Nutrition: What is Cholesterol?
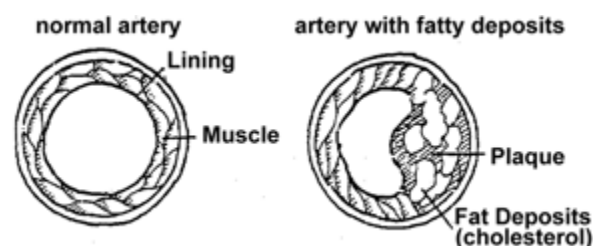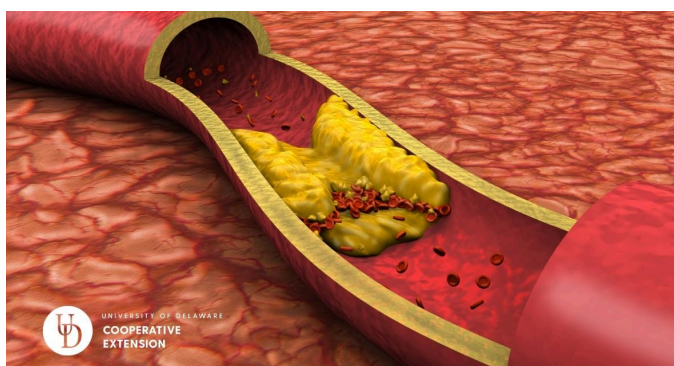
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Cholesterol is a waxy, fat-like substance found in cells of humans and animals. It can come from the foods we eat, but the body also makes cholesterol. Although we often hear about ways to reduce blood cholesterol levels, cholesterol is one of many chemicals created and used by the body. Cholesterol is required for the formation of bile acids, which are needed for fat digestion. It is also used to make important hormones such as estrogen and progesterone and is involved in the formation of vitamin D in the skin.

Cholesterol in the blood attaches to proteins, which are referred to as lipoproteins. There are two major kinds of lipoproteins of interest. These lipoproteins are called high-density lipoproteins (HDLs) and low-density lipoproteins (LDLs).

High-density lipoproteins (HDLs), also referred to as "good" cholesterol, remove excess cholesterol from the body to be broken down in the liver. Higher levels of HDLs are linked to lower rates of heart disease.

"Bad" cholesterol is associated with low-density lipoproteins (LDLs). LDLs carry cholesterol in the blood to body cells. High levels of LDLs are connected with an increased risk of heart disease due to cholesterol and fat deposited on the artery walls. These fatty deposits cause a decrease the interior size of the arteries so the blood supply is reduced, thus increasing the risk of heart disease and stroke.

What do the numbers mean?

To determine your blood cholesterol levels and your risk of heart disease, your doctor will order a blood test to determine your lipid profile. This typically involves total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides (a kind of fat) levels. In the U.S., cholesterol levels are measured in milligrams (mg) per deciliter (dL) of blood. Based on the values obtained, your risk of a heart attack or stroke is determined. Does this mean that if your values are at an unacceptable level, you will have a heart attack? No, it just means you are at increased risk. Other factors, such as family history, smoking, high blood pressure, and diabetes, play a role in your risk.

The values below indicate acceptable, borderline, and unacceptable blood levels of total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides.

Optimal Cholesterol Levels 1	
Total cholesterol	About 150 mg/dL
LDL ("bad") cholesterol	About 100 mg/dL
HDL ("good") cholesterol	At least 40 mg/dL in men and 50 mg/dL in women
Triglycerides	Less than 150 mg/dL

Source: https://www.cdc.gov/cholesterol/about/index.html

How can you reduce your risk of coronary heart disease?

There a several lifestyle changes that can improve your numbers and therefore decrease your risk of a heart attack or stroke. These include:

- Choose healthy fats – The fat you consume provides the building blocks for the body to make cholesterol. However, not all fats are used the same way.

- Saturated fats raise total and LDL cholesterol. No more than 10 percent of calories should come from saturated fats. As a rule, fats that are solid at room temperature contain saturated fats.

- Not only do trans fats increase your LDL ("bad") cholesterol levels, they lower the "good" HDL cholesterol levels. Eliminate trans fats in the diet. These are found in oils that have undergone hydrogenation to convert them to a solid fat, such as margarine and vegetable shortening. Any product, such as cakes, cookies, or crackers, made from these hydrogenated products would have trans fats in them. Look at the Nutrition Facts label to see if the product contains trans fats.

- Monounsaturated fats found in olive, peanut and canola oils are healthy choices. Nuts like almonds and walnuts are healthy choices.

- Limit dietary cholesterol – For most individuals, try for no more that 300 mg of dietary cholesterol each day. For some individuals whose bodies do not reduce the amount of cholesterol it makes when cholesterol is consumed in food, the amount decreases to 200 mg or less per day. Cholesterol is only found in animal products. The most concentrated sources are organ meats and egg yolk. Select lean cuts of meats and low-fat dairy products.

- Eat heart healthy fish – Certain fish, such as cod, tuna and halibut, are low in fat. Other fish (for instance, salmon and mackerel) are rich in omega-3-fatty acids, which reduce the risk of coronary heart disease.

- Make half your plate fruits and vegetables – Fruits and vegetables are rich in fiber, which helps reduce cholesterol levels. Study after study shows that people who eat lots of fruits and veggies have a decreased incidence of heart disease.

- Choose whole grains – One of the major nutrients in whole grains is fiber, which is linked to reduced risk of coronary heart disease. Whole grain breads, whole wheat pasta, brown rice, oatmeal and oat bran are excellent choices.

- Drink alcohol in moderation – Consumption of moderate (one drink for women and one to two for men) may increase blood HDL cholesterol levels.

- Be physically active – Regular physical activity of 30 to 60 minutes each can improve HDL cholesterol levels. You do not need to get all 30 to 60 minutes in at one time; it can be broken up into small chunks throughout the day.

- Lose extra weight – Excess weight contributes to high blood cholesterol levels. Even losing a few pounds can make a significant difference in your cholesterol levels. A combination of healthy food choices and regular physical activity to lose weight gradually is the best way to get to and maintain a healthy weight.

- Do not smoke – Quitting smoking can improve HDL cholesterol levels and decrease blood pressure. The risk of heart diseases starts decreasing immediately and continues to increase with time.