

# Medical Tests for Prostate Problems



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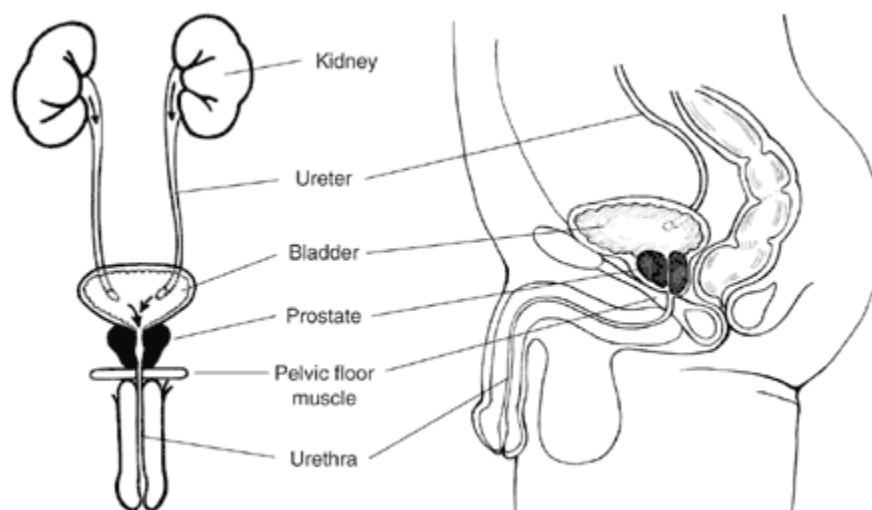
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The prostate is a walnut-sized gland in men that produces fluid that is a component of semen. The gland has two or more lobes--or sections--enclosed by an outer layer of tissue. Located in front of the rectum and just below the bladder, where urine is stored, the prostate surrounds the urethra, which is the canal through which urine passes out of the body.

The most common prostate problem in men under 50 is inflammation or infection, which is called prostatitis. Prostate enlargement is another common problem. Since the prostate normally continues to grow as a man matures, prostate enlargement, also called benign prostatic hyperplasia or BPH, is the most common prostate problem for men over 50. Older men are at risk for prostate cancer as well, but it is much less common than BPH.

Sometimes, different prostate problems have similar symptoms. For example, one man with prostatitis and another with BPH may both have a frequent, urgent need to urinate. Other men with BPH may have different symptoms. For example, one man may have trouble beginning a stream of urine, while another may have to get up to go to the bathroom frequently at night. A man in the early stages of prostate cancer may have no symptoms at all. This confusing array of symptoms makes a thorough medical examination and testing very important. Diagnosing the problem may require a series of tests.



Male urinary tract, front and side views

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## Talking to Your Doctor or Nurse

Letting your doctor or nurse know you have a problem is the first step. Try to give as many details about the problem as you can, including when it began and how often it occurs. Tell the doctor or nurse whether you have had recurrent urinary tract infections or symptoms such as pain after ejaculation or during urination, sudden strong urges, or hesitancy and weak urine stream. You should talk about the medicines you take, both prescription medicines and those you can buy over the counter, because they might be part of the problem. You should also talk about how much fluid you typically drink each day, whether you use caffeine or alcohol, and whether your urine has an unusual color or odor. In turn, the doctor or nurse will ask you about your general medical history, including any major illnesses or surgeries. Other typical questions are as follows:

- Over the past month or so, how often have you had to urinate again in less than two hours?
- Over the past month, from the time you went to bed at night until the time you got up in the morning, how many times a night did you typically get up to urinate?
- Over the past month or so, how often have you had a sensation of not emptying your bladder completely after you finished urinating?
- Over the past month or so, how often have you had a weak urinary stream?
- Over the past month or so, how often have you had to push or strain to begin urinating?

Your answers to these questions may help your doctor or nurse identify the problem or determine what tests are needed. You may also receive a symptom score evaluation that can be used as a baseline to see how effective later treatments are at relieving those symptoms.

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## Preparing for the Exam

The common tests your doctor or nurse will perform first require no special preparation. Digital rectal exams (DRE) and blood tests for prostate-specific antigen (PSA) are often included in routine physical examinations for men over 50. For African-American men and men with a family history of prostate cancer, it is recommended that tests be given starting at age 40. Some organizations even recommend that these tests be given to all men starting at age 40.

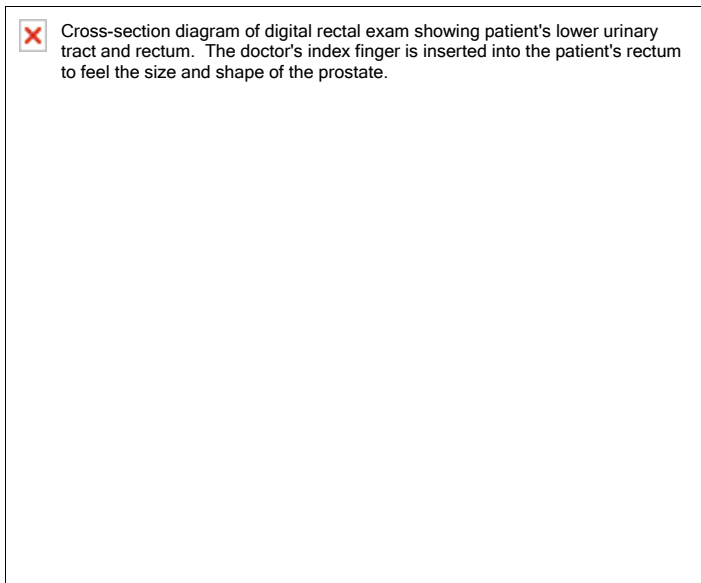
If you have urination problems or if the DRE or PSA test indicates that you might have a problem, you will probably be given additional tests that may require some preparation. Ask your doctor or nurse whether you should change your diet or fluid intake or stop taking any medications. If the tests involve inserting instruments into the urethra or rectum, you may be given antibiotics before and after the test to prevent infection.

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## Procedures

### DRE

This exam is usually done first. Many doctors perform a DRE as part of a routine physical exam for any man over 50, some even at 40, whether the man has urinary problems or not. You may be asked to bend over a table or to lie on your side holding your knees close to your chest. The doctor slides a gloved, lubricated finger into the rectum and feels the part of the prostate that lies next to it. You may find the DRE slightly uncomfortable, but it is very brief. This exam tells the doctor whether the gland has any bumps, irregularities, soft spots, or hard spots that require additional tests. If a prostate infection is suspected, the doctor might massage the prostate during the DRE to obtain fluid for examination under a microscope.



Digital rectal exam (DRE)

### PSA Blood Test

To rule out cancer, your doctor may recommend a PSA blood test. The amount of PSA, a protein produced by prostate cells, is often higher in the blood of men who have prostate cancer. However, an elevated level of PSA does not necessarily mean you have cancer. The Food and Drug Administration has approved a PSA test for use in conjunction with a DRE to help detect prostate cancer in men age 50 or older and for monitoring men with prostate cancer after treatment. However, much remains unknown about how to interpret the PSA test, its ability to discriminate between cancer and benign prostate conditions, and the best course of action if the PSA is high.

Because so many questions are unanswered, the relative magnitude of the test's potential risks and benefits is unknown. When added to DRE screening, PSA enhances detection, but PSA tests are known to have relatively high false-positive rates, and they also may identify a greater number of medically insignificant tumors.

The PSA test first became available in the 1980s, and its use led to an increase in the detection of prostate cancer between 1986 and 1991. In the mid-1990s, deaths from prostate cancer began to decrease, and some observers credit PSA testing for this trend. Others, however, point out that statistical trends do not necessarily prove a cause-and-effect relationship, and the benefits of screening for prostate cancer are still being studied. The National Cancer Institute is conducting the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial, or PLCO Trial, to determine whether certain screening tests reduce the number of deaths from these cancers. DRE and PSA exams are being studied to see whether yearly screening will decrease the risk of dying from prostate cancer.

Until a definitive answer is found, doctors and patients should weigh the benefits of PSA testing against the risks of followup diagnostic tests and cancer treatments. The procedures used to diagnose prostate cancer may cause significant side effects, including bleeding and infection. Treatment for prostate cancer often causes erectile dysfunction, or impotence, and may cause urinary incontinence.

### Urinalysis

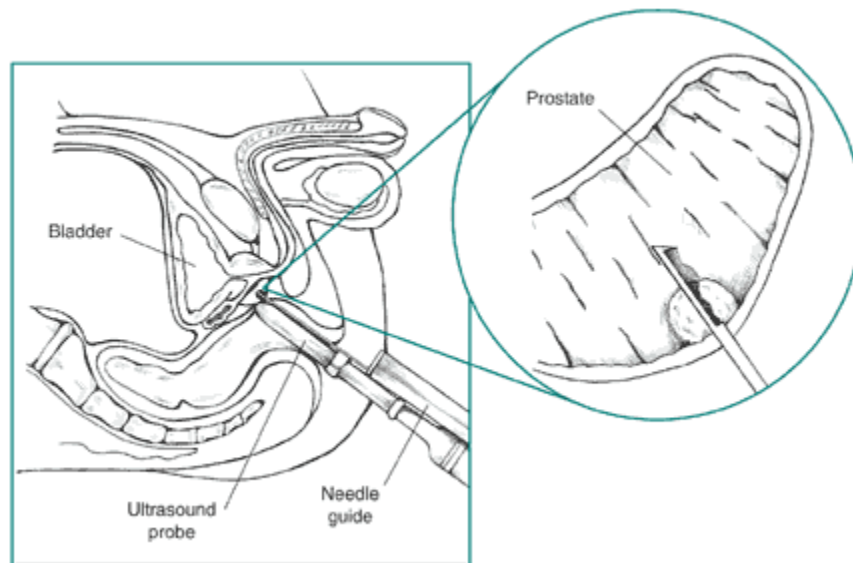
Your doctor or nurse may ask for a urine sample to test with a dipstick or to examine

under a microscope. A chemically treated dipstick will change color if the urine contains nitrite, a byproduct of bacterial infection. Traces of blood in the urine may indicate that a kidney stone or infection is present, or the sample might reveal bacteria or infection-fighting white blood cells. You might be asked to urinate into two or three containers to help locate the infection site. If signs of infection appear in the first container but not in the others, the infection is likely to be in the urethra. Your doctor or nurse might ask you to urinate into the first container, then stop the stream for a prostate massage before completing the test. If urine taken after prostate massage or the prostate fluid itself contains significantly more bacteria, it is a strong sign that you have bacterial prostatitis.

### Transrectal Ultrasound and Prostate Biopsy

If prostate cancer is suspected, your doctor may recommend transrectal ultrasound. In this procedure, the doctor or technician inserts a probe slightly larger than a pen into the rectum. The probe directs high-frequency sound waves at the prostate, and the echo patterns form an image of the gland on a television monitor. The image shows how big the prostate is and whether there are any irregularities, but cannot unequivocally identify tumors.

To determine whether an abnormal-looking area is indeed a tumor, the doctor can use the probe and the ultrasound images to guide a biopsy needle to the suspected tumor. The needle collects a few pieces of prostate tissue for examination under a microscope.



Transrectal ultrasound and prostate biopsy

### Magnetic Resonance Imaging (MRI) and Computed Axial Tomography (CAT) Scans

MRI and CAT scans both use computers to create three-dimensional or cross-sectional images of internal organs. These tests can help identify abnormal structures, but they cannot distinguish between cancerous tumors and noncancerous prostate enlargement. Once a biopsy has confirmed cancer, a doctor might use these imaging techniques to determine how far the cancer has spread. Experts caution, however, that MRI and CAT scans are very expensive and rarely add useful information. They recommend using these techniques only when the PSA score is very high or the DRE suggests an extensive cancer, or both.

### Urodynamic Tests

If your problem appears to be related to blockage, your doctor or nurse may recommend tests that measure bladder pressure and urine flow rate. You may be asked to urinate into a special device that measures how quickly the urine is flowing and records how many seconds it takes for the peak flow rate to be reached. Another test measures postvoid residual, the amount of urine left in your bladder when you have finished urinating. A weak stream and difficulty emptying the bladder completely may be signs of urine blockage caused by an enlarged prostate that is squeezing the urethra.

### **Intravenous Pyelogram (IVP)**

IVP is an x ray of the urinary tract. In this test, dye is injected into a vein, and x-ray pictures are taken at 0, 5, 10, and 15 minutes to see the progression of contrast through the kidney and ureter. The dye makes the urine visible on the x ray and shows any narrowing or blockage in the urinary tract. This procedure can help identify problems in the kidneys, ureters, or bladder that may have resulted from urine retention or backup.

### **Abdominal Ultrasound**

For an abdominal ultrasound exam, a technician will apply gel to your lower abdomen and sweep a handheld transducer across the area to receive a picture of your entire urinary tract. Like the IVP, an abdominal ultrasound can show damage in the upper urinary tract that results from urine blockage at the prostate.

### **Cystoscopy**

After a solution numbs the inside of the penis, the doctor inserts a small tube through the urethral opening at the tip of the penis. The tube, called a cystoscope, contains a lens and a light system, which allow the doctor to see the inside of the urethra and the bladder. The doctor can then determine the location and degree of the obstruction.

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## **After the Test**

You may have mild discomfort for a few hours after urodynamics and cystoscopy. Drinking two 8-ounce glasses of water each hour for 2 hours should help. Ask your doctor whether you can take a warm bath. If not, you may be able to hold a warm, damp washcloth over the urethral opening to relieve the discomfort. A prostate biopsy may also produce pain in the area of the rectum and the perineum (between the rectum and the scrotum).

Your doctor may give you an antibiotic to take for 1 or 2 days to prevent an infection, but not always. If you have signs of infection--including pain, chills, or fever--call your doctor at once.

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## **Getting the Results**

Results for simple tests can be discussed with your doctor or nurse immediately after the test. Other tests may take a few days. You will have the chance to ask questions about the results and possible treatments for your problem.

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## **For More Information**

More information is available from

### **American Foundation for Urologic Disease**

1128 North Charles Street

Baltimore, MD 21201

Phone: 1-800-242-2383

Email: [admin@afud.org](mailto:admin@afud.org)

Internet: [www.afud.org](http://www.afud.org)

**The Prostatitis Foundation**

1063 30th Street, Box 8  
Smithshire, IL 61478  
Phone: 1-888-891-4200  
Fax: (309) 325-7184  
Email: [Mcapstone@aol.com](mailto:Mcapstone@aol.com)  
Internet: [www.prostate.org](http://www.prostate.org)

For information about prostate cancer, contact the

**Cancer Information Service**

National Cancer Institute (NCI)  
Phone: 1-800-4CANCER (1-800-422-6237)  
TTY: 1-800-332-8615  
Email: [cancermail@icicc.nci.nih.gov](mailto:cancermail@icicc.nci.nih.gov)  
Internet: [www.nci.nih.gov](http://www.nci.nih.gov) (NCI's primary website) or <http://cancernet.nci.nih.gov>  
(material for professionals, patients, and the public)

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## National Kidney and Urologic Diseases Information Clearinghouse

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Bethesda, MD 20892-3580  
Email: [nkudic@info.niddk.nih.gov](mailto:nkudic@info.niddk.nih.gov)

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 under 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. 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 fact sheet was reviewed by Steven A. Kaplan, M.D., of the Columbia Presbyterian Medical Center, and Michel A. Pontari, M.D., of the Temple University School of Medicine.

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