

Urodynamic Tests

What You Should Know



How Does the Urinary System Work?

The bladder and kidneys are part of the urinary system. These are the organs that make, store, and pass urine. When the urinary system is working well, the kidneys make urine and move it into the bladder. The bladder is a balloon shaped organ that serves as a storage unit for urine. It is held in place by pelvic muscles in the area below your belly.

When it is not full of urine, your bladder is relaxed. Nerve signals in your brain let you know when your bladder is getting full and it is time to empty it. When you are ready, the brain tells the bladder muscles to squeeze (or “contract”). This forces the urine out of the bladder and through your urethra (the tube that carries urine out of your body). Your urethra also has muscles, called sphincters. They help keep the urethra closed so urine doesn’t leak before you’re ready to go to the bathroom. These sphincters open up when the bladder contracts and close when the bladder is relaxed.

What are Urodynamic Tests?

Urodynamic tests, or Urodynamic studies (UDS), diagnose problems with the way the bladder, sphincters, and urethra work. There are many parts to a full UDS that help find out if there is a problem and what is causing your symptoms.

You may need a UDS if you have problems or symptoms such as:

- Incontinence (any amount of leaking urine that you cannot control)
- Not emptying your bladder all the way
- The need to use the bathroom too often
- The need to use the bathroom urgently, with fear of urine leakage

- A weak urine flow or stream
- Urine flow that stops and starts (“intermittent stream”)
- Painful spasms of the bladder

Your health care provider will first talk with you about your symptoms. You should have a physical exam, including a pelvic and/or rectal exam, and provide a clean urine sample for a simple urine test. If more information is needed for a diagnosis, your urologist will use other diagnostic tests.

You may be asked to fill out a bladder diary. In this diary, you will write down when and how much you drink, and when and how much you pass urine. This can help you and your health care professional better understand your symptoms. Finding factors that make your symptoms better or worse can help craft a treatment plan that will be best for you.

What are the Different Urodynamic Tests?

You do not often need to do anything special to prepare for UDS. For most tests, you should arrive with a somewhat full bladder to start. In some cases, you may be asked to stop a specific medicine or drink differently before the test. Be sure to check with your provider before the tests. The different parts of a formal urodynamic test are listed below.

Uroflowmetry

Uroflowmetry measures the strength of your urine stream. This can show if you have a hard time getting urine out and emptying your bladder. This might be due to a weak bladder muscle or some type of blockage of the urethra (i.e., from a urethral stricture or an enlarged prostate).

For this test, you may be asked to arrive with a full bladder. During the test, you will pass urine. Your urine flow and how well you are able to empty your bladder are measured.



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Cystometrogram (CMG)

Cystometrogram (CMG) is used to measure how your bladder feels during filling, bladder elasticity, bladder capacity (how much it can hold) and to detect if there are abnormal bladder spasms during filling of the bladder. A special catheter measures the pressure inside the bladder during the filling process. These tests help find problems with urine storage and how well your bladder can hold urine without leaking.

Pressure Flow Study

A pressure flow study measures the pressure in your bladder and the urine flow rate as you pass urine. You will be asked to pass urine with a very small pressure catheter in your urethra. This test measures the urine flow rate and relates it to the amount of pressure your bladder used to make that flow. This study may help find the cause of a weak urinary stream.

Urethral Pressure Profile

This test studies the strength of the muscle sphincters of your urethra. A catheter with a sensor records information about the pressure in your urethra during the UDS. This may help find the cause of incontinence (urine leakage).

Electromyography (EMG)

Electromyography (EMG) tests the electrical activity of the muscles in your pelvic area. EMG can help find if a urinary problem is from pelvic nerve or muscle damage. Small sensors (electrodes) are placed near the rectum to test these muscles and nerves. These sensors measure the action of the bladder muscle and urethral sphincter muscle during the filling and emptying of the bladder.

Fluoroscopy

Sometimes using fluoroscopy (X-ray) can help find issues that are more complicated. In this case, the bladder is filled with contrast solution (rather than saline) that shows up on X-ray to help see the anatomy of your bladder.

About the Urology Care Foundation

The Urology Care Foundation is the world's leading urologic foundation – and the official foundation of the American Urological Association. We provide information for those actively managing their urologic health and those ready to make health changes. Our information is based on the American Urological Association resources and is reviewed by medical experts.

To learn more, visit the Urology Care Foundation's website, UrologyHealth.org/UrologicConditions.

Disclaimer

This information is not a tool for self-diagnosis or a substitute for professional medical advice. It is not to be used or relied on for that purpose. Please talk to your urologist or health care provider about your health concerns. Always consult a health care provider before you start or stop any treatments, including medications.

For more information, visit UrologyHealth.org/Download or call 800-828-7866.

