Chronic Kidney Disease

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Chronic Kidney Disease (CKD) is a term used to describe a number of conditions that damage kidneys or cause reduced kidney function for three months or more.

Kidney disease can range from mild to severe. Sometimes people can develop kidney failure. Kidney failure is also called *end-stage kidney disease* (ESKD). Kidney disease often starts slowly and develops without symptoms over several years. You may not even know you have CKD until your kidney function is quite low. Fortunately, most people do not progress to end-stage kidney disease. If kidney disease is found early, you can take steps to look after your remaining kidney function.

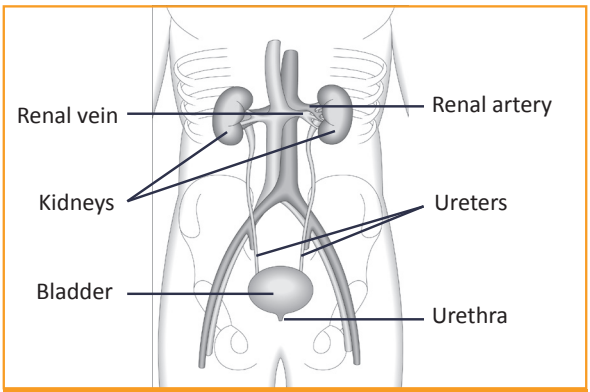
"End-stage" kidney disease does not mean the end of your life. End-stage means the end of your kidney function: your kidneys can no longer filter your blood. If your kidneys fail, there are a number of treatment options available. These include different forms of dialysis, transplantation and conservative kidney management (non-dialysis supportive care).

For more information on treatment options, contact your local Kidney Foundation office to request our patient handbook *Book Two: Living with Kidney Failure*.

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

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. Normally people have two kidneys, one on either side of your back below your rib cage. Each kidney is reddish brown in colour, shaped like a kidney bean, and about the size of your fist.



LOCATION OF THE KIDNEYS

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.

The Causes of CKD

There are many different kidney diseases and disorders. Some people are born with kidney disease and others develop it as they grow older. Often, kidney disease is associated with other medical conditions such as diabetes, high blood pressure, and heart disease.

Most diseases of the kidney attack the filtering units in the kidney. This damages their ability to remove waste and excess fluids. There is no cure for CKD, but it may be possible to prevent it or slow it down. This is especially true in cases of people with diabetes and/or high blood pressure – the leading causes of kidney failure.

The main causes of kidney disease are:

- Diabetes
- High blood pressure
- Glomerulonephritis (specific diseases causing kidney inflammation)
- Polycystic kidney disease (a genetic condition)
- Urinary tract obstruction (blockage of urine from the kidneys)
- Recurrent kidney stones (multiple kidney stones can cause scarring of the kidneys and could reduce kidney function)
- Drug- and medication-induced kidney problems (illegal drugs and some over-the-counter and prescription medications can damage the kidneys)

The Five Stages of Chronic Kidney Disease

There are five stages of CKD. Each stage relates to the level of kidney function and kidney damage. This table helps you understand CKD at each stage.

CKD STAGE	KIDNEY FUNCTION	SYMPTOMS	TREATMENT OPTIONS
NORMAL	≥ 60%*	No symptoms observed	Identify source of kidney damage (ie: kidney ultrasound to look for kidney cysts) Monitor urine albumin-creatinine ratio and Glomerular Filtration Rate (GFR)
MILD	45%- 59%	No symptoms observed	Monitor urine albumin-creatinine ratio and GFR, blood pressure, general health and well-being Try to stop or slow down the worsening of kidney function
MODERATE	30%- 44%	Early symptoms may occur and could include tiredness, poor appetite, and itching	Monitor urine albumin-creatinine ratio and GFR, and continue to try to stop or slow the worsening of kidney function Learn more about CKD and treatment options
SEVERE	15%- 29%	Tiredness, poor appetite and itching may get worse	Monitor urine albumin-creatinine ratio and GFR, and continue to try to stop or slow the worsening of kidney function Discuss and plan for treatment choice: dialysis access, assessment for transplant, or information about conservative kidney management
KIDNEY FAILURE	< 15%	Symptoms may include severe fatigue, nausea, difficulty breathing and itchiness	Monitor urine albumin-creatinine ratio and GFR, and continue to try to stop or slow the worsening of kidney function Continue with conservative kidney management, plan for transplant or start dialysis (depending on symptoms) **

* Normal unless there is an underlying issue, kidney damage or albumin in the urine.

** The timing of starting dialysis treatment depends on a large number of factors. This should be discussed with your doctors and healthcare team.

People from Indigenous, African/Caribbean, Asian, South Asian, Hispanic or Pacific Island backgrounds are at higher risk of developing kidney failure. They have more kidney disease risk factors and they experience a faster rate of kidney function decline at a younger age. Indigenous people (First Nations, Inuit and Métis) in Canada are over three times as likely to have their kidneys fail as non-Indigenous people.

Symptoms of CKD

Some of the signs and symptoms of reduced kidney function include:

- High blood pressure (hypertension)
- Puffiness of the eyes, hands and feet
- Bloody, cloudy or tea-coloured urine
- Excessive foaming of the urine which can indicate protein in the urine
- Frequent passing of urine during the night
- Passing less urine or difficulty passing urine
- Fatigue, difficulty concentrating
- Loss of appetite or weight
- Persistent generalized itching

Checking Your Kidney Function

You can ask your doctor to check your kidney function. There are two key tests that are used to detect kidney damage and to see how well your kidneys are working.

Blood test

A creatinine test, a blood test which measures the level of wastes in your blood, is used to work out your estimated glomerular filtration rate (eGFR or just GFR). Your GFR shows how well your kidneys are working to remove wastes from your body. It is the most common way to measure kidney function. The GFR number roughly represents the percentage of kidney function remaining.

Urinalysis

A simple urine test is used to look for blood and protein in your urine. Having protein in the urine is usually a sign of kidney disease.

Other blood tests, X-rays, ultrasound or a kidney biopsy may also be needed to diagnose the specific type of kidney disease and to decide the best treatment for you.

Preventing the Progress of Kidney Disease

Most people's kidney function changes slowly and not everyone with chronic kidney disease will develop end-stage kidney disease. In most cases, looking after your kidney health and protecting your remaining kidney function depends on maintaining a healthy lifestyle and managing other medical conditions you may have.

Some ways to help prevent or minimize the progression of kidney disease are:

- Control high blood pressure (ask your healthcare team what your blood pressure goal is)
- Control your blood sugar if you have diabetes (ask your healthcare team what your blood sugar goals are)
- Maintain a healthy weight
- Don't smoke
- Be physically active
- Eat a healthy diet
- Take medications as prescribed

For more information about managing reduced kidney function, contact your local Kidney Foundation office to receive a copy of our patient handbook *Book One: Living with Reduced Kidney Function*.

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.

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