

Learning About Chronic Kidney Disease

What Is Chronic Kidney Disease (CKD)?

Chronic kidney disease (CKD) is the permanent, progressive loss of kidney function due to kidney damage. As the disease progresses, your kidneys are not able to do their job of removing waste and extra water from your body as well as they should. Waste can build to high levels in your blood and can make you feel sick. You may experience health problems, such as:

- High blood pressure
- Heart disease
- Anemia
- Bone disease
- Poor nutritional health
- Nerve damage

However, CKD typically develops slowly, so many people may not even realize that they have it.

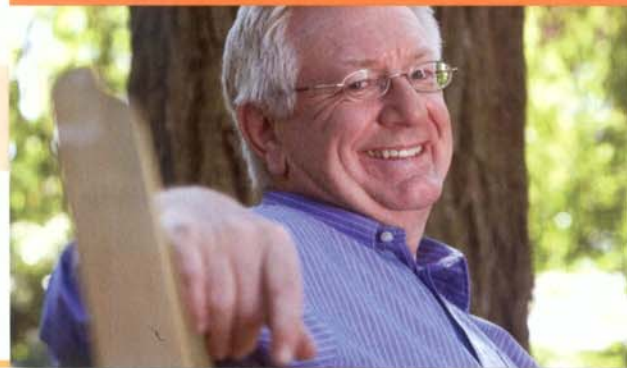
Common CKD Risk Factors Include:

- **Diabetes:** This is the leading cause of CKD in the U.S.
- **High Blood Pressure (hypertension):** This is the second leading cause of CKD in the U.S.
- **Smoking**
- **Family History:** If someone in your family has had CKD, you are at increased risk for developing CKD.
- **Advanced Age:** People aged 65 or older are more likely to develop CKD than younger adults.
- **Ethnicity/Race:** Some groups of people are more at risk for CKD, including African Americans, Native Americans, Hispanics, Pacific Islanders, and Asians.

Source: National Kidney Foundation

CKD Facts:

- *Approximately 32 million U.S. adults have CKD.*
- *Up to 40% of people with diabetes may eventually develop CKD.¹*
- *Over 2/3 of cases of CKD are caused by diabetes and high blood pressure.*



What Causes CKD?

There are several conditions and diseases that can lead to CKD. Two thirds of the cases of CKD are caused by diabetes and high blood pressure. **Diabetes** is a condition in which your blood sugar is too high. This causes damage to many organs in your body, including the kidneys. **High blood pressure** occurs when the pressure of your blood against the walls of your blood vessels increases. This causes your heart to work harder and damages blood vessels in your kidneys and throughout your body.

Some other conditions that can lead to CKD:

Glomerulonephritis: an inflammation of the filters of the kidneys, sometimes due to infection

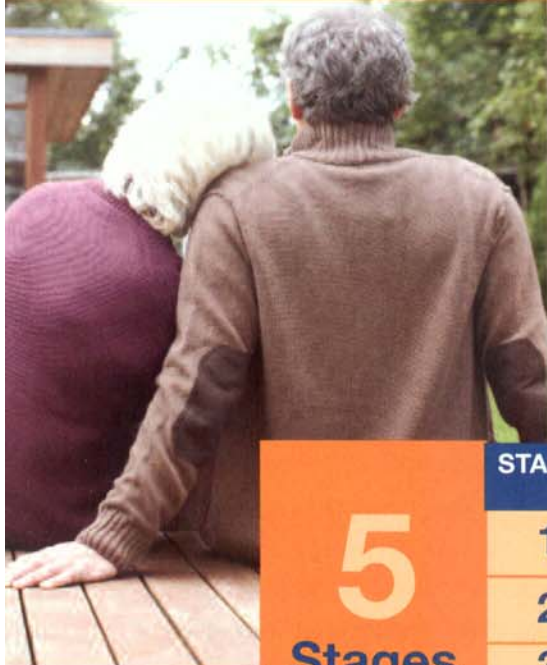
Polycystic Kidney Disease (PKD): a hereditary disease in which cysts develop in the kidneys. As cysts grow, they interfere with normal kidney function.

Nephrotic Syndrome: causes large amounts of protein to pass from the blood into the urine, resulting in swelling, called edema.

Lupus and other diseases: conditions that affect the immune system.

¹ Yee, Jerry, "Diabetic Kidney Disease: Chronic Kidney Disease and Diabetes," *Diabetes Spectrum* Vol. 21, No. 1, 2008.

² http://www.kidney.org/kidney_disease/



Most patients with CKD may not experience symptoms until the disease is very advanced. Some symptoms may include:

- Feeling unusually tired or having less energy
- Having trouble concentrating
- Having muscle cramping at night
- Having swelling of the ankles and feet
- Having more frequent urination

5 Stages of CKD

STAGE	DESCRIPTION	GFR (mL/min/1.73m ²)
1	Kidney damage with normal or increased GFR	More than 90
2	Kidney damage and mild decrease in GFR	60–89
3	Moderate decrease in GFR	30–59
4	Severe decrease in GFR	15–29
5	Kidney failure (dialysis or kidney transplant needed)	Less than 15

Source: National Kidney Foundation

How Will I Know If I Have CKD?

There are a number of tests your doctor can use to determine how well your kidneys are functioning. One such test is a measurement of your Glomerular Filtration Rate (GFR).

- **What is GFR?** The Glomerular Filtration Rate (GFR) is the best test to determine your level of kidney function and your stage of kidney disease. Your doctor can calculate your GFR from the results of your blood creatinine test, your age, race, gender, and other factors, or it can be measured.
- **What is creatinine?** Creatinine is a waste product that your kidneys normally remove from your blood. When your kidney function slows down, the creatinine level rises in your blood. By testing your creatinine levels, your doctor will be able to estimate your GFR.

Source: National Kidney Foundation

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How Can CKD Be Managed?

If you have CKD, the goal of your treatment will be to slow kidney damage. Things you can do to help manage your condition include:

- **Visit your doctor regularly**
- **Control your blood pressure**
- **Control your blood sugar if you are diabetic**
- **Avoid certain medicines that may further damage your kidneys**
- **Follow a diet and exercise plan under the supervision of your doctor**
- **Don't use tobacco**

This guide does not replace advice from your doctor. Talk to your doctor about your symptoms and any health or treatment questions that you may have.

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