

Stewardship of the Body
By Virginia Esslinger, RN

“I give you thanks that I am fearfully, wonderfully made” (Ps. 139)

Cholesterol

What is it? Cholesterol is a waxy substance found in all body cells.

What does it do? The normal function of cholesterol is to help form and maintain cell membranes and to protect and insulate nerve fibers. It also is involved in the formation of sex hormones, such as estrogen, and the production of bile salts, which help you digest fats. Basically, cholesterol is needed by the body, but in proper amounts.

Where does it come from? The liver produces all of the cholesterol that is needed by the body. However, cholesterol also gets into the body from eating foods of animal origin, such as red meat and eggs. Even some cholesterol-free foods that are high in saturated fats can contribute to an increase in blood levels of cholesterol. Actually, these foods appear to be the main causes of high cholesterol levels.

What is “bad” cholesterol? Cholesterol is carried through the blood attached to proteins. The cholesterol/protein package is called a “lipoprotein”. One type of lipoprotein is **Low-density lipoprotein (LDL)**.

What does LDL do? LDLs transport cholesterol throughout the body, delivering it to various tissues and organs.

Why is LDL bad? If the tissues and organs have enough cholesterol, they turn it away, so the LDL stays in the blood stream. There it undergoes chemical changes that make the particles smaller so they enter the blood vessel walls and start to build up under the vessel lining. These deposits are called plaques and can lead to inflammation, bleeding and calcification. Eventually, this buildup of plaques can obstruct the blood flow in the artery (like rust in a pipe). If this happens in an artery in the heart it can cause chest pain and other symptoms of heart disease. If a plaque tears or ruptures, a blood clot can form, blocking off the artery and causing a heart attack. If the same thing happens in the brain, the result can be a stroke.

What should the LDL level be?

- 160 mg/dL for people at low risk for heart disease
- 130 mg/dL for people at intermediate risk for heart disease
- 100 mg/dL for people at high risk for heart disease (includes people with known heart disease and/or diabetes)
- 70 mg.dL for people at very high risk for heart disease

What is “good” cholesterol? The other type of lipoprotein is ‘High-density’ lipoprotein (HDL).

What does HDL do? Rather than deliver cholesterol to cells, high-density lipoproteins (HDLs) leave the liver with very little cholesterol. They pick up excess cholesterol on their route through the bloodstream and take it back to the liver. The liver then excretes this cholesterol into bile and out of the body through the bowels. So while LDL keeps cholesterol in the body in the blood vessels, HDL helps to get rid of excess cholesterol, thus protecting the body. That’s why it is called “good” cholesterol.

What should the HDL level be? 50 mg/dL or higher for women
40 mg/dL or higher for men

How can LDL cholesterol be reduced and HDL cholesterol be increased?

- Healthy diet
- Regular exercise
- Medications



- Statins (Atorvastatin [Lipitor], Simvastatin [Zocor], Rosuvastatin [Crestor], and others)
 - They work by preventing the formation of cholesterol in the liver.
 - They also may have anti-inflammatory effects on blood vessel walls
- Ezetimibe (Zetia)
 - Inhibits absorption of cholesterol by the small intestine; reduces cholesterol stores in the liver and increases cholesterol clearance from the blood.
- Other drugs
 - Resins
 - Fibrates
 - B vitamin, Niacin
 - Cholesterol absorption inhibitors

What’s the bottom line?

- Know your cholesterol levels
- See your doctor regularly
- Eat a healthy diet, low in saturated fats
- Exercise regularly
- Take a statin drug if it is prescribed for you
- Report any side effects to your doctor immediately

Reference: Mayo Clinic Women’s Healthsource, Sept. 2008, vol. 12, no. 9