



Conquer Cholesterol

Here's how you can help protect your heart and reduce your risk of diabetes-related complications

By Kalia Doner

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If you have diabetes, heart disease is the single greatest threat to your well-being. It is the most common complication and the major cause of diabetes-related disease and death. Studies from Boston's Joslin Diabetes Center found that over time people with diabetes had a two- to threefold increase in the incidence of heart disease, compared to those without diabetes; women with diabetes were shown to have an even greater risk. One reason for these alarming statistics may be that more than 90 percent of people with diabetes also have one or more additional serious risk factors for heart disease, including high blood pressure and high cholesterol. So, if you have type 1 or type 2, you need to control your cholesterol levels and make your heart stronger.

What Is Cholesterol?

Cholesterol is a waxy substance that is in all the body's cells and circulates throughout your blood system. Too much in your bloodstream can cause deposits along—and in—the walls of the blood vessels. Cholesterol can also trigger inflammation and restrict blood flow. Where does this potential troublemaker come from? It is produced by the liver, and it enters the body through the foods you eat such as egg yolks, meat, poultry, whole dairy products and even seafood. The American Heart Association (AHA) recommends that those with heart disease take in less than 200 milligrams (mg) of cholesterol a day from food; those with diabetes, even if they don't have diagnosed heart disease, should also aim for less than 200 mg.

There are two main types of cholesterol: LDL (low-density lipoprotein) and HDL (high-density lipoprotein). Each type also functions as a carrier of itself and, to a lesser extent, of the other type, transporting cholesterol through the bloodstream to and from cells.

LDL is the major cholesterol carrier. Too much of it can clog up the arteries to the heart and the brain, increasing the risk of atherosclerosis and blood clots (which is why it's also known as bad cholesterol). HDL, on the other hand, carries

cholesterol back to the liver so that it can be passed through the body. Since a high HDL level is thought to protect against heart attack, HDL is known as good cholesterol.

The Diabetes Effect

According to the AHA, diabetes has a negative impact on cholesterol levels. This is because insulin resistance and diabetes may reduce your levels of HDL cholesterol and raise your levels of LDL cholesterol and triglycerides—the main form of fat that's found in the body. This condition is called diabetic dyslipidemia, and it has such a negative impact that, compared to people without diabetes who have similarly elevated cholesterol levels, those with diabetes are at far greater risk of coronary heart disease.

Reducing Your Risks

Fortunately, there's a lot you can do to protect your heart. Positive lifestyle goals include: getting regular medical care, eating a diet low in saturated and trans fats but high in fiber and vegetables, and getting regular physical activity.

Research points to the value of reaching these goals. People with insulin resistance (prediabetes) have been shown to dramatically reduce their risk of developing full-blown diabetes by making changes in everyday habits. A study published in the journal *BMJ* in January 2007 concluded that lifestyle interventions, especially those that target obesity and increase physical activity, can reduce the risk of type 2 diabetes in people with impaired glucose tolerance at least as well as pharmacological interventions.

One catch? Lifestyle changes are hard to adopt, and even harder to sustain once diabetes has been diagnosed. A possible solution is to take medicines to lower cholesterol while making lifestyle changes. The one-two punch appears effective and may have added benefits in reducing other diabetes-related complications. The drugs that seem to be most effective are statins. Marc Rendell, M.D., director of the Creighton University Diabetes Center in Omaha, published an analysis of many cholesterol-diabetes studies that was funded by drug companies. *His findings?* Treatment with lovastatin cut coronary events by 42 percent in those with diabetes and by 37 percent in those without it. Another study looked at people with coronary disease and found pravastatin reduced coronary events such as heart attack by 19 percent in those with diabetes and by 25 percent in those without it. And a Scandinavian study showed taking simvastatin reduced death from heart disease by 42 percent in those with diabetes.

Lifestyle Makeover

You can start reducing your risk of heart disease today by increasing your physical activity and improving your diet.

Exercise tips

If you are middle-aged or older, work with your doctor to determine what is safe for you. Your goal for at least a moderate level of fitness should be to exercise almost every day for 30 to 60 minutes at about 50 to 80 percent of your capacity. Start by doing exercises during commercials while watching TV (work on your core with sit-ups and crunches); later, you can walk in place or walk up and down stairs indoors. A stretching video can help you warm up and stay limber. The American Heart Association offers a 12-week exercise program at choosetomove.org.

Nutrition tips

Work with a nutritionist to establish the diet plan that will offer you the best glucose control. In general, you should: avoid foods high in saturated or trans fats and cholesterol; eat plenty of vegetables and fruits; and snack wisely—if you

balance carbohydrates in snacks with those in your meal plan, you won't throw off your glucose levels.

For good support and advice, contact a certified diabetes educator. You can find one in your area at the website aadenet.org.

The Numbers Game

Because of the increased risk that unhealthy lipid levels pose for people with diabetes, there is a unique set of cholesterol goals for anyone with the disease. The American Heart Association offers the following guidelines:

- Low-density lipoprotein (LDL) cholesterol levels should be below 100 mg/dL. For people who have cardiovascular risk factors in addition to diabetes, the target may be set at 70 mg/dL.
- High-density lipoprotein (HDL) cholesterol, which works to remove cholesterol from the blood, should come in at greater than 40 mg/dL for men and greater than 50 mg/dL for women; 60 mg/dL and above is considered protective against heart disease.
- Excess triglycerides—which come from fats and carbohydrates in food, or are made in the body by the liver—also contribute to vascular disease. The ideal level is below 150 mg/dL.

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