

# Kidney Biopsy

*National Kidney and Urologic Diseases Information Clearinghouse*



U.S. Department  
of Health and  
Human Services

NATIONAL  
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**NIDDK**  
NATIONAL INSTITUTE OF  
DIABETES AND DIGESTIVE  
AND KIDNEY DISEASES

**ADULT UROLOGY &  
PEDIATRIC  
UROGYNECOLOGY**

## What is a kidney biopsy?

A biopsy is a diagnostic test that involves collecting small pieces of tissue, usually through a needle, for examination with a microscope. A kidney biopsy can help in forming a diagnosis and in choosing the best course of treatment. A kidney biopsy may be recommended for any of the following conditions:

- hematuria, which is blood in the urine
- proteinuria, which is excessive protein in the urine
- impaired kidney function, which causes excessive waste products in the blood

A pathologist will look at the kidney tissue samples to check for unusual deposits, scarring, or infecting organisms that would explain a person's condition. The doctor may find a condition that can be treated and cured. If a person has progressive kidney failure, the biopsy may show how quickly the disease is advancing. A biopsy can also help explain why a transplanted kidney is not working properly.

Patients should talk with their doctors about what information might be learned from the biopsy and the risks involved so the patients can help make a decision about whether a biopsy is worthwhile.

## What are the preparations for a kidney biopsy?

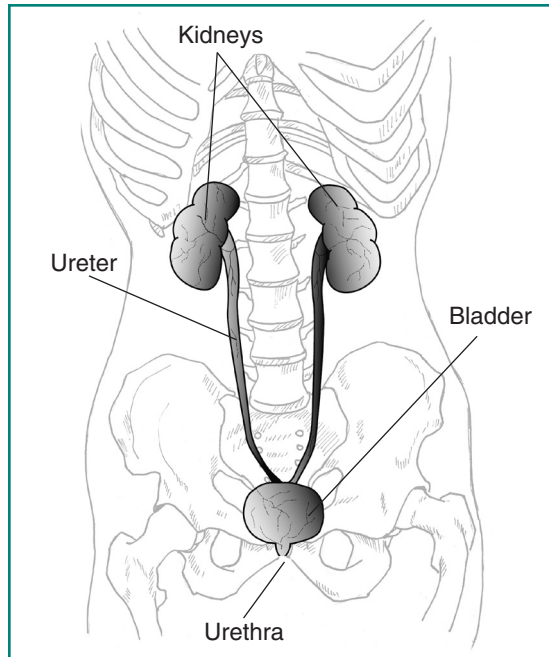
Patients must sign a consent form saying they understand the risks involved in this procedure. The risks are slight, but patients should discuss these risks in detail with their doctors before signing the form.

Doctors should be aware of all the medicines a patient takes and any drug allergies that patient might have. The patient should avoid aspirin and other blood-thinning medicines for 1 to 2 weeks before the procedure. Some doctors advise their patients to avoid food and fluids before the test, while others tell patients to eat a light meal. Shortly before the biopsy, blood and urine samples are taken to make sure the patient doesn't have a condition that would make doing a biopsy risky.

## What are the procedures for a kidney biopsy?

Kidney biopsies are usually done in a hospital. The patient is fully awake with light sedation. A local anesthetic is given before the needle is inserted.

Patients lie on their stomachs to position the kidneys near the surface of their backs. Patients who have a transplanted kidney lie on their backs. The doctor marks the entry site, cleans the area, and injects a local painkiller. For a biopsy using a needle inserted through the skin, the doctor uses a locating needle and x-ray or ultrasound



The kidneys filter wastes and extra fluid from the blood and direct them to the bladder as urine.

equipment to find the kidney and then a collecting needle to gather the tissue. Patients are asked to hold their breath as the doctor uses a spring-loaded instrument to insert the biopsy needle and collect the tissue, usually for about 30 seconds or a little longer for each insertion. The spring-loaded instrument makes a sharp clicking noise that can be startling to patients. The doctor may need to insert the needle three or four times to collect the needed samples.

The entire procedure usually takes about an hour, including time to locate the kidney, clean the biopsy site, inject the local painkiller, and collect the tissue samples.

Patients who are prone to bleeding problems should not have a biopsy through the skin. These patients may still undergo a kidney biopsy through an open operation in which the surgeon makes an incision and can see the kidney to collect tissue samples.

## What happens after a kidney biopsy?

After the test, patients lie on their backs in the hospital for a few hours. Patients who have a transplanted kidney lie on their stomachs. During this time, the staff will monitor blood pressure and pulse and take blood samples to assess for blood loss. On rare occasions when bleeding does not stop on its own, a transfusion may be necessary to replace lost blood. Most patients leave the hospital the same day. Patients may notice some blood in their urine for 24 hours after the test.

A rare complication is infection from the biopsy.

Patients should tell their doctors or nurses if they have any of these problems:

- bloody urine more than 24 hours after the test
- inability to urinate
- fever
- worsening pain in the biopsy site
- faintness or dizziness

## How are kidney biopsy results reported?

After the biopsy, the doctor will inspect the tissue samples in the laboratory using one or more microscopes, perhaps using dyes to identify different substances that may be settled in the tissue. Electron microscopes may be used to see small details. Getting the complete biopsy results usually takes a few days. In urgent cases, a preliminary report may be given within a few hours.

## Points to Remember

- A biopsy is a diagnostic test that involves collecting small pieces of tissue, usually through a needle, for examination with a microscope.
- A kidney biopsy can help in forming a diagnosis and in choosing the best course of treatment.
- Before the kidney biopsy, patients should
  - talk with their doctors to make sure they understand the need for a biopsy
  - sign a consent form
  - tell their doctors about any allergies they have and medicines they take
  - follow their doctors' orders for food restrictions
- After the kidney biopsy, patients should
  - lie on their backs—or stomachs if they have a transplanted kidney—for a few hours
  - report any problems, such as
    - bloody urine more than 24 hours after the test
    - inability to urinate
    - fever
    - worsening pain
    - faintness or dizziness

## Hope through Research

In recent years, researchers have learned much about kidney disease. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) sponsors several programs aimed at understanding kidney failure and finding treatments to stop its progression.

The NIDDK's Division of Kidney, Urologic, and Hematologic Diseases supports basic research into normal kidney function and the diseases that impair normal function at the cellular and molecular levels, including diabetes, high blood pressure, glomerulonephritis, and other diseases marked by protein in the urine.

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For information about current studies, visit [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov).

## For More Information

**ADULT PEDIATRIC UROLOGY & UROGYNECOLOGY**

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You may also find additional information about this topic by visiting MedlinePlus at [www.medlineplus.gov](http://www.medlineplus.gov).

This publication may contain information about medications. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1-888-INFO-FDA (463-6332) or visit [www.fda.gov](http://www.fda.gov). Consult your doctor for more information.

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The National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health and Human Services. Established in 1987, the Clearinghouse provides information about diseases of the kidneys and urologic system to people with kidney and urologic disorders and to their families, health care professionals, and the public. The NKUDIC answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about kidney and urologic diseases.

Publications produced by the Clearinghouse are carefully reviewed by both NIDDK scientists and outside experts. This publication was originally reviewed by Roger C. Wiggins, M.D., University of Michigan.

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This fact sheet is also available at [www.kidney.niddk.nih.gov](http://www.kidney.niddk.nih.gov).

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