



# TakeCharge

WELCOA'S ONLINE SELF-CARE BULLETIN

## High Blood Pressure & Kidney Disease



Blood pressure is the force of blood pushing against blood vessel walls as the heart pumps out blood, and high blood pressure, also called hypertension, is an increase in the amount of force that blood places on blood vessels as it moves through the body. Factors that can increase this force include higher blood volume due to extra fluid in the blood and blood vessels that are narrow, stiff, or clogged.

Blood pressure test results are written with two numbers separated by a slash. For example, a health care provider will write a blood pressure result as 120/80. A health care provider will say this blood pressure result as “120 over 80.” The top number is called the systolic pressure and represents the pressure as the heart beats and pushes blood through the blood vessels. The bottom number is called the diastolic pressure and represents the pressure as blood vessels relax between heartbeats.

Most people without chronic health conditions have a normal blood pressure if it stays below 120/80. Prehypertension is a systolic pressure of 120 to 139 or

a diastolic pressure of 80 to 89. High blood pressure is a systolic pressure of 140 or above or a diastolic pressure of 90 or above.

People should talk with their health care provider about their individual blood pressure goals and how often they should have their blood pressure checked.

### What are the kidneys and what do they do?

The 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 two kidneys filter about 120 to 150 quarts of blood to produce about 1 to 2 quarts of urine, composed of wastes and extra fluid. The urine flows from the kidneys to the bladder through tubes called ureters. The bladder stores urine. When the bladder empties, urine flows out of the body through a tube called the urethra, located at the bottom of the bladder. In men the urethra is long, while in women it is short.

Kidneys work at the microscopic level. The kidney is not one large filter. Each

kidney is made up of about a million filtering units called nephrons. Each nephron filters a small amount of blood. The nephron includes a filter, called the glomerulus, and a tubule. The nephrons work through a two-step process. The glomerulus lets fluid and waste products pass through it; however, it prevents blood cells and large molecules, mostly proteins, from passing. The filtered fluid then passes through the tubule, which sends needed minerals back to the bloodstream and removes wastes. The final product becomes urine.

### How does high blood pressure affect the kidneys?

High blood pressure can damage blood vessels in the kidneys, reducing their ability to work properly. When the force of blood flow is high, blood vessels stretch so blood flows more easily. Eventually, this stretching scars and weakens blood vessels throughout the body, including those in the kidneys.

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If the kidneys' blood vessels are damaged, they may stop removing wastes and extra fluid from the body. Extra fluid in the blood vessels may then raise blood pressure even more, creating a dangerous cycle.

## What are the symptoms of high blood pressure and kidney disease?

Most people with high blood pressure do not have symptoms. In rare cases, high blood pressure can cause headaches.

Kidney disease also does not have symptoms in the early stages. A person may have swelling called edema, which happens when the kidneys cannot get rid of extra fluid and salt. Edema can occur in the legs, feet, or ankles and less often in the hands or face. Once kidney function decreases further, symptoms can include:

- › appetite loss
- › nausea, vomiting
- › drowsiness or feeling tired
- › trouble concentrating
- › sleep problems
- › increased or decreased urination
- › generalized itching or numbness

- › dry skin
- › weight loss
- › darkened skin
- › muscle cramps
- › shortness of breath and/or chest pain

## How are high blood pressure and kidney disease diagnosed?

A health care provider diagnoses high blood pressure when multiple blood pressure tests—often repeated over several visits to a health care provider's office—show that a systolic blood pressure is consistently above 140 or a diastolic blood pressure is consistently above 90. Health care providers measure blood pressure with a blood pressure cuff. People can also buy blood pressure cuffs at discount chain stores and drugstores to monitor their blood pressure at home.

Kidney disease is diagnosed with urine and blood tests.

