

# Proteinuria

**P**roteinuria (protein in the urine) is a sign of kidney disease. Many types of health problems can lead to kidney disease, which may be undetected until it becomes severe.

Kidney disease is common in adults and can also occur in children, although the causes are usually different. Healthy kidneys do not allow protein to pass through their filtration systems, so if protein is found in the urine, it is a signal that further **renal** (kidney) testing is necessary, looking for an acute (short-term) kidney problem or for the presence of chronic kidney disease. Most persons with proteinuria have no symptoms. The presence of protein in the urine is found when a **urinalysis** (testing of a sample of urine) is done. Persons who have proteinuria usually see a **nephrologist**, a doctor with specialized education and training in treating diseases of the kidney. **Urologists** are doctors who specialize in surgical treatment of disorders of the kidneys and the urinary system. The February 3, 2010, issue of *JAMA* contains an article about proteinuria and using testing for proteinuria to improve diagnosis of chronic kidney disease.

## RISK FACTORS FOR PROTEINURIA

- **Hypertension** (high blood pressure)
- **Diabetes** (both type 1 and type 2)
- **Primary kidney disease** (disorders of the kidney itself)
- **Obesity**
- **Age older than 65 years**
- **Family history of kidney disease**
- **Pregnancy-induced hypertension**, also known as **preeclampsia**

## ROUTINE TESTS

- **Urinalysis**
- **Serum creatinine** (a measure of kidney function) and other blood tests
- **Complete blood count**
- **24-hour or single urine sample measurement of albumin** (the main protein found in the body)
- **Urine cultures** (looking for infections)

## TESTS USED SELECTIVELY

- **Abdominal and pelvic ultrasound** (use of sound waves to evaluate body areas)
- **Computed tomography (CT) scanning**
- **Magnetic resonance imaging (MRI)**
- **Angiography** to evaluate blood flow to the kidney
- **Kidney biopsy** to help diagnose the reason for proteinuria

## TREATMENT

Because proteinuria is not a sign of a specific disease, treatment is directed at the actual cause of the kidney problem. Individual treatments may also be targeted to symptoms a person has, especially if the damage to the kidney is not reversible. Medications and lifestyle changes are used to treat hypertension, diabetes, and other chronic medical problems associated with proteinuria and chronic kidney diseases. Antibiotics may be used in cases of urinary tract infections. Dialysis is the treatment for kidney failure. In persons with acute kidney failure, dialysis may be used in the short term while the kidneys heal. The goal of early detection and treatment of chronic kidney disease is to prevent irreversible kidney failure. For some individuals with kidney failure, renal transplantation may be an option.

Sources: National Institute of Diabetes and Digestive and Kidney Diseases, National Kidney Foundation, UK National Kidney Federation

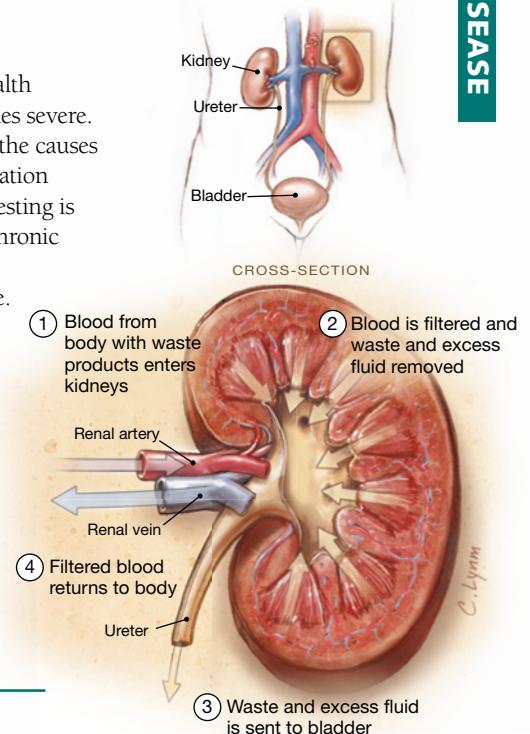
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## Normal Kidney Function



## FOR MORE INFORMATION

- National Institute of Diabetes and Digestive and Kidney Diseases [www.niddk.nih.gov](http://www.niddk.nih.gov)
- National Kidney Foundation [www.kidney.org](http://www.kidney.org)
- UK National Kidney Federation [www.kidney.org.uk](http://www.kidney.org.uk)

## INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on JAMA's Web site at [www.jama.com](http://www.jama.com). Many are available in English and Spanish. A Patient Page on chronic kidney disease was published in the September 12, 2007, issue; one on kidney transplantation was published in the April 22/29, 2009, issue; and one on kidney failure was published in the February 11, 2009, issue.

