



URODYNAMIC STUDY

What is Urodynamic Testing?

Urodynamic tests are used to diagnose patients who have urinary incontinence or other urinary symptoms. These tests are given to both men and women. A urodynamic test is used to measure nerve and muscle function, pressure around and in the bladder, flow rates, and other factors. These tests look at how well the bladder, sphincters, and urethra are storing and releasing urine.

The objective of urodynamic testing is to aid in the selection of an appropriate treatment.

What are some urodynamic tests?

Urodynamic tests include:

Uroflometry

Postvoid residual measurement

Cytometric test

Leak point pressure measurement

Pressure flow study

Electromyography

Video urodynamic tests

Uroflometry

Uroflometry is the measurement of urine speed and volume. For this test, the patient starts with a full bladder so you will need to come to the office with a full bladder or have a strong urge to urinate. You will then be asked to urinate into a funnel at a special urinal or commode. A computer is used to automatically measure the amount of urine produced and the rate of the flow. It creates a graph that shows changes in flow rate. The results of the test will be abnormal if the bladder muscles are weak or if urine flow is blocked.



Postvoid residual measurement

The postvoid residual measurement test measures the amount of urine left in the bladder after emptying the bladder. The remaining urine is called the postvoid residual. This can be measured with ultrasound equipment that uses sound waves to create a picture of the bladder. Postvoid residual can also be tested by using a thin, flexible tube (catheter). The catheter is placed in the urethra and then into the bladder to remove the excess urine. A postvoid residual of more than 10 percent of bladder capacity is significant.

Cytometric test

A cytometric test monitors how the pressure builds up in the bladder as it fills up with urine. It also tests the amount of urine the bladder can hold, and at what point you feel the urge to urinate. A catheter is used to empty the bladder completely. Then a different small catheter is placed in the bladder. This catheter has a pressure-measuring device called a manometer. When the bladder is emptied, it is filled slowly with room temperature water. Then the patient is asked how the bladder feels and indicates when they need to urinate. When the need to urinate occurs, the volume of water and the bladder pressure are recorded. This test measures abnormal contractions or spasms of your detrusor muscle (smooth muscle in wall of bladder) during filling caused by overactive bladder. The test does not hurt however you may feel a pinch as the catheter is inserted. Once inserted you should not feel any pain or discomfort.

Leak point pressure measurement

Leak point pressure measurement measures pressure at the point of leakage during a cystometric test. While the bladder is being filled for the cystometric test, it may suddenly contract and squeeze some water out without warning. The manometer measures the pressure inside the bladder when this leakage occurs. For those who leak urine with coughing/laughing/sneezing you may be asked to cough and/or strain at various points during the filling phase. The purpose of this is to encourage you to leak urine while allowing the machine to measure the amount of pressure that needs to be exerted to cause the leak. Please do not be embarrassed if leakage occurs. That is the point of this part of the test and the room is set up to accommodate this. Your provider will use these pressure readings to help determine an appropriate treatment plan.

Pressure flow study

A pressure flow study measures the pressure of the bladder required to urinate. It also measured the flow rate a given pressure generates. After the cystometric test, the patient will be asked to empty their bladder while the catheter is still in place. The catheter is small enough that most people are able to urinate around the catheter. Then the manometer is used to measure the bladder, pressure, and flow rate. In men, pressure flow study helps identify bladder blockage related to prostate enlargement. Bladder blockage is less common in women, but can happen with a cystocele (weakened tissue between a woman's bladder and vaginal wall) or after a surgical procedure for urinary incontinence. Do not be concerned



if you are not able to urinate at the end of the test. Some patients find it difficult to urinate with a tube in place or with a person in the room. Some are not able to urinate due to blockage or a weak bladder muscle. The test will still provide a large amount of useful information for your provider to use to determine your treatment plan.

Electromyography

If the healthcare provider thinks the urinary problem is related to nerve or muscle damage, the cystometric testing will include electromyography. An electromyography uses sensors to measure the electrical activity of the muscles and nerves in and around the bladder and the sphincters. During this test, small electrode patches are placed in the skin near the urethra and rectum. These electrode patches pick up electrical current that is created when the pelvic floor muscles contract. The patterns of the nerve impulses show whether the messages sent to the bladder and sphincters are coordinated correctly.

Video urodynamic tests

Video urodynamic tests combine cystometry, uroflowmetry, and cystography into a single test. The digital equipment used in this test can measure urine flow and pressure in the bladder and rectum by using x-rays or ultrasound. Pictures and videos are taken of the bladder during filling and emptying. Video urodynamic tests provide useful information about bladder and urethral function. The pictures and videos show the size and shape of the bladder to help understand the underlying problem.

What happens after an urodynamic test?

After urodynamic tests are performed, a patient may have mild discomfort or soreness with urination for a few hours after the test. You may also see a small amount of blood in your urine due to the catheter insertion. Drinking plenty of water every hour for two hours may help ease symptoms. Your doctor may recommend over-the-counter pain medication or prescribe an antibiotic to prevent infection. If there are any symptoms of infection, chills, pain, or fever, call your healthcare provider immediately.

When will my test results be available?

Test results for cystometry and uroflowmetry are available immediately after the test is completed. Other test results such as electromyography and video urodynamic tests may take a few hours to process.