

## SCI Neurogenic Bladder: Management

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- Spinal cord injury usually causes loss of feeling in the bladder and loss of control over urination.
- The type of bladder problem you have will depend on your level and completeness of injury.
- If you have an incomplete injury, you may have some feeling and some or complete control over urinating.

### Types of Neurogenic Bladder

#### Reflexive or spastic bladder

Injuries above the sacral level (cervical and thoracic injuries, T11-12 and above) result in an Upper Motor Neuron (UMN) bladder.

- Your bladder muscles may be overactive and contract when you don't want them to, causing leaking or incontinence.
- Sometimes the bladder sphincters (circular muscles that squeeze and relax to control urine flow through the urethral passage) do not coordinate to open when the bladder contracts. This is called detrusor-sphincter dysynergia or DSD. This can lead to increased bladder pressure and kidney damage over time.

#### Areflexic or flaccid bladder

An injury at the sacral level will result in an areflexic or flaccid (floppy) bladder that does not contract for emptying. It occurs in people with Lower Motor Neuron (LMN) injuries (usually lumbar and sacral injuries).

- You will need to use a catheter to empty your bladder so it doesn't overfill or overstretch.
- Right after injury, everyone has a period of time when normal reflexes have not recovered (spinal shock) and the bladder is flaccid. This period can last days to months after injury.

### Bladder management goals

- Stay dry and avoid accidents and leakage (urinary incontinence). A bladder ultrasound will confirm if you are emptying enough.
- Keep bladder pressures low by not letting your bladder get overfilled. Aim for bladder volumes under 500 mL. This lowers the risk for kidney damage or overstretching of the bladder.
- Avoid urinary tract infections.

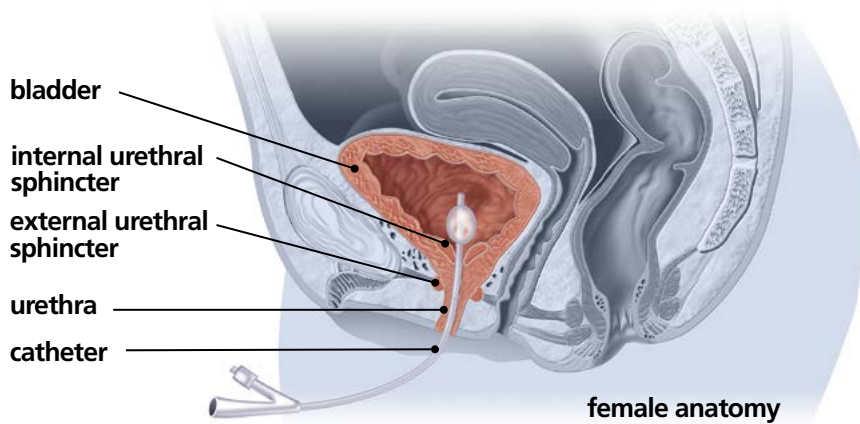
### Bladder management methods

The method you use will depend on your preferences and circumstances. You may need to go through some trial and error with different methods before settling on the best one for you. Additional testing of residual urine amounts, such as by bladder scanning, will be needed to check if you are emptying enough using this technique.

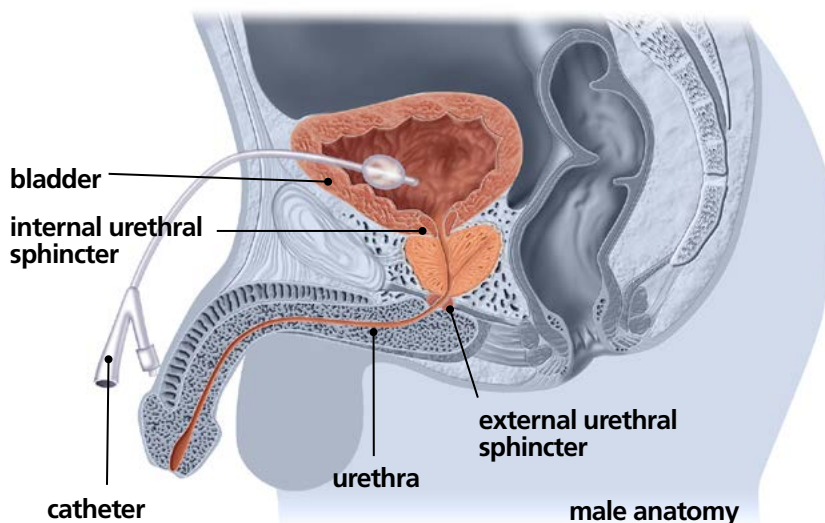
- Spontaneous voiding (urinating) is best when control of bladder function is normal or near-normal.
- Using a urine collection device (external condom catheter) to collect urine after sphincterotomy (for definition see below under "Surgical Alternatives.")
- Using stimulation to empty your bladder
  - Anal stretch - a technique used rarely by some people, in which stretching the anal sphincter with digital stimulation can cause automatic emptying of the bladder.
  - **Do not** use the Crede method (using your hands to push on the lower abdomen) or valsalva method (bearing down while holding your breath) for voiding because it can cause pelvic organ prolapse in women, and long-term problems with high pressure in the kidneys in both men and women.

- Medications and treatments to decrease bladder overactivity.
  - Anticholinergic medication (for example, oxybutynin, tolterodine, solifenacin, trospium, festoterodine)
  - Beta-3 adrenergic receptor agonist (mirabegron)
    - Botulinum toxin (botox) injections. <http://emedicine.medscape.com/article/2036931-overview>
- Intermittent catheterization - inserting a tube through the urethra to drain the bladder several times a day
- Indwelling catheter – urethral or suprapubic (see below)
- It is best to learn indwelling catheter insertion and removal from your clinic nurse.

### Indwelling catheters



A **urethral catheter** is a tube that drains the bladder through the urethra. The tube is secured with an inflatable balloon to keep the catheter in place. The bladder constantly drains urine into a collection bag.



A **suprapubic catheter** is a tube that drains the bladder through a surgically created passage in the lower abdominal wall. Like a urethral indwelling catheter, the tube is secured with an inflatable balloon.

**Surgical alternatives-The most common surgeries include:**

- Sphincterotomy-A surgical procedure to open up the urethral sphincter and allow urine to empty from the bladder more easily. After this surgery you will urinate involuntarily, and must wear a urine collection device.
- Bladder augmentation (making the bladder bigger) to increase urine storage capacity.  
<http://www.med.umich.edu/1libr/urology/BladderAugmentation.pdf>
- External condom catheter- These urine collection devices are worn by men for incontinence problems or after sphincterotomy (see above). They are made of latex rubber or silicone that covers the penis and attaches to a tube that drains urine into a collection bag.
- Mitrofanoff- is a surgically created catheterizable channel through the abdominal wall of your belly button into the bladder. The appendix or another segment of bowel may be used to create a channel.
- Urinary diversion- the surgical rerouting of urine flow to an internal catheterizable pouch made with part of the bowel or to flow directly without a catheter into an external collection system such as an ostomy bag.  
<http://www.niddk.nih.gov/health-information/health-topics/urologic-disease/urinary-diversion/Pages/facts.aspx>

**Changes over time**

You may need to change your bladder management method as you get older or if your health changes. For example, someone who has done intermittent catheterization for years may need to convert to using an indwelling catheter if new problems such as arthritis make intermittent catheterization difficult. A change in management may be needed if the usual bladder care is no longer effective at either storing urine without leaking, or with emptying.

**Resources****For patients:**

- Consortium for Spinal Cord Medicine. (2010). Bladder Management Following Spinal Cord Injury: What You Should Know. A Guide for People with Spinal Cord Injury. Washington, D.C.: Paralyzed Veterans of America.  
[http://www.pva.org/media/pdf/Consumer\\_Guide\\_Bladder\\_071410.pdf](http://www.pva.org/media/pdf/Consumer_Guide_Bladder_071410.pdf)
- SCI Patient Education Pamphlet: Bladder Management  
<http://sci.washington.edu/info/pamphlets/bladder.asp>
- SCI Forum : Video on Urinary Problems after SCI: Retrieved from  
[http://sci.washington.edu/info/forums/reports/urinary\\_problems.asp](http://sci.washington.edu/info/forums/reports/urinary_problems.asp)

**For health care providers:**

- Consortium for Spinal Cord Medicine. (2006). Bladder Management for Adults with Spinal Cord Injury: A Clinical Practice Guideline. Washington, D.C.: Paralyzed Veterans of America. Retrieved from  
[http://www.pva.org/media/pdf/CPGBladderManageme\\_1AC7B4.pdf](http://www.pva.org/media/pdf/CPGBladderManageme_1AC7B4.pdf)
- Ontario Neurotrauma Foundation. (2012, September 22). Caring for Persons with Spinal Cord Injury.  
<http://eprimarycare.onf.org/>

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**Disclaimer: This information is not meant to replace the advice from a medical professional. You should consult your health care provider regarding specific medical concerns or treatment.**

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