

Treating High Cholesterol in People with Diabetes

Toolkit No. 17

Keeping your cholesterol and other blood lipids (fats) under control can help you prevent diabetes problems. Diabetic dyslipidemia, a condition in which your blood lipids are off target, can lead to heart attack and stroke. For most people, treatment for off-target blood lipids includes both lifestyle changes, such as choosing foods wisely, and medication. **You can take steps to keep your blood lipids on target.**

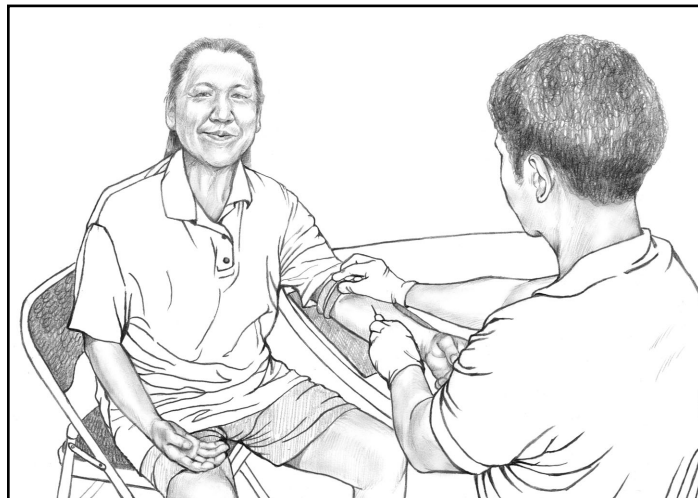
What are the different kinds of blood lipids and what do they do?

There are several kinds of lipids in your blood, and each type affects your health differently.

- **LDL cholesterol** is sometimes called bad cholesterol. This lipid can narrow or block your blood vessels. Blocked vessels can lead to a heart attack or a stroke. **Reaching your LDL target is the most effective way to protect your heart and blood vessels.**
- **HDL cholesterol** is sometimes called good cholesterol or “helpful” cholesterol. This lipid helps remove deposits from the insides of your blood vessels and keeps them from getting blocked.
- **Triglycerides** are another kind of lipid. High triglyceride levels increase your risk of a heart attack or stroke.

How does diabetes affect my blood lipids?

Many people with diabetes have problems with their blood lipid levels—HDL (good cholesterol) levels that are too low and triglyceride levels that are too high. Also, in people with diabetes, LDL (bad cholesterol) particles are unusually small and dense, which can be especially harmful to blood vessels. This combination of factors means an increased risk of heart attack and stroke. But the good news is that taking steps to keep your lipids within the target range will lower your risk for these problems.



Have your blood lipids checked at least once a year to help prevent or delay a heart attack or a stroke.

How will I know if my blood lipid levels are off target?

You won't know that your lipids are at dangerous levels unless you have a blood test to check your blood lipid levels. The American Diabetes Association (ADA) recommends that you have your levels checked at least once a year. Some people may need to be checked more often.

What are the recommended targets for blood lipids?

See the chart below for targets suggested by the ADA. You can also record the results of your latest blood lipid check here.

Type of Blood Lipid	My Results	ADA Targets
LDL cholesterol		below 100 mg/dl
HDL cholesterol		above 40 mg/dl (for men)
		above 50 mg/dl (for women)
Triglycerides		below 150 mg/dl

What treatments are recommended?

Both lifestyle changes and medication help control blood lipids. Treatment differs from one person to the next. Work with your health care provider to find a treatment that's right for you.

Lifestyle changes

Lifestyle changes can help control your blood lipids as well as your blood glucose and blood pressure levels. If your blood lipid levels are off target, you'll want to consider making lifestyle changes right away. Place a check mark next to steps you're willing to try.

Make wise food choices

- I'll eat less fat, especially saturated fat (found in fatty meats, poultry skin, butter, 2% or whole milk, ice cream, cheese, palm oil, coconut oil, *trans* fats, hydrogenated oils, lard, and shortening).
- I'll choose lean meats and meat substitutes (such as chicken without the skin, lean beef such as flank steak or chuck roast, boiled ham, or pork tenderloin).
- I'll switch to low-fat or fat-free dairy products (such as low-fat cheese and skim milk).
- I'll cut back on foods that are high in cholesterol (such as egg yolks, high-fat meat and poultry, liver and other organ meats, and high-fat dairy products like whole milk).
- I'll choose the kinds of fat that can protect my heart, such as olive oil, canola oil, corn oil, sunflower oil, and safflower oil. Nuts also have a healthy type of fat.
- I'll eat fish 2 or 3 times a week, choosing those high in heart-protective fat (such as albacore tuna, herring, mackerel, rainbow trout, sardines, and salmon).

Lose weight or take steps to prevent weight gain

- I'll cut down on calories and fat.
- I'll try to be more physically active than I am now.

Be physically active

- Before I start a new routine, I'll talk with my doctor about safe activities for me.
- I'll try to do a total of about 30 minutes of aerobic exercise, such as brisk walking, most days of the week. If I'm just starting out, I'll begin with 5 minutes a day and gradually add more time.

Be careful with alcohol

- I'll talk with my health care team about whether it's wise for me to drink alcohol.
- If and when I drink alcoholic beverages, I'll limit myself to no more than 1 serving (for women) or 2 servings (for men) daily.

Quit smoking

- I'll talk with my health care team about methods that can help.

Stay on target with your blood glucose (sugar)

- I'll help lower my LDL cholesterol and triglycerides by keeping my blood glucose under control with meal planning, physical activity, and medication (if needed).

Medications

Several types of medication are available. Not everyone takes the same blood lipid medication, and many people take more than one kind. The medications you take will depend on your blood lipid levels and other factors such as cost. Lifestyle changes along with medications can help you reach your targets. Some medications can help prevent heart attacks and strokes.

- **Statins**—These medications lower LDL cholesterol, boost HDL levels, and lower triglyceride levels. Studies have shown that they are the most effective medication for lowering LDL cholesterol.
- **Fibric acid derivatives, also called fibrates**—These medications lower triglycerides and raise HDL levels. They may either lower, raise, or not change LDL cholesterol.
- **Nicotinic acid, also called niacin**—This medication lowers triglycerides, raises HDL levels, and lowers LDL cholesterol.
- **Cholesterol absorption inhibitors**—This type of medication lowers LDL cholesterol and triglycerides and raises HDL levels.
- **Bile acid sequestrants**—These medications lower LDL cholesterol and can raise HDL levels. They either have no effect on triglycerides or, in some cases, they can raise triglyceride levels.

