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Continence Care for People Living with Spinal Cord Injury

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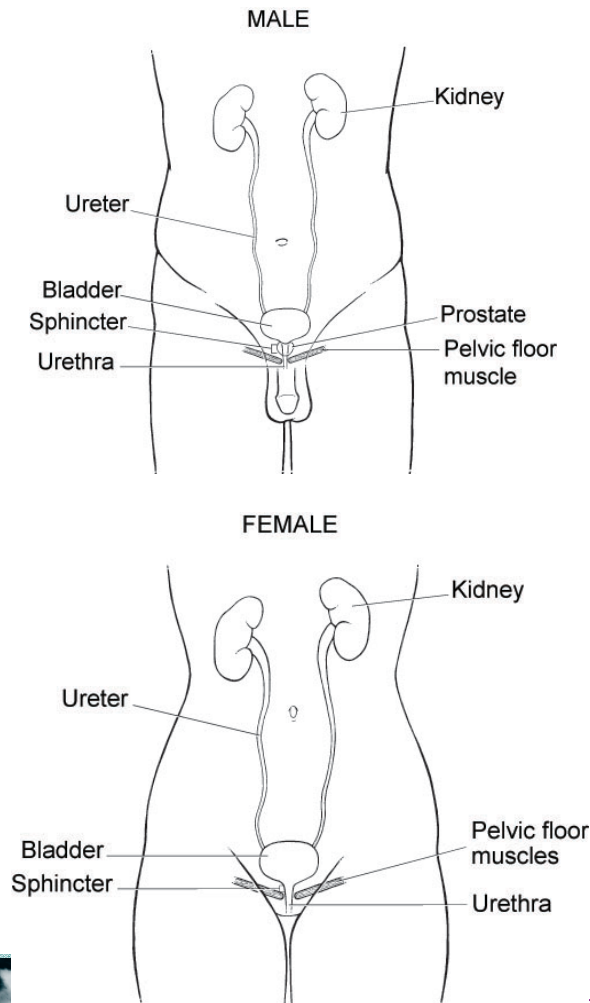


Foreword

- A publication meant to be a teaching tool and a framework for discussions with your health care providers
 - Symptoms
 - Urology evaluation
 - Possible bladder management options
- Today's dramatic decline in urological complications and deaths due to:
 - Antibiotics
 - Effective bladder management
 - Frequent monitoring of upper and lower urinary tracts



Function of the Kidneys

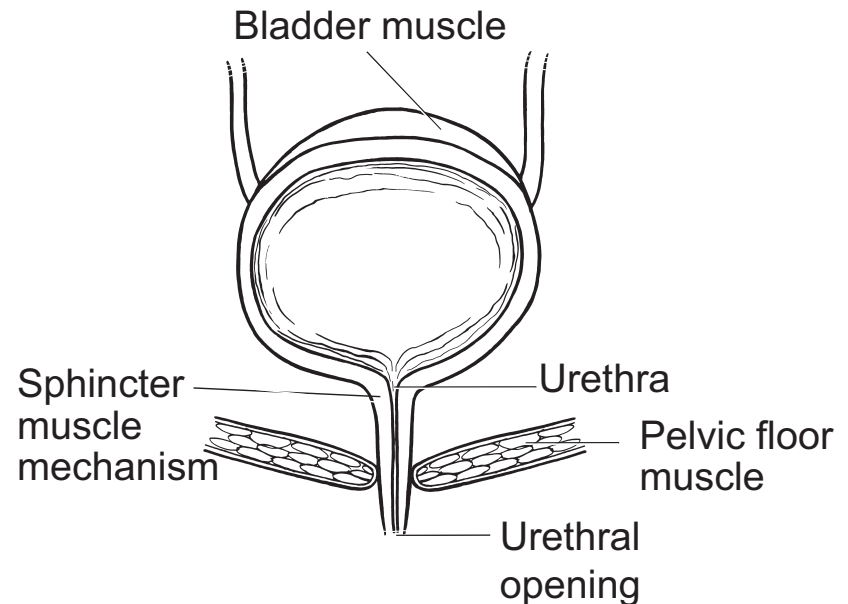


- The Kidneys
 - Bean shaped
 - Located against the back
 - Remove excess fluid and wastes from body by producing urine
 - Pass urine to the bladder through tube-like ureters



Function of the Bladder

- Located in the lowest part of the abdomen
- Stretches like a balloon to store urine as it fills
- Holds urine when muscles, called the sphincter, that circle the bladder neck are tight
- Passes urine through the urethra to the body's outlet when you urinate



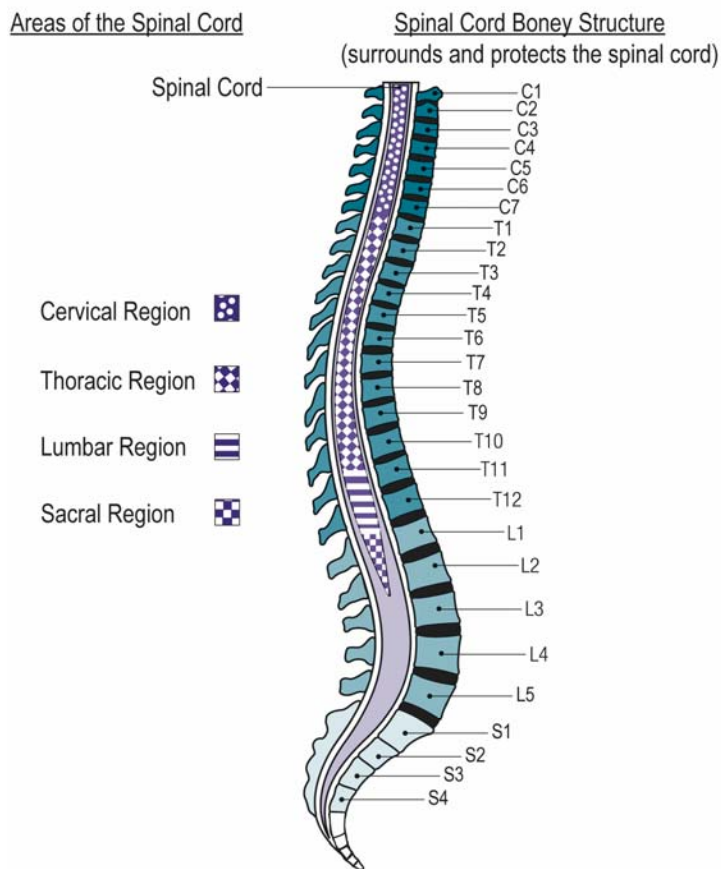
Normal Function of the Kidneys and Bladder

- The bladder is relaxed while filling, and the sphincter muscles are contracted and tight to avoid leakage.
- The bladder contracts to push urine out when voiding, or emptying. At this time, the sphincter muscles relax to open up the urethra, or channel to the body's outlet.



The Effect of SCI Depends on Region of the Injury

- “Cervical” controls hand and arm sensation and function
- “Thoracic” controls muscles of the chest, back and abdomen
- “Lumbar” controls the lower back and legs
- “Sacral” controls the bladder and bowel function, sexual function and some leg muscles



Please note that the spinal cord is shorter than the bony area of the spine. You see here that if an individual damages L1 of the spine, he damages the sacral area of the spinal cord.



How a SCI Affects The Urinary System

- **Within the sacral spinal cord is an area known as the sacral voiding (micturition) center.**
- SCI can be thought of as: 1). above or 2.) at/below the sacral micturition center.
- Injuries above the “sacral micturition center” are known as - supra sacral injuries.
- Injuries at the sacral cord are known as sacral injuries.



Spinal Cord Injuries Above the Sacral

Spinal Cord: Supra Sacral SCI

- Typically the bladder does not start to have contractions for at least 2-3 months after the spinal cord injury.



Image courtesy of the Paralyzed Veteran's Association



What happens after Spinal Shock With Injuries Above the Sacral Cord

- Signals to and from the voiding center of the brain to and from the urinary tract may be blocked. This causes the bladder to contract “on its own” and have involuntary, or “reflex” contractions. Suddenly, the bladder pushes out the urine it is holding.
- Also, the sphincters may not relax when they are supposed to. This is known as detrusor (bladder) sphincter dyssynergia, or DSD. High pressures can develop in the bladder. Over time, this can cause kidney damage.



What Happens After Spinal Shock With Injuries Above the Sacral Cord?

- **IMPORTANT:** the degree of involuntary (uninhibited) contractions and DSD depends on the **Level** and **Completeness** of the SCI. It is cannot be predicted and changes over time.
- This is the reason that bladder testing is done (discussed later).



Bladder Management for Supra Sacral SCI: Four Important Goals

- Prevent complications of the kidneys
- Prevent complications of the bladder
- To have a bladder management program that best fits your lifestyle
- To keep your skin and clothing free of urine



Types of Bladder Function Following a SCI

- An overactive, or “reflex” bladder with overactive, or “reflex” sphincter muscles. This usually occurs in people with “supra sacral” SCI, or injuries above the sacral cord.
- An underactive bladder, or a bladder that does not contract. This usually occurs when a person is in “spinal shock” and in those with injuries at or below the sacral SCI.



Most common methods of bladder management for Supra Sacral SCI

- Intermittent catheterization
- Reflex voiding (for men)
- Indwelling catheter



Less frequent methods of bladder management for Supra Sacral SCI

- Bladder augmentation to surgically increase bladder size
- Surgical diversion
- Neurostimulation



Image courtesy of the Paralyzed Veteran's Association



Intermittent Catheterization

- There are two general catheterization techniques.
- Sterile technique (catheters put in using sterile gloves and a sterile catheter or a catheter contained in a sterile bag)
- “Clean” technique (catheters are washed, dried, stored and reused)
- Generally done every 4-6 hours to prevent the bladder from getting too full



Intermittent Catheterization: Other Considerations

- Avoid bladder over distention
 - Limit fluids so that cath volumes are less than 500 ml)
 - Catheterize frequently to keep cath volumes less than 500 ml

Requires sufficient hand strength and coordination

Other considerations are: accessibility of toilets, cognition and availability of assistance

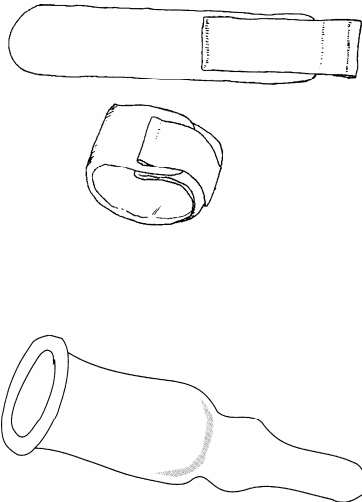


Medications to Help the Overactive Bladder (OAB)

- Over half a dozen choices of formulations to take by mouth.
- Studies are underway or have been done or on other ways to help quiet the bladder (such as skin patches, instillation of medicine into the bladder or injecting medication directly into the bladder wall (botulinum toxin).
- Ask your health care provider what might be best for you.



Reflex Voiding (Mostly for Men)

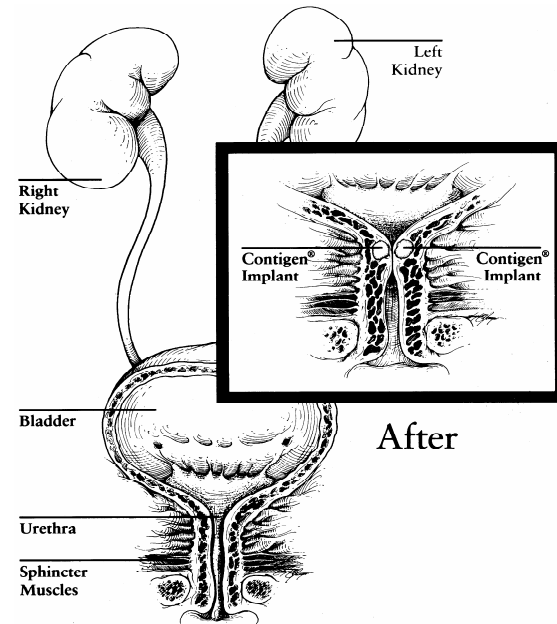


- Used when your bladder contracts on its own but does not drain well because the sphincter muscles fail to relax
- Relies on an external condom catheter or other collection device attached to the penis
- Less practical for women because of urine collection



Common Treatment Options for Relaxing Sphincter Muscles

- Medications (alpha blockers)
- A permanent, implanted urethral stent to hold the sphincter open
- Botox injections into the sphincter
- Sphincterotomy (use of a laser to cut the internal or external sphincters for permanent relaxation)



Indwelling Catheters: Two Types

- **Urethral Catheter:**
 - Placed in the bladder through the urethra
 - Held in place by an inflated balloon
 - Does not require fluid restriction, good hand function or transfer/dressing skill.
 - 30% become coated with stones that prevents drainage and contributes to UTIs
- **Suprapubic Catheter**
 - Requires minor surgery for insertion
 - Does not require fluid restriction, good hand function or transfer/dressing skill.
 - Clinically preferable over an indwelling catheter (less likely to get plugged with stones, easier to change)
 - Preferable by men because sexual activity is not limited (Women are not limited by either catheter type)



Bladder Management -Summary

- There are a number of ways to manage your bladder.
- Each method has certain advantages and disadvantages
- Both medical advantages and disadvantages as well as the impact of bladder management on independence should be taken into account.
- Ask you health care provider to help decide on the type of bladder management method that will work best for you.



Autonomic Dysreflexia (AD)

- A concern only for those with a SCI at or above the thoracic level 6 (T-6).
- The most common cause is an over distended bladder or constipation. However, any thing that is uncomfortable can cause this (such as an ingrown toenail, pressure sore)
- Is a sudden, severe rise in blood pressure
- Other accompanying symptoms may include: severe headache, goose bumps, sweating, flushing, chills, a feeling of anxiety, and a slower pulse rate.
- However 30-40% of people can have a high elevation in blood pressure with no symptoms (“silent” autonomic dysreflexia).



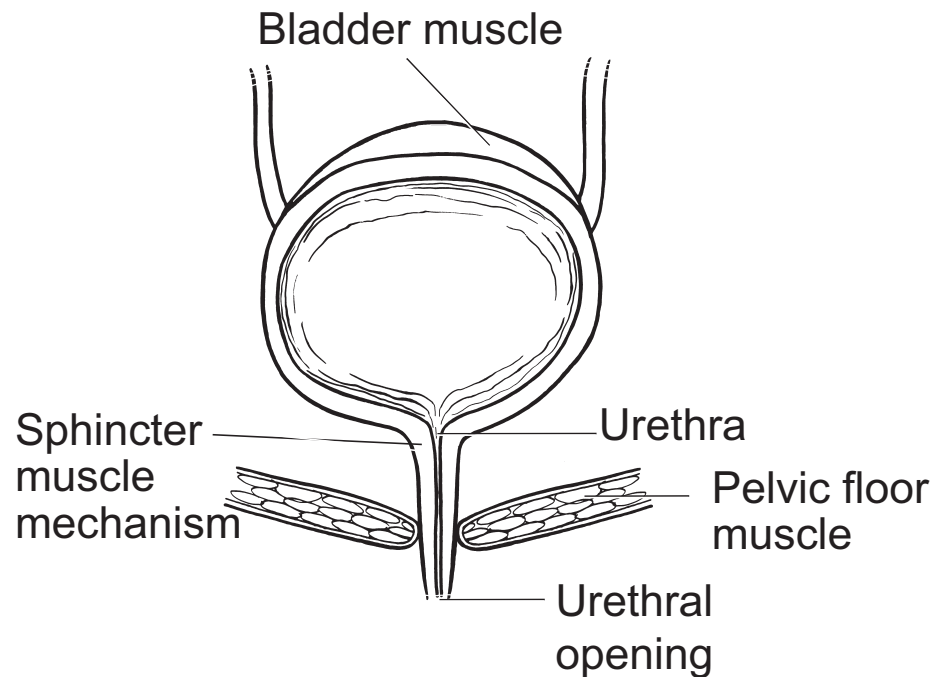
What to do if you suspect AD

- Sit up with the legs down to lower blood pressure (BP).
- Make sure the bladder isn't too full.
- Check your blood pressure.
- A BP that exceeds 20-40 mm Hg above your normal baseline BP (15-20 mm in teens) is considered to be autonomic dysreflexia.
- Seek immediate help if you suspect you have autonomic dysreflexia.
- Ask your health care providers to tell you more about autonomic dysreflexia and what you should do to prevent autonomic dysreflexia and what to do if you think you have autonomic dysreflexia.



SCI Below the Sacral Spinal Cord

- SCI frequently damages the sacral voiding center, blocking signals to and from the brain.
- However, sphincter muscles *usually* have enough tone to keep the bladder neck tightly closed.



Implications for Sacral SCI

- Bladder or kidney problems may occur if you frequently let your bladder become too full.
- The bladder typically does not contract. Therefore, you will not have DSD.
- It is still possible to have a high pressure bladder with this type of injury so it is important to have your health care provider checking your kidneys and bladder function.



Management Techniques for Sacral SCI

- **Intermittent Catheterization**

- Easier than for those with Supra SCI because the bladder is flaccid and underactive and generally upper body strength and mobility are relatively better
- No concern of AD if the bladder becomes over distended, or too full

- **Intra-abdominal Pressure Voiding**

- Valsalva (bearing down, similar to a BM)
- Credé (pushing inward on the bladder with fist)



Concern with Credé Voiding

- Can have negative side effects such as hemorrhoids, hernias, rectal prolapse, and reflux of urine up the ureters to the kidney
- Not recommended for individuals with possible cardiac problems
- Can increase the risk for infections
- Best not to do unless you have a weak sphincter
- May need to take a prescription drug (e.g., alpha blockers) to relax the sphincter for ease in pushing urine past and out
- Alpha blockers may then allow leakage of urine, or SUI



Managing Urine Leakage Because of an Underactive, or Weak, Sphincter

- Avoid letting the bladder become too full
- Empty your bladder before physical activity
- Men can use external condom catheters or other collection device
 - Change condom catheters at least once daily
 - Try different types, with and without adhesive
- Absorbent products can be useful, too



Use of Indwelling Catheters for Sacral SCI

- May be helpful when on an airplane trip or when hospitalized briefly
- Rarely needed because most people can perform intermittent catheterization
- Exceptions may include an individual who:
 - Has anatomic abnormalities such as a urethral diverticulum
 - Has an abnormally placed urethral opening
 - Has severe urinary incontinence caused by factors beyond the SCI
 - Has difficulties because of difficulty dressing or holding a catheter



Evaluation of the Bladder and Kidneys

- Importance of annual evaluations to prevent damage or other complications.
- Your medical history and a physical are helpful to your doctor or nurse practitioner.
- Special tests may periodically be needed.



Different Tests During Urologic Evaluations

To evaluate the bladder

- *Urodynamics* (Filling the bladder with water and collecting sensor information about pressures through a small catheter and sending it to a computer for analysis)
- *Cystogram* (Using x-ray to see if liquid travels from the bladder back into the kidneys, helps to diagnose “vesicoureteral reflux”)
- *Cystoscopy* (Looking inside the urethra and bladder using a scope on a catheter to look for stones, tumors or other changes causing problems)



Different Tests (continued)

To Evaluate the Kidneys

- *Blood sample* (To measure creatinine, an indication of how well the kidneys are removing wastes from the body)
- *Renal scans* (To scan through an x-ray to see how fast the kidney passes a dye to determine if there is slow drainage)
- *Renal ultrasounds* (To see if the kidney has been permanently over-stretched from too much pressure)
- *Pyelograms* (To determine kidney anatomy and function using x-rays to view the passage of a dye)
- *Computerized tomography* (Also known as a CT scan - to verify the presence of something such as a stone)



Kidney Complications

- Kidney stones
 - Reported in 8% of those with SCI
 - Formed from bacteria that stick together
 - Symptoms may include: sudden cramping, painful or bloody urination, nausea, or AD
 - Require lithotripsy or surgical removal if too large to pass on their own
- Kidney infections (pyelonephritis)
 - More serious than bladder infections
 - Can spread from the kidneys to the blood stream
- Distended, or stretched kidney (hydronephrosis)
 - More prone to infections and kidney stones
 - Can be treated if detected early in routine tests

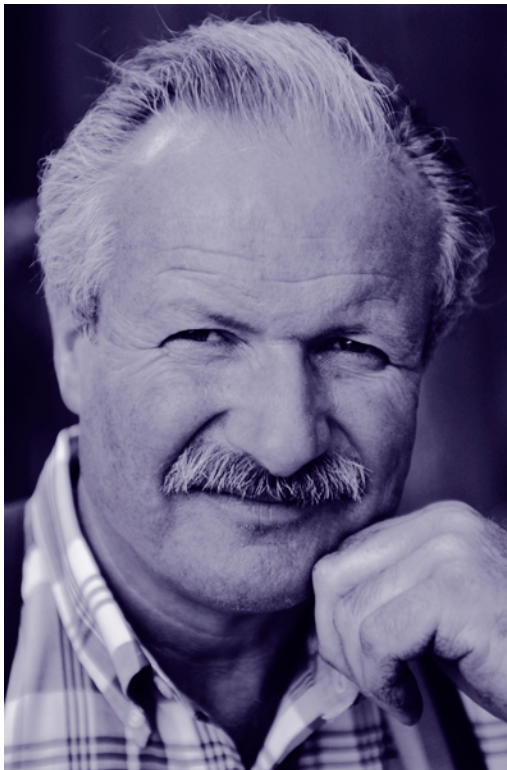


Bladder Complications

- Urinary tract infections (UTIs)
 - Women are more prone to develop UTIs
 - A positive culture should not be considered an infection
 - Over-treatment with antibiotics can cause drug-resistant bacteria to multiply in the urinary tract
 - A culture from a urine sample helps to select the best antibiotic to combat the bacteria type



Criteria for Treating a UTI in a Person with SCI



- Increased bacterial colony counts
- Increased urinary white blood cells (WBCs)
- New onset of symptoms



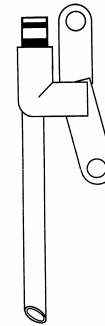
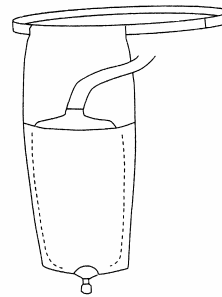
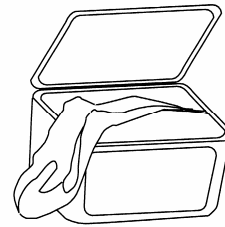
Criteria for Treating a UTI in a Person with SCI (continued)

- Common new onset of symptoms to consider include:
 - Pain in the area of the bladder or kidneys
 - Painful urination (dysuria)
 - Increased frequency of incontinent episodes
 - Fever
 - Increased spasticity
 - Cloudy urine with odor
 - Malaise, lethargy or flu-like symptoms
 - Autonomic dysreflexia (AD)



UTI Prevention Strategies

- Most important –avoid bladder over distention (keep catheterization volumes less than 500 ml)
- Practice careful hygiene after BMs
- Urinate after sexual intercourse



Other Bladder Complications

- Bladder Stones
 - Represent the second most common urological complication in people with SCI after UTIs (especially if there is an indwelling catheter).
 - Can contribute to recurrent bladder infections
 - Can block the catheter's drainage
 - Can cause autonomic dysreflexia (AD) if you have a supra sacral SCI
 - Should be suspected if “sand” or small stones are noted on the catheter when it is changed



Other Bladder Complications

(continued)

- Vesicoureteral Reflux
 - Occurs when urine from the bladder backs up into the kidneys, caused by blockage or excessive bladder pressures
 - Can lead to a stretched (distended) kidney, stones and eventual damage
- Bladder Cancer
 - While rare, may be slightly higher after long-term (i.e., 8-10 years) indwelling catheter use
 - Most common symptom is blood in the urine
- Autonomic Dysreflexia (AD)





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Contact NAFC for printed, step-by-step instructions on self-catheterization, care of reusable supplies, instructions on external condom catheter usage, and information about medications mentioned in these slides. Discuss all of these suggestions with your health care provider before following any.

Call 1-800-BLADDER

(1-800-252-3337)

or email: memberservices@nafc.org



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Other Consumer Resources

- National Spinal Cord Injury Association
 - www.spinalcord.org or 1-800-962-9629
- Paralyzed Veterans of America
 - www.pva.org or 1-888-860-7244
- Spinal Cord Injury Network International
 - www.spinalcordinjury.org or 1-800-548-2673
- United Spinal Association
 - www.unitedspinal.org or 1-718-803-3782



Other Valuable Information

- For more information on autonomic dysreflexia (AD), visit www.scicpg.org
- You may obtain a copy of guidelines on bladder and bowel management following SCI, or a consumer guideline “Neurogenic Bowel: What You Should Know - A Guide for People with Spinal Cord Injury” from the Consortium for Spinal Cord Medicine at www.scicpg.org (sponsored by the Paralyzed Veterans of America)



The National Association For Continence (NAFC) is a 501 c 3 corporation whose mission is threefold: 1) to educate the public about the causes, diagnostic categories, treatment options, and management alternatives for incontinence, nocturnal enuresis, voiding dysfunction, and related pelvic floor disorders; 2) to network with other organizations and agencies to elevate visibility and priority given to these health concerns; and 3) to advocate on behalf of consumers who suffer from symptoms as a result of disease or other illness, obstetrical, surgical or other trauma, or deterioration due to the aging process itself. NAFC is broadly funded by consumers, healthcare professionals and industry. It is the world's largest and most prolific consumer advocacy organization devoted exclusively to this field.



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