BODY MATTERS

sia spinal injuries association
for life after spinal cord injury

BLADDER MANAGEMENT

FACTSHEET



This factsheet explains:

- How spinal cord injury affects the bladder
- How the bladder works after injury
- Reflex bladder
- Areflexic bladder
- Bladder management
- Catheters
- Sheaths and condoms
- Other equipment available
- Possible signs of a UTI
- How to treat a UTI
- Urinary tract, bladder and kidney stones
- General care

This factsheet is designed to support individuals living with spinal cord injury (SCI), along with their families and friends. It offers clear guidance to help individuals understand the clinical, psychological and social aspects of spinal cord injury, and to feel more confident navigating daily life, healthcare decisions and long-term wellbeing.



Introduction

What does my spinal cord have to do with my bladder?

Spinal cord injury (SCI) at any level almost always affects the control you have over your bladder. During post-injury rehabilitation, you will learn techniques for emptying your bladder.

These techniques will be tailored to your individual needs and consider your level of functionality and dexterity. If you have a complete (or almost complete) injury the neurological control of your bladder pressure may change. This may affect the way your kidneys drain and work.

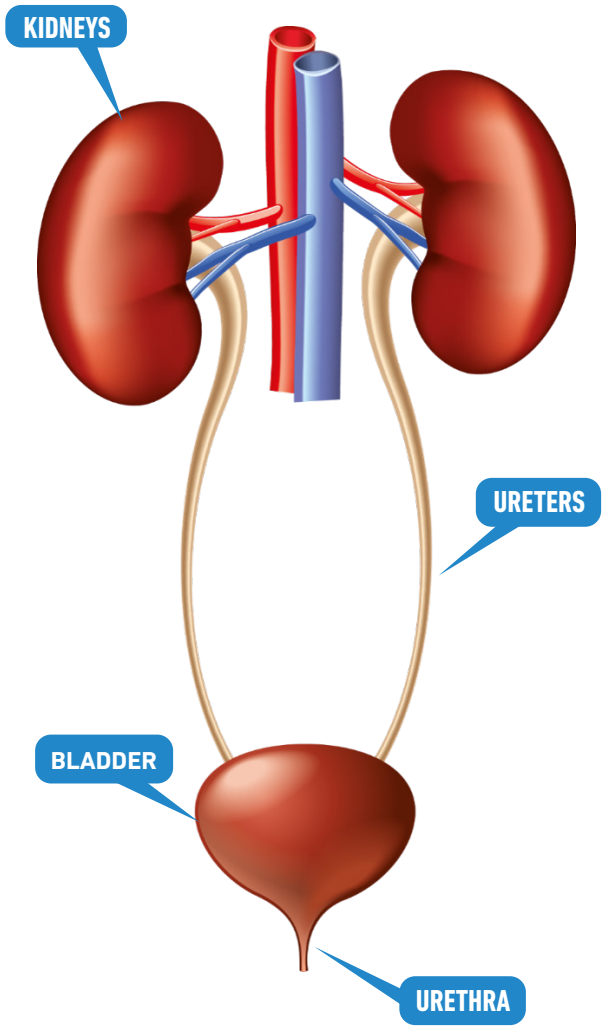
It is important you have the right specialist input to assess, monitor and advise on longer term bladder management.

Understanding how your body works

The urinary system is made up of the kidneys, two ureters, the bladder and the urethra. The kidneys work 24/7 to remove waste from your body through your bloodstream. This waste becomes urine.

Urine is a mixture of excess water and salts that drains from the kidneys via the ureters, one from each kidney, into the bladder.

The ureters allow the urine to flow in one direction and are connected to the bladder.



How does the bladder work?

The bladder is a muscular bag that stores urine until it is convenient to be emptied. When the bladder is full, nerves send a message via the spinal cord to the brain. Your bladder pressure is also dependent on input from nerves controlled by the brain and interruption of this by a spinal cord injury may affect this control.

When you decide to pass urine, the brain sends messages down the spinal cord to the bladder wall muscles, telling them to contract, and the ring-like muscle called the sphincter, which acts as an outlet valve. The sphincter opens, and the bladder releases urine, which passes down the urethra via the penis or the vulva.

Urine is usually straw coloured but seek medical advice if you notice an unusual smell, a change in colour or blood. Certain foods and medicines can affect the colour and smell of urine.

How will my bladder work after injury?

Damage to the spinal cord also damages your body's bladder control system. The nerves no longer communicate with the brain, so messages cannot get through. The bladder continues to fill as before, but awareness of the fullness and the ability to control the flow of urine has been altered.

An injury at T12 level or above may cause what is called a reflex bladder, also known as an automatic or spastic bladder. Complete injuries below T12 (bony level T12, this is the anatomical area of the end of the spinal cord where the nerves that supply the bladder come from) can cause an areflexic, or flaccid, bladder. It is possible to have elements of both. Those with incomplete injuries are more likely to have a reflex bladder.

What is a reflex bladder?

A reflex bladder is where the neural pathway and nerve impulses between the bladder and spinal cord – known as the reflex arc – remain intact but messages no longer reach the brain. A reflex bladder allows automatic, involuntary control of the bladder, meaning that when the bladder fills above a certain level, it contracts, and urine flows out automatically.

However, a reflex bladder may not empty completely due to the sphincter not relaxing fully. This can leave a pool of urine in the bladder, known as residual urine, which increases the risk of infection. The pressure from bladder contractions can cause back pressure on the kidneys. If there are prolonged high pressure bladder contractions or if your bladder has lost the ability to relax, this high pressure can affect the way the kidneys drain and function.

What is an areflexic bladder?

An areflexic bladder is where the reflex arc between the bladder and spinal cord is damaged. The impulses to the spinal cord are interrupted, so the bladder does not receive the message that it needs to empty.

An areflexic bladder has no muscle tone and, therefore, does not contract automatically to allow it to empty. It continues to fill, and small amounts of urine may leak out. The areflexic bladder needs a reliable management method to empty. If you have an areflexic bladder you may still be at risk of high bladder pressure if your bladder is not regularly emptying. This is more common in men. Both men and women are often incontinent despite good bladder emptying because of neurological damage to the urinary sphincter and its inability to completely close the bladder neck to store any urine within the bladder.

What is bladder management?

Bladder management is a personal programme developed during rehabilitation that allows you to gain as much control over your bladder as possible.

The main aims of bladder management are to:

1. Establish a safe method for emptying your bladder at intervals throughout the day to protect your kidneys
2. Help you stay dry
3. Establish a long-term routine to help you achieve independence, improve your quality of life, allow you to carry out daily activities and enjoy a social life
4. Maintain a good body image
5. Reduce the risk of complications, such as bladder and kidney infections and the formation of bladder stones
6. Correct bladder management is vital to your health and wellbeing. Urinary tract complications are still among the leading causes of illness, readmission to hospital and death in SCI people

Getting bladder management right for someone with a spinal cord injury is really important. Often it's a case of trial and error but there will be a right method for you."

Debbie Green, *SIA Spinal Cord Injury Nurse Specialist*



What are my bladder management options?

In the first few weeks after SCI, the bladder will need to be emptied regularly through a catheter, a fine, flexible tube that carries urine out of your bladder.

During rehabilitation, you should be educated on the best method for emptying your bladder.

This will depend on:

1. The level of injury
2. Whether your bladder is reflex or areflexic
3. Whether you are male or female
4. What is acceptable to you
5. Results of urological investigations
6. What is least likely to cause major complications, such as bladder stone formation, infection and Autonomic Dysreflexia (AD)
7. What care support you may require if you are unable to undertake bladder care independently

Your healthcare team will explain the best method for you.

Catheters

There are three main types of catheterisation:

1. Intermittent catheters (self-catheterisation)

This method is used for draining the bladder without a permanently fitted catheter. The catheter is inserted into the bladder every few hours to drain it.

Intermittent catheters are often the method of choice for people with an areflexic bladder, and they are commonly used by those with paraplegia. If you have a reflex bladder with good capacity, you can also use this method. Medications might be needed to increase bladder capacity and decrease the amount of bladder contractions so that you can be dry in between catheters.

Both men and women can usually self-catheterise while in bed, in a wheelchair or on the toilet. Remember that you will need privacy and access to a toilet, which can sometimes be difficult if you are away from home.

It's essential to use good technique and hygiene practices when self-catheterising. Avoid bladder infections wherever possible, and ensure you wash your hands and genital area thoroughly before passing the catheter.

Benefits of intermittent self-catheterisation include:

- The ability to empty your bladder completely at regular intervals
- Achieving continence without the need to wear an appliance

2. Indwelling urethral catheters

These are inserted through the urethra and held in place by a small water-filled balloon. This is typically a short-term solution for emptying the bladder, for example, before and after surgery or when you are away from home if you cannot rely on access to toilets to self-catheterise.

Things to be aware of with indwelling urethral catheters

Indwelling urethral catheters can be convenient, but long-term use is best avoided as it can cause urethral dilation, chronic bladder infection, trauma to the skin from the catheter and bladder stones.

Indwelling urethral catheters:

1. Can be easily blocked by sediment and small calcium granules that gather around the balloon and grow to form stones
2. May require regular bladder washouts (care must be taken during this procedure)
3. Need to be changed regularly, every four to six weeks
4. Often need to be inserted by a district nurse or PA who has been adequately trained and had the task delegated.
5. Require extra care to ensure a good sterile technique
6. Recommended daily fluid intake is 2 litres per day but increasing this can be helpful if you have an indwelling catheter
7. Can increase the risk of infection as bacteria can enter through the catheter's permanent opening
8. Can sometimes be expelled by spasms or because of a blockage or stone
9. May cause urethral trauma, however this risk can be reduced by securing to the thigh
10. Can cause leakage around the catheter during menstruation

3. Suprapubic catheters

A suprapubic catheter is an indwelling catheter inserted into the bladder via a small surgical incision made in the abdomen below the belly button. The incision is not permanent and starts to close within 24 hours if the catheter is permanently removed.

Would a suprapubic catheter be suitable for me?

Suprapubic catheters are felt to be preferable to urethral catheters for most patients as they do not carry the risk of urethral injury. However, they are not suitable or preferred by everyone and require a surgical procedure for insertion.

Typically used by

1. Anyone with tetraplegia, particularly women where the position of a urethral catheter may cause problems
2. People who do not have the manual dexterity to carry out intermittent self-catheterisation and need a long-term indwelling catheter

The catheter used is usually much larger than the size used for a urethral catheter The insertion of it may initially cause an increase in spasms. People with suprapubic catheters may experience oozing around the catheter site, and this should be cleaned each day as part of a regular bathing routine.
A dry gauze dressing may be applied each day.

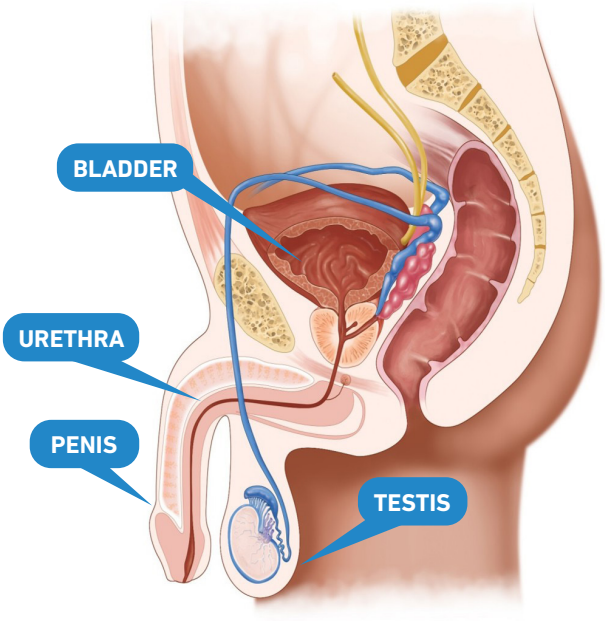
Suprapubic catheters:

1. Should be changed every four to six weeks to prevent blockages
2. Should be secured to the lower abdomen
3. A catheter valve can be used and/or can be connected to a leg bag
4. Protect and free the genital area for sexual function
5. Carry less risk of tubing being sat on or kinked
6. Carry a similar risk of infection, blockage and stone formation as an indwelling urethral catheter

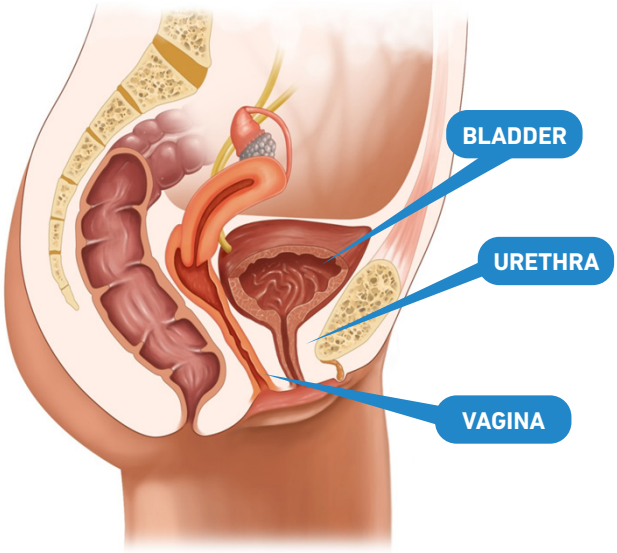
If the catheter becomes blocked, urine may drain via the urethra, and you may not realise you are sitting in wet clothing.

Bladder washouts may be prescribed and will help remove any build-up of deposits that may form bladder stones.

It is essential to drink plenty to keep the urine as diluted as possible.



A cross-section of the urinary system in a man



A cross-section of the urinary system in a woman

Sheaths and condoms

This form of bladder management can be used by those with reflex bladders. For males a urinary sheath or condom is applied to the penis and attached by a plastic tube to a collecting bag strapped to the leg or abdomen or hung beside a bed.

There are many varieties available in assorted widths and lengths to ensure the best fit. Also available are latex and non-latex hypoallergenic sheaths to reduce skin problems.

Urinary sheaths are purpose-made. They have a tube outlet at the end, designed to resist twisting or tearing, and usually come with an adhesive coating on the inside of the sheath.

Inspect your penis carefully and stop using a sheath or condom immediately if there are signs of a rash, red marks or broken skin. If the area becomes particularly sore, an indwelling urethral catheter can be used for a brief period to allow the skin to heal. If you have chosen a sheath as your bladder management option, even if it is working well for you, it is important you continue your urological monitoring. Silent increase in residual urine and bladder pressure can occur. This is particularly important if you start to develop symptoms i.e. increased frequency of urine infections, increased spasm.

For women there are less options. There are appliances that can be attached to the vulva to collect urine into a bag but these are not widely used. Most women who have a reflex bladder and do not choose catheters will require containment pads.

There is also a varied selection of underwear that can hold urine available for both men and women.

What other equipment is available for bladder management?

Mirror

A small handheld mirror can be useful to help visualise where a catheter needs to be inserted or application of a urinary sheath.

Catheter valve

A catheter valve is a tap-like device designed to fit into the end of a urethral or suprapubic catheter.

Do I need to use a catheter valve?

It is recommended if you can, this will allow your bladder to maintain some capacity to store urine. It is usually recommended that the clip and release is done during the day, each person will have a different time interval for this dependent on their bladder capacity and fluid intake. The valve remains open during the night to allow the urine to drain freely into a urine drainage bag. If you are unable to use a catheter valve because you are becoming incontinent when it is switched off, make sure you get urological help as there are procedures that can improve this .... don't let that be what stops you.

Drainage bags

Urine drainage bags are connected to a sheath, condom or catheter by plastic tubing. Different bags can be worn on the upper or lower leg, across the stomach, or hung beside a bed or wheelchair. They can be disposable or reusable. Leg bags, with capacities from 350ml to 1,300ml, can be attached by straps or a stocking-type sleeve. Overnight bags have larger capacities of up to 2 litres. These can be useful when on a long-haul flight.

Note: Never lift a drainage bag above the bladder level unless you're confident your system has a well-functioning non-return valve. If you are susceptible to Autonomic Dysreflexia, care should be taken when using a catheter valve to not allow your bladder to become too full and distended.

Medications

Despite a range of bladder management options often medications may also be required to prevent urinary leakage. These can include oral medications or Botox injections into the bladder. If you are experiencing any issues with your bladder which results in you being incontinent or unwell discuss with your GP and consider a urological review.

What is Autonomic Dysreflexia?

Autonomic Dysreflexia (AD) is a condition where there is a sudden and potentially lethal rise in blood pressure. It is the body's way of responding to a problem and is often triggered by acute pain or another harmful stimulus in the body, such as an overfull bladder.

The rapid rise in blood pressure (hypertension) can lead to a stroke (cerebral haemorrhage) and even death. If you have an injury above T6, you must understand how to prevent and manage AD. The condition should always be treated as a medical emergency.

Who is at risk of Autonomic Dysreflexia?

The condition is unique to people with SCI and most commonly affects those with injuries at or above T6 level.

Possible signs of a urinary tract infection (UTI)

Be aware of the following signs of infection:

1. Urinary frequency (having to wee often) and pain passing urine, for those that pass urine
2. Feeling unwell with flu-like symptoms
3. Autonomic response (sweating, goosebumps)
4. Bypassing (urine leaking around the outside of the catheter)
5. Increased spasm
6. Pyrexia (raised temperature)
7. Pain in the lower abdomen for people with sensation
8. Blood in urine
9. Swollen testicles
10. Persistent rash in the groin area

How should I treat a urinary tract infection?

It is important that you and your doctor are aware that bacteria (the presence of bacteria which will often show up on a urine dipstick) is relatively normal in catheterised patients and should not be treated in the absence of symptoms.

Ensure your bladder is emptied frequently and completely.

If you are ill or the signs of infection persist, contact your GP. A urinary tract infection (UTI) is defined as a positive urine culture indicating the growth of bacteria. Flu-like symptoms, including feeling unwell and a raised temperature, are also common.

Infection in the bladder can pass up to the kidneys and cause damage. Frequent infections can cause scarring of the bladder, affecting its ability to contract properly.

Note: A positive urine culture in the presence of symptoms should be treated. Sometimes it is not practical to wait for a culture result and sometimes the culture result is unhelpful (mixed growth is a common result) therefore doctors have to base the decision to use antibiotics on clinical signs and work with local microbiology to try and optimise treatment.

Supplements

There is some evidence that the D-Mannose supplement that can be bought from health food shops and is also available on prescription can help reduce UTI.

Although there is little clinical evidence to support this some people believe taking cranberry or Vitamin C supplements reduces urine infections.

Dietary advice for bladder health can be found on many online resources.

Urinary tract stones

It is not unusual for stones or calculi to develop in the kidneys and bladder. People with SCI are more susceptible to this because of reduced mobility, the loss of calcium from the bones of paralysed limbs (although this is typically limited to the first few months after injury) and less efficient bladder function.

Bladder stones

Bladder stones are usually related to indwelling catheters and infection, although can also occur with incomplete bladder emptying. They can present with recurrent UTI, blood in the urine or change in urinary symptoms. Some patients with SCI can find they get worse spasm (or Autonomic Dysreflexia) when they have bladder stones. Treatment of bladder stones is surgical and needs urological intervention, although some smaller stones can be passed out through the bladder and urethra without being noticed.

Kidney stones

A stone in the kidney can be much more serious. Renal or kidney stones, if small, may not need intervention, however large stones or those increasing in size will need input under the care of a urologist. Some kidney stones can pass through the ureter and sometimes block the kidney drainage. This presents with severe pain but in some patients with SCI it may just present with generally being unwell, pyrexia and Autonomic Dysreflexia. This is diagnosed on a CT scan and is an emergency.

Note: reduce the risk of stone formation by:

1. Appropriate bladder management and good catheter care
2. Increasing your fluid intake
3. Regular urological review



Guide to general care

Fluid intake

Given the difficulties with continence, it may be tempting to drink less fluid. This is a mistake, especially if you use an indwelling catheter.

A good fluid throughput is essential to keeping your kidneys clean and bladder washed out and functioning properly. If you are prone to urinary tract infections, increase your fluid intake (preferably to at least 2 litres or 4 pints per 24 hours). Avoid drinks containing caffeine as this can cause urinary frequency.

Some people with SCI have found that cranberry in tablet form is helpful. The evidence for the effectiveness of cranberry remains debatable, despite manufacturers' claims.

Regular emptying

It is essential that your bladder is emptied regularly and as completely as possible – preferably every three to four hours during waking hours. An overfull bladder can cause urine to reflux or back up into your kidneys, causing infection and damage.

An overfull bladder can also cause Autonomic Dysreflexia. Inadequate emptying of the bladder causes sediment and deposits to build up, increasing the likelihood of infection and bladder stones.

Bathrooms and toilets

Ensure your home bathroom is adapted for you:

1. Make sure it is easy to get in and out of
2. Have handrails in the right places
3. Have a hand basin at a suitable height
4. Use a padded toilet seat (important to avoid pressure sores)
5. Include a low shelf or work surface
6. Ensure the supplies you need are within easy reach
7. Bidets can be particularly useful for keeping clean. Alternatively, combined toilet-bidets are available – but take care to ensure the water is not too hot

Who can help me when I need questions answered?

- Your **Spinal Cord Injury Centre** is the first source of help and advice as they have a vast amount of experience.
- Your **GP**, especially for making referrals to appropriate specialists.
- A **continence advisor** employed by your GP surgery or ICB may see you at a clinic or visit you at home. They can usually recommend the available equipment and supplies and signpost you to where to get them from.
- **District nurses** may help with bladder and bowel care and arrange supplies.
- **Social services** run disposal services for soiled materials.



Useful Resources

The Bladder and Bowel Community

The community provides information and support for all types of bladder and bowel-related problems.

E: help@bladderandbowel.org

Bladderandbowel.org

Radar key

Radar keys allow you to gain entry to accessible toilets at events and public places. Get one from:

Disability Rights UK

shop.disabilityrightsuk.org/products/radar-key

Age UK

ageukincontinence.co.uk/incontinence-shop/toilet-aids/disabled-toilet-keys

National Institute for Health and Care Excellence (NICE)

ice.org.uk/guidance/ng113

To help you find out what continence products are available, we've included a list of trusted partners often used by SIA members for catheters and continence products.

Wellspect Healthcare

Brunel Way
Stroudwater Business Park
Stonehouse
Gloucestershire GL10 3GB

T: 01453 791763
0800 652 3350

wellspect.co.uk

SIA Healthcare

Glacier Building Brunswick
Business Park Harrington Rd
Liverpool
Merseyside L3 4BH

E: enquiries@siahealthcare.com

T: 0800 888 501
0151 207 6995

Coloplast

Peterborough Business Park
Peterborough PE2 6FX

T: 0800 220 622
01733 392000

E: help@coloplast.com

coloplast.co.uk

Hollister

Building 1010
Winnersh Triangle Business Park
Eskdale Road, Winnersh
Wokingham RG41 5TS

T: 0800 521377
0118 989 5000

E: samples.uk@hollister.com

hollister.co.uk

Clinisupplies

1 Blackmoor Lane,
Croxley Park, Watford,
Hertfordshire, WD18 8GA

T: 020 8863 4168

E customerservices@clinisupplies.co.uk

clinisupplies.co.uk

For more information, contact us at:
Spinal Injuries Association, SIA House, 2 Trueman Place,
Milton Keynes, MK6 2HH
0800 980 0501 *(freephone support line open Mon-Fri 10.00am-4.00pm)*
support@spinal.co.uk

sia spinal injuries association
for life after spinal cord injury



About SIA

Spinal Injuries Association (SIA) is the UK's leading charity for everyone affected by spinal cord injury. We provide free, specialist support to help you navigate the mental and physical challenges you may face now and throughout your life.

Our nationwide team can connect you with our trusted network of experts and partners, offering guidance on legal matters, care, housing, finance, mental health and more. You can reach our support line on **0800 980 0501**.

We are the voice of people with spinal cord injury. Through our expertise we can connect you to the services and organisations you need through our network for all. Join the SIA community for free at **www.spinal.co.uk**

Tell us what you think
If you have any comments about our publications, you can email **academy@spinal.co.uk**

This factsheet has been prepared by SIA and contains topic guidance that we hope will be useful. Nothing in this factsheet should be construed as giving specific advice, and it should not be relied on as a basis for any decision or action. SIA does not accept any liability arising from its use. We aim to ensure the information is as up-to-date and accurate as possible, but please be warned that certain areas are subject to change from time to time. Please note that the inclusion of named agencies, companies, products, services or publications in this factsheet does not constitute a recommendation or endorsement.

This publication has been reviewed for accuracy and updated by:
- **our Clinical Team**
- **our Health & Care Advisory Group**

Review date: November 2027
Charity No: 1054097