URODYNAMICS

WHAT IS URODYNAMICS?

Urodynamics testing consists of a group of tests that allow your child’s doctor to evaluate how his/her lower urinary tract works. The lower urinary tract includes the bladder (which holds the urine) and the urethra (which is the tube that carries the urine from the bladder to the outside). Your child’s doctor will use this diagnostic information in conjunction with your child’s symptoms/complaints and physical exam findings to develop a personalized treatment plan. The urodynamic procedure may include a combination of several tests, including:

- **Uroflowmetry**: This test measures how fast the bladder empties by measuring urine flow and volume over time.

- **Electromyogram (EMG)**: evaluates pelvic floor muscle contractions.
- **Cystometrogram (CMG)**: evaluates bladder pressures, capacity, and emptying.
- **Pressure Flow Study (PFS)**: measures how effectively the bladder empties.

WHY DOES MY CHILD NEED URODYNAMICS TESTING?

There are many reasons why a child may need urodynamics testing. Some of the more common reasons include:

- Urinary leakage or incomplete bladder emptying.
- Spina bifida, spinal cord injuries or other neurologic conditions that may affect bladder or sphincter function.
- Not emptying the bladder completely.
- Frequent urinary tract infections.

BEFORE MY CHILD’S URODYNAMICS APPOINTMENT:

- Please notify the Urology department prior to your child’s appointment if there is any reason he/she may need antibiotics before invasive procedures such as dental cleanings, for example. Consult your physician if you have any questions.
- Your child should eat and drink as he/she normally would. A urine specimen will be collected before the procedure, so we encourage a full bladder.

THE URODYNAMICS PROCEDURE:

- Your child will meet the nurse and/or technician who will be attending to him/her during the testing. For children of the appropriate age and ability a urine specimen will be obtained at the outset. The urine specimen will be analyzed quickly to assure
there is no infection present. The child will then be asked to disrobe from the waist down and sit covered with a drape on the examination table.

- Next, a small catheter (a small, soft tube) is inserted into the bladder through the urethra to drain out any leftover urine and see how well the child empties his/her bladder. A sterile technique is used to minimize the risk of infection. The bladder will then be filled with a clear, sterile fluid through the same catheter. This fluid may contain a special contrast that allows X-ray pictures to be taken of the bladder during the exam. As the bladder is filled with this fluid the pressures will be measured. A small tube will also be place in the rectum or vagina to measure pressures as well. This tube is the size of a small spaghetti noodle. The pressures measured during this portion of the exam constitute the cystometrogram (CMG).

![Cystometry in a female patient](image)

- Three small sensory patches may also be placed to monitor pelvic muscle activity during the procedure. These are usually placed near the rectum and groin. This portion of the exam comprises the electromyogram (EMG) and records pelvic floor muscle activity.
- During bladder filling the child will be asked questions to assess whether or not he or she feels the first urge to urinate, when that urge becomes strong, and when that urge is strong enough that the child feels he/she must urinate.
- The child may also be asked to perform certain tasks during the test if appropriate based on the child’s age. These tasks include coughing and straining to try to provoke the bladder and document the bladder responses.
- The exam/procedure table will then be adjusted for the child to attempt to urinate once the bladder is full or the child indicates that his/her bladder is full. The bottom half of the table will be removed and replaced with a specially designed toilet seat.
- At the appropriate time, the child will be asked to urinate with the tubes in place. The tubes are specially designed to allow the fluid to come out around them. The urine will be collected in a beaker that rests on a flow meter that measures the force and volume of the child’s urine flow. This represents the pressure flow study portion of the exam.
- Again, the fluid filling the bladder may be a sterile dye that can be monitored on an X-ray machine that allows us to take pictures as the bladder fills and empties to show us what the bladder looks like during these phases. You and your child will be able to view these pictures during the exam.
- After the bladder is emptied, one more X-ray picture may be taken. The catheter, rectal tube, and sensory patches will then be removed and the patient will be cleaned and allowed to redress.
AFTER THE URODYNAMICS PROCEDURE:

- We encourage the child to drink plenty of clear liquids over the course of the day, especially immediately following the exam. This will minimize the risk of infection and help reduce the discomfort of having had a catheter in place. The more often the child can void following the exam, the quicker the discomfort will pass.
- Please notify your doctor if any symptoms of infection develop following the exam, including:
  - Fever/Chills
  - Pain with urination that persists more than 24 hours
  - Bloody or cloudy urine
  - Foul-smelling urine

GETTING YOUR URODYNAMICS TEST RESULTS:

After the urodynamics testing is completed, your child’s doctor will meet with you to review the findings and discuss management options based on these results. Treatments will be tailored to your child and the specific results obtained in conjunction with your child’s physical exam and symptoms.

Thank you for choosing the University of Virginia’s for your child's urologic care.

Additional information can be obtained from the following websites:

- Society of Urologic Nurses and Associates: [www.suna.org](http://www.suna.org)