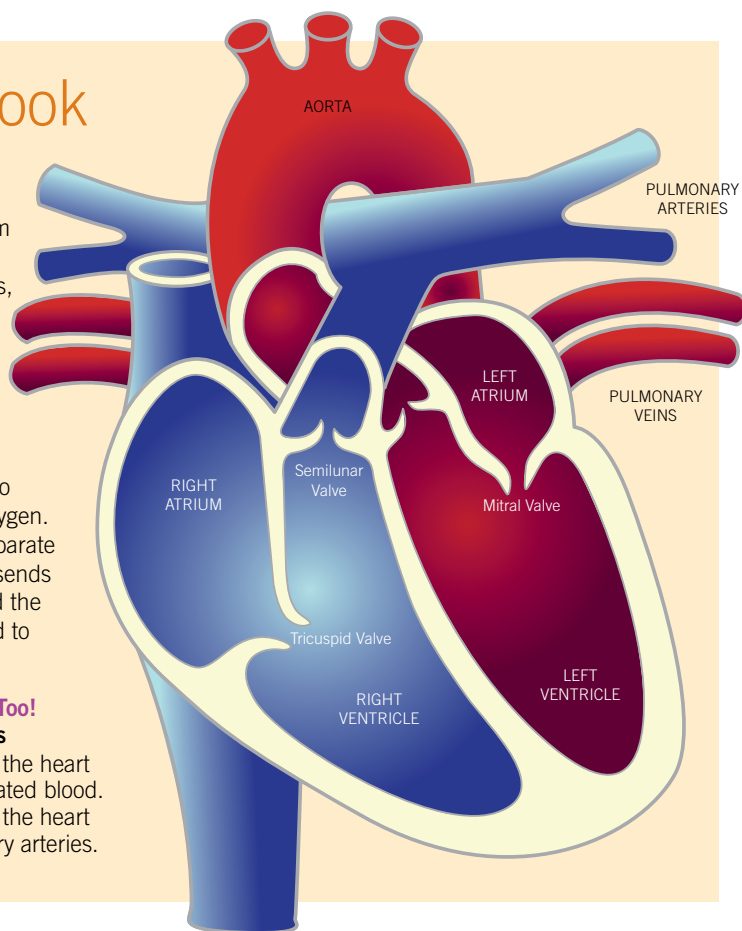
## Inside Look

### Veins, Arteries and Chambers

The circulatory system includes the heart, blood vessels (arteries, capillaries and veins) and the blood itself. The heart not only pumps oxygen-rich blood to every cell in the body, it pumps deoxygenated blood to the lungs for fresh oxygen. The heart has two separate circuits: the left side sends blood to the body and the right side sends blood to the lungs.

### Hearts Need Blood, Too! The Coronary Arteries

Like any other organ, the heart needs freshly oxygenated blood. The vessels servicing the heart are called the coronary arteries.



## HEART ATTACKS HAPPEN

### Myocardial Infarction

A heart attack (myocardial infarction or MI) happens when a coronary artery is blocked due to a blood clot, and heart muscle is injured. The damaged muscle causes pain, a sense of pressure in the chest and other symptoms. If blood flow is not restored within 20-40 minutes, muscle tissue starts to die. It progresses for six to eight hours, after which the episode is complete. Ultimately, scar tissue replaces the dead tissue.

### Atherosclerosis

In many people, cholesterol deposits (plaques) form over time within their arteries—called atherosclerosis. Plaques narrow the artery and cause it to harden. Narrow arteries can't transport enough blood to wherever it's supposed to go, which can cause problems there. For instance, atherosclerosis of the arteries supplying the brain can cause brain tissue to die suddenly (stroke).

Atherosclerosis can start early and go undetected for decades. Cigarettes, uncontrolled high blood pressure, high cholesterol and diabetes can worsen atherosclerosis and lead to health problems, especially in people with a family history of the disease.

### Angina Pectoris

Angina is pain that happens when the heart's blood and oxygen supply are insufficient due to narrowing of the coronary arteries (say 50% of normal). Angina can occur with exercise; it may feel like pressure, squeezing, heaviness or aching in the chest. Pain can radiate to the neck, jaw, arms, back, even the teeth. There may be shortness of breath, nausea, or a cold sweat.

Sometimes spasms of the coronary artery are the cause. But angina without exertion may mean that a coronary artery has become so narrow, the heart can't get enough oxygen, even at rest.

### Clots and Heart Attack

Sometimes the plaque in a coronary artery breaks apart, and a blood clot starts to grow. When the clot blocks blood flow, it causes a heart attack. Risk factors include high blood pressure, high LDL cholesterol, cigarette smoking/nicotine exposure, elevated adrenaline, and other mechanical and biochemical causes.

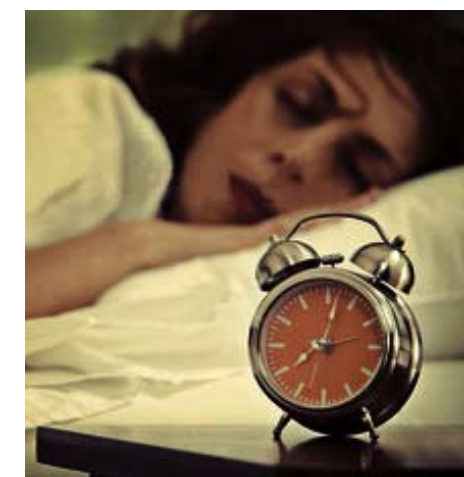


### Coronary Artery Disease (CAD)

Coronary artery disease (or coronary atherosclerosis) happens when the arteries that supply the heart become narrowed and hardened. Many health problems can result: heart attacks, chest pain (angina), abnormal heart rhythms, heart failure caused by a weakened heart muscle, and sudden unexpected death are all related to coronary artery disease.

### Danger Zone

Did you know that more heart attacks occur between 4:00 am and 10:00 am than any other time of the day? That's because more adrenaline is released from the adrenal glands during the morning hours. And high adrenaline levels can contribute to rupture of cholesterol plaques.



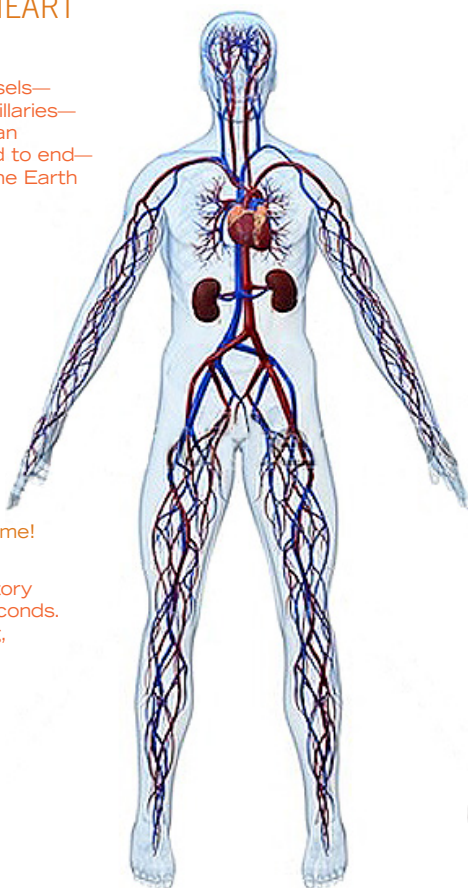
## YOUR BEATIN' HEART True Facts!

Your body's blood vessels—arteries, veins and capillaries—would stretch more than 60,000 miles if laid end to end—long enough to circle the Earth more than twice.



The heart beats about 100,000 times a day ...about 2.5 billion times in a 70-year lifetime!

A blood cell makes the trip around the circulatory system in about 20 seconds. When you're exercising, it moves twice as fast.



Where is your heart? Not on the left side of your chest! It's located in the center, but it is tipped slightly to the left—so it feels like it's located there.

The adult heart pumps about five quarts of blood a minute—about 2,000 gallons per day. In a lifetime, it pumps about a million barrels of blood, enough to fill three super tankers.



Squeeze a tennis ball good and hard. That's about the same amount of force your heart uses to pump blood throughout the body. Even at rest, heart muscles work twice as hard as the leg muscles of a sprinting runner!



## TOP 5 HEART-HEALTHY FOODS

Tasty, Delicious and Good for You!



### Oatmeal, Oat Bran and High-Fiber Foods

The soluble fiber in oatmeal helps reduce “bad” low-density lipoprotein (LDL cholesterol). The steel-cut kind has the most fiber and is absorbed slowly, avoiding a spike in insulin. Kidney beans, apples, prunes, pears and barley are also good sources.



### Fish and Omega-3 Fatty Acids

Eat at least two servings of fatty fish a week. They're high in omega-3 fatty acids, which can reduce blood pressure and lower the risk of blood clots.

### FANTASTIC FISH!

Top 5 fish richest in omega-3s  
Total omega-3s per 3.5 oz

**Mackerel 2.6**

**Lake Trout 2.0**

**Herring 1.7**

**Bluefin Tuna 1.6**

**Salmon 1.5**

### Fish Oil to the Rescue

Not everybody likes fish, and some fatty fish are high in mercury. Fish oil supplements are a great alternative. People with a history or risk factors for coronary artery disease can take a 500 mg fish oil supplement daily.



### Walnuts, Almonds and Other Nuts

Loaded with polyunsaturated fats, walnuts help keep blood vessels healthy. Enjoy about a handful of most nuts daily, such as almonds, hazelnuts, peanuts, pecans, pine nuts, pistachio nuts and walnuts. But remember, nuts are rich in calories as well. So stick to a handful—and skip the salted variety!



### Olive Oil

Olive oil delivers plenty of monounsaturated fatty acids with an antioxidant punch that can lower bad LDL cholesterol while leaving good HDL cholesterol alone. The FDA recommends eating about 2 tablespoons (23 grams) of olive oil a day, replacing other fats for heart health.



### Fortified! Plant Sterols + Stanols

Sterols and stanols found in plants help block absorption of cholesterol. Margarines, orange juice, milk and yogurt drinks are now available with plant sterols.



## Whole-Grain Party Mix

### Heart-Loving Recipe

Who says heart-healthy snacking can't be festive? Here's a recipe for party mix using whole-grain cereals, olive oil instead of solid fats, and soy nuts or wasabi peas rather than the usual mixed nuts.

### Ingredients

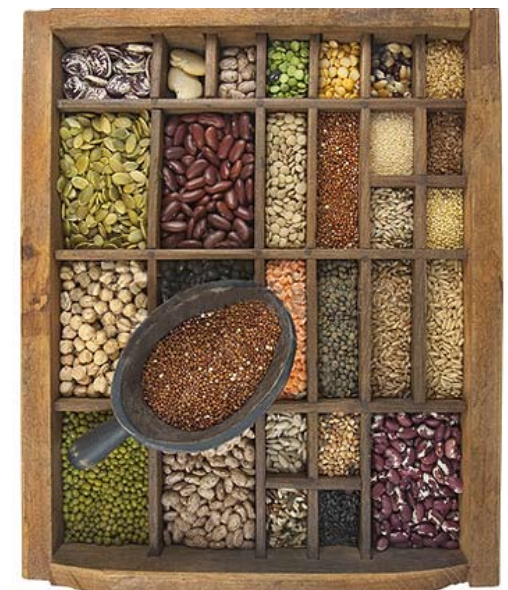
1/3 cup olive oil  
2 tbsp Worcestershire sauce  
3 to 4 tbsp salt-free garlic and herb seasoning  
5 cups whole-grain waffle-style cereal  
2 cups whole-grain “O” cereal  
1 cup unsalted, dry roasted soy nuts  
1 cup mini-pretzels (whole wheat is best)

### Directions

Heat oven to 250 degrees. Pour olive oil, Worcestershire sauce and seasoning into a 9-by-13-inch pan. Mix well. Add remaining ingredients and stir until cereal, nuts and pretzels are coated. Bake for an hour, stirring about every 15 minutes. Let cool and store in an airtight container. Serves 20

### Nutrition

Each 1/2-cup serving contains about 137 calories, 4 g protein, 6 g fat, 0 mg cholesterol, 19 g carbohydrates, 3 g fiber, and 160 mg sodium.



### HEALTHY = TASTY!

Eating healthy is easier these days—there are thousands of recipes that are good for your heart. You can find plenty on the Memorial website:

[www.ItsOkBakersfield.org](http://www.ItsOkBakersfield.org)

[www.bakersfieldmemorial.org](http://www.bakersfieldmemorial.org)

> [Health Information](#) > [Library](#) > [Healthy Recipes](#)



### FLAXSEED

Flaxseed is a great way to get plant-based, heart-healthy polyunsaturated fats, particularly alpha-linolenic acid (ALA), a building block of heart disease-fighting omega-3 fatty acids. Whole or ground flaxseed is an excellent source of soluble fiber that can help reduce both total and LDL (bad) cholesterol.

### Fiber Counts!

When regularly eaten as part of a diet low in saturated fat, trans fat and cholesterol, soluble fiber helps lower blood cholesterol. High-soluble fiber foods include oat bran, oatmeal, beans, peas, rice bran, barley, citrus fruits, strawberries, apples, sweet potatoes, oranges, broccoli, pears, kidney beans, lentils and barley.

To reduce cholesterol, try to eat 25 grams of fiber daily (women) and 38 grams of fiber daily (men). Although insoluble fiber (like wheat bran) doesn't seem to help lower blood cholesterol, it's good for overall health and digestion.

## UNBURDEN YOUR HEART

Excess weight strains your heart, raises blood pressure, blood cholesterol and triglyceride levels—and lowers your good HDL cholesterol! It can promote diabetes, too. Losing as few as 10 pounds can lower your heart disease risk.

**APPLES OR PEARS?** For years, it was believed that people with “apple” shapes—big in the middle—had greater risk than “pear” shapes (big hips, thighs and buttocks).

Now, new research shows that when factors such as blood pressure, cholesterol and diabetes are figured in, different body types have the same risk. What makes a difference? Reducing weight, controlling blood sugar and cutting cholesterol. And as for pears and apples, they make a healthy fruit salad.

**#1 CAUSE** According to the World Health Organization, cardiovascular diseases are the world's biggest killers, claiming 17.1 million people a year.

**TARGET HEART RATE** Your heart rate reveals whether you're exercising at the optimum level. During exercise, count your pulse on the inside of your wrist (thumb side). Use the tips of your first two fingers and press lightly over the blood vessels on your wrist.

Count your pulse for 10 seconds, then multiply by 6 to get beats per minute (bpm). This number should be within your “target heart rate” zone. If too high, you're straining, so slow down. If too low, exercise a little harder.

AGE	AVERAGE MAXIMUM HEART RATE	TARGET ZONE: 60-80% OF MAXIMUM
20 yrs	200 bpm	120–170 bpm
25	195	117–166
30	190	114–162
35	185	111–157
40	180	108–153
45	175	105–149
50	170	102–145
55	165	99–140
60	160	96–136
65	155	93–132
70	150	90–128

# CARDIO, CARDIO, CARDIO!

**Give your heart, lungs and circulation a boost: Perform moderate-to-vigorous-intensity aerobic activity, at least 30 minutes at 50-85 percent of your maximum heart rate. You can break it up into 10- or 15-minute sessions. Do this most of the days in the week. Be consistent—it helps!**



### Hit the Stairs

You may raise eyebrows, but let the rest of the office ride. You hit the stairs and build leg power! If you've got 5 flights to climb, take the elevator but get off on a lower floor and walk the rest.

### Clean House

Bending, scrubbing, climbing, cleaning, washing, moving, gardening... all these can be good exercise.



### TV Time

While watching, walk in place, or do strength-training exercises, like sit-ups or squats. Get some weights or exercise bands and use them during commercials.



### Moderate-to-Vigorous Activities

Brisk walking, hiking, stair-climbing, aerobics, jogging, running, bicycling, rowing, swimming, sports that include continuous running (soccer), are all great for your personal cardio program!

### Walkabout

When driving, park several blocks from your destination. Walking 5 minutes is better than none! If the weather is bad, try “mall walking” on your lunch hour. And don't be a slave to email: get up and visit your co-worker's office in person.



### Dance Away

Lots of aerobic exercises use dance moves. Put on your favorite tunes and shake a leg! Three songs = 10 minutes = 1/3 of your daily exercise!

### Work It

At work, organize a team for a charity walk/run, and get plenty of practice. If you need to brainstorm with a colleague, take a walk instead of sitting at a conference table.



### Every Little Bit Helps!

You don't have to hit the gym to get exercise. Just build more activity into your day. It's good for your mental outlook, too.



### Go Retro

Don't use every easy convenience. At the store, carry a basket instead of pushing a cart. Instead of having things delivered, run an errand. Better yet, bike!



### Get Off Your...!

If you use a computer for long periods, get a timer program and set it to chime every 30 minutes. When it rings, do two minutes of exercise, like jumping jacks, squats or arm circles. You'll get your blood moving, feel livelier and reduce strain on your eyes and back.



### Clean Teeth = Healthier Heart

Keeping your teeth and gums healthy can lower your risk of heart trouble! Oral bacterial infections cause tissue inflammation, which raises the risk of atherosclerosis (narrowing of the arteries) and cardiovascular disease. Another good reason to brush, floss...and see your dentist regularly.

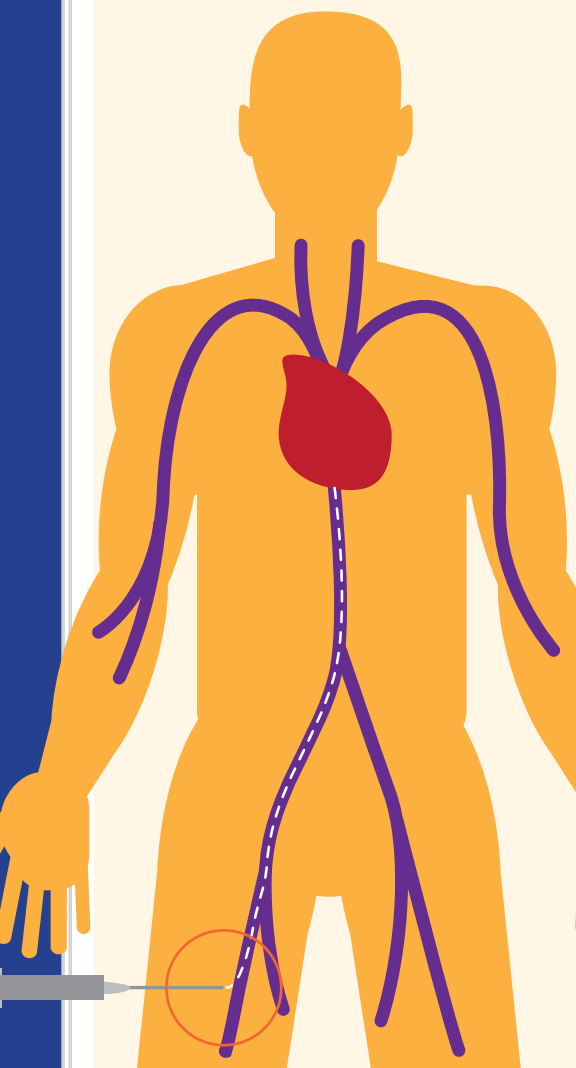


## INSIDE THE LINE

The cardiovascular system is complex and extensive, delicate and resilient. Fortunately, when trouble strikes, there are plenty of ways doctors can find the problem—and fix it.

### THE “CATH LAB”

A hospital’s “Cath Lab” is a room where nonsurgical catheterization procedures are performed to assess and treat cardiovascular disease. During catheterization, a thin tube (catheter) is inserted into an artery, typically in the groin. The catheter is threaded up as far as the heart while the patient is under local anesthesia and mild sedation. Guided by X-ray imaging, doctors can insert wire-thin instruments and tiny devices via the catheter to get more information about cardiac problems and treat them on the spot.



## GETTING ANSWERS: DIAGNOSTIC TESTS

Many tests are available to help your medical team understand exactly where the heart trouble is. Here are some of the procedures available at Bakersfield Memorial Hospital.

### Non-Invasive Diagnostic Studies

#### Echocardiography (12-lead EKG or ECG)

An EKG tells doctors whether a patient’s heart rate and rhythm are normal, or if some kind of heart damage exists. Wires (leads) attached to different areas of the body record the heart’s electrical impulses. A “12-lead EKG” measures signals from 12 different locations.

#### Holter Monitoring

Doctors may want to monitor heart function over time, to check for problems that come and go. A portable Holter monitor worn by the patient records heart activity all day, similar to a standard EKG but for a longer time.

#### Nuclear Cardiology

When doctors need a detailed look at a patient’s cardiovascular system, they may employ a low dose of a radioactive agent. Injected into the bloodstream, the agent is detected by sensitive imaging devices that show where and how it travels. This is sometimes used during cardiac stress tests.

#### CT & MRI imaging

A computed tomography (CT) uses X-rays to create detailed images of structures inside the body. The scanner is a large doughnut-shaped machine that images thin slices of the area being studied. Magnetic resonance imaging (MRI) uses a powerful magnetic field and radio waves (not X-rays) to create cross-sectional pictures of the body. Both can create 3D images.

#### Stress & Pharmacologic Imaging Test

Sometimes doctors want to check the heart function of patients scheduled for non-cardiac surgery who may have coronary artery disease. A drug is given to “stress” the heart while data are gathered using a cardiac sonogram (echocardiography) or nuclear cardiology.

#### Tilt Table

Patients who suffer dizziness, lightheadedness or fainting may have problems with blood pressure (such as when standing up from a seated position) or other causes. In a tilt table test, the patient is monitored while rising from a prone to an upright position.



### Invasive Diagnostic Studies

In these tests, tiny instruments are inserted into the body to gather images and data.

#### Cardiac & Peripheral Vascular Angiography

To visualize blood vessels and heart chambers, doctors may order an angiogram. After the patient is catheterized (using a thin tube threaded through an artery), a contrast agent is injected. X-ray images follow the fluid’s path through the body and look for blockages or narrowing (stenosis).

#### Transesophageal Echocardiography

Doctors can use sound waves to get images of the heart’s movement (echocardiogram) and check for disease. To get an even clearer image, a transesophageal echo (TEE) test may be needed. An ultrasound transducer is guided down the throat, and sound waves create images of the heart’s valves and chambers.



#### Intravascular Ultrasound & Flow Measurements

Doctors also use sound to image the inside walls of blood vessels, showing cholesterol and fat deposits (plaque). In intravascular ultrasound (IVUS) a tiny ultrasound wand on the top of a thin catheter is inserted into an artery and guided to the heart. IVUS is often performed to ensure a vascular stent is situated properly.

#### Electrophysiologic Testing

The heart’s nervous impulses (the “electrical” system) need to be checked when the heart beats too slowly, too rapidly or irregularly. In an electrophysiologic (EP) study, one or more electrode catheters are threaded through different arteries into the heart. These record signals and send mild electrical impulses to stimulate the heart, potentially triggering the problem so that doctors can identify its location and cause.

#### Biopsy

To diagnose some diseases of the heart, cell samples are needed. After a catheter is inserted into a blood vessel, a tiny tool is used to remove a bit of muscle for study.

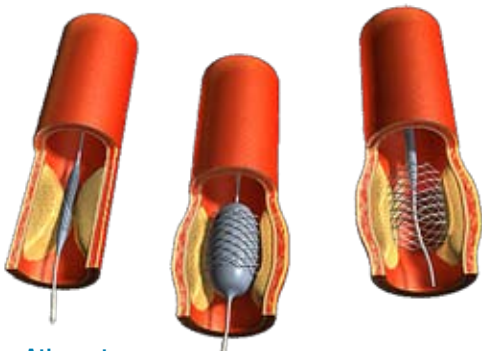
# MENDING HEARTS

Doctors have many ways to correct problems with the heart and vascular system

## THERAPEUTIC INTERVENTIONS (CATH LAB)

### Coronary Angioplasty and Stenting

When arteries leading to the heart are blocked, blood flow needs to be restored quickly. Coronary angioplasty (**percutaneous transluminal coronary angioplasty, PTCA**) gets blood flowing without open-heart surgery. A thin hollow catheter armed with a tiny balloon at the tip is threaded into the artery. Inflating the balloon compresses fatty tissue inside the artery, allowing blood to flow. A tiny, expandable metal coil (**stent**) may be inserted to keep the artery open.



### Atherectomy

Plaque can be removed during catheterization using a cutting device to shave off material, or a laser can be used to vaporize it.

### Ablations of Abnormal Heart Rhythm

Sometimes, heart nerves misfire, creating an abnormal heartbeat (**arrhythmia**). Doctors may recommend a procedure called catheter ablation. After the heart is catheterized, small energy bursts are used to “disconnect” the circuits that are causing arrhythmia.

### Implantable Cardioverter Defibrillator

If a person's heartbeat is too fast (**tachycardia**) or irregular (**fibrillation**), the heart cannot do its job. As a solution, doctors may implant a device called a cardioverter defibrillator. It monitors heart rate, and when necessary, sends a shock that restores normal heartbeat.

### Pacemakers and Biventricular Pacing

In some cases, the heart's natural pacemaker malfunctions or other problems develop with a regular heartbeat. A small pacemaker device is implanted under the skin, sending electrical signals to regulate the heartbeat. A biventricular pacemaker keeps both ventricles (**lower heart chambers**) pumping at the same time, increasing heart efficiency.

### Peripheral Vascular Angioplasty and Stenting

All parts of the body receive blood circulation, and can be affected by vascular disease. Peripheral vascular disease (**PVD**) often impacts the legs and feet. In some cases, doctors need to unblock arteries using angioplasty. Different angioplasty interventions include balloon angioplasty, atherectomy (**removing plaque**), laser angioplasty and stenting.

### Rotablator

Coronary arteries can develop calcium deposits that are extremely hard and cannot be compressed by a balloon catheter. In certain cases, doctors may decide to use a tiny drill called a rotablator. Spinning up to 200,000 rpm, the drill breaks the calcium deposits into fine particles that are absorbed by the body.

### Closure of Septal Defects

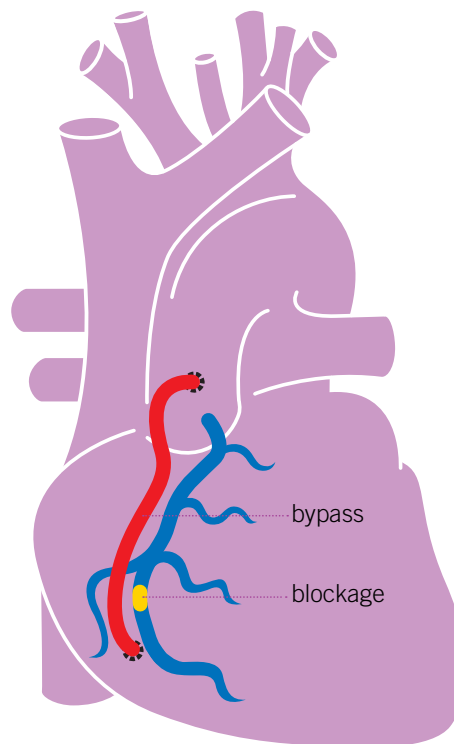
Sometimes the tissue that separates the chambers of the heart does not develop completely, leaving a hole (**often between the atrial chambers**). This allows both oxygenated and deoxygenated blood to mix. Different kinds of surgery are used to close the defect, including surgery performed through a catheter.

### Endovascular Abdominal Aortic Aneurysm Repair

The largest artery in the body, the aorta, carries blood down to the pelvis and legs. In some cases, the walls of the aorta can weaken and bulge, called an abdominal aortic aneurysm (**AAA**). The problem can now be repaired from inside the artery (**endovascular aneurysm repair, EVAR**). A stent is inserted into the area, strengthening it.

### Transradial Access Angioplasty

The latest advance in cardiac catheterization, transradial access (**TRA**) makes common cardiac catheterization procedures even safer and recovery more comfortable by accessing the heart through an artery in the patient's wrist rather than the femoral artery in the groin area.



## SURGICAL INTERVENTIONS IN THE HOSPITAL

### Coronary Artery Bypass Surgery or Graft

(**CABG**) If an artery is severely blocked, doctors can bypass the section entirely. A healthy piece of blood vessel is taken from the leg or other area and used to reroute blood flow.

### Mitral Valve Repair

The mitral valve is the “inflow” valve regulating blood flow to the heart. This valve can become narrowed or leaky. Cardiac surgeons have several procedures to improve valve functioning.

### Minimally Invasive Stentless Valve Repair and Replacement

Heart valve repair is frequently performed using techniques that involve smaller incisions. These can reduce blood loss, trauma, and the length of a hospital stay.



A pacemaker is a small device placed in the chest or abdomen to help regulate abnormal heart rhythms.

### Surgical Implantation of Heart Assist Devices

In some cases, a patient may need a device implanted that can help the heart circulate blood. Several different heart assist devices are available that can provide left side, right side, or both left and right side heart support.

### Transmyocardial Laser Revascularization (TMR)

This procedure uses a special laser to create small channels in the heart muscle, improving blood flow within the heart.

### Vascular Surgery

Many vascular problems such as blocked carotid arteries (**blood supply to the brain**) and abdominal aortic aneurysms are treated with traditional open heart surgery rather than catheterization.



Stents are tubes that help keep narrowed arteries open.

## Central California Heart Institute

**The Central California Heart Institute (CCHI) at Bakersfield Memorial Hospital is dedicated to delivering the highest caliber of cardiovascular care to people in Kern County.**

Through the Institute's research programs, our physicians are trained in leading-edge treatments utilizing the most advanced practices and technologies.

The Institute is also involved in training doctors and educating medical professionals through fellowships and symposia. As cardiovascular medicine evolves, the new ideas generated at the Central California Health Institute are integrated into the clinical services at Memorial, benefiting cardiac patients in the area.

### The Heart & Vascular Center

Memorial's Heart and Vascular Center serves thousands of patients each year, assessing them for cardiovascular problems using a full spectrum of traditional and advanced diagnostics, and treating them with both nonsurgical and surgical procedures. The Center saves lives through cardiac wellness education, emergency care and a complete cardiopulmonary rehabilitation program.

### Ready 24/7

Our Cardiac Cath Lab team and Cardiovascular Surgery team are on call 24/7/365.

### 90 Minutes or Less

Nationwide, hospital goals for "door to balloon time"—the time elapsed between a heart patient's admission and treatment with balloon angioplasty—is 90 minutes. Memorial's average is well within that figure.

### Rapid Response Team

Whenever patients are admitted to Memorial with chest pain, they are immediately evaluated with an EKG. If signs indicate a myocardial infarction, the hospital's Rapid Response Team of doctors, nurses and technicians goes into action: The patient is taken to a Cath Lab for diagnostic and interventional procedures that can literally be life-saving when seconds count.

### The Surgical Team

Memorial's Cardiac Surgical team has the skills and experience to perform complex cardiovascular procedures. Depending on the situation, a team may include one to two cardiac surgeons, an anesthesiologist, two surgical technicians, two RNs and a service coordinator.



## AFTER YOUR PROCEDURE

### Three Phases of Cardiac Rehab

**Cardiovascular disease can threaten your life and lifestyle. Memorial's Cardiac Rehab program combines exercise, education and risk factor reduction to help you manage and minimize the dangers of this serious health problem.**

#### Phase I

##### Inpatient Cardiac Rehab

Rehab begins when patients are in the hospital recovering from heart attack, bypass surgery, angioplasty, stent and other interventional procedures. Our staff provides patients and their families with education and support during their hospital stay. Cardiac Rehab nurses meet with patients and their families on an individual basis and develop plans to meet their health needs. They provide information on managing cardiovascular disease, help identify risk factors, and set goals to reduce those risks by making lifestyle changes (like quitting smoking). Nurses also prepare patients for discharge by discussing exercise and discharge guidelines, the activities of daily living, and warning signs and symptoms to report to their physician.

Patients also benefit from continued education, lifestyle modification, monitored activity progression and emotional support during recovery. The social aspect of group exercise provides an environment where people can share their concerns and experiences while supporting each other.

#### Phase III

##### Life Maintenance

People who have been in the Phase II program who wish to continue in a medically supervised fitness plan can move on to Phase III—Life Maintenance.

This is a non-monitored program: participants can exercise in the Center any time during open hours. A physician's referral is required. Patients are shown how to record their own blood pressure and keep their own exercise records. This low-cost, self-pay program is great for anybody with cardiac health risks as well as diabetes, hypertension, obesity, high cholesterol or other issues. Spouses are also welcome to participate. Please call 661.327.4647 ext 4350 to find out more about this program. Remember, you must be referred by your physician.

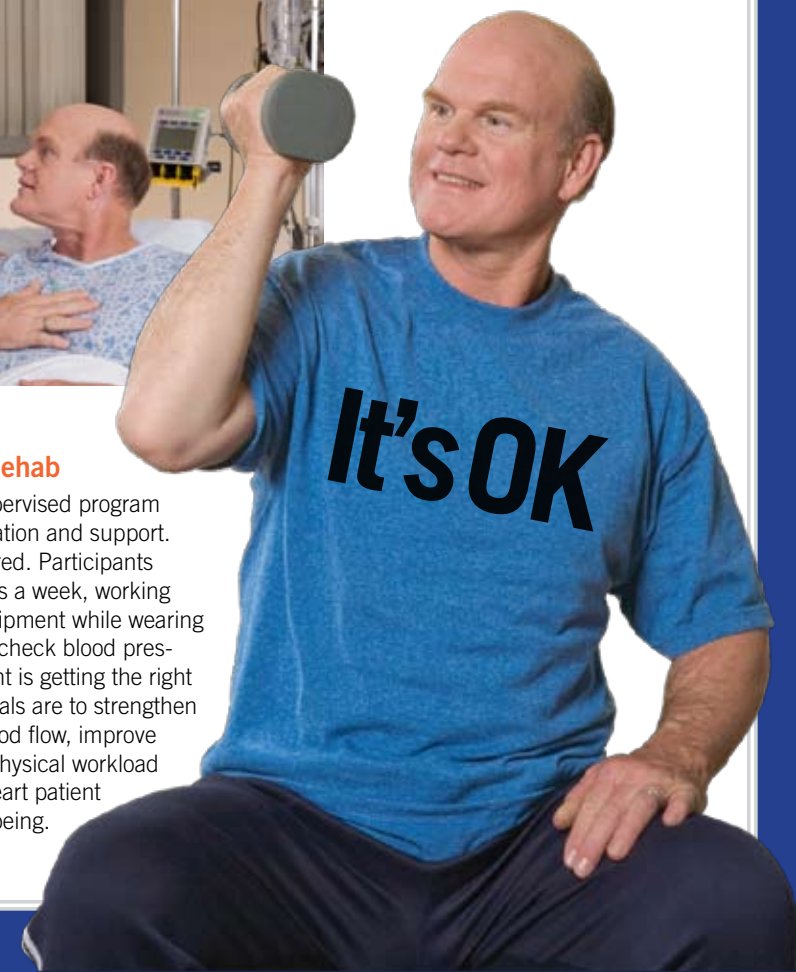
**It Pays to Know: Medical insurance often covers the cost of cardiac rehab.**



#### Phase II

##### Outpatient Cardiac Rehab

Phase II is a medically supervised program combining exercise, education and support. A doctor's referral is required. Participants attend sessions three times a week, working out on state-of-the-art equipment while wearing a heart monitor. Staff also check blood pressure and ensure the patient is getting the right degree of exercise. The goals are to strengthen the heart and increase blood flow, improve endurance and increase physical workload capacity. This helps the heart patient return to a feeling of well-being.



## More Cardiovascular Resources

### American Heart Association

Learn more about preventing and treating cardiovascular disease.

[www.americanheart.org](http://www.americanheart.org)

### Centers for Disease Control and Prevention

The U.S. government has a mandate for improving the nation's health.

[www.cdc.gov/HeartDisease](http://www.cdc.gov/HeartDisease)

### Mended Hearts

Support and inspiration for heart patients of all ages.

[www.mendedhearts.org](http://www.mendedhearts.org)

### Information, Please

Questions about your family's health? Visit Memorial's free online Health Information Library & Wellness Center to access hundreds of health topics, read valuable health articles and take free health assessment tests.

[www.ItsOkBakersfield.org](http://www.ItsOkBakersfield.org)

### Friend us on Facebook!

[www.facebook.com/bakersfieldmemorial](http://www.facebook.com/bakersfieldmemorial)

**Note:** All physicians, including but not limited to emergency physicians, pathologists, radiologists and anesthesiologists providing care to patients are independent practitioners and not employees of the Hospital. The information on area resources and websites other than [www.ItsOkBakersfield.org](http://www.ItsOkBakersfield.org) or [www.bakersfieldmemorial.org](http://www.bakersfieldmemorial.org) is provided solely as a convenience, and does not necessarily imply endorsement by Bakersfield Memorial Hospital.



## About Bakersfield Memorial Hospital

Founded in 1956, Bakersfield Memorial Hospital was created to meet the needs of our community, and has grown from a small local facility to a large regional hospital serving all of Kern County.

Today, we have more than 400 general acute beds, nearly 50 intensive care and cardiovascular recovery units, 13 state-of-the-art surgical suites, a full-service Emergency Department with a nationally certified Stroke Center, and the Central California Heart Institute.

In addition, we offer newly expanded birthing suites, a new Children's Medical Center, a family care center, a 31-bed Neonatal Intensive Care Unit, a 20-bed Pediatric Unit, a full complement of diagnostic laboratory and imaging services and an outpatient surgery center.

Bakersfield Memorial Hospital is a member of Catholic Healthcare West (CHW), the eighth-largest hospital system in the nation and the largest not-for-profit hospital provider in California.

### Bakersfield Memorial Hospital

420 34th Street  
Bakersfield, CA 93301  
661.327.4647

[www.ItsOkBakersfield.org](http://www.ItsOkBakersfield.org)  
[www.bakersfieldmemorial.org](http://www.bakersfieldmemorial.org)

## PRE-REGISTRATION AVAILABLE

The Pre-Registration Program is a complimentary service allowing former and prospective patients to complete their admitting process online—all from the comfort of home. Whether it's a prescheduled surgery, or an unexpected trip to the emergency room—you'll save time, be more prepared, and even help your doctor deliver better care. Particularly when it comes to the heart, minutes and seconds can make the difference.

**When you pre-register, your health information is automatically added to your personal, private electronic medical record (EMR). It will include your medical history, any past procedures performed at Memorial, and pertinent data that you have provided in previous visits.**

The information in your EMR assists your attending physician in diagnosing your current medical issue, should you come in through the ER or as a regular patient to the hospital. It also helps your treatment team understand your personal medical history when providing your care. This new program is particularly helpful for our frequent visitors who suffer from chronic conditions, or need to undergo diagnostic tests or treatments.

**Pre-Register at: [www.ItsOkBakersfield.org](http://www.ItsOkBakersfield.org)**

or [www.bakersfieldmemorial.org](http://www.bakersfieldmemorial.org) and click the Admitting/Registration link on the left, or call 661.327.4647 ext 4866 to have one of our pre-registration experts walk you through the process.

### If you need a doctor or more information:

Call the Memorial Physician Referral & Resource Line:  
1.877.854.4BMH (4264)

