

Diabetes and your health

Caring for your kidneys while managing diabetes





Healthy kidneys help keep your body working the way it should. So, it's important to know about good kidney care when you have diabetes.

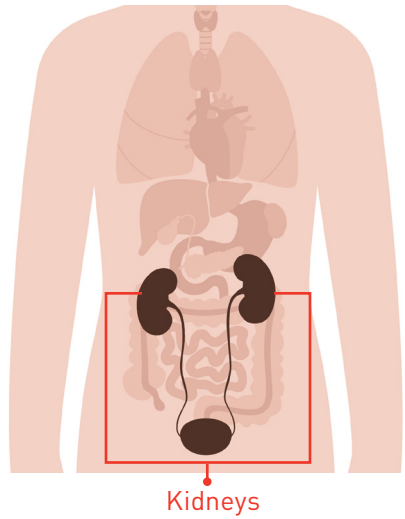
This brochure helps you learn about:

- Your kidneys at work
- Diabetes and kidney disease
- Your possible chances for kidney disease
- Signs and symptoms of kidney disease
- Tests to check for kidney health
- Medicines and kidney care
- What you can do for kidney health
- Talking with your healthcare provider

Your kidneys at work

You have two kidneys. They are found on either side of your spine, just below the ribs. Each kidney is about the size of a fist. They may be small, but they play a big role in helping your body stay healthy.

Your kidneys help your body in many ways. They filter waste and harmful chemicals from your body. They also balance the fluids and important minerals in your blood.



Kidneys work like a coffee filter. They help filter out what your body does not need.

What is kidney disease?

Kidney disease happens when the filters in kidneys are damaged. The kidneys cannot work the way they should. As a result, waste builds up in the blood instead of being filtered out.

Diabetes and kidney disease

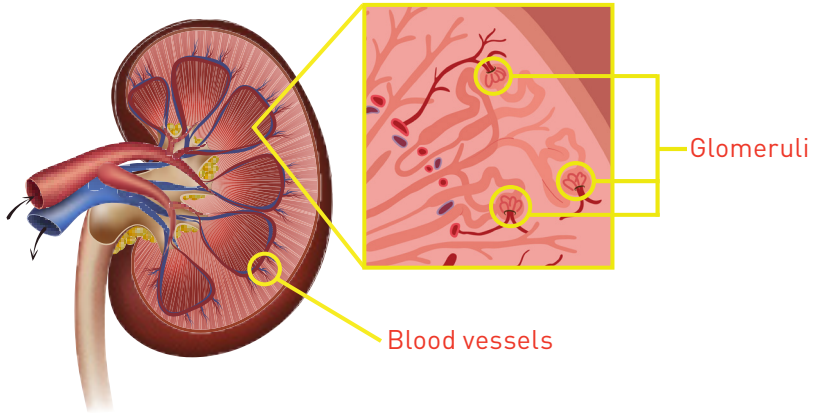
Kidney disease may be linked to diabetes. That's because high blood sugar may damage the blood vessels, which are part of the filters in the kidneys. This may make your kidneys work harder. Over time, the kidneys lose the ability to filter waste and may stop working. This can cause other health problems, such as:

- Swelling of your feet and ankles
- A rise in blood pressure
- Weak bones and nerve damage
- A greater chance for heart and blood vessel disease



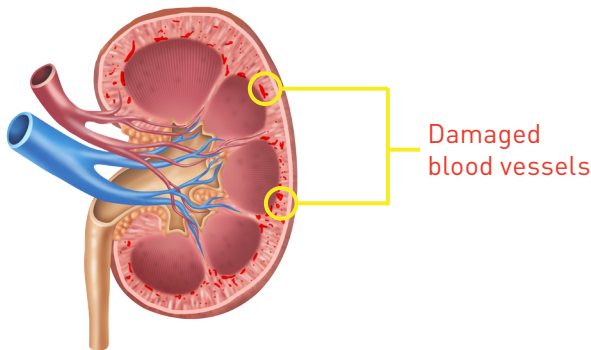
A healthy kidney

Inside your kidneys are sets of tiny blood vessels called glomeruli (glo-MEHR-yoo-lie). They filter and remove waste from your blood.



Diabetes and kidney disease

With diabetes, high levels of blood sugar can damage the blood vessels, which are part of the filters in the kidneys. When this happens, your kidneys cannot filter your blood properly.



Joline's story

Joline has been living with diabetes for 10 years. Last summer, she and her healthcare provider reviewed her family's health history. Joline talked about how her father struggled with kidney disease for years.

Joline learned that her diabetes and her family history meant she could be at a higher risk for kidney disease.

Joline worked with her healthcare provider to plan how to take care of her kidneys. She works to manage her blood pressure and has her kidneys tested every year. She also talks with her healthcare provider to understand her test results.



Your possible chances for kidney disease

The sooner you know if you are at risk for kidney disease, the sooner you can take steps to help keep your kidneys healthier longer. Answer the questions on the next page and talk with your healthcare provider about your chances of getting kidney disease.

If you answer Yes for any of these questions, talk with your healthcare provider about your kidney health. Work with your healthcare provider to learn your treatment goals.

Answer these questions	Yes	No
Do you often have high blood sugar? (For example, an A1C of 6.5% or higher or a plasma glucose of 126 mg/dL* or higher)		
Do you have high blood pressure? (For example, blood pressure at or above 140/90 mmHg†)		
Do you have heart or blood vessel problems? (For example, coronary artery disease)		
Do you have a family history of kidney disease?		
Are you 65 years or older?		
Are you African American, Hispanic American, Asian American, Pacific Islander, or Native American?		

* This is a unit of measurement for blood sugar. mg/dL means milligrams per deciliter.

† This is a unit of measurement for blood pressure. mmHg means millimeters of mercury.

Signs and symptoms of kidney disease

Kidney disease usually happens slowly and may get worse over time. You may not see clear signs or feel any symptoms for years. By then, your kidneys may already be damaged. In the table below, put a check mark next to the signs and symptoms you have.



If you check any of the boxes below, talk with your healthcare provider to find out if you have kidney disease.

Do you have any of these signs and symptoms?

- | | |
|---|---|
| <input type="checkbox"/> High blood pressure | <input type="checkbox"/> Trouble thinking clearly |
| <input type="checkbox"/> Swollen ankles or feet | <input type="checkbox"/> Puffiness around the eyes |
| <input type="checkbox"/> Muscle twitches and cramps | <input type="checkbox"/> Trouble sleeping |
| <input type="checkbox"/> Changes in how much you go to the bathroom | <input type="checkbox"/> Poor appetite or upset stomach |
| <input type="checkbox"/> Feeling more tired or weak than usual | <input type="checkbox"/> Itchy dry skin |



Learn to take charge of your kidney health

When kidney damage is diagnosed early, you and your healthcare provider can often work together to avoid more damage. You can:

- Make sure to get blood and urine tests every year to check for kidney damage
- Tell your healthcare provider if you have any of the symptoms listed in the table on the opposite page



Tests for kidney health

It's important to know whether your kidneys are working the way they should.

People with diabetes should get their kidneys checked at least once a year. Ask your healthcare provider about the tests to check your kidney health.

How diabetes may affect your kidneys

High blood pressure may damage the blood vessels of the kidneys, making your kidneys work harder. Over time, the kidneys are less able to filter waste from your blood causing protein in the blood to leak into the urine. This is called albuminuria (al-BYOO-mih-NOR-ee-ah).

Kidney disease cannot always be stopped, but when found early, there may be treatments to slow down the damage. That's why it's important to have your kidneys checked as often as your healthcare provider recommends.

Check on your kidney health

Routine tests to check the health of your kidneys may be performed at your healthcare provider's office. These tests should be done every year, or as often as your healthcare provider suggests.

Name of the test	What it is
Urine protein test (also called an <i>albuminuria test</i>)	<ul style="list-style-type: none">• Checks for small amounts of protein, called albumin, in your urine. This may be a sign of kidney disease.
Serum creatinine test (SEE-rum kree-AT-ih-neen <i>test</i>)	<ul style="list-style-type: none">• Checks for creatinine in the blood.• Checks for a waste product in the blood called creatinine. Normally, the kidneys filter it from the blood. When the kidneys don't work or filter like they should, your blood has too much creatinine.



For more information on kidney health, visit the National Kidney Foundation website at www.kidney.org. For more information call 1-800-622-9010.



Keeping track of your results

Ask your healthcare provider for your test results. Write them down in the charts below or keep track in a calendar or diary. This may help you understand how your kidney health is changing over time.

Name of test	My results	Normal results	What results may mean
Urine protein test	Date: _____ Results: _____ mg [†]	Below 30 mg*	A result of 30 mg or higher may be a sign of kidney disease.
Serum creatinine test	Date: _____ Results: _____ mg/dL [†]	For men: ‡ <1.4 mg/dL For women: <1.2 mg/dL	When kidneys aren't working well, creatinine in the blood goes up.

* American Diabetes Association 2019 recommendations.

† mg means milligrams. mg/dL means milligrams per deciliter.

‡ National Kidney Foundation

What is GFR?

GFR stands for glomerular (glo-MEHR-yoo-lur) filtration (fil-TRAY-shun) rate. The GFR helps your healthcare provider understand how well your kidneys are removing waste products from your blood.

What do the GFR [‡] numbers mean for kidney function?	My Results
90 or above Normal range Damage may occur even at normal range.	Date: _____ GFR Results: _____
60-89 Slightly low	Date: _____ GFR Results: _____
45-59 Somewhat low You may need to see a nephrologist (kidney doctor).	Date: _____ GFR Results: _____
30-44 Pretty low You may also need more frequent tests to check kidney function.	Date: _____ GFR Results: _____
15-29 Extremely low	Date: _____ GFR Results: _____
Below 15 Kidney failure. Your healthcare provider may discuss options such as dialysis or a kidney transplant.	Date: _____ GFR Results: _____

[†]The unit of measurement for GFR is mL/min/1.73 m² body surface area.

[‡]American Diabetes Association 2021 recommendation.

Medicines and kidney care

You may already take medicines that help you manage blood sugar. Your healthcare provider may also prescribe blood pressure medicines to help protect your kidneys.

About ACE inhibitors and ARBs

There are two types of blood pressure medicines that may help people living with diabetes care for their kidneys:

- Angiotensin-converting enzyme (ACE) inhibitors
- Angiotensin receptor blockers (ARBs)

Both medicines help lower blood pressure by helping blood vessels relax and widen. They have also been shown to help protect the kidneys and reduce the amount of protein that the body loses in the urine. Talk with your healthcare provider and ask which medicines could help protect your kidneys.



What you can do for kidney health

Taking care of your kidneys isn't just about medicine. Here are other ways to keep kidneys healthier:



Work with your healthcare provider

- Have your blood pressure checked regularly. Talk with your healthcare provider about your blood pressure goal
- Get blood and urine tests to check your kidney health as often as your healthcare provider suggests



Always take your medicines as prescribed

- Plan ahead. Make sure you refill your prescriptions on time so you do not run out of them
- Take your medicine with you when you travel so you do not miss a dose



Manage your blood sugar

- Get an A1C test at least two times a year
- This helps check your average blood sugar over the past 3 months
- Ask your healthcare provider about what your A1C goal should be



Find ways to eat healthy and be active

- Ask your healthcare provider about a meal and activity plan that's right for you
- Try to reduce the amount of salt (sodium) in your diet to less than 2300 mg per day or lower if you have high blood pressure

Talking with your healthcare provider

Below are some questions about caring for your kidneys. Talk about them with your healthcare provider. Use the space below to write down answers to your questions. There is also an area for you to write down other questions you may have.

- What do the results of my urine and blood tests tell you about my kidney health?

- When should I get tested again?

- What can I do to help reduce my chances for kidney disease?

- Should I see a kidney specialist (nephrologist)?

- Should I get a GFR test?

- What type of diet would be the best for me?

Other questions I have:

Don't wait—make your next appointment

Talk with your healthcare provider about good kidney care and things you can do that may help reduce your chances of kidney disease.

My next appointment:

Date: _____ Time: _____



When kidney damage is found early, you and your healthcare provider can work together on steps that may keep kidney disease from getting worse.



**Learn more about
kidney disease and
diabetes:**

**American Diabetes
Association**

www.diabetes.org
1-800-DIABETES
(1-800-342-2383)

**National Kidney
Foundation**

www.kidney.org
1-800-622-9010