

Are you at risk of Heart Attack?

A common answer would be “I feel fine” or “I have no chest pain” or “I have no problem.” This answer may be true in majority of the cases. However, feeling fine and not having symptoms of heart disease is no guarantee against having silent coronary artery heart disease, which may lead to a heart attack.

The reason being that coronary artery disease or “hardening of the arteries of the heart” does not produce symptoms until disease is advanced. In that case, it is generally late to reverse the disease process. Coronary heart disease is the leading cause of deaths in the United States, more than cancer deaths.

Some heartfacts:

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| • Americans with cardiovascular disease | 79 millions |
| • Americans with coronary heart disease | 15.8 millions |
| • Heart attack victims per year | 805,000 million |
| • Those who die of heart disease, all causes | 695,000 per year |
| • Those who die before reaching a hospital | ¼ million |

In one out of six heart attack victims, the only symptom of heart disease is sudden cardiac death (SCD)

In men heart attack frequently is the first indication that they have coronary artery disease

An accelerated form of coronary artery disease leading to heart attack and sudden cardiac death has been identified in relatively young Asian Americans from Indian subcontinent living in the United States. These are very successful individuals, who are otherwise healthy. Stressful lives, genetics, lack of exercise, along with other risk factors are implicated.

In the elderly the symptoms of heart attack may be atypical. They may feel weak, confused, or have indigestion.

Women may have atypical symptoms like extreme fatigue, severe shortness of breath.

“Prevention is better than cure.” This adage is much more relevant today than it was in the past. This is mainly due to enhanced diagnostic tools, better understanding of the disease process and improved preventive measures available.

Silent Heart Attack. When the symptoms of heart attack are mild or atypical or not recognized, and heart attack is missed, it is called silent heart attack.

Risk factors for coronary heart disease(Coronary Atherosclerosis)

- High blood pressure
- High (LDL) cholesterol (Bad cholesterol)
- Low (HDL) cholesterol (Good cholesterol)
- Cigarette smoking
- Diabetes
- Obesity

- Unhealthy diet. Saturated fats, Trans fats, high cholesterol, etc. In the diet.
- Sedentary life style
- Family history of heart attacks.
- Male gender. (men are more prone to heart attacks)
- Older age (men over 45 years and women over 55 year have increased risk).
- Inflammatory conditions, inflammatory markers in the blood, Rheumatoid arthritis, myocarditis, Psoriasis, Crohn's disease (Inflammatory bowel disease, etc.

Cholesterol: This is a fat like substance in the blood that can deposit in the walls of coronary arteries causing hardening and blockage. This leads to angina pain usually with exertion (chest pain from lack of oxygen to heart). It can lead to heart attack.

High blood cholesterol is a common disorder. As we grow older, cholesterol level tends to increase. It causes no symptoms and thus is undetected, unless a blood test is performed.

High cholesterol containing foods: These include Red meats, eggs, dairy products, shrimps, etc.

Low (relatively) cholesterol containing foods: Non-red meats, lean meats, fish, chicken (minus the skin).

Cholesterol free foods. These include vegetables, grains, seeds, nuts, fruits, etc.

Cholesterol is also manufactured by the liver. The amount manufactured is genetically determined. Certain enzyme deficiencies may lead to high cholesterol as a familial disorder.

Cholesterol is of two types:

- Bad cholesterol (LDL cholesterol) or low-density lipoprotein cholesterol This promotes hardening of arteries
- Good cholesterol (HDL cholesterol), or high-density lipoprotein cholesterol. This fights hardening of the arteries.

A 2% reduction in bad cholesterol reduces coronary heart attacks deaths by 1%

Normal values of cholesterol

Total cholesterol	less than 200 mg per DL (deciliter). Lower is better.
LDL cholesterol	Less than 100 mg per DL (If no risk factors)
LDL cholesterol	Less than 70 mg per DL (if known heart disease or Diabetes)
HDL cholesterol	Greater than 40 mg per DL

High blood pressure: (Hypertension)

High blood pressure promotes hardening of the arteries and heart attack. Unfortunately, it causes no symptoms for a long time. In the meantime, it is damaging the blood vessels all over the body. The consequences of untreated high blood pressure include:

- ✓ Hardening of arteries in the body
- ✓ heart attack,
- ✓ enlarged heart leading to congestive heart failure,
- ✓ stroke,

- ✓ kidney failure,
 - ✓ rupture of main artery called aorta leading to sudden death,
 - ✓ blindness,
 - ✓ etc.
- Normal blood pressure. These readings apply to all age groups, even elderly is less than 120 mmHg systolic and less than 80 mm Hg diastolic
 - Borderline high BP 120-129 mm Hg systolic. Less than 80 mm Hg diastolic (Pre-hypertension)
 - Grade I Hypertension (High) 130- 139 mm Hg or higher systolic or 80-89 mm Hg Diastolic
 - Grade II HTN 140 mm Hg or more systolic or 90 mm Hg diastolic
 - Hypertensive emergency: Greater than 180 mm Hg systolic or greater than 120 mm Hg diastolic.

DIAGNOSIS: Blood pressure is generally discovered accidentally on a routine visit to the doctor. Patient may feel symptoms of headache. Complication like kidney disease, or vision problem, etc. will bring patient to the doctor.

How to measure blood pressure? One reading is not sufficient.

Causes of High Blood Pressure (Hypertension). There are two types of hypertension

- A. Essential Hypertension. This is without any known cause. Usually occurs in middle age and older patients.
- B. Secondary HTN. This is due to lack of insulin, kidney disease, or hormonal causes.

Hypertension management.

1. Lifestyle management. Ideal weight, regular exercise, reduce salt intake, avoid unhealthy habits like smoking, and tobacco use, treat other co-morbidities like DM, COPD, etc.
2. After 2-3 visits if HTN persists, then patient will need drug therapy.

DRUG therapy.

A large variety of medicines are available to treat hypertension.

Classes of drugs

Diuretics, Calcium channel blocker, Ace Inhibitors, Beta blockers

Angiotensin blockers, Aldosterone antagonists, and others.

Cigarette Smoking: It increases risk of heart attacks several folds. It is the single greatest preventable cause of death in United States today.

Sedentary life style: It increases the risk of heart attack, high blood pressure, osteoporosis (weakening of bones), overweight and obesity.

Overweight and Obesity: This has reached epidemic proportions in United States and in other industrialized countries. Teenage and child obesity is increasing. Adverse health effects of overweight and obesity include early diabetes, increased heart attacks, high blood pressure, diabetes, and many others. In some medical circles, obesity has been termed “mother of all diseases.”

Diabetes: Elevated blood sugar could be due to lack of insulin. It is termed insulin dependent diabetes. It usually starts in young age. It is usually familial.

Majority of Diabetic patients suffer from Non-insulin dependent diabetes. It occurs in older age group, especially in those who are overweight or obese. It is also termed adult onset diabetes.

Diabetes is a strong risk factor for all type cardiovascular diseases, including heart attacks, strokes, peripheral vascular disease especially involving lower extremities, diabetic retinopathy leading to blindness, diabetic kidney disease leading to kidney failure requiring kidney transplant, etc. Diabetes shortens life span.

Preventive measures.

- Prevention is better than cure. Do not wait until you have symptoms. Routine preventive health checks, including blood pressure check, blood tests will identify most of the risk factors.
- High blood pressure: If your doctor diagnoses high blood press then make sure blood pressure readings return to normal with a combination of diet, exercise, and in some cases with additional medications. The goal should be to bring down the blood pressure to normal values, regardless of the number of medications you may need.
- High cholesterol: If diet, exercise and life-style changes do not bring cholesterol down satisfactorily, then your doctor will prescribe medications. Chances are that with a few exceptions you will need the medication(s) indefinitely. Periodic blood testing is generally required.
- Smoking: seek professional help and counseling to overcome nicotine addiction
- Diabetes: Good control of blood sugar with the help of diet, exercise, weight reduction is mandatory. Some patients may need oral medications, and some other may need to take insulin injection, additionally. It is an incurable disease as of today, and lifelong precautions/treatment are mandatory. Again, the endpoint is control of blood sugar, regardless of any number of medications taken or lifestyle changes made. Uncontrolled diabetes is disastrous to health resulting in heart attacks, strokes, blindness, loss of limbs, life-threatening infections.

Physical Exercise: American Heart Association recommends 30-60 minutes of aerobic exercise four to five days a week. Exercise on a given day may be divided into more than one session. It may be in the form of jogging, running, fast walking, bicycling, treadmill exercise, stationary bicycle or treadmill exercise. Gardening and lawn work is helpful. Exercise has many benefits by modifying several cardiovascular risk factors. Caution: If you have heart disease or suspect that you may have one, then consult your doctor before starting an exercise program.

Diet and Nutrition.

Diet plays an important role in our health. Diet of Asians may be particularly “heart unhealthy” Excess of dairy products, meat, oils and carbohydrates should be avoided. Below are some tips for a healthy diet.

Herbal, Nutritional Supplement, and diet.

Some of the herbal and nutritional supplements available include:

- Garlic: According to some studies, garlic may decrease blood levels of total cholesterol by a few percentage points. Other studies, however, suggest that it may not be as beneficial as once thought. It may also have significant side effects and/or interactions with certain medications.
Consult your doctor before starting over the counter garlic supplements, or other supplements.

- **Dietary Fiber:** Increased consumption of dietary fiber, soy foods, and plant compounds (plant stanols and sterols) can significantly reduce LDL cholesterol or bad cholesterol. Only plant foods like vegetables, fruits, legumes, unrefined grains contain dietary fiber. The soluble fiber found in foods such as oat bran, barley, psyllium seeds, flax seed meal, apples, citrus fruits, lentils and beans are particularly effective in lowering cholesterol.
- **Soybeans:** Soybeans have been shown to prevent coronary heart disease by lowering LDL cholesterol and triglycerides. Soy protein is present in tofu, soy milk, soy yogurt, soy nuts and in many other food products made from soybeans.
- **Phytosterols:** Phytosterols (plant sterol and stanol esters) are compounds found in small amounts in foods such as whole grains as well as in many vegetables, fruits, and vegetable oils. They decrease LDL cholesterol, mostly by interfering with the intestinal absorption of cholesterol.
- **Fish oils and foods rich in omega-3 fatty acids** including these in your diet may also help lower cholesterol. Aim for at least 2 servings of fatty fish like salmon, mackerel, herring, tuna and sardines per week. Other dietary sources of omega-3 fatty acids include flax seed and walnuts.

Over the counter (OTC) omega 3 fatty acid capsules (Fish oils) help lower cholesterol and triglycerides, as well as slightly increase good cholesterol. Check with your doctor before starting these or any other OTC medicines.

Foods to avoid. Avoid partially hydrogenated and hydrogenated vegetable oil. These come in the form of margarines and cooked foods, confectionaries. These man-made oils are sources of Trans fatty acids known to increase blood LDL cholesterol, promoting coronary artery blockage and heart attack. They lower heart-protecting HDL (good) cholesterol and increase the inflammatory response in the body.

You can now find Trans fats listed on the Nutrition Facts panel of packaged foods. Minimize consumption of trans-fatty acid containing foods. Some of the newer margarines like “Smart balance” and others do not contain trans-fats. These do not increase bad cholesterol. However, they are high in calories and should avoid their excessive use.

Other foods to avoid are red meat, butter, organ meats like liver, kidneys, brain, etc.

If a plant-based, low-fat diet alone is not effective at reducing cholesterol levels, such a diet should be combined with cholesterol-lowering medications prescribed by your doctor. An injectable new drug is available in resistant cases. Currently it is very expensive and indicated in selected patients.

Prevention is better than cure. Periodic health checks may prevent serious ill effects of silent and undetected high blood pressure, diabetes, heart disease, cancer and other serious cardiovascular diseases. Patients should monitor their blood pressure at home, and maintain a log. They should notify the doctor or nurse if pressures are high and not wait for the next visit to the doctor. Self-blood sugar checks at home are helpful in some diabetics.

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More information available at: <https://www.cdc.gov/heart-disease/risk-factors/index.html>

Syed H. Akhtar, M.D., .A.C.C.
Board certified cardiologist, retired
Austin, Texas.