



# Understanding Risk Factors for Heart Disease

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## Introduction

Among the diseases feared the world over are those involving the heart and blood vessels, also called cardiovascular diseases (CVD). Heart Disease or Coronary Artery Disease is a form of CVD that affects men and women. It is also the leading cause of death in the U.S. as well as Oklahoma.

Heart problems are either acquired at birth or later in life. Heart problems acquired later in life are often due to:

- narrowing or blockage of the coronary artery that nourishes the heart muscle, as in angina and heart attacks.
- compromise of the muscles and valves of the heart-lung system, which leads to weakening of the heart muscle as in congestive heart failure and heart-valve disorders.
- compromise of the electrical activities of the heart, leading to forms of heart-rhythm alterations or arrhythmia.

## Risk Factors for Cardiovascular Disease

Risk factors for heart disease are behaviors or conditions that increase one's chance of having a heart problem. CVD can be classified as controllable and uncontrollable. Controllable risk factors are lifestyle-related. They can be altered by changing individual behaviors, while uncontrollable risk factors are not behavior-related and are not under the control of an individual.

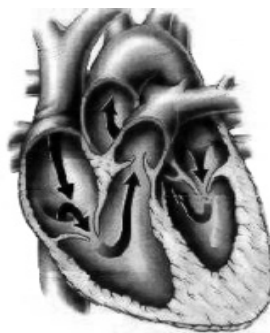
## Controllable Risk Behaviors and Related Effect on the Heart

There are several risk behaviors that one can control. They include cigarette smoking, high blood pressure, cholesterol, physical activity, obesity, diabetes, and other psychological and social factors.

### 1. Cigarette smokers have two to three times the risk of suffering a heart attack than nonsmokers.

- Cigarettes contain nicotine.

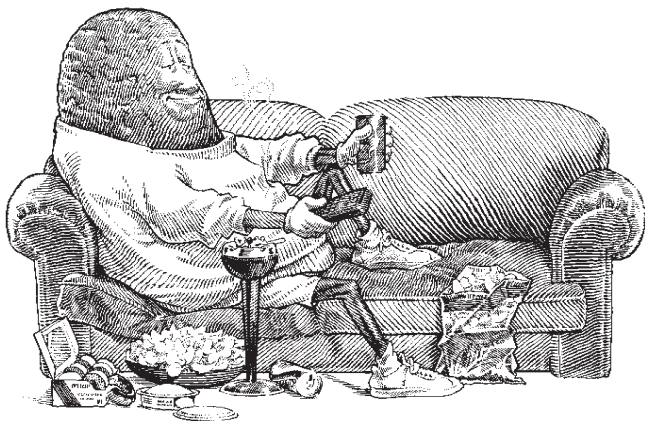
- As a stimulant, nicotine causes increased blood pressure and heart rate.
  - Carbon monoxide in cigarette smoke displaces oxygen in the blood.
  - Smoking damages the linings of arteries and reduces beneficial levels of high-density cholesterol.
  - Smoking causes platelets to become sticky and increases blood thickness.
  - Environmental tobacco smoke (ETS) caused by smoking has been linked to heart disease. The risk of death from coronary heart disease increases up to 30% in nonsmokers exposed to ETS.
- 2. High blood pressure:**
- High blood pressure occurs when a higher than normal pressure is exerted against the walls of the arteries. This is usually caused by hardening of the arteries with plaque.
  - The heart has to work harder; eventually weakens and enlarges.
- 3. Cholesterol:** This is a waxy substance and member of the fat family, which is obtained in food and produced in the body. It is essential to the body and aids in fat digestion, helps the skin produce Vitamin D, helps develop adrenal and sex hormones, and insulates nerve tissue in the brain and spinal cord.



Excess cholesterol can clog arteries and increase risk of CVD.

- Desirable cholesterol levels vary because of age, sex, and heredity.
- The body produces its own supply of cholesterol, and also obtains some from the consumption of food rich in saturated fats (mostly animal sources).

- Cholesterol is transported in the blood in lipoproteins.
  - Low-density lipoproteins (LDLs) carry cholesterol from the liver to organs and tissues that require it. Excess amounts are deposited in the arteries. For this reason, LDLs are considered “bad” cholesterol.
  - High-density lipoproteins (HDLs) carry unused cholesterol back to the liver for recycling; they are known as “good” cholesterol.
  - The risk of CVD increases with increasing blood cholesterol levels.
  - A total cholesterol level below 200 milligrams per deciliter (mg/dl) indicates a relatively low risk of CVD.
  - Levels over 240 mg/dl indicate a high risk of CVD.
  - High LDL levels and low HDL levels are associated with a higher risk of CVD. Some experts consider the ratio of total cholesterol to HDL the best indicator of CVD risk.
  - Lowering blood cholesterol levels reduces heart attack risk and helps to clean out diseased arteries.
  - Triglyceride: This is not cholesterol but another form of fat that increases the risk of heart disease. A desirable level ranges from below 150 to 200 mg/dl. Weight loss, regular exercise, and dietary changes are the best ways to reduce triglyceride levels.
  - Elevated triglyceride levels, especially in combination with low HDL levels, obesity, and/or diabetes, are a reliable predictor of CVD.
- 4. Physical Inactivity:**
- Exercise lowers risk by helping decrease blood pressure, and increasing HDL levels.
  - Exercise maintains desirable weight, and prevents or controls diabetes. A minimum of 20 minutes of moderate physical activity is recommended three or more times a week.



**Too much fat and physical inactivity is bad for your heart.**

- 5. Obesity:** Body weight of more than 30% over recommended weight.
- Excess weight contributes to high cholesterol levels, high blood pressure, and increases the strain on the heart.
  - The distribution of fat is also an indicator of CVD. Fat collected in the waist area is more dangerous than that collected around the hips.
- 6. Diabetes:** A condition that results in an increase in blood sugar and an inability for the body to use glucose for energy. It is a risk factor partially because it increases cholesterol levels in the blood.
- 7. Psychological and social factors:**
- High stress is a risk factor because the stress response puts a strain on the heart and blood vessels.
  - Hostility, cynicism, and anger put a strain on the heart and blood vessels.
  - Suppressing psychological distress, instead of sharing it with others, may have negative physical, as well as psychological, effects.
  - Depression, anxiety, and social isolation may occur.
  - Low socioeconomic status and low educational attainment are also factors.

**Uncontrollable Risk Factors (factors that can not be controlled):**

- 1. Heredity:** Coronary Artery Disease (CAD) has a genetic component. A person is at greater risk if a parent had heart or blood vessel disease. High cholesterol levels, blood-clotting problems, diabetes, and obesity also have genetic links.
- 2. Age:** The risk of heart attack increases after age 65.
- 3. Gender:** Men have a higher risk for CVD than do women, especially earlier in life. By age 75, the gender gap nearly disappears.
- 4. Ethnicity:** African Americans (men in particular) have a greater risk for hypertension; many Hispanic Americans have greater risk of high blood pressure and angina. Asian Americans have had lower rates of CVD than white Americans, but their cholesterol levels appear to be rising. Blood cholesterol levels are equally high among Native Americans.

**Protecting Yourself Against CAD**

- A heart-healthy diet reduces CAD risk.
- Total fat consumption should not be more than 30% of total calories.
- Limit intake of fat from animal sources.
- Increase intake of dietary fiber, this helps prevent cholesterol production and may interfere with the absorption of dietary fat.
- Limit salt intake for salt sensitive individuals.
- Increase intake of fruits, vegetables, and low fat dairy products.

- Other medical conditions that may affect CAD risk need to be controlled and managed.
- A moderate amount of physical activity significantly reduces the risk of CVD. Individuals should exercise three or more times a week, and 20 or more minutes per session.
- Avoid smoking and use of other forms of tobacco, and avoid exposure to ETS.
- Monitor blood pressure at least once a year or as advised by a health care provider.
- Monitor blood cholesterol level annually, and manage or treat cholesterol related problems as advised by a health care provider.

## HEALTHY PEOPLE 2010 OBJECTIVES FOR HEART HEALTH

- Objective #12-10** Increase to at least 50% the proportion of people with high blood pressure whose blood pressure is under control. (Baseline: 18% controlled among people age 18 and older in 1988 to 1994).
- Objective # 12-11** Increase the proportion of people with high blood pressure who are taking action to help control their blood pressure. (Baseline: 72% of adults aged 18 years and older were taking action to control their blood pressure in 1998).
- Objective #12-14** Reduce the proportion of adults with high total blood cholesterol levels of 240 mg/dl or greater to no more than 17% among adults. (Baseline: 21% for people age 20 and older had total blood cholesterol levels of 240 mg/dl or greater in 1988 to 1994).
- Objective #12-15** Increase to at least 80% the proportion of adults who have had their blood cholesterol checked within the preceding five years. (Baseline: 68% of people age 18 and over had their cholesterol checked in 1998).

### Reference Resource

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### Internet Resources

**<http://www.ahcpr.gov/consumer>:** Agency for Healthcare Research and Quality. This site links to information on publications relevant to heart disease and stroke such as “What You Should Know About Stroke Prevention,” “Managing Unstable Angina,” “Living with Heart Disease: Is It Heart Failure?,” and “Recovering from Heart Problems Through Cardiac Rehabilitation.”

**<http://www.aacvpr.org>:** American Association of Cardiovascular and Pulmonary Rehabilitation. This site provides information about this professional organization and links to both cardiovascular and pulmonary related sites.

**<http://www.acc.org/>** American College of Cardiology. This professional organization provides information about its conferences, journal articles, and technical information on this site.

**<http://www.amhrt.org>:** Provides information on hundreds of topics relating to the prevention and control of cardiovascular disease.

**<http://www.cardiologycompass.com>:** Cardiology Compass. An index to cardiovascular information on the Internet.

**<http://www.fi.edu/biosci/heart.html>:** The Franklin Institute Online. This online museum exhibit contains information about the structure and function of the heart and describes how to monitor and maintain heart health.

**<http://www.heartinfo.org>:** Heart Information Network. Provides information for patients with heart disease and others interested in learning how to identify and reduce their risk factors.

**<http://www.nhlbi.nih.gov/nhlbi/nhlbi.htm>:** The National Heart, Lung and Blood Institute. Provides information on a variety of topics relating to cardiovascular health and disease, including cholesterol, smoking, obesity, and hypertension.

**<http://www.stroke.org>:** National Stroke Association. Provides information and referrals for stroke victims and their families and offers a stroke risk assessment.

**<http://www.cfsan.fda.gov/~dms/wh-heart.html>:** U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition. Information for Women About Heart Disease and High Blood Pressure. This site offers information about keeping cholesterol under control, using the new food label to prevent heart disease, and facts about women and heart disease. It also provides links to other related agencies.

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