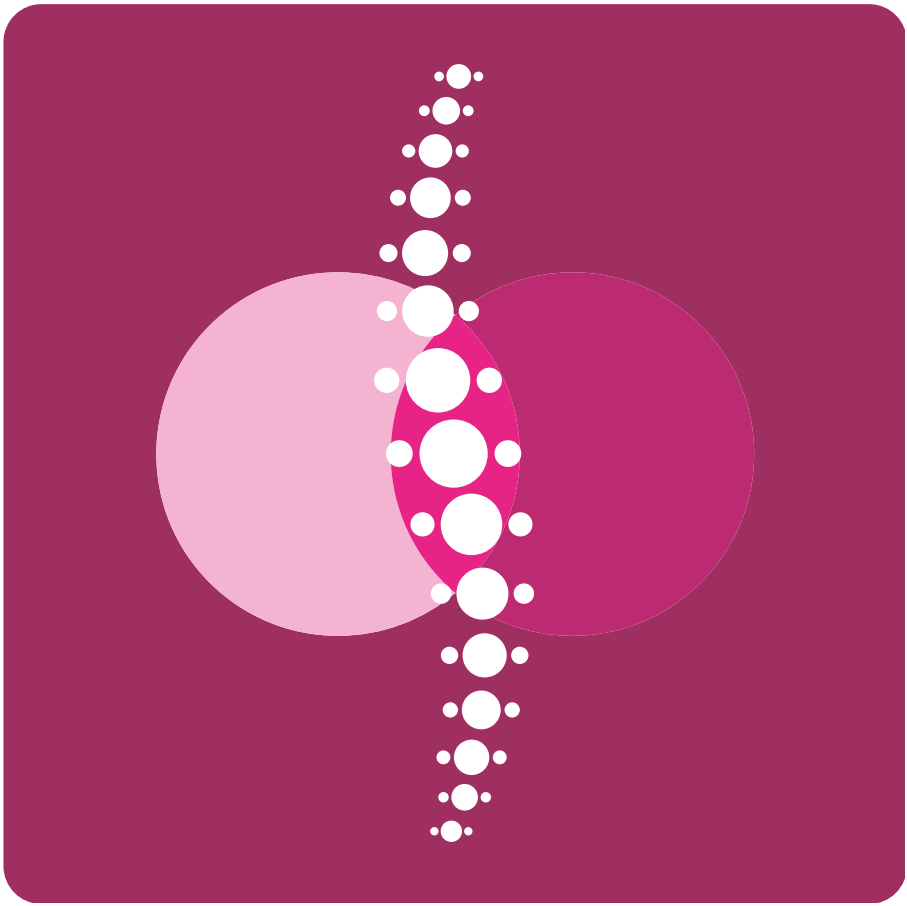
National Rehabilitation University Hospital

An tOspidéal Náisiúnta Athshlánúcháin

Bladder Care

After Spinal Cord Injury

Booklet 2



Bladder care after Spinal Cord Injury

This is one of a series of booklets developed by the Spinal Cord System of Care (SCSC) Team at the NRH.

Spinal cord injury is likely to affect the way your bladder works. You might not be able to stop urine from flowing or you might not be able to release it.

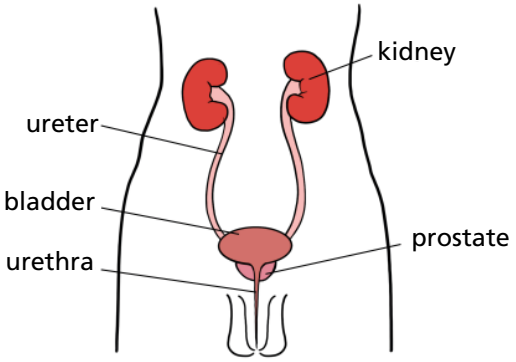
These changes can be upsetting and can have a negative effect on your quality of life. They can also cause bladder infections and other problems. Good bladder management can help keep your bladder and kidneys healthy. Your rehabilitation team will help you find the best way to manage your bladder taking your needs and lifestyle into account.

Contents

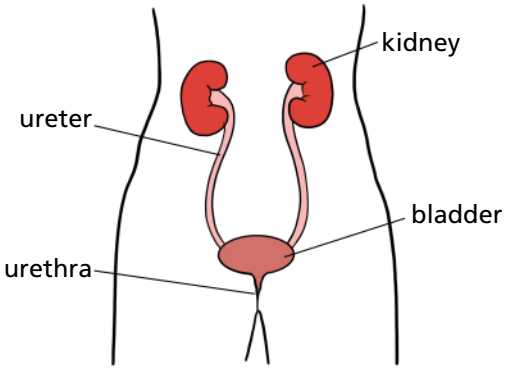
How the bladder works

The bladder is part of the urinary system – see diagram below. This system manages some of the harmful waste in the body. It includes the kidneys, ureters, bladder, sphincter muscles and urethra.

While the kidneys continue to work normally to remove waste from the body after injury, the bladder may not be able to release and store urine as it did before.



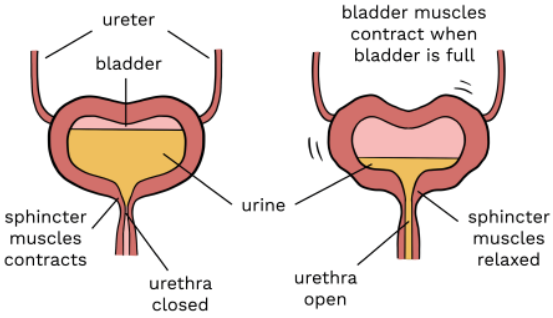
Male Urinary System



Female Urinary System

The bladder is an organ with a large number of nerves which collects and holds urine. When it is full (usually 400 – 500 mls, depending on your size), the pressure sends a message through the nerves of the spinal cord to the brain.

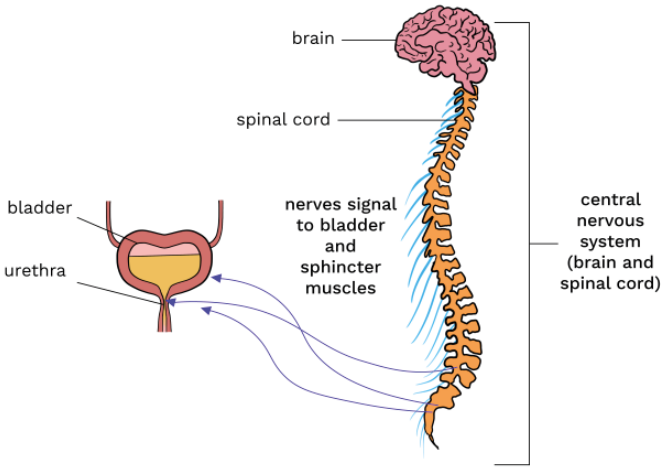
This is a signal to empty your bladder. It causes a reflex action to squeeze the bladder wall (**the detrusor muscle**) and completely empty the bladder. The sphincter muscle at the end of the bladder acts like a valve that you can tighten to keep urine from leaking.



Urine passes from the bladder through the urethra and out of your body. Not being able to control when urine is released from your body is called **urinary incontinence**. Not being able to release urine from your bladder when it is full is called **urinary retention**.

After a spinal cord injury, paralysis upsets normal control of the bladder. In the early days, during spinal shock, the bladder will not squeeze because there is no muscle tone, which means the bladder is limp and unable to empty.

During this time, an **indwelling catheter** (inside the body) is used to empty the bladder. This catheter passes through the urethra into the bladder and a drainage bag is attached to the thigh or calf.

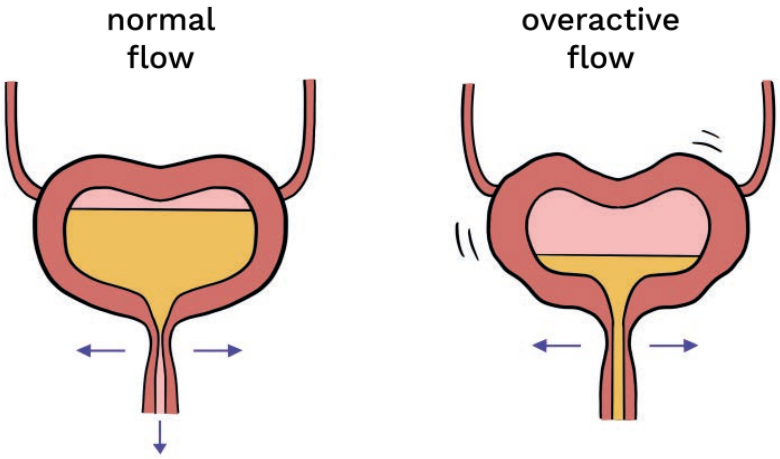


How does SCI affect the way my bladder works?

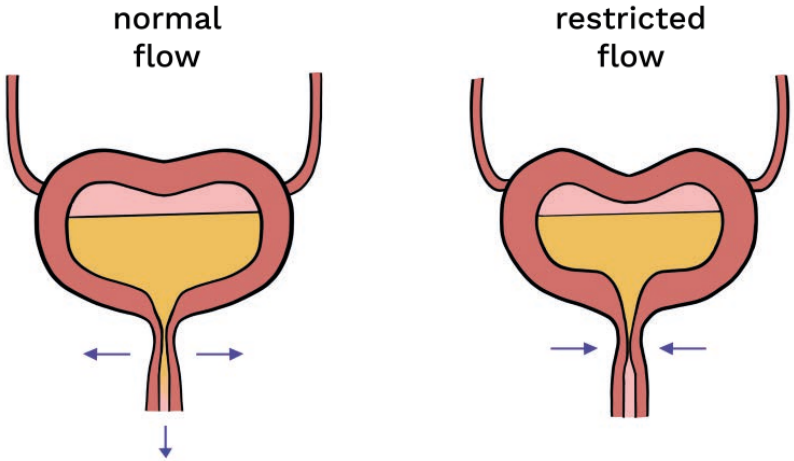
Neurogenic bladder is the name given to a number of urinary conditions in people who lack bladder control due to a spinal cord injury or other neurological problem.

After a spinal cord injury (SCI), the bladder is usually affected in one of two ways:

1. **Reflexic bladder:** If a spinal cord injury is at or above L1, the bladder will usually empty by reflex. As the bladder fills with urine, an automatic reflex triggers it to empty in a way that the person with SCI cannot feel or control. With a reflexic bladder you may not know when, or if, the bladder will empty.



2. **Flaccid bladder:** If the spinal cord injury occurs at the L1 level or below, you will probably not have the reflex action to empty your bladder. The reflexes in a flaccid bladder are weak or absent and if you cannot feel when your bladder is full, it may not empty on time.



Autonomic Dysreflexia

Bladder problems are a common cause of **autonomic dysreflexia** (see common terms). Autonomic dysreflexia causes a sudden rise in blood pressure and can be dangerous. It can often be solved by emptying the bladder.

What is bladder management?

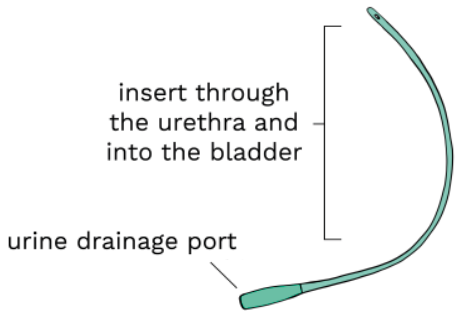
Bladder management is a set of treatments and methods to help keep your bladder and kidneys healthy and free from infection. Bladder management cannot fix or solve the problems caused by SCI. However, it can help you manage them to improve your health and quality of life. Effective management helps to prevent incontinence and damage to the kidneys.

Whatever type of bladder function you have, the team at the NRH will develop a bladder programme designed for you. Ongoing **urology** assessments will be carried out during your stay at the NRH if required.

Clean intermittent self-catheterisation (CISC)

The most common method of bladder emptying is clean intermittent self-catheterisation (CISC) or self-intermittent catheterisation (SIC) as it is also often called during rehabilitation.

This option is used for draining your bladder without keeping a catheter in your bladder all the time. You (or someone else) inserts a catheter through your urethra into your bladder to drain urine and keep your bladder from getting too full. The catheter is then removed and normal activities resumed. This is done as often as needed or recommended (usually 4-6 times per day).

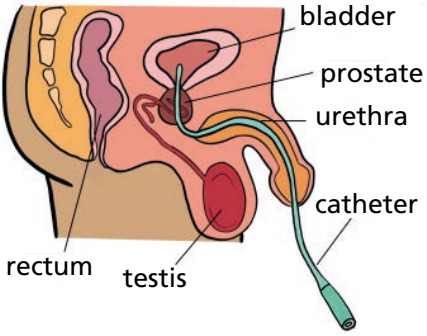


The goal is to keep the volume in your catheter less than 500 ml. (about 17 fl oz) so you may have to catheterise more, or less, often depending on how much you drink. You may need medication or injections (such as botulinum toxin, commonly referred to as "Botox") to keep your bladder inactive in order to prevent leaking and high pressures in your bladder.

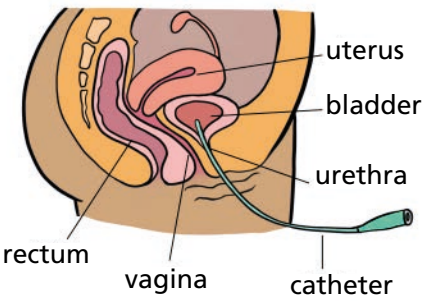
This method means that you will not need a permanent internal catheter and leg bag. It means you will need to keep track of your fluid intake so your bladder does not become over full, especially when you are sleeping.

Your CISC technique is very important and nursing staff will help you to get it right. Poor technique can result in trauma to your urethra which can lead to haematuria (blood in the urine) or a urethral stricture (narrowing of the urethra due to repeated trauma). Poor technique can also result in Urinary Tract infections (UTIs).

Male CISC



Female CISC

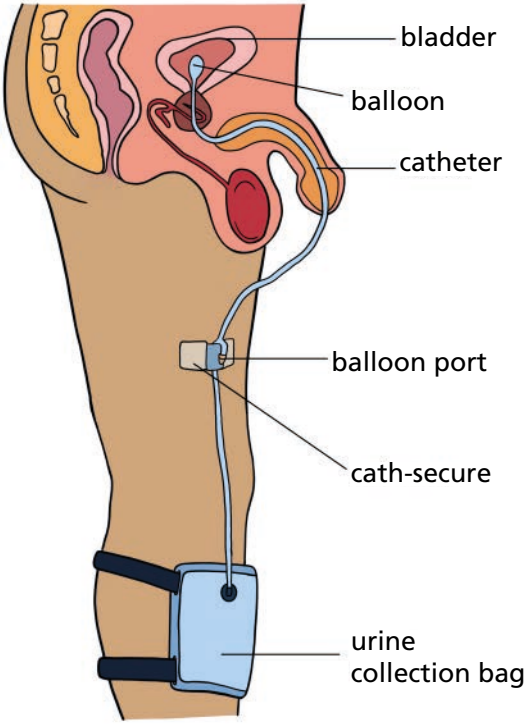


A **Mitrofanoff** procedure is a surgical process which makes a new passage-way for urine using the appendix to connect the bladder to the skin surface. It creates a channel through which you can pass a catheter. It can be an advantage for some women and for people with limited hand function, but it requires surgery.

Indwelling Catheterisation

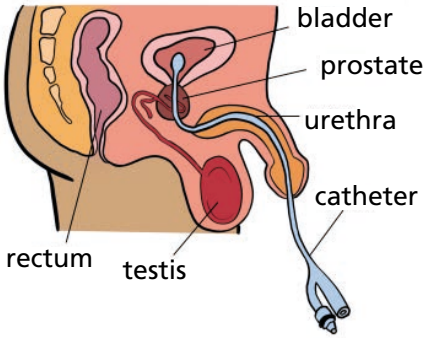
Indwelling catheterisation involves a catheter and a urine collection bag that stays in place all the time. The catheter drains into the bag continuously. The catheter has a balloon at the tip of the catheter which sits in your bladder.

Once the catheter is in your bladder, the balloon can be inflated to keep the catheter from falling out or deflated when it's time to change the catheter. Indwelling catheters are typically changed every 10-12 weeks by your public health nurse, your GP or by a family member, if they have been trained. Some catheters require a change every 4 weeks. If the catheter gets blocked it may need to be changed earlier.

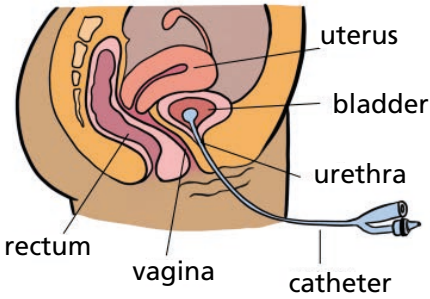


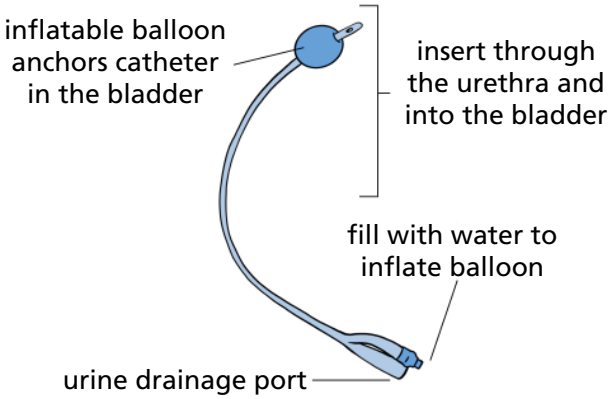
Indwelling catheters carry a risk of **Urinary Tract Infections (UTIs)** and bladder stones. There is also an increased risk of bladder cancer when the catheter has been in for over 10 years. Bladder stones can cause catheter blockages, leakage of urine, infection, haematuria (blood in the urine), pain and sometimes autonomic dysreflexia. Your bladder may shrink in size over several years because a constantly empty bladder will lose its elasticity. Indwelling catheters can be either urethral or suprapubic.

Male indwelling catheter



Female indwelling catheter



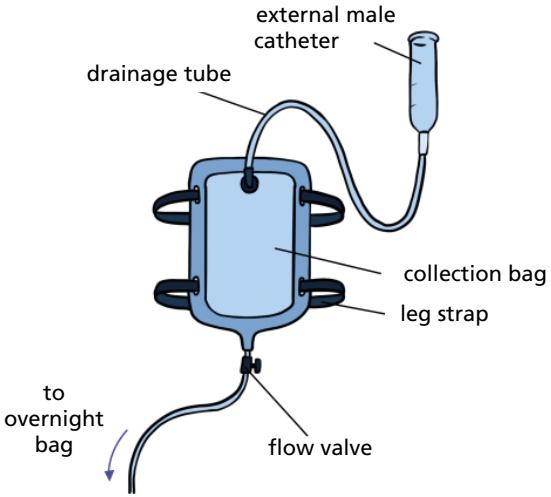


Urethral Catheter

A urethral catheter is inserted through your urethra, either by yourself, or more commonly by a doctor, nurse or a trained family member using a similar technique as intermittent catheterisation. However, instead of removing the catheter when your bladder is empty, the indwelling catheter stays in your bladder and is held in place in your bladder by a small balloon at the end. A small tube connects the other end of the catheter to the bag.

A collection bag must be emptied several times a day to keep it from getting too full. It is best to try to empty the bag when it gets about half-full. If the bag gets too full, pressure may build and keep the urine from flowing down the tube. Instead, the urine will back up. This could cause your bladder to become over stretched and cause problems such as infection, bleeding or autonomic dysreflexia.

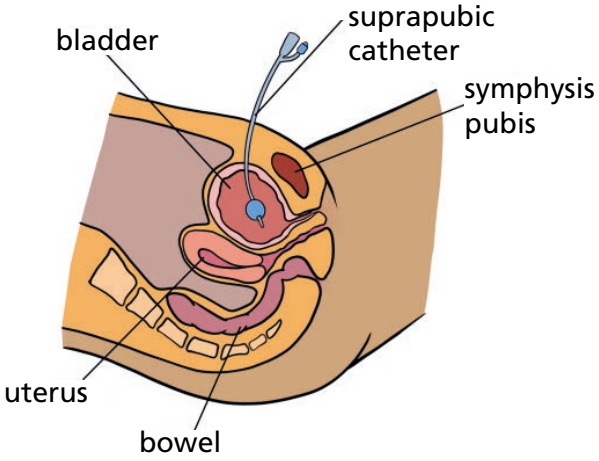
An external self-adhesive **convene (or condom) catheter**, used with a leg bag, may be an option for men with reflexic bladders. A sheath (convene) is put on the penis and attached to a bag worn on the leg. The convene is changed daily and can be used with CISCs.



Suprapubic catheter

A suprapubic catheter is also an indwelling catheter, but it drains urine from a small surgically created opening above the pubic bone and below the belly button. It carries the same risks as an indwelling urethral catheter.

A suprapubic catheter is inserted through the tummy, below the belly-button directly into the bladder. Because of its position, it can be more comfortable and cause less trauma than a urethral catheter. The management and care of a suprapubic catheter is similar to a urethral catheter.



With a urethral or suprapubic catheter, 'by-passing' of the catheter can occur. 'By-passing' is leakage of urine around the catheter, or in the case of a suprapubic catheter, leakage can also occur through the urethra. It can be caused by a bladder spasm, a blocked or kinked catheter, UTI or a bladder stone. You may need to take medication to stop bladder spasm and prevent urinary leakage.

Bladder infections

Urinary Tract Infections (UTIs)

People who use catheters, of any type, after SCI are at a high risk for urinary tract infections. Infections are caused by bacteria. The bladder is normally a closed and sterile area but when you use a catheter, bacteria can easily get into your bladder and cause an infection. Bacteria are more likely to grow in urine that doesn't drain from the bladder, so if you cannot completely empty your bladder, the risk of infection increases. Some of the symptoms of a UTI may include:

- raised temperature
- shivers or chills
- cloudy or strong smelling urine
- leaking around your indwelling catheter
- increased spasm
- leaking between SICs
- autonomic dysreflexia

UTIs may also cause a burning feeling while urinating, and or discomfort in the lower pelvic area or back. Antibiotics may be needed to treat these symptoms. If it is a mild UTI, oral antibiotics will be used to treat the infection. More serious infections may need intravenous (direct into a vein) antibiotics.

If you develop any of these symptoms after discharge from rehabilitation, you need to visit your GP and have a urine sample checked for infection.

Preventing infections

The key to preventing UTIs is to stop the spread of bacteria into the bladder. Careful hygiene and proper handling of catheters can help prevent infection. Sediment in the urine can gather in catheter tubes and make it harder for urine to drain and easier for bacteria to spread. Clean skin is also an important step in preventing infection.

As bladder issues and incontinence can be common after SCI it might be tempting to drink less fluids. This is a mistake as drinking lots of fluids acts like a natural cleanser. Drinking enough fluid (usually 1.5 – 2 Litres per day) washes bacteria and other waste from the bladder. It helps to prevent infections and keep your bladder and kidneys clean and working well.

To reduce the risk of infection

- Wash hands carefully before and after catheterisation
- Carry out toileting programme or CISC on time
- Empty the bladder completely
- Catheterise yourself if possible
- Keep catheter supplies and leg bag clean
- Drink 6-8 glasses of water a day
- Use correct size catheter
- If having trouble inserting a catheter, don't force it and contact your doctor or public health nurse or the Urology Department at the NRH.

Medication for bladder management

You may need medication to help you manage your bladder. **Overactive bladder** and **urinary retention** are the two main conditions where medication can help. There are many frequently prescribed medicines to help with these conditions.

The most common medicines are called **'anticholinergics'** which work by blocking receptors in the bladder muscle to reduce bladder spasm. Some examples of these medicines are **tolterodine**, **fesoterodine** and **oxybutynin**. They are usually well tolerated by patients but some patients can have side effects like a dry mouth, headache and constipation. Different anticholinergics may be tried if one medication is not working for you.

Mirabegron is another type of medication that also works by reducing overactivity in the bladder. This is usually prescribed in combination with an anticholinergic if symptoms continue, or if an anticholinergic has not helped.

Some patients may need **botulinum toxin injections** into the bladder to help with bladder spasm if tablets have not helped. This is something that can be discussed with the Urologist who will explain the advantages and disadvantages to you.

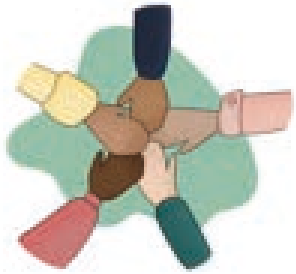
There are also medications available to help increase the flow of urine and improve emptying, such as **tamsulosin** and **silodosin**. They are called 'alpha blockers' and they help the sphincter and prostate to relax and allow urine to pass.

Bladder management during rehabilitation

The best form of bladder management will be discussed with you by your medical consultant and rehabilitation team as well as by the NRH urology department. Nursing staff will be mostly responsible for explaining and showing you how to manage your bladder.

Other members of your interdisciplinary team (IDT) will also work with you on issues related to good bladder management.

One-to-one education sessions will be held on the Unit and a patient information talk on bladder management will also take place on a regular basis.



Nursing staff will:

- Help you to develop a bladder programme that best suits your individual needs
- Assist you to learn the best technique of bladder management, for example self-intermittent catheterisation (SIC) if required, and support you to solve any issues that arise when learning these techniques
- Make sure that you have every opportunity to ask questions about any aspect of your bladder management

Nursing staff will:

- Provide education on catheter use, managing your indwelling catheter, **Autonomic Dysreflexia**, adequate fluid intake and good hygiene
- Organise a **trial of micturition** if it is recommended. This means removing your indwelling catheter to see if you can pass and control your urine without assistance
- Arrange a consultation with the urologist in the NRH who may recommend **urodynamics**
- Encourage you to be independent in your bladder care programme or to be able to instruct others to manage your bladder
- Teach you how to recognise the symptoms of a UTI and how to correctly take a urine sample
- Change your catheter routinely and if it blocks
- Provide follow up support in outpatient clinics if needed

Your occupational therapist may assist you to:

- Work on sitting balance, fine motor control and functional transfers, to improve independence with your bladder care programme
- Practice opening and closing the valve on your catheter bag to allow you to empty your catheter independently
- Include SIC management as a part of washing and dressing practice, for example: practicing opening and closing the packaging
- Be aware of lower body clothing alterations that might facilitate bladder management from the bed and or wheelchair, for example SIC or using a urinary bottle
- Incorporate good hygiene practices when managing your catheter bag and SIC
- Know about small aids and appliances that might help with catheter management
- Learn how a kink in the catheter or UTI may lead to Autonomic Dysreflexia
- Liaise with nursing staff to identify problems that might be resolved

Other interdisciplinary (IDT) input may include:

- Improving flexibility and strengthening your core and dynamic sitting balance in physiotherapy to best support your toileting skills
- Talking to your dietitian about the link between diet and bladder function
- Learning from your medical team and pharmacist about the use of medication to manage your bladder
- Exploring the impact of bladder problems on your self-confidence, relationships and lifestyle with your psychologist, social worker or sexual wellbeing nurse
- Discussing your equipment and follow up needs with the NRH spinal liaison nurse, the urology nurse or at the review appointments with either your rehabilitation consultant or the urology department
- Meeting with a sexual wellbeing nurse specialist

What is urodynamics?

Urodynamics is a test carried out in the urology department in the NRH to see how your bladder and sphincter are working. A catheter is put into bladder, which is then slowly filled with saline (salt water). A measurement is then taken to see how your bladder and sphincter respond. This test can help decide which bladder management option is best for you.

Bladder management after discharge

After discharge, community nurses (public health nurses or PHNs) may assist by:

- Instructing you on how to take a urine sample correctly
- Educating you on antibiotic use
- Providing you with information on ordering products
- Routinely changing your indwelling catheter
- Managing blocked catheters
- Providing washouts if required to keep the catheter draining

Many people will need an annual urology check-up after discharge from rehabilitation. This will include a kidney and bladder ultrasound (or scan) and sometimes an X-ray of the abdomen to check that the kidneys are working properly. These KUB (kidneys, ureters, bladder) images can also check for kidney or bladder stones.

If you continue to experience significant bladder problems at home, you should contact the Urology Department at the NRH where advice, support and alternative options will be discussed with you. If non-surgical bladder management options do not work for you over time, some surgical options may be suggested.

Bladder problems, after SCI can vary from a little leaking after a sneeze or laugh to a total loss of bladder control. Suggestions for managing problems ranging from clever clothing options to surgery, can all be discussed on an individual basis.

Summary

Following a spinal cord injury, maintaining healthy kidneys and a healthy bladder are important. There are many bladder management options. Your healthcare professionals will help you find the best option for your needs and lifestyle. They can also help you decide when an option is working well, or if a new option needs to be considered.

Common Terms

Autonomic Dysreflexia: AD is a potentially life threatening hypertensive medical emergency that can occur in spinal cord injured individuals with injuries at or above the T6 level.

Catheter: A flexible tube inserted through a narrow opening (via the urethra) into the bladder to remove urine.

Detrusor muscle: The detrusor muscle remains relaxed to allow the bladder to store urine and contracts during urination to release urine.

Residual urine: the amount of urine left in the bladder after voiding. The measurement of residual urine can help diagnose bladder problems.

Self-intermittent Catheterisation (SIC) or Clean Intermittent Self Catheterisation (CISC): The practice of passing a catheter through the urethra to empty or help empty the bladder.

Trial of micturition: This means removing a catheter from your bladder to see if you can pass urine without it. This trial may be repeated a number of times during your admission if it is not successful the first time.

Urethra: the tube through which urine passes from the body.

Urodynamics: Urodynamic testing assesses how well the bladder and urethra do their job of storing and releasing urine.

Urology: Urology is the branch of medicine that diagnoses and treats diseases of the urinary tract in men and women. Your urological health relates to the parts of your body responsible for producing, storing and discharging urine (kidneys, bladder, urethra) and the parts of the male body involved in sexual function (prostate, penis, and testicles).

UTI (Urinary Tract Infection): A bacterial infection involving any part of the urinary tract, usually the kidneys (which can sometimes be very serious) or the bladder (usually less serious), requiring antibiotics to eliminate the bacteria.

Frequently Asked Questions (FAQs) about Bladder Care after Spinal Cord Injury

How much can my bladder hold?

The amount your bladder holds depends on your size. The bladder holds 400-500 mls in an average healthy adult.

Is sediment in urine a problem?

It is not always clear why sediment (particles that make urine look cloudy) occurs in urine. Sometimes it can be related to a stone breaking down in the bladder and sometimes stone formation can be due to certain bacteria in the urine. However, sometimes sediment just occurs for no reason.

Sediment in urine can be a problem if it causes your catheter to become blocked. If this occurs on multiple occasions after your discharge, you should contact the Urology Department.

Should I be worried if I see blood in my urine?

It is not normal to have blood in the urine. There are a number of reasons why this can occur including trauma (from the catheter or self-catheterisation) infection, stones, or more seriously - bladder cancer. If you see blood in your urine, you should always contact your doctor.

Patients who have an indwelling urethral catheter or a suprapubic catheter seem to have a higher risk of bladder cancer after 10 years approximately.

Can voiding in standing help with lower residual volumes in the bladder?

It is normal for men, but not women, to stand to void. Some men actually find that sitting down to void can help with bladder emptying if their flow is reduced. However, this may mean that there is a problem with your bladder emptying.

Why am I still wetting myself even though I just completed my SICs?

There are a few different reasons why this might happen. You might have increased your fluid intake without increasing the frequency of your catheterisations. If this is a possibility, it is a good idea to keep a record over a few days of how much you are drinking and when, as well as the frequency of your SICs. You could have a urinary tract infection, in which case you need to give a urine sample to your GP to send to the local microbiology laboratory. You might have a bladder stone – you need an ultrasound to diagnose this. Finally, it may be due to 'detrusor overactivity', which requires a urodynamic test to diagnose. In this case, the addition of anti-cholinergic medications might help.

Who supplies my catheters for SICs? Do I need a prescription? Can I get them on the medical card? How many can I get at once?

Your catheters will be written on your prescription at discharge from the NRH. Your GP will write future prescriptions for you. If you have a Medical Card, you can get them on this. You will also get a small number of catheters on discharge from the NRH to keep you going, until you can get to the pharmacy to fill your prescription.

If you do not qualify for a medical card you will still be able to save on the cost of catheters through the **Drugs Payment Scheme**, especially if you or your family are already taking prescribed medications. This scheme is not means tested and open to everyone

How do I know if I have a urinary tract infection?

There are a number of signs that could help you know you have a UTI. You might notice a change in the colour or smell of your urine. You might develop a temperature and shivers. You might notice an increase in spasm or new onset nausea or (as described above) leaking in between SICs.

Many patients get familiar with whatever their symptom of a UTI is. If you think you have a UTI, you should ask your GP to have a urine sample checked in a laboratory.

Are there any other kidney or bladder problems which I might experience during or after my rehabilitation?

Other complications of neurogenic bladder include the following:

- Stones can occur in the kidneys or bladder – these are more likely if you have a long-term urethral or a suprapubic catheter. You might not know you have a stone until an ultrasound or plain x-ray are performed. However, you might notice some sediment in your catheter and this could be a sign of a stone.
- A stricture or narrowing of your urethra can occur, if you perform SICs. You might notice some difficulty passing the catheter.
- Damage to the wall of the urethra (called erosion) can happen if you have a long-term urethral catheter.

- There can be swelling of the ureters and kidneys (called hydroureter and hydronephrosis) if the pressure in your bladder is too high – this can ultimately lead to kidney failure, but only if neglected. You will not know you have this complication unless you are having your annual ultrasound scan after discharge. That is why it is so important to attend for your annual appointment.
- Finally, there is an increased risk of bladder cancer in people who have a long-term catheter for 10 years or longer. This is why it is important to attend your annual review.

My Bladder

My level of injury and ASIA Impairment Scale

_____

Type of Bladder?

Normal ☐ Reflexic ☐ Flaccid ☐

My Bladder Self Care:

_____

_____

_____

_____

_____

My Medication:

_____

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Notes

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National Rehabilitation University Hospital

An tOspidéal Náisiúnta Athshlánúcháin

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