

Kidneys 101

The kidneys are two bean-shaped organs that filter about 200 quarts of blood every day — enough to fill a large bathtub. Your kidneys remove waste and excess fluid, which leaves the body as urine. Most people produce about two quarts of urine daily. Your body re-uses the other 198 quarts.



More Than Just Filters

As they filter your blood, the kidneys also:

- Control the pH balance of your blood
- Make sugar (glucose) if your blood doesn't have enough
- Produce hormones that help absorb calcium and help make red blood cells
- Balance fluids (mostly water) and electrolytes, essential minerals that include sodium and potassium

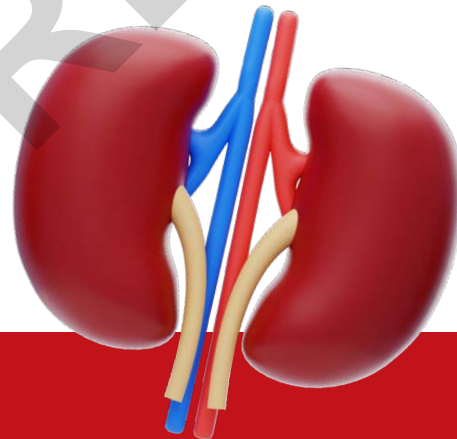
An adrenal gland sits on top of each kidney. It produces hormones, including cortisol, which plays a role in:

- Controlling metabolism
- Reducing inflammation
- Regulating blood pressure
- Increasing blood sugar levels

Types of Kidney Damage

Various conditions are associated with kidneys not functioning properly:

- Chronic kidney disease (CKD): usually caused by diabetes or high blood pressure
- Kidney cancer
- Kidney infection: bacteria enters your kidneys and causes sudden symptoms
- Kidney stones: crystals form in your urine and may block urine flow
- Kidney failure: may be acute (worsen suddenly) or chronic (permanent lessening of how well your kidneys work)



RESOURCES

National Kidney Foundation

www.kidney.org

Centers for Disease Control and Prevention

www.cdc.gov/kidney-disease

KIDNEY DISEASE

PROTECT YOUR BODY'S FILTER



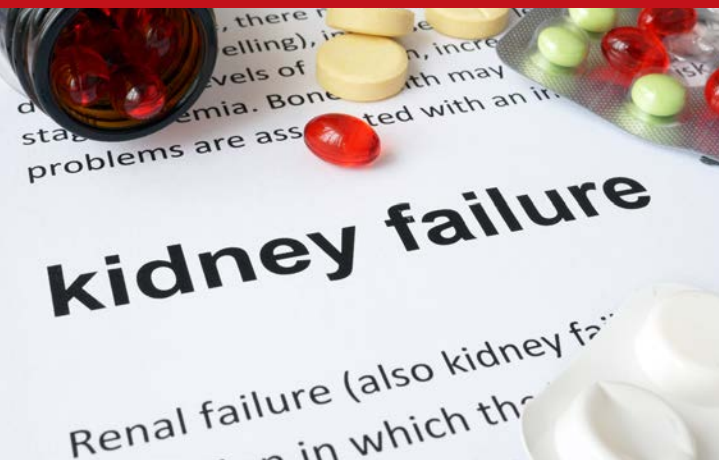
HEALTHY DIRECTIONS

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HEALTHY DIRECTIONS



kidney failure

Renal failure (also kidney failure) is a condition in which the kidneys are unable to filter waste and extra fluid from the blood.

What Are The Symptoms?

The most common early signs of kidney disease include:

- Cramping muscles: Electrolyte imbalances cause your muscles to stiffen
- Dark urine or urine with blood in it: Damage to your kidneys' filters lets blood cells leak into your urine
- Foamy urine: Bubbles in your urine can signal excess protein
- Itchy, dry skin: An imbalance of minerals and nutrients in your blood leads to itchy skin
- More frequent urination: Problems filtering waste cause you to pee more often
- Puffy eyes or swollen ankles and feet: Reduced kidney function can cause your body to hold onto protein and sodium, resulting in swelling
- Sleep problems, fatigue and lack of appetite

High Blood Pressure

High blood pressure can damage arteries, which are then not able to deliver enough blood to the kidneys. When the arteries become damaged, kidneys start to lose their ability to

filter blood and to regulate fluids, hormones, acids and salts.

Healthy kidneys respond to a hormone produced in the adrenal glands that helps to regulate blood pressure. Kidneys damaged by high blood pressure can lead to a negative spiral. High blood pressure damages kidneys, which then contribute to higher blood pressure, which further damages the kidneys. As more arteries become blocked, the kidneys eventually fail.

Diabetes & Your Kidneys

Diabetic kidney disease (DKD), also known as diabetic nephropathy, is a serious complication of type 1 diabetes and type 2 diabetes. DKD affects the kidneys' usual work of removing waste products and extra fluid from the body. The best way to prevent or delay the disease is by living a healthy lifestyle and keeping diabetes and high blood pressure managed.

Over years, DKD slowly damages the kidneys' filtering system. Early treatment may prevent this condition or slow it and lower the chance of complications. DKD can lead to kidney failure, also known as end-stage kidney disease, which is life-threatening.

Together with the signs of kidney disease, the symptoms of DKD include: high blood pressure, confusion or difficulty thinking, shortness of breath, nausea and vomiting, and weakness.



How to Keep Your Kidneys Healthy

Having regular checkups along with blood and urine tests to measure your kidneys' health is important. In your everyday life you can reduce your risk by:

- Avoiding or quitting smoking and using tobacco products
- Cutting out excess salt, which can affect the balance of minerals in your blood
- Drinking water
- Increasing daily exercise, which can reduce high blood pressure
- Maintaining a healthy weight
- Monitoring your blood pressure levels
- Watching your blood sugar levels if you have diabetes

Treatments

Some types of kidney disease can be treated, but chronic kidney disease often has no cure. Treatment usually consists of controlling symptoms, reducing complications, and slowing progression of the disease. If your kidneys become severely damaged, you might need treatment for end-stage kidney disease. The only two options at

this point are dialysis, using a machine to remove waste and excess fluid from your blood, or a transplant.

By The Numbers

- About 37 million US adults are estimated to have chronic kidney disease, and most are undiagnosed.
- About 1 in 3 people living with diabetes have diabetic kidney disease.
- Diabetes and high blood pressure account for 3 out of 4 new cases of kidney failure.
- Every 24 hours, 360 people begin dialysis treatment for kidney failure.

