



KIDNEY DISEASE



Kidney disease



HELPFUL TIP

It can be overwhelming to find out that you have kidney disease. It may be hard to remember information and test results when you get home after your medical appointments. Try to bring someone with you to take notes and record information so that you can focus on listening and asking questions.

This chapter will help you recognize the risk factors for kidney disease, some common causes of kidney disease, and the medical terms used to describe them. By knowing more about your kidney disease, you will better understand how to protect and preserve your kidney function.

What is chronic kidney disease (CKD)?

Chronic kidney disease (CKD) is the presence of kidney damage, or a decreased level of kidney function, for a period of three months or more. There are two key tests which are used to detect kidney damage and to assess how well your kidneys are functioning at removing toxins and waste products from your blood.

Blood test

A blood test is used to measure your **serum creatinine level** which helps to indicate how well the kidneys are filtering the blood. Creatinine is a waste product made from muscle use and the breakdown of the protein you eat. As the blood creatinine rises, kidney function decreases. Decreased kidney function means that your kidneys are not able to remove the toxins and waste products from your blood as well as someone with normal kidney function.

The estimate (or percentage) of kidney function is called the **glomerular filtration rate (GFR)**. Sometimes the GFR is also referred to as the **estimated glomerular filtration rate (eGFR)**. Glomeruli are tiny blood vessels in the kidney that help to filter waste. The GFR is a way of measuring how well the kidneys are working by determining the *rate* at which the *glomeruli* are *filtering* waste products from your blood. The eGFR is the most common way to measure kidney function at kidney clinics.

Urinalysis

Simple laboratory tests such as **urinalysis** (a urine dipstick), which looks for blood and a protein called **albumin** in the urine, are also useful in detecting kidney damage at an early stage and determining your risk of losing more kidney function. The filters of the kidney do

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The following table provides an overview to help you understand CKD at different phases, including potential symptoms and treatment. The amount of kidney function (GFR) you have remaining, your symptoms, your overall health and other factors (such as the amount of albumin in your urine) will be used to help you and your healthcare team to: manage your health, monitor your kidney function and determine the type of treatment that's best for you.

Kidney function, symptoms and treatment

	NORMAL	MILD	MODERATE	SEVERE	KIDNEY FAILURE
Amount of Kidney Function	> 60%*	45% - 59%	30% - 44%	15% - 29%	< 15%
Symptoms	No symptoms observed	No symptoms observed	Early symptoms may occur and could include tiredness, poor appetite, and itching	Tiredness, poor appetite and itching may get worse	Symptoms may include severe fatigue, nausea, difficulty breathing and itchiness
Treatment Options	Identify cause and try to reverse it Monitor albumin and GFR	Monitor albumin and GFR, blood pressure, general health and well-being Try to stop or slow down the worsening of kidney function	Monitor albumin and GFR, and continue to try to stop or slow the worsening of kidney function Learn more about CKD and treatment options	Monitor albumin 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 non-dialysis supportive care	Monitor albumin and GFR, and continue to try to stop or slow the worsening of kidney function Continue with non-dialysis supportive care, 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.

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Risk factors for CKD

There are a number of risk factors for CKD, some that you can control such as smoking, and others that you cannot, such as aging. People with diabetes, high blood pressure or who have a family history of kidney disease are at increased risk of developing CKD. Children who are born with kidneys that did not develop properly are also at risk. In addition, people of Aboriginal, Asian, South Asian, Pacific Island, African/Caribbean and Hispanic descent are at higher risk for CKD.

What causes chronic kidney disease?

There are many different kidney diseases and disorders. Some kidney diseases are present at birth and others develop as we 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, damaging their ability to remove wastes and excess fluids. There is no cure, but it may be possible to prevent CKD or slow it down. This is especially true in people with diabetes and/or high blood pressure, the leading causes of kidney failure.

Diabetes

Diabetes is a disease that is caused by a lack of **insulin** in the body or the body's inability to properly use normal amounts of insulin. Insulin is a hormone that is a very important chemical messenger that regulates the level of glucose (sugar) in the blood. The body must have insulin to function. Therefore, people with diabetes may take medications that can either make the pancreas produce more insulin, or help the body properly use the insulin that is being produced, or they may take insulin by injection or pump.

Even with the use of insulin or other medications, people who have had diabetes for some time often suffer from damage to the small blood vessels such as the ones in the filters of the kidney.

HELPFUL TIP

More information about the classification of CKD, GFR and albumin is available at **www.kidney.ca**. Strategies for protecting your kidney function are included in the following chapters.

NOTE:

Sometimes kidney failure occurs rapidly and this is called **acute kidney injury**. This may be a result of infection, diseases that specifically attack the kidney filters, or other causes. For acute kidney injury, dialysis treatment may be urgently needed for a period of time, but kidney function often recovers.



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IMPORTANT:

Be very careful about taking non-prescription medications. It is wise to discuss all over-the-counter drugs and herbal remedies before they are taken.

it cannot. However, many prescription medications can be safe for people with kidney disease as long as your doctor makes changes to the dosage (amount). You should always ask your doctor or pharmacist about the possible side effects of prescription medications for people with kidney disease.

Other kidney problems

Other problems can affect the kidneys. Some of these are Alport syndrome, Fabry disease, kidney cancer, Medullary Sponge Kidney (MSK), Wilms' tumor (children only) and bacterial infections. Information on most of these conditions is available at www.kidney.ca or from your local Kidney Foundation office.



Summary

- Most people do not progress to end-stage kidney disease, especially if they are diagnosed early and are able to take steps to preserve their remaining kidney function.
- Kidney function is measured through simple blood and urine tests. Urinalysis checks for protein (albumin) and blood in the urine. A blood test for creatinine level is often used to help estimate GFR (glomerular filtration rate).
- People with diabetes, high blood pressure or people who have a family history of kidney disease are at greater risk of developing CKD. So are people of Aboriginal, Asian, South Asian, Pacific Island, African/Caribbean and Hispanic descent.
- Diabetes and high blood pressure are the leading causes of CKD in Canadian adults. Other causes include chronic kidney inflammation, polycystic kidney disease and urinary tract obstruction.

See **Chapter Four:**

Managing your medications for kidney health for more information on medications.