

Answering Nine of Your Cholesterol Questions

"Cholesterol" is a household word, but still an elusive concept for many people. And no wonder. Biochemistry is hardly simple, even for biochemists. Here are a few cholesterol review notes.

Cholesterol is a fat-like substance found in all animal cells, human and otherwise. It is essential to life. The human body manufactures all the cholesterol it needs — thus we can live without eating any cholesterol. Cholesterol is attached to protein packages called lipoproteins, which are assembled in the liver and circulate in our bloodstream. Two of the better known types of lipoproteins are HDL (high-density lipoprotein), the "good" type that carries cholesterol out of the system; and LDL (low-density lipoprotein), the "bad" type that deposits cholesterol in arterial walls, where it can build up and narrow the arteries. High blood cholesterol is a known risk factor for heart attack.

The chart below will refresh your memory on guidelines for total cholesterol and HDL cholesterol. In the U.S., cholesterol is measured in milligrams per deciliter (mg/dl) of blood. In Canada and many other countries, it's measured in millimoles per liter (mmol/L). The latter is known as the International System. (To convert to millimoles, divide the milligrams by 38.67. To convert from millimoles to milligrams, multiply by 38.67.)

TOTAL CHOLESTEROL	HDL CHOLESTEROL
Desirable: Less than 200 mg/dl (5.2 mmol/L)	Low: Less than 35 mg/dl (0.9 mmol/L)
Borderline-high: 200-239 mg/dl (5.2 -6.19 mmol/L)	
High: 240 mg/dl or more (6.2 mmol/L or more)	

How often should I have my blood cholesterol measured?

Adults should be screened at least once every 5 years, but more frequently if their total cholesterol is elevated, if HDL is low, and/or they have other cardiac risk factors.

My total cholesterol is below 200, but my HDL is only 30. Is this a problem? I'm a 45-year-old man.

An HDL below 35 milligrams per deciliter is a risk factor for heart attack, even if total cholesterol is in the "desirable" range. One recent study by researchers in Israel and at Case Western Reserve University in Cleveland showed that the risk of dying from heart disease was 38% higher in men with HDL under 35, even if their total cholesterol was below 200. Stroke risk in such men was higher, too. If your total cholesterol is elevated, a high HDL can help protect you. The higher your HDL, the better.

I'm a woman of 55, and my HDL has markedly declined during the last five years. What can I do?

At menopause, estrogen production declines, and so does HDL. Female sex hormones tend to raise HDL. Depending on how low your HDL is and other risk factors, you might consider

starting hormone replacement therapy. But there are other measures you can take, too (see below).

How can I raise my HDL level? Lower my total cholesterol?

It's harder to raise HDL than to lower total cholesterol. Hormone replacement therapy, as we've said, will raise HDL for postmenopausal women. Moderate alcohol consumption — up to one drink a day for a woman, two for a man — also helps boost HDL. (Drinking more than that can harm your heart and cause other health problems — see Wellness Letter, July 1997, for more on the risks and benefits of alcohol.) Stop smoking if you smoke, lose weight if you are overweight, and get regular aerobic exercise. If you are sedentary, aim for brisk 30-minute walks three to five times a week, or another aerobic exercise such as swimming. More strenuous exercise can help even more. To reduce total blood cholesterol, consume less cholesterol and saturated fats. Eat a diet rich in fruits, grains, vegetables, and nonfat dairy products. Some cholesterol-lowering drugs also raise HDL.

I know my HDL and LDL. Why don't they add up to my total cholesterol?

Certain blood fats known as triglycerides also figure into the equation, which is:

$$\text{Total cholesterol} = \text{HDL} + \text{LDL} + (\text{triglycerides} \div 5)$$

In fact, LDL is not measured directly, but derived as follows:

$$\text{LDL} = \text{total cholesterol} - \text{HDL} - (\text{triglycerides} \div 5)$$

For more about triglycerides, see WELLNESS LETTER, January 1998.

Why don't package labels distinguish between good and bad cholesterol?

The cholesterol that we eat is simply cholesterol — you can't consume "good cholesterol." Dietary cholesterol comes only from animal products such as meats, poultry, fish, eggs, and dairy products. The amount of cholesterol you consume affects the amount your body produces, which is also affected by genetic factors. But saturated fats, found chiefly in animal products, affect blood cholesterol levels even more than dietary cholesterol itself.

I've heard it's okay to eat eggs. The WELLNESS LETTER has said shrimp is okay. Both these foods are rich in cholesterol, so why are they okay?

It all depends on how much of these foods you eat and in what context — and what your personal risk factors are. One egg contains about 215 milligrams of cholesterol; the recommended daily maximum is 300 milligrams. Thus, as we discussed in January, it would be okay to eat an egg if the other foods you eat that day are low in cholesterol. Shrimp contain more cholesterol than most shellfish (175 milligrams in 3 ounces) — but, like eggs, they are low in saturated fat, and shrimp, in moderate amounts, have a place in a heart-healthy diet. The American Heart Association suggests a weekly maximum of four eggs for healthy people, including eggs consumed in baked goods and other recipes. If you love eggs and are at low risk for heart disease, you might want to eat more than four. But you should make sure, via periodic blood tests that your cholesterol level doesn't shoot up. On the other hand, if your blood cholesterol is high or if you have other risk factors for heart disease or already have heart disease, you should probably follow a more stringent diet, avoiding foods high in cholesterol and saturated fat.

Do I need to fast before a cholesterol test?

Although total cholesterol and HDL can be measured fairly accurately without fasting, to measure triglycerides and LDL, you need to fast for 12 hours (overnight).

What can skew the results of a cholesterol test?

Fluctuations in weight shortly before the test, changes in diet, and excessive alcohol intake can affect your test. So can surgery or injury, infection, or severe physical strain. At test time, your weight should have been stable for at least two weeks, and you should have been eating your usual diet and drinking your usual amount of alcohol, if you drink at all. At least two weeks should have elapsed since any surgery, trauma, illness, or physical strain.

Source: UC Berkeley Wellness Letter

<http://www.wellnessletter.com/html/fw/fwLon06CholTest.html>