



University of Michigan  
Hospitals and Health Centers

# What You Need to Know about High Blood Cholesterol

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## Why is high cholesterol bad?

Cholesterol is a natural substance found in our diet and made by our liver. It is important for many functions throughout our body. High blood cholesterol is a condition in which you have too much cholesterol in your blood. By itself, the condition usually has no signs or symptoms. Thus, many people don't know that their cholesterol levels are too high.

High levels of cholesterol contribute to build-up of plaque in the arteries, blood vessels that carry oxygen-rich blood to your organs and different parts of your body. Over time, plaque hardens and narrows your arteries. This condition is called atherosclerosis. Atherosclerosis limits the flow of oxygen-rich blood and can affect any artery in the body, including arteries in the heart, brain, arms, legs, pelvis, and kidneys. As a result, different diseases may develop based on which arteries are affected. Some of these diseases include:

- coronary heart disease - that affects the arteries the supply blood to the heart
- carotid artery disease - that affects the arteries located in the neck and deliver blood to the brain
- peripheral artery disease that affects arteries that carry blood to your head, organs, and limbs

The term "vascular disease" is an umbrella term that includes the atherosclerosis related diseases.

In time, the poor blood flow may damage those organs and cause sudden heart attacks and strokes.

## What are the good and bad cholesterol?

Cholesterol travels in the body in little packets of fat or droplets known as lipoprotein particles. These fat droplets which begin in the liver contain cholesterol or triglycerides, the other major fat in the blood. The two chief

lipoprotein particles of fat are low-density lipoprotein (LDL) and high-density lipoprotein (HDL) each of which carries cholesterol. LDL cholesterol is the “bad” cholesterol. HDL is the “good” cholesterol. LDL carries most of the cholesterol in the blood, and can stay in blood vessels over time and lead to atherosclerosis. Studies have shown that high levels of LDL cholesterol are linked to a greater risk for stroke and heart attacks (myocardial infarction or MI). HDL particles help remove cholesterol from the arteries and return cholesterol to the liver. Studies have shown that high HDL cholesterol levels protect you from a heart attack. HDL also lowers your risk of a first heart attack or a second one.

### **When should I be checked?**

Experts agree that screening for cholesterol should begin at age 35 for all men. Younger men and women of any age should be tested if they have risk factors for developing atherosclerosis such as:

- Smoking.
- Diabetes.
- High blood pressure.
- Overweight.
- A family history of heart attacks or strokes before age 50 in male relatives or before age 60 in female relatives.

Many doctors support screening all men and women over age 20, but there is less evidence to support this. People with healthy levels (total cholesterol less than 200 or LDL cholesterol less than 100) should be rechecked every five years.

### **What should my cholesterol be?**

Know your numbers! There are several ways to test for cholesterol. Some of the tests are done when the patient has fasted (not had anything to eat or drink) for 12 hours. Your doctor may order a non-fasting total cholesterol and/or HDL cholesterol or a fasting full lipid profile that includes measuring the amounts of triglycerides and LDL cholesterol.

Measurement	Optimal	Borderline	High
Total cholesterol	Less than 200mg/dl	Between 200-240mg/dl	240mg/dl and above
HDL cholesterol	40mg/dl and above		
LDL cholesterol	Less than 100mg/dl	Between 130-159mg/dl	160 mg/dl and above

### What makes cholesterol high or low?

**Family History:** High cholesterol often runs in families. Many patients will remain high despite doing things right. Young women have lower LDL cholesterol and higher HDL cholesterol levels than men. After menopause, women's risks are the same as men's.

**Diet:** Diets high in fruits, vegetables and whole grains can help to lower cholesterol. The DASH eating plan, Mediterranean diet and USDA food pattern are all in line with current recommendations that include:

- Selecting low fat dairy products
- Increasing linoleic acid such as canola oil, soy and flax seed)
- Substituting whole grain for processed flours and simple sugars.
- Eating more fish and skinless chicken breasts and less red meats (including lean red meats)
- Avoiding fried foods and hard stick or tub margarines which have trans-fatty acids.
- Avoiding sweets, added sugars, and sugar-containing beverages.

**Weight:** Excess weight is linked with high cholesterol, low HDL cholesterol, high triglycerides, diabetes, and higher risk of heart disease. Lose weight if overweight.

**Exercise:** Even mild regular exercise has been shown to raise HDL cholesterol levels and lower triglycerides. This works even better when a weight loss program is part of the plan.

**Smoking:** Smoking clearly increases your risk of heart attack and stroke. It also lowers your HDL cholesterol. **If you smoke – quit!**

**Alcohol:** One or two drinks daily has been shown to increase HDL cholesterol. But too much alcohol damages other organs. Alcohol is not a good way to prevent heart disease.

### **Should I take medication for my cholesterol?**

Doctors usually prescribe medications to people who belong to one of the following groups:

- People at high risk for vascular disease
- People with known vascular disease. .
- middle aged and older men and women with chronic kidney disease or diabetes, no matter what their cholesterol levels are. Patients with these conditions are at a greater risk of vascular disease. There is proof that cholesterol lowering medications are helpful for preventing or slowing vascular disease in people with these conditions
- People with extremely high cholesterol (LDL 190 or above) may need a medication even if they do not have other risk factors.

Most often, patients without significant risk for vascular disease who have high cholesterol should try diet, exercise, and weight loss (if overweight) prior to using medications. If you have vascular disease, diabetes, LDL over 190, or high risk for vascular disease, your doctor may start medications right away. Even so, lifestyle changes are still very vital lowering your risk.

Medications for cholesterol are most often long-term medications. They have to be taken every day, often for the rest of your life. Drugs that are most often prescribed are the statins. Statins help the liver remove LDL cholesterol, and reduce production of cholesterol. These drugs may cause muscle aches, and may interact with other drugs you are taking. Make sure you ask your doctor about how statins will work with other drugs and herbal products you are taking. Things such as grapefruit juice must be avoided with certain statins because it blocks their metabolism. Rarely, statins can cause liver or muscle

damage. If you start to notice muscle aches all over your body or weakness while taking these drugs, stop the drug and call your doctor.

### **In Summary: Smart steps for lowering cholesterol**

- Know your cholesterol numbers
- If you smoke: quit!
- Eat foods that are rich in fiber and low in fat, cholesterol and sodium (salt).
- Keep your weight under control
- Exercise
- Limit your alcohol intake, or avoid it completely
- If your doctor prescribed medications for you, take them as your doctor directed.

### **Where can I learn more?**

To learn more and access the websites your University of Michigan Health System clinician recommends visit: [www.med.umich.edu/careguides](http://www.med.umich.edu/careguides)

- In the keywords search box type: **cholesterol**
- Hit the **Search** button

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