

What is Neurogenic Lower Urinary Tract Dysfunction (NLUTD)?

What is the urinary tract?

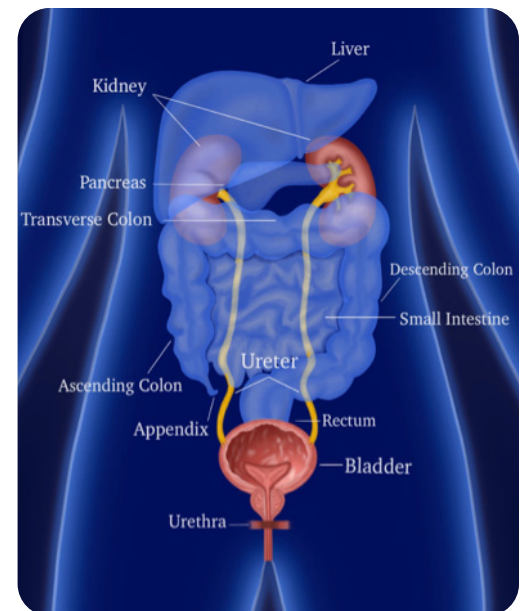
Urine is made in the kidneys, stored in the bladder (after being transported from the kidneys by small tubes called ureters), and released from the body down a tube called the urethra. The bladder is lined with layers of muscles that stretch to hold urine and then squeeze to urinate. Sphincter muscles surround the area of the bladder that is connected to the urethra and keep urine from leaking out by squeezing together like rubber bands.

How does urination typically occur?

Nerves connect the bladder to the spinal cord, which communicates to the brain, allowing for conscious and involuntary control of urination. When the bladder becomes full, nerves send messages to the brain via the spinal cord about the need (or urge) to urinate. Typically, when someone is preparing to empty their bladder, nerves from the brain send simultaneous messages down the spinal cord to the bladder. These messages tell the sphincter muscle to tighten (to hold urine) until ready to relax while the bladder muscles squeeze, resulting in urination, at a time when the individual chooses.

What is NLUTD?

NLUTD, also referred to as neurogenic bladder, occurs when bladder control is impaired due to injury or disease of the nervous system. The injury/disease can occur in the brain, spinal cord and/or peripheral nerves and interrupts the processes of bladder storage and/or emptying. NLUTD symptoms vary depending on the location and extent of the nervous system damage. There are four main ways that NLUTD can result in bladder dysfunction - overactive NLUTD, underactive NLUTD, a combination of overactive and underactive NLUTD, and detrusor sphincter dyssynergia. These types can occur in combination and are described below in greater detail.



Overactive NLUTD

With overactive NLUTD, nerves send frequent signals to the bladder, resulting in bladder spasms and/or a feeling of bladder fullness when the bladder is only partially full. For those who have some bladder sensation, these spasms typically result in a sudden “gotta-go” feeling, which may occur frequently, and may result in incontinence. The frequent bladder spasms may cause changes to the bladder wall, such as thickening that may lead to obstruction, reduce the bladder’s ability of urine storage, can increase the risk for infection, and lead to other complications.

Underactive NLUTD

With underactive NLUTD, the bladder muscle may not contract or contractions may be weak. As a result, the bladder is not able to fully empty all of the stored urine. As a result, some or all of the urine is not emptied. When the bladder does empty, the urine stream is slow (a “dribble” of urine). This retained urine can lead to infections or other serious problems.

Both Overactive and Underactive NLUTD

Both of these conditions can occur simultaneously in people with NLUTD, resulting in both incontinence and urinary retention. For example, bladder spasms might occur frequently, but weak contractions do not allow the bladder to fully empty.

Detrusor Sphincter Dyssynergia

In addition, an overactive bladder may squeeze against closed and tight sphincters. The medical term for this is “detrusor sphincter dyssynergia” and represents the lack of coordination of the bladder and sphincter functions. This condition is frequently ‘silent’ and its presence cannot be determined without a test called urodynamics. When this happens, the sphincter muscles stay tight and closed while the bladder squeezes, resulting in urine staying in the bladder, despite feeling the urge to urinate. This situation can be harmful as it may cause urine to flow back into the kidneys, potentially damaging them or the ureters.

Visit [MedStarResearch.org/BladderRehab](https://www.MedStarResearch.org/BladderRehab) to learn more.



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