

Diabetes and Kidney Disease



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What Is Diabetes?

Diabetes is a disease caused by a lack of insulin in the body or by the body not being able to use insulin properly. There are several types of diabetes. The most common are Type 1 and Type 2.

Type 1 Diabetes

- Happens mainly in young people
- The pancreas can't produce enough insulin
- Requires regular insulin injections

Type 2 Diabetes

- Can develop at any age
- The pancreas can produce insulin, but the body has difficulty using it properly
- Treatments include diet, exercise, and medication (pills, insulin injections, or both)



Model(s) are a depiction of people with kidney disease.

What Is Insulin and What Does It Do?

Your body converts some of the food you eat into a simple sugar called glucose. Insulin is a hormone produced in your pancreas that allows you to use that glucose for energy or to store it for later use.

If your body doesn't make enough insulin or doesn't use insulin properly, your blood sugar could get too high. Eventually unhealthy changes can occur in many different organs, including your kidneys.

What Do the Kidneys Do?

Kidneys are as important to your health as your heart or your lungs. Kidneys remove waste products from your body, regulate water, and produce hormones. Typically, people have two kidneys, one on either side of the spine below the rib cage. Each kidney is reddish-brown in colour, shaped like a kidney bean, and about the size of your fist.

Healthy kidneys filter waste products from your blood and return cleaned blood back to your body. They regulate the levels of water, salts, acids, and different minerals your body needs for good health. They produce hormones that control other body functions, including blood pressure. Many of your other organs depend on your kidneys to work properly.

How Does Diabetes Affect the Kidneys?

Each kidney contains almost a million tiny filters that clean the blood and produce urine. People who have had diabetes for a long time can accumulate damage to these filters. In the early stages, a urine test can reveal kidney damage by finding increased protein in the urine. In the later stages, damage to the filters and other parts of the kidney increases, and kidney function can be lost.

There are some people with diabetes who have kidney damage and loss of kidney function and don't find extra protein in the urine.

How Likely Are You to Develop Kidney Disease If You Have Diabetes?

At least half of people with diabetes may show signs of early kidney damage. If left untreated, this could lead to more kidney damage or kidney failure.

You could have serious kidney damage and not know it. There are usually no symptoms of kidney disease until the damage is severe. If you have diabetes, you should be tested once a year to see whether it has affected your kidneys. Your doctor can arrange a urine and blood tests to check how well your kidneys are working.

What Happens If Your Kidneys Fail?

Kidney damage doesn't usually cause noticeable symptoms until a large percentage of kidney function is lost. The symptoms of low kidney function include swelling (especially of the feet and legs), low energy, poor appetite, a bad taste in your mouth, nausea, and generally feeling unwell. You may find that you need less insulin than usual and that low blood sugars can be more severe and prolonged.

Eventually kidneys can become so damaged by diabetes that they fail. If they do, wastes and fluid will build up in your body. Kidney failure is treated by dialysis or a kidney transplant. In this case you'll be referred to a kidney specialist, called a nephrologist, to help manage your kidney disease.

What Can You Do to Prevent Kidney Damage?

There are treatments and medications that can slow down kidney damage caused by diabetes and deal with low kidney function. These treatments work best when started early, and they usually need to be continued for the rest of your life.

These are some tips for managing kidney disease if you have diabetes:

- Talk with your doctor or nurse about what your target blood sugar levels should be, and when and how often you need to check it.
- Test your blood sugar as often as directed by your healthcare provider. The A1C blood test tells you what your average blood sugar level was over the past two to three months. Have this test done every three months (or as often as your doctor suggests) to see if you have control over your blood sugar.
- Maintain a healthy lifestyle and weight. Aim for 150 minutes of activity every week (30 minutes, 5 times per week).
- See a registered dietitian to help you make food choices that are good for both your diabetes and kidney health. In the meantime:
 - » One of the most important things is to have a healthy blood pressure. Reducing salt (sodium) intake is an important way to achieve a healthy blood pressure, along with other treatments your health care team may prescribe.
 - » Eat three meals per day.
 - » Limit sugars, sweets, and sugary beverages such as pop, juice, and energy drinks. Choose fresh and unprocessed foods more often.

Choose water as your beverage of choice.

- » Limit high fat foods such as chips, processed meats and cheeses, and pastries.
- Don't smoke.
- Control your cholesterol through proper food choices and if you are on medication, make sure you take it as directed by your doctor.
- Manage your blood pressure. People with kidney disease who also have diabetes should aim for a blood pressure of 130/80 mm Hg.
- Infections in people with diabetes tend to progress rapidly. If left untreated, many infections, especially urinary tract infections, can further damage the kidneys. People with diabetes must take special care to have infections treated immediately. Check your feet regularly as directed by your diabetes educator.
- Make sure to have your kidney function tested annually (or as often as your doctor suggests) by having blood and urine tests.
- Take all your medications as recommended by your doctor and diabetes educator.
- Ask your pharmacist for a "sick day" list of medications that should be stopped if you are unable to keep food or fluids down.



OUR VISION

The Kidney Foundation of Canada is committed to achieving excellent kidney health, optimal quality of life, and a cure for kidney disease.

OUR MISSION

The Kidney Foundation of Canada is the national volunteer organization committed to eliminating the burden of kidney disease through:

- Funding and stimulating innovative research for better treatments and a cure;
- Providing education and support to prevent kidney disease in those at risk and empower those with kidney disease to optimize their health status;
- Advocating for improved access to high quality healthcare;
- Increasing public awareness and commitment to advancing kidney health and organ donation.

For further information, or to help us in our efforts, please contact The Kidney Foundation office in your area. You can also visit our website at kidney.ca.

The Kidney Foundation would like to acknowledge and thank the members of the Kidney Foundation's National Programs & Public Policy committee for their contributions and professional expertise in the development of this resource.

This material is available in accessible formats upon request by contacting info@kidney.ca or calling 1-800-361-7494.