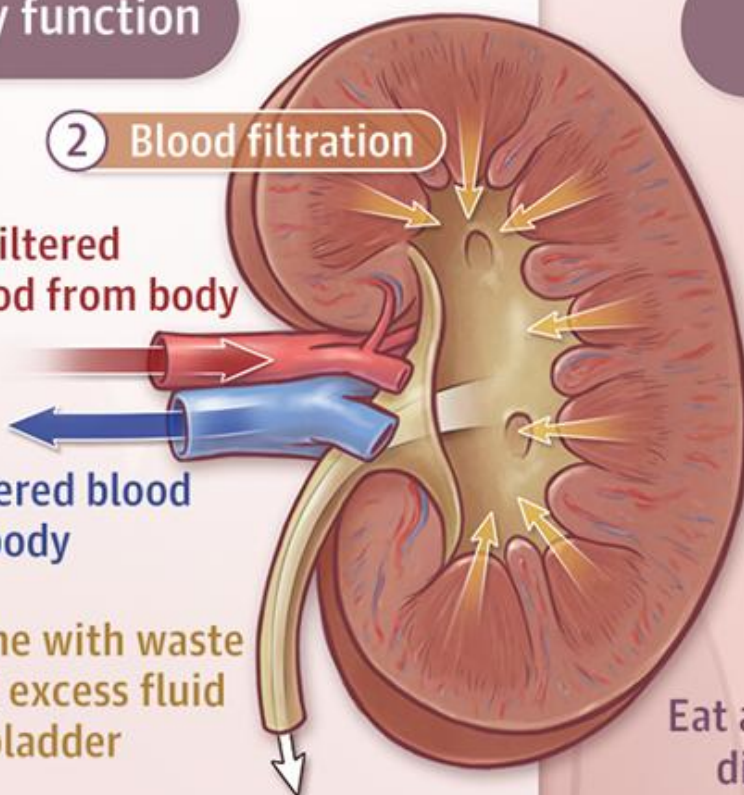


Kidney function

- ① Unfiltered blood from body
- ② Blood filtration
- ③ Filtered blood to body
- ④ Urine with waste and excess fluid to bladder



Prevention of chronic kidney disease

Stop smoking



Reduce salt intake



Eat a heart-healthy diet rich in fruits and vegetables



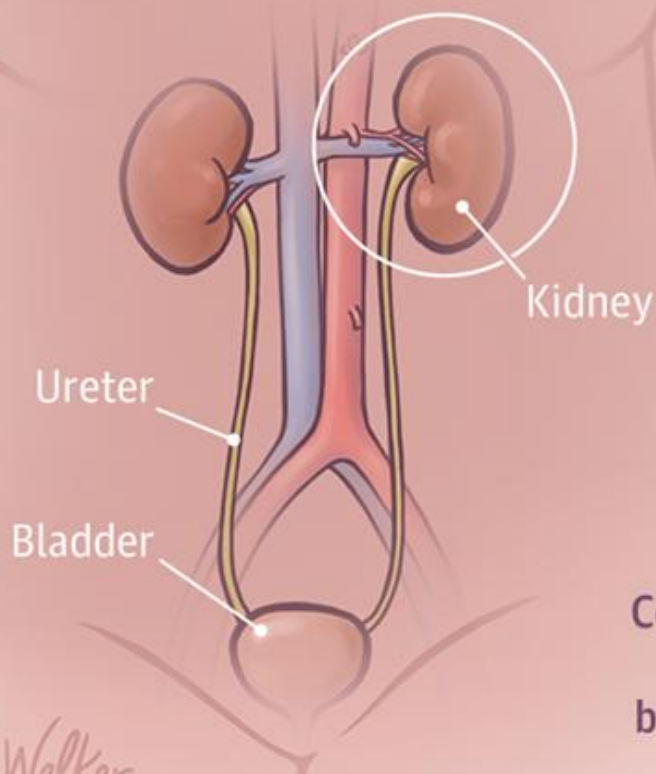
Exercise regularly and maintain a healthy weight



Control diabetes and monitor HbA_{1c} levels



Control high blood pressure with kidney-protective blood pressure medications



S. Welker

CHRONIC KIDNEY DISEASE

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It is estimated that 1 in 10 US adults has chronic kidney disease, and many who have the disease are not aware of it.

WHAT IS CHRONIC KIDNEY DISEASE?

The kidneys function as blood filters that drain waste products while retaining other valuable blood contents like proteins. If these filters are damaged, they initially may become “leaky,” and substances like proteins can seep from blood into urine. At later stages, these filters slowly shut down and lose their ability to filter. When kidney impairment lasts for more than 3 months, it is called **chronic kidney disease**. This process ultimately results in decreased urine production and kidney failure, with buildup of waste products in the blood and body tissues. One common reason for kidney failure in the United States is diabetes.

Sometimes chronic kidney disease is accompanied by high blood pressure, which not only can be caused by kidney damage but also further accelerates kidney injury and is a major reason for the negative effects of chronic kidney disease on other organs, including increased risk of heart disease and stroke, collection of excess body fluids, anemia, weakening of bones, and impairment of the way the body eliminates medications.

RISK FACTORS

In addition to diabetes and high blood pressure, age >60 years, female sex, African American ethnicity, obesity, high cholesterol, lack of physical exercise, smoking, and excessive salt intake are factors that increase risk of kidney disease. Other contributing circumstances include infections or inflammatory diseases that affect the kidneys; inappropriate use of medications like aspirin, ibuprofen, and other painkillers; and use of herbal supplements that are known to cause damage to kidneys. Also, imaging studies that use iodine contrast substances can have a negative effect on kidneys. Chronic kidney disease sometimes runs in families.

DIAGNOSIS

Chronic kidney disease develops slowly, with few symptoms. It is often not recognized until the disease is advanced. If it is detected early, treatment can slow down or avoid kidney function decline and diminish the negative effects on other body functions. A blood test measuring **glomerular filtration rate** assesses how well the kidneys clear the blood of a waste product called **creatinine**. A value of 60 to 90 may be an early sign of kidney disease; a value below 60 is usually considered abnormal. A test using a urine sample evaluates the presence of protein (**albumin**) in the urine; repeated results of 30 mg or more can indicate a problem. High blood pressure may also point to underlying chronic kidney disease.

PREVENTING CHRONIC KIDNEY DISEASE

For patients with diabetes, vigilant control of blood sugar levels is crucial. Measuring hemoglobin A_{1c} tracks average blood sugar levels over a 3-month period and is suggested 4 times a year. For people with high blood pressure, medical treatment with target values below 120/80 mm Hg is recommended. Certain blood pressure medications are available that particularly protect kidneys and reduce protein loss in the urine. Quitting smoking is of critical importance and proven benefit. A heart-healthy diet rich in vegetables and fruits and low in saturated or animal fats is favorable. Use of olive oil or canola oil instead of butter, lard, and shortening as well as choosing lean meat or fish are encouraged. Additionally, a low-salt, low-phosphate diet using salt-free seasonings and limiting foods like salty snacks or processed or canned foods is advised. Regular physical exercise 5 days a week for at least 30 minutes along with keeping a healthy weight are other steps to foster kidney health.

For More information

Centers for Disease Control and Prevention

www.cdc.gov/diabetes/programs/initiative/kidney.html

ARTICLE INFORMATION

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Sources: National Kidney Disease Education Program, American Kidney Fund, National Kidney Foundation

Topic: Kidney Health