



HEALTHY KIDNEYS: WHAT THEY DO

| KIDNEY SIZE & SHAPE | FILTERING WASTES & FLUID | KEEPING THE BALANCE | SENDING MESSAGES |

Healthy kidneys have many jobs. In fact, they have been called the body's "master chemist." Knowing what healthy kidneys do will help you learn how to take better care of yourself when your kidneys are not working well.

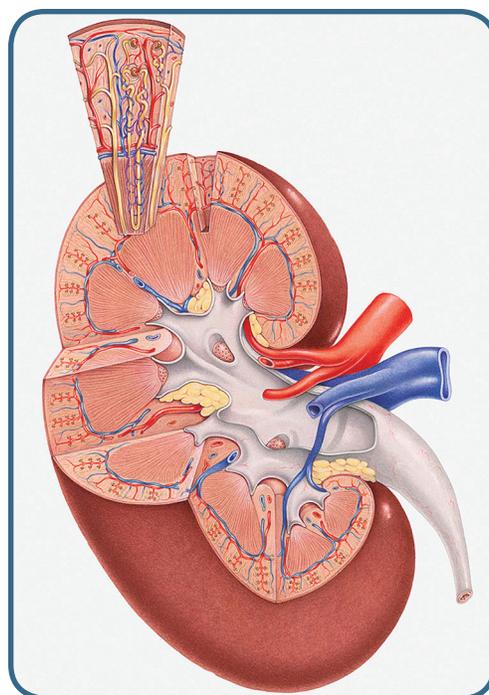
KIDNEY SIZE AND SHAPE

Most people have two, bean-shaped kidneys. You can find yours in the middle of your back, near the bottom of your rib cage. A normal kidney is about the size of your fist, and weighs about 5 oz. Some people are born with just one kidney—or even with three or four. In some cystic diseases, the kidneys can grow very large.

FILTERING WASTES AND FLUID

Although kidneys are small, each time your heart beats, about 20 percent of the blood goes to your kidneys. Healthy kidneys clean your blood 24 hours a day, 7 days a week. They filter out wastes from food you eat and extra fluids to make about two quarts of urine each day.

How do your kidneys filter your blood? Each kidney has a million or so filters called nephrons. Each nephron has a bundle of tiny blood vessels called a glomerulus. These blood vessels have holes that will keep in blood cells and protein, but let wastes and fluid flow out of the kidneys and into a collection tube. Your body reabsorbs most of the fluid. Extra wastes and fluid become urine. Healthy kidneys have many jobs. In fact, they have been called the body's "master chemist." Knowing what healthy kidneys do will help you learn how to take better care of yourself when your kidneys are not working well.



KEEPING THE BALANCE

All the cells in your body need just the right amounts of water, sodium, potassium, phosphorus, calcium, and other chemicals to work well. Another job of your kidneys is to keep your blood chemicals in a constant balance so your muscles, nerves, and heart will have what they need to work well. Your kidneys balance chemicals using sensors that check your blood. If the levels of a chemical are too high, your kidneys will remove some of that chemical from your blood. If levels are too low, your kidneys can signal other parts of your body to fix the problem.

SENDING MESSAGES

Kidneys make hormones, which are chemicals that send messages in your body:

Erythropoietin (a-rith'-ro-po-uh-tin) or EPO, tells your body to make red blood cells, which carry oxygen. Damaged kidneys may not make enough EPO, causing anemia—a shortage of red blood cells that causes fatigue and heart damage. If you have kidney disease and feel very tired, ask your doctor to test for anemia.

Calcitriol (cal-suh-try'-all), or active vitamin D, lets your body absorb calcium from your food. If your kidneys don't make enough calcitriol, your body may steal calcium from your bones, making them weak and easy to break. This problem can be treated with medications.

Renin is a kidney enzyme that works with other chemicals to control blood pressure. These chemicals tense or relax your blood vessels and tell your kidneys how much sodium to keep in your blood. High blood pressure can cause kidney damage—or vice versa. Some causes of high blood pressure can be fixed, so if you have high blood pressure, ask your doctor why.

SUMMING UP

Kidneys are complex organs with many jobs. When they don't work well, chemicals, fluids, and blood pressure can go out of balance— but there are good treatments to help these problems. Your physician will help you learn what to look for and ask for so you can stay as healthy as possible with kidney disease.

