



Having diabetes raises the risk for heart disease. Eating properly, staying active, and working with your healthcare team will go a long way in keeping you healthy. Just remember—the power to manage your diabetes is in your hands.

For more information, call the Ascensia Diabetes Care Customer Service Help Line at

1-800-348-8100

(8:00 AM – 12:00 AM, 7 days a week, Eastern Time) or visit:

ContourNext.com

For more help in managing your diabetes, see a diabetes educator. To find an educator: www.diabeteseducator.org

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Know YourTM Health Facts

Diabetes and Heart Disease



Did You Know?

You may be able to lower your risk of heart disease if you follow a healthy lifestyle plan. If you have diabetes, you are at least twice as likely to have **heart disease** or a **stroke** as someone who does not have diabetes. People with diabetes are also more likely to develop heart disease or have a stroke at a younger age. Additionally, **heart attacks** may be more serious in people with diabetes.

The good news for people with diabetes is that controlling risk factors, such as your blood pressure and blood sugar, can lower your risk for heart disease. Controlling your blood sugar starts with monitoring your blood sugar levels and making changes to your diet, activity levels, and medications to stay within your recommended range. Staying healthy also means knowing your blood fat levels and lowering other risk factors. Everyone should have a healthy lifestyle plan, but it is even more important for people with diabetes.

Definitions

Heart Disease:

(also called cardiovascular disease)

A simple term to describe several problems related to plaque buildup in the walls of the arteries. As plaque builds up, the arteries narrow, making it more difficult for blood to flow and creating a risk for heart attack or stroke.

Heart Attack:

Sudden change in heart function that occurs when the flow of blood to a section of the heart becomes blocked and the heart muscle gets damaged or dies.

Stroke:

Sudden change in brain function caused by breaking or blocking of a blood vessel in the brain.

Learn About Heart Disease

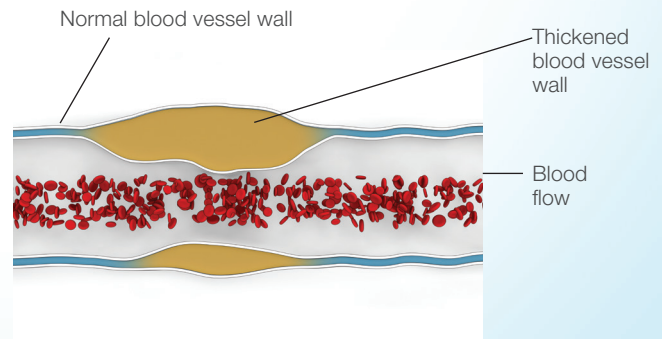
What Is Heart Disease?

Two types of heart disease are common among people with diabetes. These are coronary artery disease (disease of blood vessels in the heart, or “cardiovascular disease”) and cerebral vascular disease (disease of blood vessels in the brain).

Diabetes can increase the risk of heart disease.



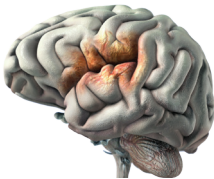
Coronary artery disease is caused by hardening or thickening of the walls of the blood vessels that go to your heart. When these vessels become narrowed or blocked, the blood supply to the heart is restricted or blocked. This increases your risk of a heart attack.



Partially blocked blood vessel. Blockages in the blood vessels increase risk of a heart attack.

In cerebral vascular disease, blood flow to the brain is slowed by narrowing of the blood vessels or by high blood pressure. This can lead to stroke or transient ischemic attacks. Stroke occurs when blood flow to the brain or part of the brain is suddenly cutoff due to a blockage in a brain blood vessel. When blood flow stops, the brain cells do not get enough oxygen, and the person may experience problems with speech or vision, weakness, or paralysis. Stroke can also occur when a blood vessel breaks (an “aneurysm”) and causes bleeding in the brain. This can be caused by a weak spot in the blood vessel or high blood pressure. Transient ischemic attacks, or TIAs, are caused by temporary blockage of blood vessels in the brain. Normal function returns afterward, but a TIA means you have a higher risk of having a stroke in the future.

Blockages of blood vessels in the brain cause stroke or transient ischemic attacks.



People with diabetes are also at risk for heart failure and peripheral arterial disease. Heart failure is a chronic, or long-term, condition in which the heart is not able to pump enough blood or pump blood fast enough. During heart failure, symptoms—such as shortness of breath, persistent cough, weakness, and swelling in the legs and ankles—slowly get worse over a period of years. In peripheral arterial disease, or PAD, blood vessels in the legs are narrowed or blocked. This limits blood flow to the legs and feet. PAD increases the risk of heart attack, stroke, and amputation.

Narrowed or blocked blood vessels in the legs and feet (PAD) increases the risk of heart attack, stroke, and amputation.



Even if you have already had a heart attack or stroke, taking care of your health helps prevent future health problems. Learn the signs of heart disease and what you can do to reduce your risk now.

What Are the Signs of Heart Disease?

Symptoms of a heart attack or stroke may be mild or severe, and they may come and go. If you experience these symptoms or think you may be having a heart attack or stroke, call 911 immediately. Getting treatment quickly can help reduce permanent damage.

Symptoms of a Heart Attack	Symptoms of a Stroke
<ul style="list-style-type: none">• Chest pain or discomfort• Pain or discomfort in arms, back, jaw, neck, or stomach• Shortness of breath• Sweating• Nausea• Light-headedness<i>Symptoms may be different in women</i>• May not have chest pain• May have back and jaw pain instead	<ul style="list-style-type: none">• Sudden weakness or numbness of face, arm, or leg on one side of the body• Sudden confusion, trouble talking, or trouble understanding• Sudden dizziness, loss of balance, or trouble walking• Sudden trouble seeing out of one or both eyes or sudden double vision• Sudden severe headache

What Are the Risk Factors for Heart Disease?

There are many factors that can increase your risk of developing heart disease. Some risk factors can be changed, and others can't.

Factors you can change and how you can change them:

- **Smoking**
 - Quit smoking or don't start
- **Diet**
 - Eat heart-healthy foods
- **Physical inactivity**
 - Get active and stay active
- **Obesity**
 - Maintain a healthy weight
- **High blood pressure, high LDL or total cholesterol, low HDL cholesterol, high triglycerides, and high blood sugar**
 - Maintain levels set by your healthcare team



Type of Blood Lipid	Risk Goes Up When Levels Are	Goal
LDL ("bad" cholesterol)	HIGH	In patients with heart disease: less than 70 mg/dL In patients without heart disease: less than 100 mg/dL
HDL ("good" cholesterol)	LOW	Men: more than 40 mg/dL Women: more than 50 mg/dL
Triglycerides	HIGH	Less than 150 mg/dL

Your healthcare team may set other goals for your blood lipid levels.

Definitions

Cholesterol:

A fat-like substance in the body; high levels of some kinds of cholesterol in the blood can lead to heart disease or stroke.

LDL cholesterol or low-density lipoprotein cholesterol:

Also known as "bad" cholesterol, because it can form fatty deposits on blood vessel walls, leading to heart disease.

HDL cholesterol or high-density lipoprotein cholesterol:

Also known as "good" cholesterol, because it helps carry away the LDL cholesterol that can clog blood vessels.

Lipids:

Also called "fats," used to form the structure of cells and store energy.

Triglycerides:

Another kind of fat in the blood. High levels of triglycerides over long periods raise the risk of heart disease.

The *Know Your*™ Numbers booklet can assist you in taking control of your diabetes by learning about your numbers.

Be sure to check with your health care team before you make changes to your diabetes management.

Sample goals for blood glucose levels

Recommendations from the American Diabetes Association (ADA), and the American Association of Clinical Endocrinologists (AACE)

Recommendations for blood sugar control†		
	AACE ^{2‡}	ADA ^{1§}
Fasting/before-meal blood sugar	<110 mg/dL	80-130 mg/dL
After-meal blood sugar (2 hours after start of meal)	<140 mg/dL	<180 mg/dL
A1C	≤6.5%	<7%

Have an A1C test at least twice a year. This test shows your average blood glucose level over the past 3 months. Talk to your healthcare provider about whether you should check your blood glucose at home and how to do it.

Sample goals for blood pressure

Goals for Control		
Test	AACE ^{2‡}	ADA ¹
Blood pressure	<130/80 mm Hg	<140/90 mm Hg#

Factors you can't change:

- **Age:**
 - Men 45 years and older and women 55 years and older are at increased risk for heart disease
 - Family history of heart disease
- **Diabetes**

It helps to change what you can control, like lowering your blood pressure and monitoring your blood glucose and blood lipids. Talk to your healthcare team about your risk.

†For non-pregnant adults.

‡ American Association of Clinical Endocrinologists.

§ American Diabetes Association.

#Lower targets may be appropriate for some people.

Learn What You Can Do



Eating Heart-Healthy Foods

Choosing healthy meals and snacks can help you reduce the risk of heart disease and its health consequences. You can use the following as a guide in building each meal. Divide your plate into three sections, as shown below. Fill your plate in with lean protein (such as chicken with the skin removed, lean cuts of beef and pork, fish, and tofu), fresh vegetables, and whole grains (such as whole wheat, oats, and brown rice). Add a piece of fruit, a glass of low-fat milk, or a small whole-grain roll to complete the meal. Prepare your meals to limit fats, especially less healthy fats that come from animals, and avoid products that have added sugar. The ADA recommends nutrition therapy for all people with diabetes. Consult with your healthcare team to find a Registered Dietician Nutritionist (RDN- an expert in nutrition) or other qualified HCP, who can personalize your meal plan to fit your individual needs.

Visit the USDA “My Plate” website to learn more about nutrition and find interactive tools for meal planning: www.choosemyplate.gov.



Limit fat, salt, added sugar, and alcohol.



Breakfast:

- Egg white omelet with peppers and onions
- Whole grain toast



Lunch:

- Salad topped with grilled chicken and avocado
- Olive oil dressing



Snack:

- Low-fat Greek yogurt with fresh berries



Dinner:

- Shrimp and vegetables with a side of brown rice

What's Wrong with a Little Fat?

Nothing. In fact, healthy fats can be an important part of your diet. But some fats are better for you than others and can keep your heart healthy. The fats you eat can raise LDL and total cholesterol. All fats have the same number of calories—and have more calories than protein or carbohydrates (sugars, starches, and fiber). Limit the amount of fat you eat, and choose healthier fats whenever you can.

Here are the different kinds of fat in food, from “better” to “worse”:



Type of Fat	Origin	Description	Food Sources
Monounsaturated	Plant	<ul style="list-style-type: none"> • Good in moderation • Helps lower “bad” cholesterol (LDL) in your blood • Helps lower risk of heart disease and stroke • Provides nutrients to develop and maintain cells 	Vegetable oils (olive, canola, safflower), avocados, peanut butter, nuts and seeds
Polyunsaturated	Plant and animal	<ul style="list-style-type: none"> • Good in moderation • Helps lower “bad” cholesterol (LDL) in your blood • Helps lower risk of heart disease and stroke • Provides omega-6 and omega-3, fats that your body needs but cannot produce itself • Higher intake of omega-6 may improve insulin resistance and lower blood pressure 	Vegetable and plant oils (corn, soybean, cottonseed), fatty fish (salmon, mackerel, herring, trout)
Saturated	Plant and animal	<ul style="list-style-type: none"> • Made by the body on its own; it's not necessary to get any from food • Raises “bad” cholesterol (LDL) and total cholesterol in your blood • Solid at room temperature 	Meat, eggs, dairy products and tropical oils (palm and coconut)
Cholesterol	Animal	<ul style="list-style-type: none"> • Made by the body on its own; it's not necessary to get any from food • High blood levels raise risk for heart disease and stroke 	Meat, fish, eggs, and dairy products
Trans fat	Processed	<ul style="list-style-type: none"> • Made solid at room temperature by a process called “hydrogenation” • Raises “bad” cholesterol (LDL) in your blood and raises risk for heart disease • Not needed by the body; trans fats should be avoided 	Margarine and shortening, used in baked goods and snacks. Very small amounts occur naturally in meat and dairy products

Try these tips to lower the fat in your diet:

- When cooking, replace solid fats (butter or lard) with vegetable oils, or avoid fat altogether—broil, bake, steam, barbeque (grill) or poach, rather than fry
- Season with herbs (like cilantro and basil), spices (like pepper and curry), and lemon juice rather than butter or margarine
- Choose fat-free or low-fat dairy products and lean cuts of meat (trim the fat and remove skin from chicken and turkey)
- Avoid bacon, sausage, and deli meats
- Make sure you eat enough fruits and vegetables: the USDA recommends 3 - 6 servings of each every day
- Replace refined grains (such as white bread, white pasta, and white rice) with whole grains: whole wheat bread, brown rice, and oatmeal are all good sources
- Replace some meat or poultry with seafood, like tuna (a good source of lean protein) or salmon (which contains heart-healthy fats)

What Else Can Help Your Diet?

Eat Plenty of Fiber

Foods that are high in fiber can help lower cholesterol and may even help control your weight. There are two kinds of fiber—soluble and insoluble. Soluble fiber dissolves in water to form a gel-like material and can help lower cholesterol and glucose levels. It is found in oats, peas, beans, apples, citrus fruits, carrots, and barley. Insoluble fiber does not dissolve in water and promotes movement of food through the digestive system. It is found in wheat bran, nuts, and many vegetables.

- Make half your plate fruits and vegetables
- Make half your grains whole grains, such as whole wheat and brown rice
- Eat low-salt beans, peas, and lentils instead of red meat a few days each week

Limit Alcohol and Salt

Reduce the amount of sugar-sweetened and alcoholic beverages you drink. These add calories, but offer little nutrition. Also, limit your daily salt (sodium) intake because excess salt in the diet can cause high blood pressure. The average American eats more than twice as much salt as recommended, and most of this comes from prepared or processed foods. Cut back on salt by eating more fresh foods, leaving out the salt or using less when cooking, and eating low-salt products. Canned foods, especially canned soups, tend to be high in salt content, so try to limit consumption of these foods.

Get Active and Stay Active

Exercise changes the way your body uses the sugar in your blood. With longer periods of exercise, your muscles begin to use fat from your blood as well. These changes in your body continue, even after you stop exercising.

The American Heart Association recommends at least 30 minutes of physical activity, 5 times a week. Physical activity is anything that moves your body. This can include walking, climbing stairs, playing sports, or gardening. Resistance exercises (exercising with weights or weight machines) improve blood sugar control even more. Consult your healthcare team before starting a new exercise program. A diabetes educator can help you develop an exercise plan and refer you to an exercise physiologist, if appropriate. Because being more active can cause changes in blood glucose levels, you should also monitor your levels closely.



Benefits of Exercise

- Better overall control of your blood sugar, and less need for insulin
- Lower risk of diabetes complications or slowed worsening of symptoms
- Lower blood pressure
- Better lipid profile
- Lower body weight
- Lower risk of heart disease
- Less stress
- Improved sense of well-being
- Lower risk of other diseases, including cancer and osteoporosis

Weekly Activity Levels³

Sedentary lifestyle	You are taking less than 5,000 steps/day
Moderately active lifestyle	You are taking 5,000 to 7,500 steps/day
Somewhat active lifestyle	You are taking 7,500 to 10,000 steps/day
Active lifestyle	You are taking 10,000 to 12,500 steps/day
Highly active lifestyle	You are taking more than 12,500 steps/day

Discuss with your healthcare provider team which level of physical activity is appropriate for you and the different kinds of activities that will help you reach your goal.

For More Information

American Association of Diabetes Educators

A national association of healthcare professionals dedicated to building self-management as a key component in the care of people with diabetes.
www.diabeteseducator.org
(800) 338-3633

American Diabetes Association

A national organization that funds research, provides information, and delivers services in the community.
www.diabetes.org
(800) 342-2383

Academy of Nutrition and Dietetics (eatright®)

The world's largest organization of food and nutrition professionals, dedicated to research, education, and advocacy.
www.eatright.org
(800) 877-1600

American Heart Association

A national organization for advocacy and education.
www.heart.org
(800) 242-8721

Centers for Disease Control and Prevention

A part of the US Department of Health and Human Services that provides information about health and disease, including diabetes and heart disease:
www.cdc.gov
(800) 232-4636

Cleveland Clinic

A nonprofit academic medical center that offers information about diabetes and heart disease.
my.clevelandclinic.org
(888) 223-2273

Mayo Clinic

Nonprofit academic medical centers in Arizona, Florida, and Minnesota that offer information about diabetes and heart disease: www.mayoclinic.com/health-information/

National Heart Lung and Blood Institute

Part of the National Institutes of Health and a global leader in research, training, and education about heart, lung, and blood diseases.
www.nhlbi.nih.gov/health/public/heart/index.htm
(301) 592-8573 This is not a toll-free number.

National Institutes of Health

The nation's medical research agency, which provides information on diabetes and heart disease:
<http://diabetes.niddk.nih.gov/dm/pubs/stroke>
(301) 592-8573 This is not a toll-free number.

United States Department of Agriculture

The national department to develop public policy on food and nutrition and offering information and recommendations on nutrition:
www.choosemyplate.gov
(888) 779-7264

References:

1. American Diabetes Association. Standards of Medical Care in Diabetes – 2015. *Diabetes Care*. 2015; 38 (1) 1 – 99.
2. Handelsman Y, Mechanick JL, Blonde L, et al. American Association of Clinical Endocrinologists Medical Guidelines for Clinical Practice for developing a diabetes mellitus comprehensive care plan. *Endocr Pract*. 2011;17(suppl 2):1-53.
3. Tudor-Locke C, Bassett DR Jr. How many steps/day are enough? Preliminary pedometer indices for public health. *Sports Med*. 2004;34(1):1