Health Matters
SDSU Student Health Services

Cholesterol

What is it?

Cholesterol is an odorless, fat-like substance that is a key part of cell membranes and hormones. It is required by the body for normal functioning. It is present in all parts of the body, including the brain, muscle, skin and skeleton and is produced naturally by the liver. However, too much cholesterol from your diet can cause deposits to form in the walls of arteries, partially or totally blocking the flow of blood. This can cause atherosclerosis, a type of "hardening of the arteries" in which cholesterol, fat, and other blood components build up on the walls of the arteries.

High blood cholesterol is one of five major risk factors for heart disease (the other four are cigarette smoking, high blood pressure, diabetes and obesity), all of which are under your control. Heredity has an important effect on your cholesterol. Persons with a family history of early heart attack (before age 55 in men) should have their cholesterol levels checked. Even young persons (i.e., children, teenagers) can have high cholesterol due to family history. Cholesterol is found only in foods of animal origin, such as meats, cheeses and eggs. The liver can also produce cholesterol from excess "saturated fats".

Everyone age 20 and older should have his or her cholesterol measured at least once every 5 years!

Types of fats (lipids)

Triglycerides

Triglycerides are oily, fat-like substances carried through the bloodstream to the tissues. Triglycerides are obtained from the fat and refined carbohydrates in your diet. Diabetes, obesity and the consumption of alcohol and sugar, tend to raise triglyceride levels. Triglycerides and cholesterol travel in the blood in packages called lipoproteins. All lipoproteins are formed in the liver and carry cholesterol throughout the body. The two main types of lipoproteins that transport cholesterol are HDL and LDL.

HDL (High Density Lipoprotein)

High density lipoprotein (HDL) is considered "good" cholesterol. HDL carries cholesterol away from body cells and tissues to the liver for removal from the body. Generally, the higher the HDL level, the better protected you are against heart disease. HDL can be raised by maintaining a lean body weight, consuming mono and poly unsaturated fats, and by regular aerobic exercise such as jogging, brisk walking, bicycling or swimming.

LDL (Low Density Lipoprotein)

Low density lipoprotein (LDL) is considered "bad" cholesterol. It contains the largest amount of cholesterol in the blood and is responsible for depositing cholesterol on the artery walls. Generally, the lower the LDL level, the better. LDL level can be lowered by maintaining a lean body weight, a lean diet, regular aerobic exercise and medication.

Measuring cholesterol levels

A blood test called a “lipoprotein panel” can determine your blood cholesterol levels. Measuring blood cholesterol levels provides information on your risk of developing coronary heart disease. A high LDL-cholesterol level or a low HDL-cholesterol level puts you at increased risk. The most accurate cholesterol measurements are made after a 9-12 hour "fast" when both the HDL and triglyceride levels are measured.

Cholesterol Type	Level
Total Cholesterol	< 200 mg/dL
HDL	≥ 60 mg/dL
LDL	< 100 mg/dL
Triglycerides	< 150 mg/dL

Major Risk Factors that affect your LDL

- Cigarette smoking
- High blood pressure
- Low HDL cholesterol (less than 40 mg/dL)
- Family history of early heart disease
- Age (men 45 years or older, women 55 years or older)

Lowering your cholesterol levels

Even with hereditary factors affecting cholesterol levels, a healthy diet is the best strategy to help maintain healthy cholesterol levels.

1. Increase complex carbohydrates (> 3g/fiber per serving).

- Certain types of soluble fiber (i.e., oat bran rather than wheat bran) help the body get rid of excess cholesterol. A diet high in fiber can help decrease cholesterol levels while a low fiber diet (from refined carbohydrates) can contribute to an increase in cholesterol and triglyceride levels.
- Eat more whole grain (>3g/fiber per serving) breads and cereals, pasta, rice and dried peas and beans.
- Eat raw and/or cooked vegetables and fruits more often (at least five to nine servings per day).

2. Cut back on saturated fats.

- Choose poultry, fish and lean cuts of meat. White meat, such as, chicken or turkey with the skin removed, either before or after cooking is best.
- Drink nonfat or 1% milk. Also eat low or non-fat yogurt and cheeses such as low-fat cottage cheese. Read low-fat food labels carefully as they may contain a significant amount of fat. Look for less saturated and trans fats and more mono and poly unsaturated fats.
- Avoid fried foods or foods cooked in fat or butter.
- Use soft margarine or liquid vegetable oils that have monosaturated and polyunsaturated fats (like canola, and olive oil) instead of butter, lards, and hydrogenated vegetable shortening like Crisco. These items are high in saturated fat. The first ingredient on these labels should be liquid oil or water, NOT partially hydrogenated vegetable oil. Palm oil is easily converted to cholesterol so the use of these products should also be limited.
- Cut down on processed and refined foods (foods with little dietary fiber) such as white breads, chips, cakes, pastries, ice cream, lunch meats, hot dogs, mayonnaise, etc.

3. Cut back on dietary cholesterol.

- Eat fewer egg yolks; try substituting two egg whites for each whole egg in recipes.
- When reading labels on products, remember that "no cholesterol" does not mean "no saturated fat." Look for the breakdown of saturated and unsaturated fat listed on the nutrition facts label on the product. If a product has more mono and/or poly unsaturated fats than saturated or trans fats the product is a better choice.

4. Get a check-up by a health care provider.

- In some severe cases of familial high cholesterol, certain medications can lower the cholesterol to a safer level.

Lower your risk

Cholesterol is only one risk factor for heart disease or stroke. Heart disease risk can also be lowered by:

- Eliminating tobacco use
- Managing high blood pressure
- Managing diabetes
- Losing excess body fat
- Regular physical activity

For More Information:

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