

The heart, which is about the size of a human fist, is the body's largest, strongest, and most important muscle. The heart continuously pumps blood through the body, helps regulate and prolong health, and controls the flow (circulation) of blood to the lungs, organs, muscles, and tissues in the body.

Heart disease is a leading cause of debilitation and death worldwide in men and women over age sixty-five. In many countries heart disease is viewed as a "second epidemic," replacing infectious diseases as the leading cause of death. It is especially devastating in countries that do not have adequate health care. There are many types of diseases and disorders that affect the heart.

Congenital Heart Disease

Congenital cardiac anomaly (CAA), also known as congenital heart disease (CHD), refers to any structural defect of the heart or major vessels that exists from birth. It is the most common cause of infant death, other than problems of prematurity, and death is likely to occur in the first year of life. CAA may result either from genetic causes or from external causes such as maternal infection or exposure to other factors that affect embryonic development. The general problems associated with CAA include increased cardiac workload, hypertension, poor oxygenation of blood, and respiratory infections. There are many types of CAA, including aortic stenosis, atrial septal defect, valvular stenosis, and pulmonary stenosis.

Rheumatic Heart Disease

Rheumatic heart disease (RHD) involves damage to the heart and heart vessels caused by rheumatic fever. A susceptible person acquires a streptococcal infection, which may trigger an autoimmune reaction in the heart tissue. Rheumatic fever can cause swelling (inflammation) in the heart, joints, brain, and spinal cord. Rheumatic fever produces fatigue (tiredness) and the infection can damage or weaken heart valves. Problems with the heart may be evident early, or it may occur long after the infection. RHD is characterized by heart murmurs, abnormal pulse rate and rhythm, and congestive heart failure. Acute RHD requires aggressive treatment to prevent heart failure. Chronic RHD requires continuous observation. If poor cardiac function develops, it may be treated with a low-sodium diet and diuretics. Patients with deformed heart valves should be given prophylactic antibiotics before dental and surgical procedures.

Myocardial Infarction (MI)

Myocardial infarction (MI) is the clinical term for a heart attack. It is caused by occlusion (blockage) of the coronary artery (atherosclerosis) or a blood clot (coronary thrombosis), resulting in the partial or total blockage of one of the coronary arteries. When this occurs, the heart muscle (myocardium) does not receive enough oxygen. If the MI is mild, the heart muscle may partially repair itself. Permanent damage may occur when a portion of the heart muscle dies (called an infarction).

MI is characterized by crushing chest pains that may radiate to the left arm, neck, or upper abdomen (which may feel like acute indigestion or a gallbladder attack). The affected person usually has shortness of breath, ashen color, clammy hands, and faints. Treatment within one hour of the heart attack is important and usually includes chewing aspirin and administering CPR. Many individuals die each year of their first MI.

Coronary Artery Disease (CAD)

Coronary artery disease (CAD) refers to any one of the conditions that affect the coronary arteries and reduces blood flow and nutrients to the heart. It is the leading cause of death worldwide for both men and women. The most common kind of CAD is atherosclerosis, which results in narrowing and hardening of the arteries. Coronary atherosclerosis is at epidemic proportions worldwide.

Traditionally, CAD was seen as a disease of aging and was observed primarily in the elderly. However, atherosclerosis is now occurring more often in younger populations. One out of every three individuals worldwide, and one in five in the United States, dies from heart disease each year. In the United States, CAD has declined more rapidly in whites than in blacks. CAD affects women ten years later than men, mostly due to the protective production of estrogen. After menopause, a woman is two times more susceptible to heart disease than women who have not reached menopause.

Risk factors. Controlled risk factors associated with CAD include hypertension; cigarette smoking; elevated blood lipids (e.g. cholesterol, triglyceride); a high-fat diet (especially saturated fats and trans-fatty acids); physical inactivity; obesity; diabetes; and stress. Lifestyle changes can assist in prevention of CAD. Uncontrolled risk factors include a family history of CAD, gender (higher in males), and increasing age.

Tobacco use is one of the leading contributors to heart disease. Smoking increases the risk of heart attacks (and increases the risk of lung diseases) by decreasing oxygen flow to the heart and lungs. Hypertension, which makes the heart work harder than normal, can be caused by poor diet, excessive dietary salt, lack of exercise, smoking, and chronic stress. Adult-onset diabetes mellitus may result from poor dietary habits and lack of exercise over a lifetime. Uncontrolled diabetes can lead to heart failure. Exercise can reduce the risk for CAD by increasing coronary blood flow, and it has shown positive effects on blood flow to the heart (myocardial perfusion). Long-term benefits of exercise include lower incidences of coronary heart failure and increased cardiac function in normal subjects.

Prevention. Health professionals recommend that dietary fat be reduced to 30 percent or less of total calories. The diet also should have no more than 10 percent of its calories from saturated fats, no more than 300 milligrams (mg) of cholesterol daily, no more than 2,400 mg of sodium, and at least 3,500 mg of potassium. A plant-based diet consisting primarily of whole grains, fruits, and vegetables is recommended. Eating at least 25 grams of fiber and five servings of fruits and vegetables daily may reduce the risk for heart disease.

Individuals who consume alcohol should do so in moderation. Moderation is defined as two drinks for men and one drink for women daily. Alcohol is a very addictive substance, however, and should not be used as a primary means of prevention. Caffeine in moderation has no adverse effect; however, excessive intake may make the heart pump faster. Increased heart rate stresses the heart and may cause long-term damage to blood vessels.

Establishing good exercise and dietary habits early in childhood is important to prevent heart disease. Regular activity and proper nutrition decreases reactivity to stress and makes the heart stronger and more efficient. At least thirty minutes of moderate exercise daily is recommended to prevent heart disease. Stress management helps to prevent high blood pressure, which is a major contributor to heart disease. Techniques such as yoga, deep breathing, and meditation may prevent coronary disease by improving resistance to stress.