

# Cholesterol and its Relationship to Heart Disease

Cholesterol is a waxy fat in your blood. Your body needs cholesterol to make cell membranes, certain vitamins, and hormones.

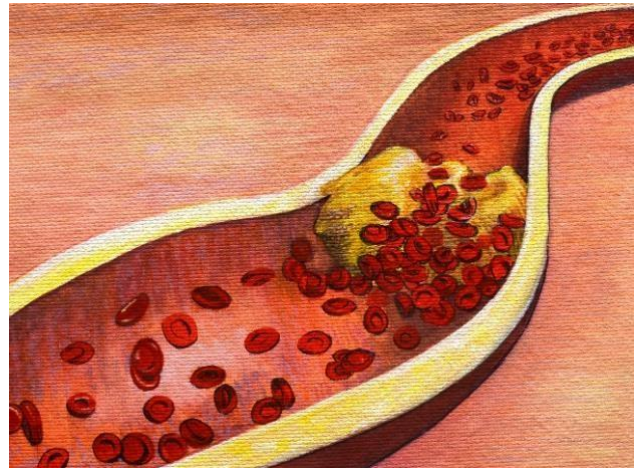
Your body gets cholesterol from two sources – your liver and your food. Your liver naturally makes cholesterol, and your intestines help recycle it, which is why you only need small amounts of cholesterol in your food. Red meat, egg yolks, butter, cheese, and full-fat milk have high levels of cholesterol. Fruits, vegetables, and whole grains don't have any cholesterol. Too much cholesterol floating around in your blood starts collecting in your blood vessels to form plaques. Over time, these plaques can narrow your vessels and cause a heart attack or stroke.

There are three main types of cholesterol – LDL, HDL, and Triglycerides.

LDL is bad (or "lousy") cholesterol that carries cholesterol from the liver to the blood, where it can form plaque in your vessels.

HDL is good (or "healthy") cholesterol that carries cholesterol away from these plaques and back to the liver, where it gets broken down.

Triglycerides store any excess calories that you eat as fat in your body and release it between meals to provide energy to the body. High triglycerides are also linked to heart attacks.



After you've had a heart attack, we try to bring your LDL down with both medications and a low-fat diet. Current guidelines are very "aggressive." We are aiming to reduce your LDL levels by 60-70%. You may be prescribed more than one drug to bring your LDL levels down to a target of less than 1.8 mmol/L. Interestingly, studies have not yet identified an LDL level that is too low to be healthy. It has consistently been shown that the lower the LDL, the fewer the heart attacks in the population.

The standard drug for lowering LDL in people with heart disease is a statin. These are safe and well-tolerated drugs that reduce the risk of future heart attacks, stroke, and death. In addition to statins, we sometimes use a medication called ezetimibe, to lower your LDL further.

You may have inherited high cholesterol from your family. Some people look fit but are born with a high LDL or low HDL. Any of these conditions make it more likely for you to have a first or even second heart attack. If you have a genetically high LDL, often called familial hyperlipidemia (or FH for short), your doctor may also prescribe an injectable drug, known as a PCSK-9 inhibitor.

We can control triglycerides by reducing simple sugars, alcohol, and controlling weight. In addition, newer prescription medications such as highly purified, high-dose fish oils are now being used along with statins in patients who have high triglycerides.

Lifestyle changes like being more active and quitting smoking can help improve your HDL levels. We don't bring your HDL up with medications because studies have not shown any benefit with drugs that raise HDL.

We measure LDL, HDL, and triglycerides with a blood test at every visit. Once your medications have kicked in, fluctuations of your LDL levels may be related to your diet, so it's crucial to stay on a low-fat diet, and maintain a healthy body weight, even when your LDL levels are at goal.

## Action Plan

- Know your LDL level and write it down on a piece of paper; it's helpful to know what your LDL level was before you started taking statins as well as the most recent value
- Eat a heart-healthy diet and if required, set a weight loss goal (See Diet and Losing Weight Handout)
- Stay active and try to increase your fitness; exercise increases your HDL levels and helps prevent cholesterol from being deposited in your blood vessels (See Activity Handout)
- Quit smoking; your HDL levels can start rising in a few weeks after quitting (See Quit smoking)
- If your LDL is still more than 1.8, ask your doctor if increasing the dose of your statin or adding a second medication is right for you

## Links

[High Cholesterol](https://www.canada.ca/en/public-health/services/diseases/heart-health/high-cholesterol.html) - <https://www.canada.ca/en/public-health/services/diseases/heart-health/high-cholesterol.html>

[How to Manage Your Cholesterol](https://www.heartandstroke.ca/-/media/pdf-files/canada/heart/how-to-manage-your-cholesterol-en.ashx?rev=b6c6853c6b1b4d77ae6397f0aafb7d66&hash=35085A0F0CFAD151AAFFA08D6DF0C561) - <https://www.heartandstroke.ca/-/media/pdf-files/canada/heart/how-to-manage-your-cholesterol-en.ashx?rev=b6c6853c6b1b4d77ae6397f0aafb7d66&hash=35085A0F0CFAD151AAFFA08D6DF0C561>