

# Hyperlipidemia - High Cholesterol

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Heart disease and stroke (collectively referred to as cardiovascular disease) are among the top reasons for early deaths in this country. One of the risk factors for developing cardiovascular disease is hyperlipidemia (high cholesterol). Other risk factors include high blood pressure (hypertension), diabetes, smoking and family history. This article will focus on hyperlipidemia (or high cholesterol).



Heart healthy diets including fruits and vegetables may help lower cholesterol.

Lipids are “fats” in the bloodstream, commonly divided into cholesterol and triglycerides. Cholesterol circulates in the bloodstream and is involved in the structure and function of cells.

Triglycerides are best viewed as energy that is either used immediately or stored in fat cells. Triglycerides are manufactured in the liver from the foods that you eat or by being absorbed from the intestines.

When your doctor orders a cholesterol test, he or she is checking the amount of cholesterol and triglycerides in your blood stream. Typically, the results are reported as total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides. More advanced tests will also include other parameters. By looking at your numbers, your doctor may determine that your cholesterol is too high. If this is the case, he or she may recommend dietary changes, increased amounts of exercise and weight loss. If these are unsuccessful, medications may be recommended to help improve your cholesterol. Below is a brief review of each lipid parameter:

**LDL Cholesterol:** As noted above, cholesterol is essential for the structure and function of cells. However, if you have too much, it can collect in the wall of the artery and over time, cause plaque to develop. Statins help lower your blood LDL numbers and help prevent heart attacks and strokes from occurring. They have been well studied and are among the safest medications available. Other medicines that help lower your LDL include zetia, bile acid sequestrants, and niacin. Sometimes, it takes a combination of medications to effectively lower your LDL number to a target level determined by your doctor. There is recent evidence showing that lowering your LDL aggressively can reverse plaque buildup in the artery wall. The LDL is almost always the number your doctor will focus on when first addressing your hyperlipidemia.

**Non-HDL Cholesterol:** This is the second number that is important. This is simply total cholesterol minus HDL. This number is calculated if your triglycerides are above 200 (normal is less than 150). It addresses other particles in the lipid profile that can also cause plaque to build up in the wall of the artery. These include IDL, remnant particles, and others. The target for your Non-HDL number is 30 points above your LDL goal.

**HDL Cholesterol:** This is an important cholesterol. People with high levels of HDL tend to have less risk for heart attacks than people with low levels. Low HDL cholesterol levels are a “red flag.”

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HDL has been shown to have properties that protect the wall of the artery and are actually involved in what has been termed Reverse Cholesterol Transport (RCT). RCT involves collecting plaque from the wall of the artery (where it may be building up) and returning it back to the liver. Exercise and smoking cessation are good ways to improve your levels of HDL cholesterol. Certain medications also help raise your levels of HDL. Niacin is the most potent, but fibrates also help raise HDL levels.

**Triglycerides:** These tend to be elevated in people who have diabetes or metabolic syndrome (a condition that commonly precedes diabetes) or specific genetic conditions. High triglyceride levels are commonly associated with low levels of HDL. If your triglycerides are above 500, you run the risk of developing pancreatitis (a painful abdominal condition that requires hospitalization). If your triglycerides are higher than normal but not above 500, you are still at increased risk of heart disease. This is why it is important to pay attention to your triglyceride levels. Weight loss, eating fewer carbohydrates and exercising will help lower your triglyceride levels. Some medications can also help normalize your triglyceride numbers. Fibrates are the most potent, followed by niacin. Omega three fatty acids (fish oils) also work quite well. Lastly, statins can help lower your triglycerides some.

In summary, it is important to look at all of your lipid parameters to fully assess your risk of heart disease and stroke. There are newer, emerging tests that your doctor may also want to order. As you can see, there are a lot of lifestyle changes you can make to improve your cholesterol and triglyceride numbers. If needed, medications can help tremendously. If you have had a heart attack or stroke, statins help prevent them from occurring in the future. Remember to review your entire lipid profile with your physician.



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