

Pre-Test

- 1 Cardiovascular complications will affect _____ of people with diabetes.
 - a. 75%
 - b. 15%
 - c. 99%

- 2 True or False? Chronic high blood sugars can cause arteries to narrow or lose elasticity.

☐ T ☐ F

- 3 True or False? High levels of low-density lipoprotein (LDL) can increase your risk of heart attacks or stroke.

☐ T ☐ F

- 4 Name three kinds of cardiovascular complications that a person with diabetes may encounter.

Intended to supplement your curriculum, these talking points cover main themes of the segment to help lead class discussion. They also serve as a review of the pre-test answers.

Cardiovascular disease is the leading cause of death among many people with diabetes, yet much of the population remains unaware of the risk. 75% of people with diabetes will have heart disease. Chronic hyperglycemia (high blood glucose levels) can cause arteries to narrow and/or lose elasticity, and high cholesterol levels can clog arteries with fat deposits. People with type 1 diabetes who have also developed some degree of insulin resistance may be at an increased risk for heart problems, as insulin resistance has been associated with cardiovascular problems.¹

Cardiovascular issues that some people with diabetes may face include:

- **Atherosclerosis** narrows the arteries due to high cholesterol, leading to Coronary Artery Disease (CAD) where blockage occurs in the arteries that go to the heart.
- **Hypertension**, or high blood pressure, stems from narrow arteries and causes a build up in blood pressure within the arteries.
- **Peripheral Vascular Disease** is a narrowing of arteries outside the heart and brain.
- **Stroke** is an attack on the brain usually caused by blockage of the arteries or blood vessels that lead to the brain.
- **Cardiovascular Autonomic Neuropathy (CAN)** is the result of nerve damage to the cardiovascular system.
- **Peripheral Arterial Disease (PAD)** is a hardening of the arteries that prevents proper blood flow. The improper flow is one of the risk factors for foot ulcers, which can lead to amputation.

Cholesterol is a soft, waxy substance found among the lipids (fats) in the bloodstream and in all cells. High levels of low-density lipoprotein (LDL), aka “the bad cholesterol,” can increase your risk of heart attacks or stroke. LDL is the major cholesterol carrier in the blood and it can form a plaque on the inside of arteries, which is a condition known as atherosclerosis. If a clot forms and blocks blood from flowing to the heart muscle, a heart attack can occur. If a clot blocks the flow of blood to the brain, a stroke results. Keeping your LDL low helps to protect your heart.

By contrast, high-density lipoprotein (HDL) is considered “the good cholesterol” because high levels seem to protect against heart attacks. About one-third to one-fourth of blood cholesterol is carried by HDL. It helps remove plaque deposits from the walls of the blood vessels, preventing blockages. Also, triglycerides are another type of fat that circulates in the bloodstream. High triglycerides raise your risk of a heart attack or stroke.

The National Diabetes Education Program (NDEP) recommends that diabetes patients maintain cholesterol levels of:

LDL (bad cholesterol) < 100mg/dl (and < 70 mg/dl for those considered “very high risk”*)
HDL (good cholesterol) > 40 mg/dl in men and > 50 mg/dl in women
Triglycerides < 150

* Note: The National Cholesterol Education Program defines very-high risk patients as those who have cardiovascular disease together with either multiple risk factors (especially diabetes), or severe and poorly controlled risk factors (e.g., continued smoking), or those with acute coronary conditions such as heart attacks.

¹ National Institute of Diabetes & Digestive and Kidney Diseases (NIDDK)

There are several ways to treat high cholesterol levels:

- First and foremost, keep your blood glucose levels under control.
- Work with your medical team to develop a meal plan that you can stick with.
- Use less oil, butter, margarine, and other fats when cooking.
- Choose low-fat dairy products.
- Eat more fruits and vegetables.
- Choose whole-grains for cereals and breads.
- Get at least 30 minutes of moderate intensity exercise per day.
- If you smoke - quit!
- Maintain a healthy weight.

In addition to taking these steps towards reducing cholesterol levels, there are medications that may help reduce heart problems:

- Baby aspirin;
- Statins (such as Lipitor, Lercol, Crestor, and Zocor);
- Or fibrates (such as TriCor or Lopid).

Good heart health is important to people with and without diabetes. Keep in mind that stress also plays a role in maintaining good heart health, so while you're asking your medical team about exercise, diet changes, and medications, don't forget to keep smiling. A positive attitude goes a long way.

Pre-Test Answer Key: 1) a; 2) T; 3) T; 4) hypertension, stroke, atherosclerosis.

Post-Test Answer Key: 1) c; 2) don't smoke, maintain a healthy BMI, exercise, etc.; 3) T; 4) baby aspirin, statins, fibrates.

- 1 The National Diabetes Education Program (NDEP) recommends that diabetes patients maintain LDL cholesterol levels:
 - a. The same as their last blood sugar result.
 - b. Greater than 150 mg/dl.
 - c. Less than 100 mg/dl.

- 2 Name three lifestyle changes you can make to protect your heart.

- 3 True or False? Insulin resistance has been associated with cardiovascular problems.

☐ T

☐ F

- 4 Name three medication options that people with diabetes may use to reduce their cholesterol levels and maintain good heart health.

- 1 Knowing that increased stress levels aren't heart healthy, have a "De-Stressing Session" with your group. Have your group compile a list of things they do to relieve stress and make those methods part of your session. Make your own stress balls using party balloons and rice, or encourage a "group scream" to alleviate tension and let them "get it all out." Be creative! Have fun! Laughing, all on its own, will lower stress levels.
- 2 Not everyone wants to spend their days worrying about food and a diabetes-friendly diet. Invite a registered dietitian to talk about foods that promote good heart health, and then have your group members share their favorite, easy, heart healthy recipes.

Additional Resources

- *Staying Healthy with Diabetes — Nutrition & Meal Planning.* Amy P. Campbell, MS, RD, CDE and the Staff of Joslin Diabetes Center.
- *Greens, Beans, and Leans: Diet and Exercise Guidelines.* Sheldon Gottlieb. (Copyright 2002)