

Diabetes and Cholesterol

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What should I know about cholesterol if I have diabetes?

People with diabetes should pay attention to their cholesterol levels because high levels of blood cholesterol can lead to heart disease. People with diabetes are more likely to develop heart disease. When they do, they are two to four times more likely to die from heart disease.

What should I know about blood cholesterol?

- The body makes cholesterol, and it is found in all cells of the body.
- Foods such as beef, veal, lamb, pork, liver and other organ meats, and egg yolk contain cholesterol.
- Cholesterol is only found in animal products.
- There are two main types of cholesterol. One type is considered “bad” (LDL) and the other type is considered “good” (HDL).

What should I know about LDL (“bad”) cholesterol?

- People with diabetes tend to have higher levels of LDL cholesterol.
- LDL stands for low density lipoprotein. It is called the “bad” cholesterol because it carries cholesterol to the walls of your arteries and increases your risk for a heart attack.
- The higher the level of LDL cholesterol in the blood, the greater your risk for heart disease.
- People with diabetes generally have excess glucose in the blood. The excess blood glucose sticks to the LDL cholesterol. This glucose-coated LDL stays in the blood stream longer and forms plaque, one of the first steps of heart disease.

- Lowering your level of LDL cholesterol lowers your risk of heart disease.
- The goal for a person with diabetes or heart disease is to have a blood cholesterol level below 70 mg/dL.

How can I lower my level of LDL (“bad”) cholesterol?

- Limit or eat fewer foods that are high in trans fat, saturated fat, and cholesterol.
 - Sources of trans fat may include crackers, doughnuts, cookies, cakes, French fries, and onion rings.
 - Saturated fats are found in fatty meats, chicken skin, whole milk and whole milk products (ice cream, cheese), cream, butter and lard.
 - To reduce your intake of saturated fats eat no more than six ounces of cooked lean meat, poultry, and seafood, such as shrimp, each day.
 - Trans fat and saturated fat raise blood levels of LDL cholesterol more than cholesterol from the food we eat. It is important to read food labels carefully so that you are aware of the foods that contain trans fat and saturated fat.
- Include oats, oatmeal, dried peas and beans, and fruits and vegetables in your diet daily. These foods are good sources of soluble fiber, which have been shown to lower LDL cholesterol.
- Control body weight. Excess weight raises your

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level of LDL “bad” cholesterol and increases your risk of developing heart disease. Besides increasing your risk for heart disease, being overweight also makes it difficult for your body to use the insulin it makes and to remove glucose from the blood.

- Taking part in physical activity for 30 or more minutes on five or more days a week is a good way to improve your health and control your weight.
- Limit the use of solid fats, such as butter, lard or shortening. Instead use canola, safflower, sunflower, soybean, and olive oils.
- Use fat free or low fat (1%) milk, milk products, and cheeses.
- Take medication if your doctor decides you need it. Sometimes making changes in your diet and increasing exercise is not enough to lower your level of “bad” cholesterol. If this happens to you, your doctor will decide which type of medication is best to lower your cholesterol.

Add more fiber to your diet. The fiber found in oats, fruits, vegetables, and peas and beans can raise HDL cholesterol and also lower LDL cholesterol.

What should I know about HDL (“good”) cholesterol?

- HDL stands for high density lipoprotein. This is called the “good” cholesterol because it moves cholesterol from tissues to the liver, where it cannot clog up the arteries of your heart. The liver then removes the cholesterol from the body.
- The higher the level of HDL in the blood, the lower your risk for heart disease.
- People with diabetes tend to have low HDL cholesterol levels in the blood and this increases their chances of getting heart disease.
- You want your level of HDL to be “high” or above 60 mg/dL. This level protects against heart disease.

How can I raise my level of HDL (“good”) cholesterol?

- Take part in at least 30 minutes of physical activity on a minimum of five days a week.
- Lose excess weight. When you lose weight, you increase your level of HDL.
- Avoid smoking. Smoking decreases your level of HDL.
- Use more olive and canola oils in cooking. These oils can raise your HDL level.
- Add more fiber to your diet. The fiber found in oats, fruits, vegetables, and peas and beans can raise HDL cholesterol and also lower LDL cholesterol.
- Include soy-based products such as tofu and soy milk in your diet.

What should I know about triglyceride?

- Most of the fats in food and in our bodies are in the form of triglycerides.
- When diabetes is not controlled triglyceride levels are high.
- People with high triglyceride levels also have high LDL and low HDL cholesterol levels.

What is a normal triglyceride level?

- People with diabetes should have a blood triglyceride level less than 150 mg/dL.

How can I lower my level of triglyceride?

- Lose weight.
- Be involved in physical activity such as walking, biking, dancing, and swimming for at least 30 minutes on five or more days of the week.
- Eat less beef, beef fat, veal, lamb, pork, lard, poultry fat, butter, cream, milk, cheeses and other dairy products made from whole and 2 percent milk.
- Use olive and canola oils and liquid margarine.
- Improve blood glucose control.
- Limit alcohol. Even small amounts can raise triglyceride levels.

Resources

dLife; American Diabetes Association website; WebMD, NCEP at dLife: <http://www.dlife.com/>.

The American Diabetes Association at <http://www.diabetes.org/>.

References

American Diabetes Association. All about cholesterol. Accessed April 21, 2015, at: <http://www.diabetes.org/diabetes-forecast/cholesterol>.

Grant, R. W. (2007). Prevalence and treatment of low HDL cholesterol among primary care patients with Type 2 diabetes. *Diabetes Care*. 30:479-484.

National Cholesterol Education Program. High blood cholesterol: What you need to know. Accessed April 21, 2015, at: <http://www.nhlbi.nih.gov/health/resources/heart/heart-cholesterol-hbc-what-html>.

Simonen, P. P. (2002). Diabetes contributes to cholesterol metabolism regardless of obesity. *Diabetes Care*. 1511-1515.

The American Heart Association. Accessed April 21, 2015, at: <http://www.heart.org/HEARTORG/>.

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