Gender matters: Heart disease risk in women

Heart disease is the leading cause of death among women — and one of the most preventable. Research is giving us new insights into how we can control our risk.

We’ve come a long way since the days when a woman’s worry over heart disease centered exclusively on its threat to the men in her life. We now know it’s not just a man’s problem. Every year, coronary heart disease, the single biggest cause of death in the United States, claims women and men in nearly equal numbers, totaling about 500,000 lives. More than 6.5 million women have some form of it. Of those who survive a heart attack, 46% will be disabled by heart failure within six years.

Risk still underappreciated

In a recent survey conducted by the American Heart Association, about half of the women interviewed knew that heart disease is the leading cause of death in women, yet only 13% said it was their greatest personal health risk. If not heart disease, then what? Other survey data suggest that on a day-to-day basis, women still worry more about getting breast cancer — even though heart disease kills six times as many women every year. Why the disconnect?

Breast cancer affects body image, sexuality, and self-esteem in ways that a diagnosis of heart disease does not. Also, heart disease tends to show up at an older age (on average, a woman’s first heart attack occurs at age 70), so the threat may not seem all that real to younger women. Most 50-year-old women know women their age who’ve had breast cancer, but none who’ve had heart disease.

In addition, many women say their physicians never talk to them about coronary risk and sometimes don’t even recognize the symptoms, mistaking them instead for signs of panic disorder, stress, and even hypochondria.

Sex differences evident

Until recently, most of our ideas about heart disease in women came from studying it in men. But there are many reasons to think that it’s different in women. A woman’s symptoms are often different from a man’s, and she’s much more likely than a man to die within a year of having a heart attack. Women also don’t seem to fare as well as men do after taking clot-busting drugs or undergoing certain heart-related medical procedures. Research is only now beginning to uncover the biological, medical, and social bases of these and other differences. The hope is that new knowledge will lead to advances in tailoring prevention and treatment to women.

What is coronary heart disease?

Coronary heart disease results from atherosclerosis, the buildup of cholesterol-laden plaques inside the coronary arteries. These plaques restrict blood flow to the heart muscle, reducing its supply of oxygen. Angina (chest pain) may result. If blood flow is entirely disrupted, some of the tissue may die. This is what is meant by a “heart attack.”
Health disease risk in women continued

Heart disease may start in childhood, develop silently over time, and arrive without warning as a heart attack, often a deadly one. So we should wait for symptoms to appear, or research to tell us more, before taking proven steps to reduce our risk.

First things first
Several things in your control can help reduce your risk for heart disease.

Don’t smoke, actively or passively.
Your chance of having a heart attack doubles if you smoke as few as one to four cigarettes per day. Even if you don’t smoke, regular exposure to someone else’s smoke can increase your risk.

Be more active.
Get at least 30 minutes per day of moderate-intensity exercise, such as brisk walking, most days. Fit even more activity into your life: Take the stairs rather than the elevator, do yard work, park farther from your destination and walk.

Eat healthfully.
Studies at Harvard Medical School and elsewhere have identified several crucial ingredients of a heart-healthy diet — whole grains, a variety of fruits and vegetables, nuts (about 5 ounces per week), poly- and monounsaturated fats, fatty fish (such as wild salmon), and limited intake of trans fats.

Prevention goals to reduce heart disease risk in women

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Goal</th>
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</thead>
<tbody>
<tr>
<td>Body measures</td>
<td></td>
</tr>
<tr>
<td>Body mass index (BMI)</td>
<td>Multiply your weight in pounds by 700, then divide that number by the square of your height in inches</td>
</tr>
<tr>
<td>Waist (abdominal) circumference</td>
<td>Hold a tape measure at the level of your navel and circle your abdomen with it. (Measure below, not at, the narrowest part of your torso.)</td>
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<tr>
<td>Lipids, lipoproteins</td>
<td></td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>&lt;200 mg/dL</td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td>&gt;50 mg/dL</td>
</tr>
<tr>
<td>LDL cholesterol</td>
<td>&lt;100 mg/dL</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>&lt;150 mg/dL</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>&lt;120/80 mm Hg</td>
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Adapted from information in Circulation 2004, Vol. 109, pp. 672–93.

Should women take a daily aspirin?
In people who’ve already had a heart attack or stroke, a daily aspirin can lower their risk for another one. But in healthy women, it’s unclear whether aspirin’s benefits outweigh the risks of gastrointestinal bleeding and hemorrhagic stroke.

We should know more in the near future.
The Women’s Health Study at Brigham and Women’s Hospital in Boston is nearing the end of its test of the effects of aspirin and/or vitamin E or a placebo on the risk of cardiovascular disease and cancer in 40,000 healthy women. For now, expert guidelines for women suggest that daily low-dose aspirin (81–162 mg) be considered only in women who already have heart disease or are at risk for it.

Reduce stress and treat depression.
Your risk for heart disease increases if you’re depressed or feel chronically stressed. Stress-reducing strategies include exercise, adequate sleep, relaxation techniques, and meditation. Psychotherapy can be especially helpful with depression and anxiety.

Reach for the numbers.
Earlier this year, the American Heart Association (AHA) released new guidelines on preventing heart disease and stroke in women (Circulation, Feb. 10, 2004). According to the AHA, you can greatly reduce your risk for these diseases by maintaining certain body measurements and levels of cholesterol and blood pressure (see chart, at left).

The AHA’s guidelines also include recommendations based on a woman’s 10-year risk of having a heart attack. To learn more, visit our Web site at www.health.harvard.edu/women.

Can I be tested for heart disease risk?
Doctors can measure the levels of certain substances associated with increased heart disease risk. But it’s still unclear what levels put you at risk or whether controlling them will help.

Elevated homocysteine.
Homocysteine forms when the body breaks down protein. Some research has shown that people with high homocysteine levels are more likely to develop heart disease. (They also tend to be deficient in the B vitamins.) We still don’t know whether reducing homocysteine, especially by increasing B-vitamin
intake, will lower heart disease risk. Trials are under way to find out. Routine screening is not recommended, but if you have a strong family history of heart disease and no traditional risk factors, your physician may suggest that you be tested.

**C-reactive protein.** C-reactive protein is a byproduct of blood vessel inflammation, which sets the stage for atherosclerosis (see “What is coronary heart disease?”). High C-reactive protein levels predict heart disease in both women and men and could help identify people at risk who have normal cholesterol. However, researchers haven’t yet determined the appropriate target levels of C-reactive protein for different genders, ages, and ethnic groups or how to interpret the results.

**Heart scans.** Ultra-fast computed tomography (CT) scans of the heart can detect calcium in coronary blood vessels. Calcium is one of the components of atherosclerotic plaques. But a calcium score can’t tell you whether your coronary arteries are clogged. Rather, it’s an estimate of the likelihood of plaque buildup. In general, lower calcium levels suggest lower risk for heart attack and stroke over the next few years, and higher levels suggest higher risk. But many people have calcium scores in the middle, and no one knows what that means. Until further research demonstrates that heart scans can predict heart attacks, they have limited benefits, and insurers won’t pay for them.

### Sex differences in coronary risk and treatment

**New research is identifying gender differences in heart disease that may help fine-tune prevention, diagnosis, and treatment in women. Here are some examples.**

**Blood lipids.** Before menopause, a woman’s own estrogen helps protect her from heart disease by increasing HDL (good) cholesterol and decreasing LDL (bad) cholesterol. After menopause, women have higher concentrations of total cholesterol than men do. But this alone doesn’t explain the sudden rise in heart disease risk after menopause. Elevated triglycerides are an especially powerful contributor to cardiovascular risk in women. Low HDL and high triglycerides appear to be the only factors that increase the risk of death from heart disease in women over age 65.

**Diabetes.** Diabetes increases the risk of heart disease in women more than it does in men, perhaps because women with diabetes more often have added risk factors, such as obesity, hypertension, and high cholesterol. Although women usually develop heart disease about 10 years later than men, diabetes erases that advantage. In women who’ve already had a heart attack, diabetes doubles the risk for a second heart attack and increases the risk for heart failure.

**Metabolic syndrome.** This is a group of health risks — large waist size, elevated blood pressure, glucose intolerance, low HDL cholesterol, and high triglycerides — that increases your chance of developing heart disease, stroke, and diabetes. Harvard Medical School research suggests that, for women, metabolic syndrome is the most important risk factor for having heart attacks at an unusually early age. In a study of patients undergoing bypass surgery, metabolic syndrome produced a greater risk for women than it did for men of dying within eight years.

**Smoking.** Women who smoke are twice as likely to have a heart attack as male smokers. Women are also less likely to succeed in quitting, and women who do quit are more likely to start again. Moreover, women may not find nicotine replacement as effective, and — because the menstrual cycle affects tobacco withdrawal symptoms — they may get inconsistent results with antismoking medications.

### Symptoms

**Many women don’t experience the crushing chest pain that is a classic symptom of a heart attack in men. Some feel extremely tired or short of breath. Other atypical symptoms include nausea and abdominal, neck, and shoulder pain. In one study, women reported deep fatigue and disturbed sleep as much as a month or two before a heart attack. During a heart attack, only about one in eight women reported chest pain; even then, they described it as pressure, aching, or tightness rather than pain.**

**Diagnosis and treatment.** Women have smaller and lighter coronary arteries than men do. This makes angiography, angioplasty, and coronary bypass surgery more difficult to do, thereby reducing a woman’s chance of receiving a proper diagnosis and having a good outcome. Women tend to have more complications following surgery. And they’re twice as likely to continue having symptoms several years after coronary angioplasty. (They’re usually older than men and have more chronic conditions at the time of their first coronary event.) Women’s responses to standard exercise stress tests are also different from men’s, so it’s difficult to interpret the results. Fortunately, these problems are diminishing thanks to advances in technology and better understanding of heart disease in women.

### Top heart attack symptoms in women

<table>
<thead>
<tr>
<th>One month before a heart attack</th>
<th>During a heart attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unusual fatigue (71%)</td>
<td>Shortness of breath (58%)</td>
</tr>
<tr>
<td>Sleep disturbance (48%)</td>
<td>Weakness (55%)</td>
</tr>
<tr>
<td>Shortness of breath (42%)</td>
<td>Unusual fatigue (43%)</td>
</tr>
<tr>
<td>Indigestion (39%)</td>
<td>Cold sweat (39%)</td>
</tr>
<tr>
<td>Anxiety (36%)</td>
<td>Dizziness (39%)</td>
</tr>
<tr>
<td>Heart racing (27%)</td>
<td>Nausea (36%)</td>
</tr>
<tr>
<td>Arms weak/heavy (25%)</td>
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</tr>
</tbody>
</table>

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