



Chronic Kidney Disease

Kidneys are two bean-shaped organs, each about the size of a fist . They are located just below the rib cage, one on each side of the spine. Every day, the kidneys filter about 120 to 150 quarts of blood to produce about 1 to 2 quarts of urine. The key function of the kidneys is to remove waste products and excess fluid from the body through the urine.

The production of urine involves highly complex steps of excretion and re-absorption. This process is necessary to maintain a stable balance of body chemicals. The critical regulation of the body 's salt, potassium and acid content is performed by the kidneys and produce hormones that affect the function of other organs. For example, a hormone produced by the kidneys stimulates red blood cell production, regulate blood pressure and control calcium metabolism etc. Chronic kidney disease (CKD) is a major issue worldwide which is a condition characterized by a gradual loss of kidney function over time, 14% of the world population suffer from CKD. Over 2 million people worldwide currently receive treatment with dialysis or a kidney transplant to stay alive, yet this number may only represent 10% of people who need treatment to live. Chronic kidney disease causes more deaths than breast cancer or prostate cancer . The stages of CKD are mainly based on the measured or estimated glomerular filtration rate (eGFR) which is based on creatinine level, gender, race and age. There are five stages of kidney functionality.

Chronic kidney disease, also called chronic kidney failure, describes the gradual loss of kidney function. Your kidneys filter wastes and excess fluids from your blood, which are then excreted in your urine. When chronic kidney disease reaches an advanced stage, dangerous levels of fluid, electrolytes and wastes can build up in your body.

In the early stages of chronic kidney disease, you may have few signs or symptoms. Chronic kidney disease may not become apparent until your kidney function is significantly impaired.

Treatment for chronic kidney disease focuses on slowing the progression of the kidney damage, usually by controlling the underlying cause. Chronic kidney disease can progress to end-stage kidney failure, which is fatal without artificial filtering (dialysis) or a kidney transplant.



Symptoms

Signs and symptoms of chronic kidney disease develop over time if kidney damage progresses slowly. Signs and symptoms of kidney disease may include:

- Nausea
- Vomiting
- Loss of appetite
- Fatigue and weakness
- Sleep problems
- Changes in how much you urinate
- Decreased mental sharpness
- Muscle twitches and cramps
- Swelling of feet and ankles
- Persistent itching
- Chest pain, if fluid builds up around the lining of the heart
- Shortness of breath, if fluid builds up in the lungs
- High blood pressure (hypertension) that's difficult to control

Signs and symptoms of kidney disease are often nonspecific, meaning they can also be caused by other illnesses. Because your kidneys are highly adaptable and able to compensate for lost function, signs and symptoms may not appear until irreversible damage has occurred.

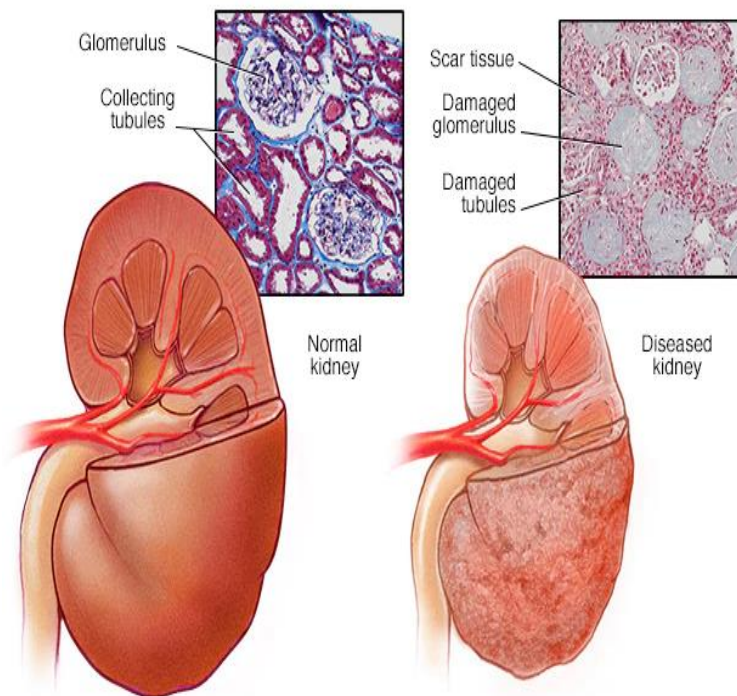
Causes

Chronic kidney disease occurs when a disease or condition impairs kidney function, causing kidney damage to worsen over several months or years.


Diseases and conditions that cause chronic kidney disease include:

- Type 1 or type 2 diabetes
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- High blood pressure
- Glomerulonephritis (gloe-mer-u-low-nuh-FRY-tis), an inflammation of the kidney's filtering units (glomeruli)
- Interstitial nephritis (in-tur-STISH-ul nuh-FRY-tis), an inflammation of the kidney's tubules and surrounding structures
- Polycystic kidney disease
- Prolonged obstruction of the urinary tract, from conditions such as enlarged prostate, kidney stones and some cancers
- Vesicoureteral (ves-ih-koe-yoo-REE-tur-ul) reflux, a condition that causes urine to back up into your kidneys
- Recurrent kidney infection, also called pyelonephritis (pie-uh-low-nuh-FRY-tis)



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Risk factors

Factors that may increase your risk of chronic kidney disease include:

- Diabetes
- High blood pressure
- Heart and blood vessel (cardiovascular) disease
- Smoking
- Obesity
- Being African-American, Native American or Asian-American
- Family history of kidney disease
- Abnormal kidney structure
- Older age

Prevention - To reduce your risk of developing kidney disease:

- Follow instructions on over-the-counter medications. When using non-prescription pain relievers, such as aspirin, ibuprofen (Advil, Motrin IB, others) and acetaminophen (Tylenol, others), follow the instructions on the package. Taking too many pain relievers could lead to kidney damage and generally should be avoided if you have kidney disease. Ask your doctor whether these drugs are safe for you.
 - Maintain a healthy weight. If you're at a healthy weight, work to maintain it by being physically active most days of the week. If you need to lose weight, talk with your doctor about strategies for healthy weight loss. Often this involves increasing daily physical activity and reducing calories.
 - Don't smoke. Cigarette smoking can damage your kidneys and make existing kidney damage worse. If you're a smoker, talk to your doctor about strategies for quitting smoking. Support groups, counseling and medications can all help you to stop.
 - Manage your medical conditions with your doctor's help. If you have diseases or conditions that increase your risk of kidney disease, work with your doctor to control them. Ask your doctor about tests to look for signs of kidney damage.
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