



Patient Information

Getting a Handle on High Cholesterol

All the cells in your body contain *cholesterol* (kuh-**less**-tuh-rawl), a waxy, fat-like substance that is used to build cell walls, produce certain hormones, and perform other important functions. The liver is responsible for producing the cholesterol the body needs. But since meats and dairy products also contain cholesterol, eating these foods adds to the amount of cholesterol in the body. In addition, eating foods that contain saturated fats or trans fats can make the body produce more cholesterol than needed.

Cholesterol travels through the bloodstream to different parts of the body in small “packages” known as *lipoproteins* (lih-poh-**pro**-teenz). There are two main types of lipoproteins: low-density lipoprotein, or LDL, and high-density lipoprotein, or HDL. When there is too much LDL in the bloodstream, it tends to form a thick, hard deposit called *plaque* (**plack**) on the blood vessel walls. Plaque can clog blood vessels and prevent the heart or brain from getting enough blood, which can lead to a heart attack or stroke. That’s why LDL is often called “bad cholesterol.”

HDL, on the other hand, is called “good cholesterol” because it has been linked to a lower risk of heart disease. Scientists are not certain why this is so, but some believe HDL may remove excess cholesterol from your blood vessels.

How do I know if I’m at risk?

Some risk factors for high cholesterol are beyond your control. For example, your chances of developing the problem increase as you get older. Before meno-

pause, women tend to have higher levels of HDL and lower levels of LDL than men of a similar age—but this advantage usually disappears after menopause. In addition, you are more likely to develop high cholesterol if others in your family have had it.

Other risk factors arise from a person’s lifestyle choices. These include eating foods that contain a great deal of saturated fat, trans fat, cholesterol, or sodium; being overweight; getting very little physical activity; and smoking.

What are the warning signs?

Unfortunately, there are no early signs that your blood cholesterol level is getting too high. That’s why it’s important to get your cholesterol levels checked at least once every five years if you are aged 20 or older. If you’ve been diagnosed with high cholesterol or with a heart condition that makes high cholesterol especially dangerous, have your cholesterol level checked every one to two years—or more frequently, if your doctor advises it.

What tests do I need?

Although you can buy kits for testing your total cholesterol level at home, routine cholesterol monitoring requires a more complete blood test, called a lipoprotein profile. For this test, you must fast for nine to 12 hours before a health care worker takes a sample of your blood, which is then tested for levels of total cholesterol; LDL; HDL; and *triglycerides* (try-**gliss**-erides), a kind of fat that is believed to contribute to the problem of high cholesterol.

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In general, you want to have a total cholesterol level of less than 200 mg/dL, an LDL level of less than 100 mg/dL, an HDL level of 60 mg/dL or more, and a triglyceride level of less than 150 mg/dL. If your levels do not fall within these optimal ranges, your doctor will discuss what this means for your health. Your target cholesterol levels will depend on whether you have other risk factors or conditions.

How can I avoid the problem?

Eating food that is low in saturated fat, trans fat, cholesterol, and sodium is essential to keep cholesterol levels low and maintain healthy blood vessels. The National Heart, Lung, and Blood Institute, or NHLBI, recommends that, each day, you get less than 7% of your total calories from saturated fat, get less than 25% to 35% from fat of any kind, and consume less than 200 mg of cholesterol and 2,400 mg of sodium. The American Heart Association, or AHA, suggests eating plenty of fruits, vegetables, and whole grain products; limiting your intake of dairy products, fried foods, and egg yolks; and cutting or draining the fat and skin from meat dishes when you cook. To avoid trans fats, choose liquid or tub margarines over stick margarines, avoid processed foods made with *hydrogenated* (hi-drahj-uh-nate-ed) oil, use an unhydrogenated oil (such as canola or olive oil) for cooking and baking, and stay away from commercial fried foods and baked goods.

Other steps you can take include maintaining a healthy weight (which can keep your LDL level down) and exercising for 30 minutes each day (which can lower your weight while increasing your HDL level). If you smoke, ask your doctor to help you quit.

How is it treated?

If you are diagnosed with high cholesterol, your doctor will advise you to make the same lifestyle changes that are recommended to prevent the problem: eating healthy, keeping your weight down, and exercising. But if your cholesterol level remains high despite these changes, or if you have a condition that makes high cholesterol especially dangerous, your doctor may prescribe medication as well.

The most widely used medications for lowering cholesterol, *statins* (**sta**-tins), reduce the liver's production of cholesterol and increase the removal of cholesterol from the blood. Another type of drug, called *bile acid sequestrants* (sih-**kwes**-trantz), cause your liver to use up extra cholesterol and may be prescribed along with a statin. A newer drug that limits the amount of cholesterol your small intestine can absorb—called *ezetimibe* (ehz-**eht**-ih-mibe)—also can be combined with statin therapy. The B vitamin *niacin* (**nie**-uh-suhn) has been shown to reduce LDL and triglyceride levels and raise HDL levels, but only at high doses that require a doctor's supervision. *Fibrates* (**fie**-brates) also are used to lower triglycerides and, possibly, raise HDL.

To learn more about high cholesterol, visit the web sites of the NHLBI's National Cholesterol Education Program (www.nhlbi.nih.gov/chd) and the AHA (www.americanheart.org). ●

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7 Century Drive, Suite 302
Parsippany, NJ 07054-4609

