

Hearth disease is the number one cause of death for men and women in America. For years, scientists have been studying the causes of heart disease and have discovered a link between blood lipids and heart disease risk.

Lipids is the scientific name for fatty substances. Cholesterol and triglyceride are two kinds of lipids carried through the blood.

Having too much cholesterol and triglyceride in your blood increases the risk for heart disease. This brochure provides important facts about lipids. Discuss this information with your doctor when deciding how to control your lipid levels.

Facts about lipids

Cholesterol. Cholesterol is found in every cell of your body. It is essential for several important body functions, including the production of new cells and digestion of fat.

Because your liver makes all the cholesterol your body needs, you do not need to consume additional cholesterol. A high-fat, high-calorie diet can trigger your body to produce more cholesterol—and increase your blood cholesterol levels.

Cholesterol is packaged with a protein to move easily throughout the body. These protein packages are called *lipoproteins*. Two different kinds of lipoproteins—low density and high density—are used to help assess your risk of heart disease.

Low-density lipoproteins. Low-density lipoproteins (LDLs) contain most of the cholesterol in the blood. They carry cholesterol to body tissues, including the coronary arteries. The cholesterol found in LDL is considered most responsible for the formation of plaque, a fatty substance that builds up on the walls of the arteries. A buildup of plaque eventually can lead to a heart attack or hardening of the arteries. This is why LDL cholesterol is often called *bad* cholesterol. High levels of LDL increase the risk of heart disease.

High-density lipoproteins. High-density lipoproteins (HDLs) carry the same form of cholesterol as LDLs. However, the cholesterol in HDLs does not form plaque. HDL particles pick up cholesterol from other tissues in the body and are believed to be responsible for removing excess cholesterol from your blood. The cholesterol in these packages is called *good* cholesterol. Higher levels of HDL protect against heart disease.

Triglyceride. *Triglyceride* is another word for fat. Fat is an important source of energy and provides essential nutrients for health. Some of the triglyceride in your body comes from the fat you eat. Your body also makes triglyceride when you eat more calories than you need from carbohydrates, proteins and alcohol. The same lipoproteins that transport cholesterol also move triglyceride to cells where they are needed.

High triglyceride may also increase risk for heart disease.

Lipids and cardiovascular disease risk

Blood cholesterol is one of the major risk factors for heart disease that can be controlled. Remember, however, that your risk for heart disease is based on a number of factors. To determine your risk, your doctor will consider your blood cholesterol and triglyceride readings and blood pressure; any family history of “early” heart disease; and whether you have diabetes, are overweight, physically inactive or a smoker.

Measuring your blood lipids

To measure your blood lipids, your doctor will order a cholesterol fractionation. This test measures total cholesterol, LDL cholesterol, HDL cholesterol and triglyceride. Fasting is recommended for this test. To ensure more accurate results:

- Do not eat anything for 12 hours before your blood test unless advised otherwise. You may continue to drink water and take your medications.
- Avoid alcohol for two to three days before your test.
- Avoid vigorous exercise for two to three hours before your test. Exercise can temporarily elevate blood cholesterol.
- Inform your doctor if you are pregnant, have had a heart attack or surgery recently, or have an infectious or inflammatory disease. These conditions affect your blood lipid levels.

If you are not fasting at the time of your visit, your doctor can measure your total cholesterol and HDL to estimate your blood lipid levels. Results of the test help your doctor decide if further testing is needed.

Your doctor uses your test results and considers your medical history when determining an appropriate treatment plan for you.

What the numbers mean

The following lipid classification can be used to assess your blood lipid results. Your doctor will also consider your medical history and other risk factors when reviewing your results.

Classification of blood lipids for adults age 18 years and older

LDL Cholesterol

<70 mg/dl	Optimal*
<100 mg/dl	Optimal**
100–129 mg/dl	Near optimal/above optimal
130–159 mg/dl	Borderline high
160–189 mg/dl	High
≥190 mg/dl	Very high

HDL Cholesterol

<40 mg/dl	Low
≥60 mg/dl	High

Triglyceride

<150 mg/dl	Desirable
150–199 mg/dl	Borderline
200–499 mg/dl	High
≥500 mg/dl	Very high

Total Cholesterol

< 200 mg/dl	Desirable
200–239 mg/dl	Borderline high
≥ 240 mg/dl	High

*LDL goal of less than 70 mg/dl if you have been diagnosed with heart disease.

**LDL goal of less than 100 if you have diabetes or peripheral vascular disease.

Treatment for controlling lipids

Experts recommend several different ways to control blood lipids. Lifestyle changes in meal planning and physical activity are usually suggested first. Medications also can be highly effective in lowering blood lipids. Discuss the following treatment options with your doctor.

Choose healthier foods

Low-fat, high-fiber foods can help lower your lipid levels. For example, lowering your fat intake, especially saturated trans fat, can reduce blood cholesterol levels for most people. It can also help reduce calorie intake, an important step for individuals who need to lose weight. To find out more about healthy eating, ask your doctor for the brochure “Food Choices to Lower Blood Cholesterol.”

Lose or maintain weight

Unwanted weight gain can cause blood lipids to be elevated. Adjust your calorie intake to maintain or lose weight. A weight loss of 10 to 15 pounds can help lower blood lipids if you are overweight.

Be active

Maintaining a healthy level of regular physical activity is vital to reducing your risk for heart disease. Even small increases in physical activity can be beneficial. Talk to your doctor before you begin any new activity plan.

Take medications as directed

You may require the added benefit of medication to help control blood lipids. There are many different types of medications. Your doctor will work with you to use the most effective medication for blood lipid control.

A roadmap to controlling blood lipids

Measure LDL, HDL, triglyceride and total cholesterol.



Assess medical history and risk factors for heart disease.



Classify blood lipid levels.



Start a treatment plan, which may include:

- Lifestyle changes
- Medication
- Ongoing follow-up



Your goal is reached when you maintain blood lipid control.

Risk-reducing steps:

- Limit dietary fat, especially saturated fat.
- Control your weight.
- Exercise regularly.

Other instructions:

My blood lipid levels

	CURRENT	GOALS
Total Cholesterol		
LDL Cholesterol		
Triglyceride		
HDL Cholesterol		

Understanding Lipids

This brochure is based on guidelines developed by a team of health care experts at the Institute for Clinical Systems Improvement (ICSI), of which Park Nicollet Health Services is an active member. It will be reviewed and updated on a regular basis as scientific evidence changes. This material is for informational purposes only and is not intended to be a substitute for professional medical advice, diagnosis or treatment.