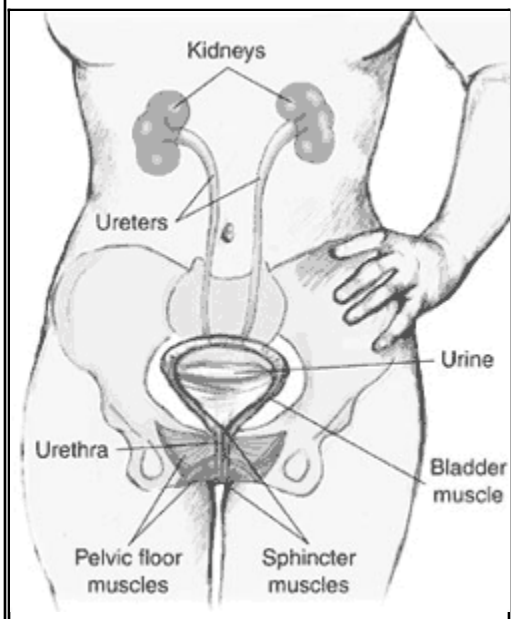
Kulbersh Women's Center
Urodynamic Testing

Urodynamic testing has been ordered for you in order to explore the cause and to determine the treatment options that may be available for you.



Urinary tract

Several muscles, organs, and nerves are involved in collecting, storing, and releasing urine. The kidneys form urine by filtering wastes and extra water from the bloodstream. The ureters are tubes that carry urine from the kidneys to the bladder. Normal urine flow is one way. If urine backs up toward the kidneys, infections are more likely.

The bladder, a hollow muscular organ shaped like a balloon, sits in the pelvis and is held in place by ligaments attached to other organs and to the pelvic bones. The bladder stores urine until you are ready to empty it. It swells into a round shape when it is full and gets smaller as it empties. A healthy bladder can hold up to 16 ounces (2 cups) of urine comfortably for 2 to 5 hours.

The bladder opens into the urethra, the tube that allows urine to pass outside the body. Circular muscles called sphincters close tightly to keep urine from leaking. The involuntary leakage of urine is called incontinence.

Nerves in the bladder tell you when it is time to empty your bladder. When the bladder begins to fill with urine, you may notice a feeling that you need to urinate. The sensation becomes stronger as the bladder continues to fill and reaches its limit. At that point, nerves in the bladder send a message to the brain, and your urge to urinate intensifies.

When you are ready to urinate, the brain signals the sphincter muscles to relax. At the same time, the brain signals the bladder muscles to tighten, squeezing urine out. Urine can then leave the bladder through the urethra. When these signals occur in the correct order, normal urination occurs.

Problems in the urinary system can be caused by aging, illness, or injury. The muscles in your ureters, bladder, and urethra tend to become weaker with age. You may have more urinary infections because your bladder muscles have weakened and cannot empty your bladder completely. Also, weakening in the muscles of the sphincters and the pelvis can cause incontinence because the sphincter cannot remain tight enough to hold urine in the bladder or does not have enough support from the pelvic muscles.

Urodynamics is the study of how the body stores and releases urine. Urodynamic tests help us to see how well your bladder and sphincter muscles work and can help explain symptoms such as

- incontinence
- frequent urination
- sudden, strong urges to urinate
- problems starting a urine stream

- painful urination
- problems emptying your bladder completely
- recurrent urinary tract infections

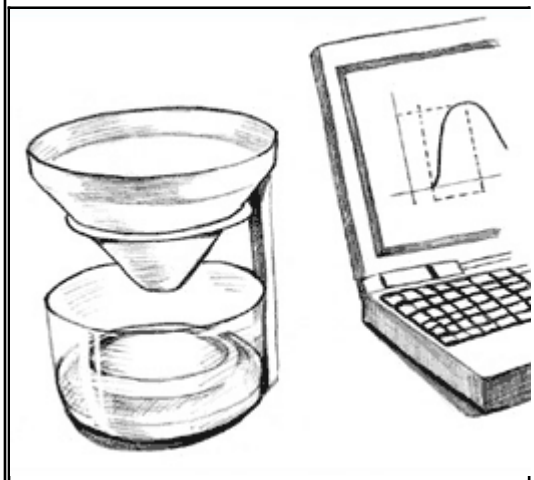
Preparing for the Test

Usually no special preparations are needed except to come to the office with a full bladder.

Taking the Test

Urodynamic testing focuses on the bladder's ability to empty steadily and completely. It can also show whether the bladder is having abnormal contractions that cause leakage. We will want to know whether you have difficulty starting a urine stream, how hard you have to strain to maintain it, whether the stream is interrupted, and whether any urine is left in your bladder when you are done (post void residual). Urodynamic tests involve precise measurement using sophisticated instruments.

Uroflowmetry (Measurement of Urine Speed and Volume)



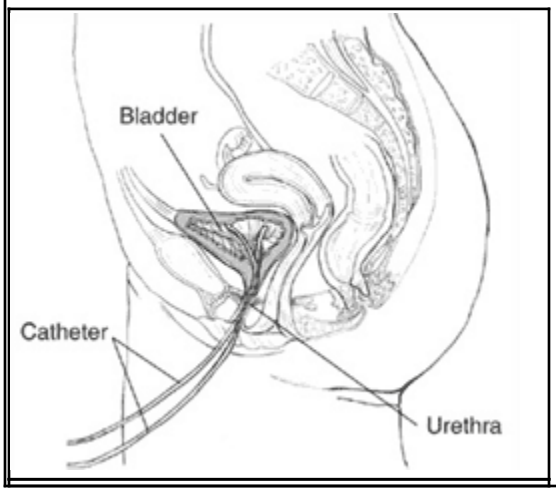
Uroflowmeter equipment

A uroflowmeter automatically measures the amount of urine and the flow rate (how fast the urine comes out). You will be asked to urinate privately into a toilet that contains a collection device and scale. This equipment creates a graph that shows changes in flow rate from second to second so we can see the peak flow rate and how many seconds it took to get there. Results of this test will be abnormal if the bladder muscle is weak or urine flow is obstructed.

Measurement of Post void Residual

After you have finished, you may still have some urine, usually only an ounce or two, remaining in your bladder. To measure this post void residual, we will remove it with a very small catheter, a thin tube that can be gently glided into the urethra. A post void residual of more than 200 mL, about half a pint, is a clear sign of a problem. Even 100 mL, about half a cup, requires further evaluation. However, the amount of post void residual can be different each time you urinate.

Cystometry (Measurement of Bladder Pressure)



Cystometry in a female patient

A cystometrogram (CMG) measures how much your bladder can hold, how much pressure builds up inside your bladder as it stores urine, and how full it is when you feel the urge to urinate. We will use a catheter to empty your bladder completely. Then a special, smaller catheter with a pressure-measuring tube called a cystometer will be used to fill your bladder slowly with warm water. Another catheter may be placed in the rectum or vagina to record pressure there as well. You will be asked how your bladder feels and when you feel the need to urinate. The volume of water and the bladder pressure will be recorded. You may be asked to cough or strain during this procedure. Involuntary bladder contractions can be identified.

Measurement of Leak Point Pressure

While your bladder is being filled for the CMG, it may suddenly contract and squeeze some water out without warning. The cystometer will record the pressure at the point when the leakage occurred. You may also be asked to try to exhale while holding your nose and mouth to apply abdominal pressure to the bladder or cough or shift positions. These actions help us evaluate your sphincter muscles.

Pressure Flow Study

After the CMG, you will be asked to empty your bladder so that the catheter can measure the pressures required to urinate. This pressure flow study helps to identify bladder outlet obstruction. Bladder outlet can occur with a fallen bladder or rarely after a surgical procedure for urinary incontinence.

Electromyography (Measurement of Nerve Impulses)

This test is to determine if your urinary problem is related to nerve damage from childbirth or nerve disorders. This test measures the muscle activity in the urethral sphincter using sensors placed on the skin near the urethra and rectum. Muscle activity is recorded on a machine. The patterns of the impulses will show whether the messages sent to the bladder and urethra are coordinated correctly.

After the Test

You may have mild discomfort for a few hours after these tests. Drinking two 8-ounce glasses of water each hour for 2 hours should help. You can take a warm bath.We will give you an antibiotic to take before you leave to prevent an infection. If you have signs of infection—including pain, chills, or fever—call us at 803 732-4608..

Getting the Results

Dr. Kulbersh will study the results and they will be available in a few days. You will receive a prompt on your phone or E Mail to call your personal voice mail to retrieve your test results. When appropriate, a follow up appointment will be made to discuss treatment options.