

HEART DISEASE AND WOMEN:

Are You At Risk?

Heart disease is a woman's concern. Every woman's concern. One in ten American women 45 to 64 years of age has some form of heart disease, and this increases to one in four women over 65. Heart disease is the number one killer of American women. In addition, 2 million women have had a stroke, and 93,000 women die of stroke each year.

This fact sheet tells you what kinds of habits and health conditions increase the chances of developing these diseases--and what you can do to keep your heart healthy.

What Are These Diseases?

Both heart disease and stroke are known as *cardiovascular diseases*, which are disorders of the heart and blood vessel system. Coronary heart disease—the main subject of this fact sheet—is a disease of the blood vessels of the heart, known as “coronary arteries.” Coronary heart disease causes chest pain (angina) and heart attacks. Blood brings oxygen and nutrients to the heart. When too little blood flows to the heart, angina results. When the blood flow is critically reduced, a heart attack occurs. A lack of blood flow to the brain or, in some cases, bleeding in the brain causes a stroke. Some other cardiovascular diseases are high blood pressure and rheumatic heart disease.

Who Gets Cardiovascular Diseases?

Some women have more “risk factors” for cardiovascular diseases than others. Risk factors are habits or traits that make a person more likely to develop a disease. Some risk factors for heart-related problems cannot be changed, but many others can be.

The major risk factors for cardiovascular disease that you *can* do something about are cigarette smoking, high blood pressure, high blood cholesterol, overweight, and physical inactivity. Other risk factors, such as diabetes, also are conditions you have some control over. Even just one risk factor will raise your chances of having heart-related problems. But the more risk factors you have, the more likely you are to develop cardiovascular diseases—and the more concerned you should be about protecting your heart health.

HEART DISEASE RISK FACTORS

Risk factors are habits or traits that make a person more likely to develop a disease. Many of those for heart disease can be controlled. These include:

- Cigarette smoking
- High blood pressure
- High blood cholesterol
- Overweight
- Physical inactivity
- Diabetes

The more risk factors you have, the greater your risk. So take action—take control!



MAJOR RISK FACTORS

Smoking

Smoking by women in the United States causes one and a half times as many deaths from heart disease as from lung cancer. If you smoke, you are two to six times more likely to suffer a heart attack than a nonsmoking woman, and the risk increases with the number of cigarettes you smoke each day. Smoking also boosts the risk of stroke.

Cardiovascular diseases are not the only health risks connected to smoking. Women who smoke are much more likely to develop lung cancer than nonsmoking women. Cigarette smoking is also linked with cancers of the mouth, larynx, esophagus, urinary tract, kidney, pancreas, and cervix. Smokers also are more likely to develop other kinds of lung problems, including bronchitis and emphysema.

Smoking during pregnancy is also linked to a number of problems. They include bleeding, miscarriage, premature delivery, lower birth weight, stillbirth, and sudden infant death syndrome, or "crib death." Also, young children who breathe in a parent's cigarette smoke have more lung and ear infections.

There is simply no safe way to smoke. Although low-tar and low-nicotine cigarettes may reduce the lung cancer risk somewhat, they do not lessen the risks of heart diseases or other smoking-related diseases. The only safe and healthful course is not to smoke at all.

High Blood Pressure

High blood pressure, also known as hypertension, is another major risk factor for coronary heart disease and the most important risk factor for stroke and heart failure. Heart failure is a severe condition in which the heart cannot adequately supply the body with blood. High blood pressure causes three of every five cases of heart failure in women. High blood pressure also boosts the chances of developing kidney disease and blindness.

Older women have a higher risk of high blood pressure, with more than half of all women over age 55 suffering from this condition. High blood pressure is more common and more severe in African-American women than it is in white women. Using birth control pills can contribute to high blood pressure in some women.

While all women can and should take steps to prevent or control high blood pressure, it is especially important for women who have heart disease to do so. When blood pressure is lowered, the heart does not work as hard. Women who have had a heart attack are less likely to have another if they reduce their high blood pressure.

What is blood pressure—and when is it high? Blood pressure is the amount of force exerted by the blood against the walls of the arteries. Everyone has to have some blood pressure, so that blood can get to the body's organs and muscles. Usually, blood pressure is expressed as two numbers, such as 120/80 mmHg (millimeters of mercury). Depending on your activities, blood pressure may rise or fall in the course of a day.

Blood pressure is considered high when it stays above 140/90 mmHg over a period of time.

However, the harmful effects of elevated blood pressure do not begin at the 140/90 mmHg mark—even blood pressures slightly under that can increase your risk of heart disease and stroke. Also, both numbers are important to your health. Many older Americans, for example, have a form of high blood pressure known as "isolated systolic hypertension" (ISH). This occurs when the systolic pressure (the top number) is high but the diastolic pressure (the bottom number) is normal. This too, if not controlled, increases the risk of heart attack and stroke.

High blood pressure is called the "silent killer" because most people who have it do not feel sick. That means it is important to have it checked regularly. Because blood pressure changes often, your doctor or other health professional should check it on several different days before deciding if your blood pressure is too high.

Although high blood pressure can rarely be cured, it can be controlled with proper treatment. If your blood

REMEMBER: GET YOUR BLOOD PRESSURE CHECKED

The higher your blood pressure, the greater your risk for coronary heart disease. If your blood pressure is above 140/90 mmHg, you should consult your doctor at once. Even if your blood pressure is normal, you can lower it—and reduce your risk for coronary artery disease.

Talk to your doctor to discuss the steps you should take to keep your blood pressure at a healthy level.

pressure is not too high, you may be able to control it entirely through weight loss if you are overweight, regular physical activity, and cutting down on alcohol and salt and sodium. (Sodium is an ingredient in salt that is found in many packaged foods, carbonated beverages, baking soda, and some antacids.)

It may also help to eat more fruits and vegetables and low fat or non-fat dairy products that supply plenty of potassium, magnesium, fiber, and calcium. Eating foods rich in potassium, in particular, seems to prevent high blood pressure.

However, if your blood pressure remains high, your doctor may prescribe medicine in addition to the above changes, especially if you already have heart disease. The amount of medicine you take may

be gradually reduced, especially if you are successful with the changes you make in your lifestyle.

A reminder: Be sure to take a blood pressure medication exactly as your doctor has prescribed it. Blood pressure medicine must be taken in the right amounts and at the right times in order to work properly.

During pregnancy, some women develop high blood pressure for the first time. Other women who already have high blood pressure may find that it gets worse during pregnancy. If untreated, these conditions can be life-threatening to both mother and baby. Since you can feel perfectly normal and still have one of these conditions, be sure to get regular prenatal checkups so your doctor can find and control a possible high blood pressure problem.

Blood pressure tends to get higher as you age. So, even if your blood pressure is normal now, it makes sense to take steps to prevent high blood pressure in the years to come. You will be less likely to develop high blood pressure if you are physically active, maintain a healthy weight, limit your alcohol intake, and cut down on salt and sodium.

High Blood Cholesterol

High blood cholesterol is another very important risk factor for coronary heart disease that you can do something about. Blood cholesterol levels among women in the United States tend to rise from about the age of 20. But they rise sharply beginning at about age 40 and continue to increase until about age 60. The higher your blood cholesterol level, the higher your heart disease risk.

Today, about a quarter of all American women have blood cholesterol levels high enough to pose a serious risk for heart disease. More than half of the women over age 55 need to lower their blood cholesterol.

While the body needs cholesterol to function normally, it makes enough to meet all of its needs. But too much saturated fat and cholesterol in the food one eats raise the level of cholesterol in the blood. Over a period of years, extra cholesterol and fat in the blood are deposited in the inner walls of the arteries that supply blood to the heart. These deposits make the arteries narrower and narrower. As a result, less blood gets to the heart and the risk of coronary heart disease increases.

Cholesterol travels in the blood in packages called lipoproteins. Cholesterol packaged in low density lipoprotein (LDL) is often called

BLOOD PRESSURE CATEGORIES IN WOMEN (18 YEARS AND OLDER)*

Blood pressure is shown as two numbers—the systolic pressure as the heart is beating and the diastolic pressure between heartbeats. Both numbers are important.

Category	Blood Pressure Level in mmHg		
	Systolic		Diastolic
Optimal**	<120	and	<80
Normal	<130	and	<85
High-normal	130-139	or	85-89
Hypertension			
Stage 1	140-159	or	90-99
Stage 2	160-179	or	100-109
Stage 3	≥180	or	≥110

* Not taking antihypertensive drugs and not acutely ill. When systolic and diastolic blood pressures fall into different categories, the higher category determines blood pressure status.

**Optimal blood pressure with respect to cardiovascular risk is <120/<80 mmHg. Unusually low readings should be evaluated for clinical significance.

Source: *The Sixth Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure*, NIH, NHLBI, 1997.

BLOOD CHOLESTEROL LEVELS FOR WOMEN WITHOUT HEART DISEASE

	Desirable	Borderline-High	High
<i>Total cholesterol</i>	Less than 200	200-239	240 and above
<i>LDL cholesterol</i>	Less than 130	130-159	160 and above

An HDL cholesterol level of less than 35 is a major risk factor for heart disease. An HDL level of 60 or higher is protective.

Source: *Second Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol In Adults*, NIH, NHLBI, 1993.

“bad” cholesterol, because too much LDL in the blood can lead to cholesterol buildup and blockage in the arteries.

Another type of cholesterol, which is packaged in high density lipoprotein (HDL), is known as “good” cholesterol. That is because HDL helps remove cholesterol from the blood, preventing it from piling up in the arteries.

All women age 20 and older should have their blood cholesterol checked. The following sections describe the steps for managing cholesterol levels for two types of women: those who do not have coronary heart disease, and those who do have coronary heart disease.

If You Do Not Have Heart Disease Getting Your Cholesterol Checked.

Blood cholesterol levels are measured by means of a small blood sample. The blood should be tested for total cholesterol and, if an accurate measurement is available, for HDL cholesterol as well.

Understanding the Numbers. A desirable total cholesterol level for adults without heart disease is less than 200 mg/dL (or 200 milligrams per deciliter of blood). A level of 240

mg/dL or above is considered “high” blood cholesterol. But even levels in the “borderline-high” category (200-239 mg/dL) increase the risk of heart disease.

HDL levels are interpreted differently than total cholesterol levels. The lower your HDL level, the higher your heart disease risk. An HDL level of under 35 is a major risk factor for heart disease. A level of 60 or higher is considered protective.

Total and HDL cholesterol are measured first. If these tests show any of the following, your doctor will want to measure your LDL level as well: total cholesterol of 240 mg/dL or above; total cholesterol of 200-239 mg/dL with two or more other risk factors for heart disease; or HDL cholesterol of less than 35 mg/dL.

An LDL level below 130 mg/dL is desirable. LDL levels of 130-159 mg/dL are borderline-high. Levels of 160 mg/dL or above are high. As with total cholesterol, the higher your LDL number, the higher the risk.

Prevention and Treatment. If your tests show that your blood cholesterol levels are in the desirable range, keep up the good work! To help

keep your levels healthy, it will be important to eat a low saturated fat, low cholesterol diet, engage in regular physical activity, and control your weight.

If your blood cholesterol levels are too high, your doctor may recommend a specific treatment program for you. For most people, cutting back on foods high in saturated fat and cholesterol will lower LDL cholesterol, which is the main goal of treatment. Regular physical activity and weight loss for overweight persons also will lower blood cholesterol levels.

Losing extra weight, as well as quitting smoking and becoming more physically active, also may help boost your HDL cholesterol level.

If your new diet and other lifestyle changes do not lower your blood cholesterol level enough, your doctor may suggest that you take cholesterol-lowering medications. If you have other risk factors for heart disease, you will need to lower your cholesterol more than someone without risk factors.

If You Have Heart Disease

Women who have coronary (or “ischemic”) heart disease should pay even more attention to their cholesterol levels. An individual with coronary heart disease has a much greater risk of having a future heart attack than a person without heart disease. Whether or not your cholesterol level is elevated, lowering it will greatly reduce your risk of a future heart attack and can actually prolong your life.

Getting Your Cholesterol Checked. Since you have heart disease, you will need to have a blood test called a lipoprotein profile. This test will determine not only your total

cholesterol and HDL cholesterol levels, but also your levels of LDL cholesterol and another fatty substance called triglycerides.

Understanding the Numbers. Your goal should be to have an LDL cholesterol of about 100 mg/dL or less, which is lower than for people who do not have heart disease. Depending on what your LDL level is, your next steps will be the following:

- If your LDL level is 100 mg/dL or less, you do not need to take specific steps to lower your LDL. But you will need to have your level tested again in 1 year. In the meantime, you should closely follow a diet low in saturated fat and cholesterol, maintain a healthy weight, be physically active, and not smoke. You should also follow the specific recommendations of your doctor.
- If your LDL level is higher than 100 mg/dL, you will need a complete physical examination to find out if you have a disease or condition that is raising your cholesterol levels. Then you should take steps to lower your LDL to 100 mg/dL or less: closely follow a low saturated fat, low cholesterol diet, be physically active, lose excess weight, and take cholesterol-lowering medicine, if prescribed. Of course, you also should avoid smoking.

If, in your doctor's judgment, your LDL level starts out too much higher than the LDL goal of 100 mg/dL or if your LDL level stays too high after lifestyle changes, you will need to take medicine.

Overweight

Overweight women are much more likely to develop heart-related problems, even if they have no other risk factors. Excess body weight in women is linked with coronary heart disease, stroke, congestive heart failure, and death from heart-related causes. The more overweight you are, the higher your risk for heart disease.

Overweight contributes not only to cardiovascular diseases, but also to other risk factors, including high blood pressure, high blood cholesterol, and diabetes. Fortunately, these conditions often can be controlled with weight loss and regular physical activity.

What is a healthy weight for you? There is no exact answer. Check the "Are You Overweight?" chart to find out if your weight is within the healthy weight range suggested for women of your height. Weights above the suggested ranges are believed to be unhealthy for most people.

Body shape as well as weight may affect heart health. "Apple-shaped" individuals with extra fat at the waistline may have a higher risk than "pear-shaped" people with heavy hips and thighs. If your waist is nearly as large as, or larger than, the size of your hips, you may have a higher risk for coronary heart disease.

For lasting weight loss, engage in regular, brisk physical activity and eat foods that are low in calories and fat. Do not try to lose more than 1/2 to 1 pound a week.

Physical Inactivity

Physical inactivity increases the risk of heart disease. It both contributes directly to heart-related problems and increases the chances of developing other risk factors, such as high blood pressure and diabetes.

Physical inactivity is increasing among Americans—especially among women. According to the first-ever *Surgeon General's Report on Physical Activity and Health*, 60 percent of American women do not get the recommended amount of physical activity, while more than 25 percent are not active at all.

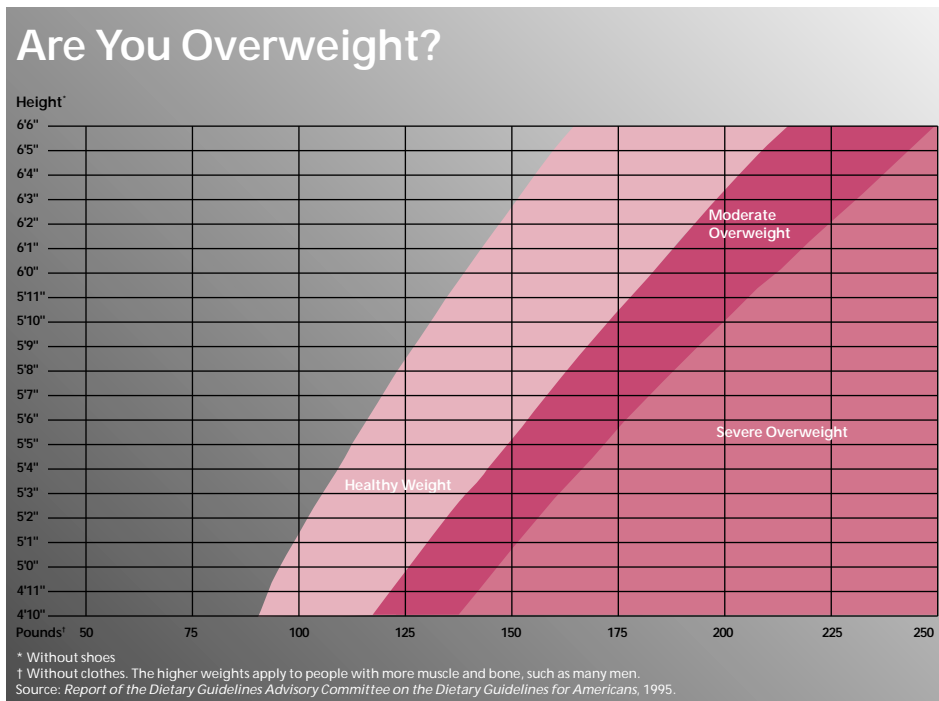
Fortunately, it doesn't take a lot of effort to become physically active. The Surgeon General's report and other research conclude that as little as 30 minutes of moderate activity on most, and preferably all, days of the week help protect heart health. Examples of moderate activity are brisk walking or bicycling, raking leaves, or gardening.

If you prefer, you can divide the 30-minute activity into shorter periods of at least 10 minutes each. If you already engage in this level of activity, you can get added benefits by doing even more.

Diabetes

Diabetes, or high blood sugar, is a serious disorder that raises the risk of coronary heart disease. The risk of death from heart disease is about three times higher in women with diabetes. Diabetic women also are more apt to have high blood pressure and high blood cholesterol.

Diabetes is often called a "woman's disease" because after age 45 about twice as many women as men



develop diabetes. While there is no cure for this disorder, there are steps a person can take to control it. In certain people, being overweight and growing older are linked with the development of the most common type of diabetes. Losing excess weight and boosting physical activity may help postpone or prevent the disease.

Other Factors

Stress

In recent years, we have heard a lot about the connection between stress and heart disease. For example, studies have found that the most commonly reported incident preceding a heart attack is an emotionally upsetting event, particularly one that involves anger. Also, some common ways of coping with stress, such as overeating, heavy drinking, and smoking, are clearly bad for your heart.

The good news is that sensible health habits can have a protective effect. Regular physical activity not only relieves stress, but can directly lower your risk of heart disease. Also, participating in a stress management program following a heart attack lowers the chances of further heart-related problems.

Studies also suggest that having emotionally supportive relationships lessens the chances of developing heart disease and prolongs life following a heart attack. While these findings are promising, researchers will need to conduct further studies to find out more about the links among certain behaviors, stress, and coronary heart disease in women.

Birth Control Pills

Birth control pills (oral contraceptives) used to have much higher doses of estrogen than they do today. Such pills increased the risk of vascular and heart disease, especially among women who smoked.

Today, "high-dose" refers to pills containing about 50 micrograms of estrogen. However, American women much more commonly use "low-dose" pills that have 35 micrograms of estrogen or less. There is little, if any, additional risk of heart disease for premenopausal women using a pill that has up to 50 micrograms of estrogen.

However, taking a birth control pill does pose risks for some women. If you are now taking any kind of birth control pill or are considering using one, keep these guidelines in mind:

- If you smoke cigarettes, stop smoking or consider a different form of birth control. Smoking boosts the risks of serious cardiovascular problems from birth control pill use, especially the risk of blood clots, and particularly in women over 35.
- Use of birth control pills may increase blood pressure. If you take oral contraceptives, you should get your blood pressure checked regularly. If you develop hypertension, you should ask your doctor about changing pills or switching to another form of birth control.
- If you take birth control pills and are diabetic or prediabetic, you should have regular blood sugar tests.
- If you have had problems with blood clots, a heart attack, or a stroke, or if you have any other kind of cardiovascular disease, oral contraceptives may not be a safe choice. Be sure your doctor knows about your condition before prescribing birth control pills for you.

Of course, this addresses only cardiovascular points. For a more complete discussion about birth control pills, talk with your doctor.

Homocysteine

Homocysteine (pronounced homo-SIS-teen) is an amino acid that is found normally in the body. Recent studies suggest that high blood levels of this substance may increase a person's chances of developing heart disease, stroke, and reduced blood flow to the hands and feet. It is believed that high levels of homocysteine may damage the arteries, make the blood more likely to clot, and/or make blood vessels less flexible.

Recent research also shows that the level of homocysteine in the blood is affected by the consumption of three vitamins—folic acid and vitamins B6 and B12. People who consume less than the recommended daily amounts of these vitamins are more likely to have higher homocysteine levels. Recommended daily amounts are as follows: 400 micrograms of folic acid, 2 milligrams of B6, and 6 micrograms of B12.

It has not yet been proven that lowering homocysteine levels will actually help to prevent heart or blood vessel disease. But, until more research is done, women can help protect their health by getting enough folic acid, B6, and B12 in their diets.

Good sources of folic acid include citrus fruits, tomatoes, vegetables, whole-grain and fortified-grain products, beans, and lentils. Foods high in B6 include meat, poultry, fish, fruits, vegetables, and grain

products. Major sources of B12 are meat, poultry, fish, and milk and other dairy products.

Alcohol

Several recent studies have reported that moderate drinkers—those who have one or two drinks per day—are less likely to develop heart disease than people who don't drink any alcohol. If you are a nondrinker, this is *not* a recommendation to start using alcohol. And certainly, if you are pregnant or have another health condition that could make alcohol use harmful, you should not drink. But if you are already a moderate drinker, you may be less likely to have a heart attack.

But remember, moderation is the key. More than three drinks per day can raise blood pressure, and binge drinking can lead to stroke. People who drink heavily on a regular basis have higher rates of heart disease than either moderate drinkers or nondrinkers.

The "Dietary Guidelines for Americans" recommend that for overall health, women should have no more than one drink per day. One drink equals 12 ounces of beer, or 5 ounces of wine, or 1½ ounces of 80-proof liquor.

Keep in mind, too, that alcohol provides no nutrients—only extra calories. If you are trying to control your weight, you may want to cut down on alcohol and substitute calorie-free iced tea, mineral water, or seltzer.

Hormones and Menopause

Should menopausal women use hormone pills? There is no simple answer to this question.

Menopause is caused by a decrease in estrogen produced by a woman's ovaries. As estrogen levels begin to drop, some women develop uncomfortable symptoms such as "hot flashes" and mood changes. Hormone replacement therapy (HRT)—a term for prescription hormone medications—can be used to relieve these symptoms. Some women are prescribed medication that contains only estrogen. Others take estrogen combined with a second hormone, called progestin.

Hormone Therapy and Heart Health

The latest research indicates that HRT may have important heart benefits for women after menopause. The National Institutes of Health (NIH) supported a major study on HRT called the Postmenopausal Estrogen/Progestin Interventions (PEPI) Trial. It found that HRT raised levels of HDL and decreased those of LDL. This was true for both HRT with estrogen alone or in combination with progestin.

Further, HRT slowed the bone loss that occurs with menopause and significantly increased bone mass. These effects on bone were strongest among older women and those who had not recently used hormones. Smokers, who generally lose bone mass more quickly than nonsmokers, gained as much bone on average as nonsmokers.

HRT did not increase blood pressure or cause weight gain.

There was a key difference between the estrogen-only and estrogen-progestin forms of HRT and their effects on the uterine lining, called the endometrium. HRT using estrogen plus progestin prevented over-

growth of the uterine lining, while HRT with estrogen-only increased the risk of such overgrowth.

Deciding on HRT

Some questions about HRT remain. For example, PEPI was not large enough and did not last long enough to examine breast cancer issues. However, other research suggests HRT slightly increases that risk, perhaps only in women who take it for 5 or more years.

To decide whether or not to use HRT, talk with your doctor or health professional about your risk of heart disease, osteoporosis (a severe thinning of the bones that makes them more likely to break), cancer, your family medical history, and quality of life issues.

In addition, these guidelines may help in deciding on HRT:

- Postmenopausal women who have *not* had a hysterectomy (removal of the uterus) should consider taking a therapy that combines estrogen with progestin or natural progesterone. A woman with a uterus who decides to take estrogen-only should have a yearly endometrial biopsy (an examination of the uterine lining).
- Postmenopausal women who *have* had a hysterectomy would get no additional cardiovascular or bone-mass benefit from adding a progestin. They are not at risk for overgrowth of the uterine lining.

Finally, if you decide to use HRT, you should periodically review your status with your health professional. And be alert for signs of trouble, especially abnormal bleeding, dizziness, or severe headaches, and immediately report these to the doctor. They may or may not be due to the HRT.

Aspirin

The research on aspirin is promising: This well-known “wonder drug” may help to both prevent and treat heart attacks. A study of more than 87,000 women found that those who took a low dose of aspirin regularly were less likely to suffer a first heart attack than women who took no aspirin. Women over age 50 appeared to benefit most.

Other recent research suggests that only a tiny daily dose of aspirin may be needed to protect against heart attacks. One study found that, for both women and men, taking only 30 mg of aspirin daily—one-tenth the strength of a regular aspirin—helped prevent heart attacks as effectively as the usual 300 mg dose. The smaller dose also caused less stomach irritation.

Aspirin also reduces the chances that women who have already had a heart attack or stroke will have, or die from, another one. If taken quickly, aspirin may also increase the chances of survival after a heart attack.

Keep in mind, however, that aspirin is a powerful drug with many side effects. It can increase your chances of getting ulcers, kidney disease, liver disease, and a stroke from a hemorrhage. Because of these serious risks, you should not take aspirin to either prevent or treat a heart attack without first discussing it with your doctor.

FOR MORE INFORMATION

If you would like to know more about keeping your heart healthy, the National Heart, Lung, and Blood Institute (NHLBI) has available free fact sheets on these subjects: preventing and controlling high blood pressure, preventing and controlling high blood cholesterol, quitting smoking, the heart benefits of physical activity, and HRT.

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Or check out the NHLBI web site at
<http://www.nhlbi.nih.gov/nhlbi/nhlbi.htm>.

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