



## Diabetes, Heart Disease, and Stroke

Having [diabetes](#) means that you are more likely to develop [heart disease](#) and have a greater chance of a [heart attack](#) or a [stroke](#). People with diabetes are also more likely to have certain conditions, or risk factors, that increase the chances of having heart disease or stroke, such as [high blood pressure](#) or high [cholesterol](#). If you have diabetes, you can protect your heart and health by managing your [blood glucose](#), also called blood sugar, as well as your blood pressure and cholesterol. If you smoke, get help to stop.

### What is the link between diabetes, heart disease, and stroke?

Over time, high blood glucose from diabetes can damage your blood vessels and the nerves that control your heart and blood vessels. The longer you have diabetes, the higher the chances that you will develop heart disease.<sup>1</sup>

People with diabetes tend to develop heart disease at a younger age than people without diabetes. In adults with diabetes, the most common causes of death are heart disease and stroke. Adults with diabetes are nearly twice as likely to die from heart disease or stroke as people without diabetes.<sup>2</sup>

The good news is that the steps you take to manage your diabetes also help to [lower your chances of having heart disease or stroke](#).

### What else increases my chances of heart disease or stroke if I have diabetes?

If you have diabetes, other factors add to your chances of developing heart disease or having a stroke.

#### Smoking

Smoking raises your risk of developing heart disease. If you have diabetes, it is important to stop smoking because both smoking and diabetes narrow blood vessels. Smoking also increases your chances of developing other long-term problems such as lung disease. Smoking also can

damage the blood vessels in your legs and increase the risk of lower leg infections, ulcers, and [amputation](#).

## High blood pressure

If you have [high blood pressure](#) [NIH](#), your heart must work harder to pump blood. High blood pressure can strain your heart, damage blood vessels, and increase your risk of heart attack, stroke, eye problems, and kidney problems.

## Abnormal cholesterol levels

[Cholesterol](#) [NIH](#) is a type of fat produced by your [liver](#) and found in your blood. You have two kinds of cholesterol in your blood: LDL and HDL.

LDL, often called “bad” cholesterol, can build up and clog your blood vessels. High levels of LDL cholesterol raise your risk of developing heart disease.

Another type of blood fat, [triglycerides](#), also can raise your risk of heart disease when the levels are higher than recommended by your health care team.

## Obesity and belly fat

Being [overweight or obese](#) can affect your ability to manage your diabetes and increase your risk for many health problems, including heart disease and high blood pressure. If you are overweight, a healthy eating plan with reduced calories often will lower your glucose levels and reduce your need for medications.

Excess belly fat around your waist, even if you are not overweight, can raise your chances of developing heart disease.



Even if you are a normal weight, excess belly fat can raise your risk for heart disease.

You have excess belly fat if your waist measures

- more than 40 inches and you are a man
- more than 35 inches and you are a woman

[Learn how to correctly measure your waist.](#) [NIH](#) 

## Family history of heart disease

A family history of heart disease may also add to your chances of developing heart disease. If one or more of your family members had a heart attack before age 50, you may have an even higher chance of developing heart disease.<sup>3</sup>

You can't change whether heart disease runs in your family, but if you have diabetes, it's even more important to take steps to protect yourself from heart disease and decrease your chances of having a stroke.

## How can I lower my chances of a heart attack or stroke if I have diabetes?

Taking care of your diabetes is important to help you take care of your heart. You can lower your chances of having a heart attack or stroke by taking the following steps to manage your diabetes to keep your heart and blood vessels healthy.

### Manage your diabetes ABCs

Knowing your diabetes ABCs will help you manage your blood glucose, blood pressure, and cholesterol. Stopping smoking if you have diabetes is also important to lower your chances for heart disease.

**A is for the A1C test.** The [A1C test](#) shows your average blood glucose level over the past 3 months. This is different from the blood glucose checks that you do every day. The higher your A1C number, the higher your blood glucose levels have been during the past 3 months. High levels of blood glucose can harm your heart, blood vessels, kidneys, feet, and eyes.

The A1C goal for many people with diabetes is below 7 percent. Some people may do better with a slightly higher A1C goal. Ask your health care team what your goal should be.

**B is for blood pressure.** Blood pressure is the force of your blood against the wall of your blood vessels. If your blood pressure gets too high, it makes your heart work too hard. High blood pressure can cause a heart attack or stroke and damage your kidneys and eyes.

The blood pressure goal for most people with diabetes is below 140/90 mm Hg. Ask what your goal should be.


**C is for cholesterol.** You have two kinds of cholesterol in your blood: LDL and HDL. LDL or “bad” cholesterol can build up and clog your blood vessels. Too much bad cholesterol can cause a heart attack or stroke. HDL or “good” cholesterol helps remove the “bad” cholesterol from your blood vessels.

Ask your health care team what your cholesterol numbers should be. If you are over 40 years of age, you may need to take medicine such as a statin to lower your cholesterol and protect your heart. Some people with very high LDL (“bad”) cholesterol may need to take medicine at a younger age.

**S is for stop smoking.** Not smoking is especially important for people with diabetes because both smoking and diabetes narrow blood vessels, so your heart has to work harder.

If you quit smoking

- you will lower your risk for heart attack, stroke, nerve disease, kidney disease, eye disease, and amputation
- your blood glucose, blood pressure, and cholesterol levels may improve
- your blood circulation will improve
- you may have an easier time being physically active

If you smoke or use other tobacco products, stop. Ask for help so you don’t have to do it alone. You can start by calling the national quitline at 1-800-QUITNOW or 1-800-784-8669. For tips on quitting, go to [Smokefree.gov](https://www.smokefree.gov) .

Ask your health care team about your goals for A1C, blood pressure, and cholesterol, and what you can do to reach these goals.

## Develop or maintain healthy lifestyle habits

[Developing or maintaining healthy lifestyle habits](#) can help you manage your diabetes and prevent heart disease.

- Follow your healthy eating plan.
- Make physical activity part of your routine.
- Stay at or get to a healthy weight
- Get enough sleep.


Learn more about these tips to [manage diabetes](#).



Develop or maintain healthy lifestyle habits. Physical activity can help you manage your diabetes and may help you cope with stress.


[Watch a video about what you can do to keep your heart healthy.](#) 

## Learn to manage stress

Managing diabetes is not always easy. Feeling stressed, sad, or angry is common when you are living with diabetes. You may know what to do to stay healthy but may have trouble sticking with your plan over time. Long-term stress can raise your blood glucose and blood pressure, but you can learn ways to lower your stress. Try deep breathing, gardening, taking a walk, doing yoga, meditating, doing a hobby, or listening to your favorite music. Learn more about healthy ways to [cope with stress](#) [NIH](#) .

## Take medicine to protect your heart

Medicines may be an important part of your treatment plan. Your doctor will prescribe medicine based on your specific needs. Medicine may help you

- meet your A1C (blood glucose), blood pressure, and cholesterol goals.
- reduce your risk of blood clots, heart attack, or stroke.
- treat [angina](#) [NIH](#) , or chest pain that is often a symptom of heart disease. (Angina can also be an early symptom of a heart attack.)

Ask your doctor whether you should take **aspirin**. Aspirin is not safe for everyone. Your doctor can tell you whether taking aspirin is right for you and exactly how much to take.

**Statins** can reduce the risk of having a heart attack or stroke in some people with diabetes. Statins are a type of medicine often used to help people meet their cholesterol goals. Talk with your doctor to find out whether taking a statin is right for you.

Talk with your doctor if you have questions about your medicines. Before you start a new medicine, ask your doctor about possible side effects and how you can avoid them. If the side effects of your medicine bother you, tell your doctor. Don't stop taking your medicines without checking with your doctor first.



Take medicines as prescribed.

## How do doctors diagnose heart disease in diabetes?

Doctors [diagnose heart disease in diabetes](#) [NIH](#) based on

- your symptoms
- your medical and family history
- how likely you are to have heart disease
- a physical exam
- results from tests and procedures

Tests used to monitor your diabetes—A1C, blood pressure, and cholesterol—help your doctor decide whether it is important to do other tests to check your heart health.





Your health care provider will do a physical exam.

## What are the warning signs of heart attack and stroke?

### Call 9-1-1 right away if you have warning signs of a heart attack:

- pain or pressure in your chest that lasts longer than a few minutes or goes away and comes back
- pain or discomfort in one or both of your arms or shoulders; or your back, neck, or jaw
- shortness of breath
- sweating or light-headedness
- indigestion or nausea (feeling sick to your stomach)
- feeling very tired

Treatment works best when it is given right away. Warning signs can be different in different people. You may not have all of these symptoms.

If you have angina, it's important to [know how and when to seek medical treatment](#). [NIH](#)

Women sometimes have nausea and vomiting, feel very tired (sometimes for days), and have pain in the back, shoulders, or jaw without any chest pain.

People with [diabetes-related nerve damage](#) may not notice any chest pain.

### Call 9-1-1 right away if you have warning signs of a stroke, including sudden


- weakness or numbness of your face, arm, or leg on one side of your body
- confusion, or trouble talking or understanding
- dizziness, loss of balance, or trouble walking
- trouble seeing out of one or both eyes
- sudden severe headache

If you have any one of these warning signs, call 9-1-1. You can help prevent permanent damage by getting to a hospital within an hour of a stroke.



Call 9-1-1 if you have the warning signs of a heart attack or stroke. Treatment works best when given right away.

## References

- [1] Huo X, Gao L, Guo L, et al. Risk of non-fatal cardiovascular diseases in early-onset versus late-onset type 2 diabetes in China: a cross-sectional study. *The Lancet Diabetes & Endocrinology*. 2016;4(2):115–124.
- [2] National Centers for Disease Control and Prevention. National diabetes statistics report, 2014. <https://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf> . Accessed December 22, 2016.
- [3] Kolber MR, Scrimshaw C. Family history of cardiovascular disease. *Canadian Family Physician*. 2014;60(11):1016.

## Clinical Trials

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and other components of the National Institutes of Health (NIH) conduct and support research into many diseases and conditions.

### What are clinical trials, and are they right for you?

Clinical trials are part of clinical research and at the heart of all medical advances. Clinical trials look at new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses.

[Find out if clinical trials are right for you](#)  NIH .

### What clinical trials are open?



Clinical trials that are currently open and are recruiting can be viewed at [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov) [NIH](#).

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