

## Introduction

Your health care provider has ordered a urodynamics study. A urodynamics study is a group of tests that allows your health care provider to assess the function of the lower urinary tract. Your lower urinary tract is composed of the bladder and urethra. The bladder stores and releases urine, while the urethra carries the urine from the bladder to the outside of the body. This set of tests will help your provider evaluate how you store and release urine. Urodynamic studies are considered diagnostic tests and are not corrective procedures.

## How Does the Lower Urinary Tract Work?

Urine is made in the kidneys and stored in the bladder. As the bladder fills with urine, the bladder muscle relaxes and stretches until you feel a desire to urinate. The sphincter muscles are located at the bottom of the bladder and should be tight during bladder filling to prevent urine from leaking out. When the bladder is full and you feel a strong desire to urinate, a message is sent to the brain that it is time to empty the bladder. The bladder muscle squeezes while the sphincter muscles relax, which allows urine to flow through the urethra. After the bladder empties, the sphincter muscles tighten again which ensures that the urine stays put in the bladder.

Urinary incontinence or weak urine streams may occur when the lower urinary tract is not functioning properly. Urinary leakage may occur when the sphincter muscles are unable to hold urine back when you cough, sneeze, walk, run or lift something. Urinary leakage may occur when the bladder muscle squeezes before you are ready to urinate. In this case, you are likely to feel a strong and sudden desire to urinate, which is called urgency. A weak urine stream may occur if there is a blockage in the urethra or the bladder muscle becomes too weak to squeeze out the urine. This blockage can occur if there is an enlarged prostate or prolapsed (dropped) bladder.

## Why Do I Need Urodynamics?

Urodynamics will help your provider assess and evaluate problems related to:

- Urine control.
- Urinary retention (cannot empty all the urine from the bladder when you urinate).
- Urinary frequency/urinary urgency.
- Weak or intermittent urine flow.
- Presurgical evaluation of bladder function.
- Recurrent urinary tract infections.

## What Should I Expect?

### **Measuring flow rate (uroflometry):**

- To begin the test, you will sit on a special urodynamics procedure chair and urinate into a funnel. This will measure the flow rate of your urine stream. The urodynamicist will then clean the urethral opening and empty your bladder using a catheter (sterile plastic tubing) to ensure the bladder is completely empty. A urine specimen will be obtained prior to the procedure to check for an infection. This test cannot be performed if you have a urinary tract infection. Therefore, it is important to inform your health care provider if you are experiencing any symptoms of a urinary tract infection the week before your procedure.

### **Measuring bladder and abdominal pressure will require placement of catheters:**

- If the urine is free of infection, the urodynamicist will place a small child-sized catheter into the urethra and use it to fill your bladder with sterile water. This catheter will also be used to measure the pressure inside your bladder and urethra.
- The urodynamicist will place another small child-sized catheter in either your vagina or rectum. For men, this catheter will be placed in the rectum to measure abdominal pressures. For women, catheter placement will depend on the presence of uterovaginal prolapse or vaginal vault prolapse and the degree of prolapse present.

### **Measuring urinary stress leakage (cystometrogram, leak point pressure, and pressure flow study):**

- The urodynamicist will attach the catheters to a computer and begin filling your bladder with sterile water.

- Tell the urodynamicist when you feel the first sensation that your bladder is filling (small urge to urinate or pressure alerting you to some urine in the bladder), your first desire to urinate (when you feel you would consider urinating), a strong urge to urinate (you would urinate at the next opportunity), and when you feel you have reached your full bladder capacity (you need to urinate right away).
- During this portion of the test, the urodynamicist will ask you to do some exercises by bearing down and coughing at different strengths of force and at different intervals throughout the procedure. This is to assess for urine leakage with physical activity (stress urinary incontinence). The urodynamicist will ask you to hold off urinating until they ask you to urinate. Tell the urodynamicist if you feel a sudden desire to urinate or if you feel the urine is ready to come out before you are given permission to urinate. The urodynamicist will also be watching the computer to determine if you are having any bladder spasms during this test.
- When you reach your bladder capacity, the urodynamicist will ask you to urinate and empty your bladder. You should be able to void around the pediatric catheters. The computer will capture the amount you void, as well as your maximum flow rate, and the pressure of your abdomen, bladder, and detrusor muscle while you void.

#### **Measuring closing pressure of urethra:**

- This test may or may not be performed. Different urology and urogynecology practices may elect to assess the closing pressure of the urethra, while other practices do not utilize this test as part of a urodynamic assessment.
- After you empty your bladder, the urodynamicist will fill your bladder with sterile water again to approximately 200 mL and hook the urethral catheter up to another device, which will help measure the closing pressure of your urethra, length of your urethra, and area of continence. The device will gently pull the catheter in and out of the urethra approximately three times to obtain an accurate average of measurements.

#### **Study completion:**

- At the end of the study, the urodynamicist will remove all catheters and any scopettes or vaginal packing used. If you were unable to void at least 200 mL of

urine on the initial uroflometry test, the urodynamicist may ask you to void in the procedure chair again to try to obtain another uroflometry test reading.

- You may experience some urethral burning or discomfort for several hours after the test. This is normal and related to irritation from the catheter.

#### **Other considerations:**

- During urodynamics, small sticky patches may also be placed on either side of your bottom to measure the electrical activity of certain muscles. This is called an electromyogram (EMG). At some offices, small hair-like needles may be used. These patches may or may not be used by different practices, and the use of these patches may be dependent on what bladder problems are being assessed.
- Some practices may also use X-rays throughout the urodynamics study.
- You may receive an antibiotic as a precaution to prevent infection.
- For women, when measuring bladder and abdominal pressure, if there is significant prolapse present, large cotton swabs or vaginal packing may be placed in the vagina to hold the prolapse up and simulate what surgery would do to provide support to the uterus and/or vagina.

#### **Your Results**

After your health care provider has reviewed all information, they will discuss the results with you. You and your health care provider will then decide on the best plan of treatment for you.

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#### **Reference**

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