

### How does a spinal cord injury impact my bladder?

Spinal cord injury (SCI) can impact the way your bladder functions. The bladder may lose its ability to empty urine; this is called **urinary retention**. Untreated urinary retention can cause side effects such as urinary tract infections, kidney disease, **autonomic dysreflexia** (episodes of high blood pressure, headache, sweating due to a full bladder), and **incontinence** (the loss of bladder control).

### How can I manage my bladder issues after spinal cord injury?

There are three main ways that people with urinary retention caused by spinal cord injury can choose to manage their bladder:

1. Clean intermittent catheterization
2. Indwelling urethral catheter or an indwelling suprapubic catheter that drains to a bag
3. Reconstructive surgery

In this handout, we will review each option in detail to help you decide which one is best for you. **The options are summarized in the grid at the end of the handout (beginning on page 12).**

There are many things to consider when deciding which option is best for you, including medical recommendations and how each option fits with your lifestyle. This decision will affect many aspects of your life and we aim to make it easier to find a safe plan that works for you.

### What is a catheter?

A catheter is a small silicone or latex tube that is used to empty the bladder.

Catheters can be passed into the bladder and kept only long enough to empty the bladder, usually less than a few minutes. This is called **intermittent catheterization**.

**Indwelling catheters** are catheters that are placed in the bladder for longer periods of time (up to 1 month) before exchanging them. Indwelling catheters have a water filled balloon that floats in the bladder and keep the catheter from coming out. The balloon is deflated before removing the indwelling catheter. Indwelling catheters can be placed through the **urethra** (the opening to the bladder at the tip of the penis or vaginal area) or through a **suprapubic tract** (surgical connection between the bladder and the lower abdomen). Indwelling catheters that are passed through a suprapubic tract are called **suprapubic tubes (SPT)**.

### **What is clean intermittent catheterization (CIC)?**

**Clean intermittent catheterization** (sometimes referred to as **self-catheterization**) is a way to empty your bladder using disposable catheters at home. People with spinal cord injury or their caregivers perform clean intermittent catheterization using clean supplies at regular intervals throughout the day. Usually, the bladder will need to be emptied at least every 4 hours while awake, but the exact period will be determined by your care team.

Intermittent catheters come in many sizes and designs to make them easy for people with spinal cord injury to use. There are reconstructive surgeries (see section titled “Reconstructive surgery”) that can help make intermittent catheterization easier for patients.

Some **potential benefits** of clean intermittent catheterization include:

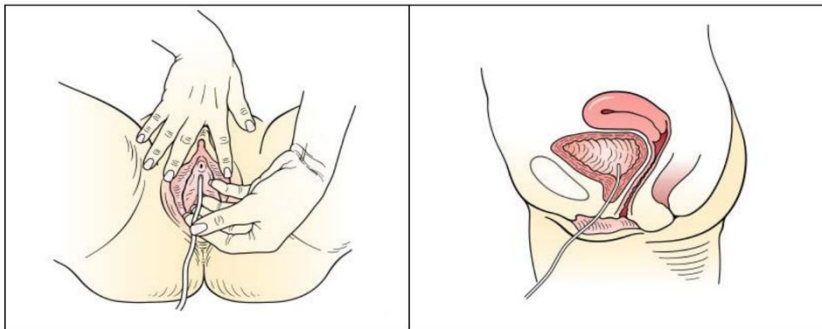
- Catheter is only in the bladder for a very short amount of time each day.
- Allows the bladder to fill and empty (cycle) normally, which helps keep the natural function of the bladder muscle.

- Less bladder infections compared to indwelling catheterization
- Prevents pressure damage to the penis or urethra caused by indwelling catheters

Some **potential risks** of clean intermittent catheterization include:

- It must be performed at regular intervals during the day.
- It may require assistance or transfers to bed to access the urethra for catheterization.
- It can be difficult to do in public spaces.
- There can be incontinence between catheterizations, though this can be resolved with medications that are taken by mouth or by injection into the bladder.

#### Female Intermittent Catheterization:



#### Male Intermittent Catheterization:

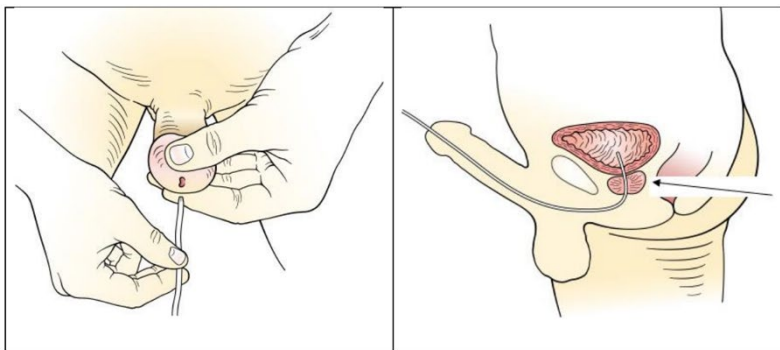


Image Credit: University of Michigan:

<http://www.med.umich.edu/1libr/urology/IntermittentSelfCathFemale.pdf>

<http://www.med.umich.edu/1libr/urology/intermittetSelfCathMale.pdf>

## What is indwelling catheterization?

Some people who cannot empty their bladder due to spinal cord injury choose to have an indwelling catheter placed. Indwelling catheters can be placed through a suprapubic tract in the lower abdomen (called **suprapubic catheters**) or through the urethra (called **urethral catheters**). Indwelling catheters should be exchanged at least every 4 weeks with a new tube to avoid complications.

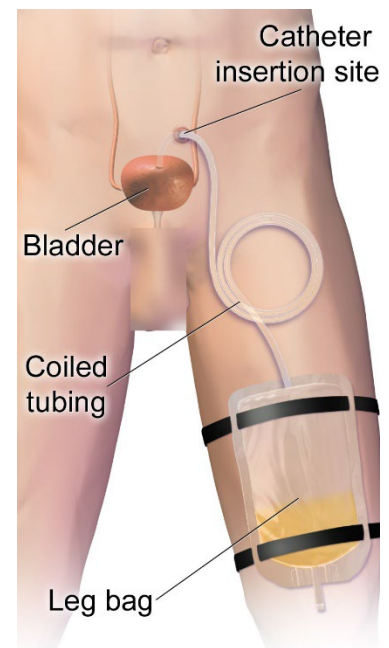
### Suprapubic indwelling catheter or suprapubic tube (SPT)

Suprapubic catheters are indwelling catheters that are placed through a connection between the skin in the lower part of the abdomen (suprapubic area) and the bladder.

The first time a suprapubic tube is placed, it must be placed through a surgery or procedure with anesthesia. After the procedure, the suprapubic catheter forms a tract between the bladder and the skin, like a piercing.

After the first tube is in place it can be exchanged by a nurse or caregiver when you are awake. The exchanges take a few minutes and usually do not hurt. The suprapubic tube is a regular indwelling catheter. It is kept in place by a water filled balloon and it drains into a catheter bag.

The suprapubic tract usually closes on its own if the catheter is removed for long periods of time (more than 6 hours). Suprapubic indwelling catheters, rather than urethral indwelling catheters, are preferred for patients who choose an indwelling catheter as their bladder management strategy for the medium to long term (greater than 6 months).



### Suprapubic Indwelling Catheter

BruceBlaus, CC BY-SA 4.0, via Wikimedia Commons Modified from original

Some **potential benefits** of suprapubic indwelling catheters include:

- The catheter is not in the genital region, which may prevent skin breakdown.
- It drains the bladder continuously.
- It only needs to be exchanged every 4 weeks (can be done by nurse or trained caregiver) and exchanges are easier than with urethral catheters.
- Leakage around catheter is not common.

Some **potential risks** of suprapubic indwelling catheters include:

- Requires a surgery or procedure with anesthesia to put in place. This surgery has potential risks of bleeding, injury to organs around the bladder (blood vessels or intestines), and skin infection.
- Minerals in the urine can attach to the catheter and cause bladder stones.
- Bacteria can grow on the catheter, which can cause urinary tract infections.
- The suprapubic tract will close within 1 day if the catheter falls out.
- The area around the catheter may become red and raw (granulation tissue).
- Some people may leak urine from the urethra even with the suprapubic tube in place.

## Urethral indwelling catheter

Urethral indwelling catheters are tubes that are passed through the urethra into the bladder in a sterile manner to avoid infection. After the catheter is in place, a small balloon on the tip of the catheter is filled with water, this balloon keeps the catheter from falling out.

The catheter is then connected to a drainage bag on the outside of the body. The urine that your body produces runs through the catheter into the drainage bag. The drainage bag needs to be emptied several times per day as it fills and cleaned regularly.

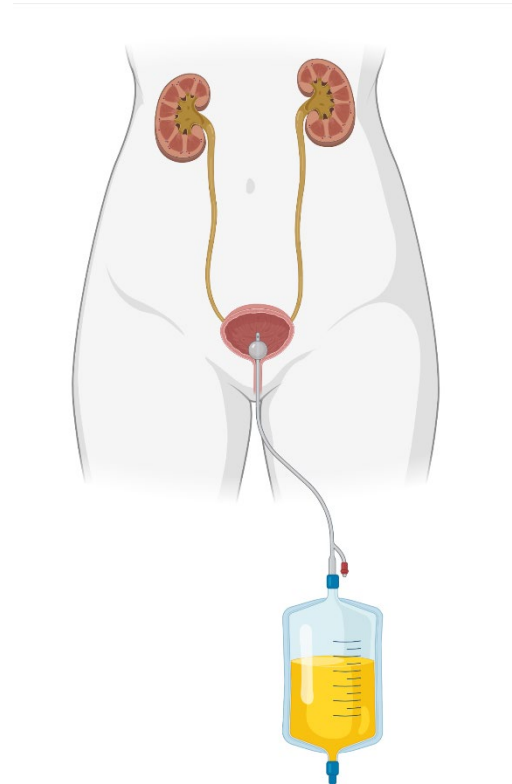
The drainage bag comes in small or large sizes. The smaller drainage bags can be hidden under clothing when in public.

The catheter and drainage bag should be exchanged at least once every 4 weeks.

Urethral Indwelling catheters are recommended for short term (less than 6 month) indwelling catheterization. People who choose an indwelling catheter for the long term (more than 6 months) may consider discussing suprapubic tube placement with their care team.

Some **potential benefits** of urethral indwelling catheters include:

- No surgery is required.
- They drain the bladder continuously.
- They only need to be exchanged every 4 weeks (can be done by nurse or trained caregiver).
- Leakage around catheter is not common.



**Urethral Indwelling Catheter**  
Created with BioRender.com

- They can be used for temporary bladder management.

Some **potential risks** of urethral indwelling catheters include:

- The catheter can push on the urethra or penis and cause pressure damage to the skin.
- Minerals in the urine can attach to the catheter and cause bladder stones.
- Bacteria can grow on the catheter, which can cause urinary tract infections.

### **Reconstructive surgeries**

**Continent catheterizable channel: A surgery to make it easier to pass an intermittent catheter**

Some people with spinal cord injury may not be able to perform intermittent catheterization through their urethra. This can happen if people require transfer to a bed and undressing to perform intermittent catheterization or if the urethra is difficult to catheterize due to pain or scarring. In these situations, a connection between the bladder and the skin of the abdomen can be made with a piece of intestine that is disconnected from the gastrointestinal tract, so that patients with spinal cord injury can use intermittent catheterization. This surgery is called a **continent catheterizable channel**. If the appendix is used, it is sometimes called an **appendicovesicostomy** or **mitrofanoff** procedure. These are major abdominal surgeries that require a hospitalization for 3-7 days and have a 6-week recovery period.

**Augmentation Cystoplasty: A surgery to increase the amount of urine a bladder can safely hold**

Some people with spinal cord injury can experience changes to the size and function of their bladder. Sometimes the bladder can become small and does not hold urine well. Small bladders can leak urine between intermittent

catheterizations. There are medications taken by mouth or injected into the bladder wall that can help the bladder hold more urine. In some cases, these medications are not enough, and surgery can help the bladder hold more urine. This surgery is called **augmentation cystoplasty**. Augmentation cystoplasty is performed by taking a piece of intestine that is disconnected from the gastrointestinal tract and using it to make the bladder bigger. This is a major abdominal surgery that requires a hospitalization for 3-7 days and has a 6-week recovery period. Augmentation cystoplasty can be performed with or without the creation of a continent catheterizable channel (see section above about continent catheterizable channel surgery). People with augmentation cystoplasty usually still catheterize and require regular irrigation of the bladder (washing with saline or water) to clear mucous that is produced by the intestine.

**Cystectomy and urinary diversion: A surgery to remove the bladder and reroute the urine**

Some people with spinal cord injury experience changes to the size and function of their bladder that cannot be managed effectively with catheters or medications or augmentation cystoplasty. In these cases, the bladder can be removed in a surgery called a **cystectomy**. The urine is rerouted, called a **urinary diversion**, through a piece of intestine that is disconnected from the gastrointestinal tract to an opening on the skin of the abdomen (called a **urostomy** or **stoma**). A temporary bag is then adhered to the skin of the abdomen to collect the urine. No catheterization is required, though the bag is emptied regularly and must be completely changed at regular intervals. More information about this procedure is available in our **Urostomy Patient Handbook**: <https://michmed.org/Qree9>.



## Bladder Management After Spinal Cord Injury Decision Aid

### 1. Clarify your choice

This decision aid is designed to help adults with urinary retention due to spinal cord injury choose between options to empty their bladder. To help you decide, answer the questions below and read through the information provided in the comparison tables on pages 12-16.

#### What therapies have you tried for your bladder symptoms?

(Select all that apply.)

- Valsalva voiding (pushing or straining to empty your bladder)
- Clean intermittent catheterization
- Urethral indwelling catheter
- Suprapubic indwelling catheter
- Bladder surgeries

#### How far along are you with making a treatment choice for emptying your bladder?

- Not thought about it
- Thinking about it
- Close to choosing
- Made a choice

### 2. Explore your decision

Turn to page 12 and read through the comparison table to learn about the benefits and risks of the various options. After reading, answer the following questions:

#### What type of bladder management strategy would you like to learn more about? (Select all that apply.)

- Clean intermittent catheterization
- Urethral indwelling catheter
- Suprapubic indwelling catheter

#### Which benefits or risks matter most to you?

- The ease or convenience of the option for me and my caregivers
- The independence the option will give me

- The long-term impact on my kidneys and bladder
- Avoiding bladder infections
- Other\_\_\_\_\_

**Which option do you prefer?** (Select all that apply.)

- Clean intermittent catheterization
- Urethral indwelling catheter
- Suprapubic indwelling catheter

**Who else is involved in your decision?**

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**What role do you prefer in making your choice?**

- Share the decision with my doctor or practitioner
- Decide myself after hearing the views of my doctor or practitioner
- Someone else decides for me

**3. Identify your decision-making needs**

Do you know the benefits and risks of each option?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are you clear about which benefits and risks matter most to you?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you have enough support and advice to make a choice?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you feel sure about the best choice for you?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

If you answer ‘no’ to any question, you can work through the steps above, focusing on your needs. People who answer “No” to 1 or more of these questions are more likely to delay their decision, change their mind, feel regret about their choice or blame others for bad outcomes.

**4. Plan the next steps based on your needs**

**Are you ready to decide a next step?**

- Yes
- No

**If you answered yes, which option do you prefer?**

- None of these
- Clean intermittent catheterization
- Urethral indwelling catheter
- Suprapubic indwelling catheter

**If you answered no, consider these next steps:**

**If you feel you do not have enough facts, you can:**

- Find out more about the options and the chances of benefits and risks
- List your questions for your doctor or healthcare provider
- Read more information about treatment options in the treatment grid on pages 12-16.

**Values: If you are not sure which benefits and risks matter most to you, you can:**

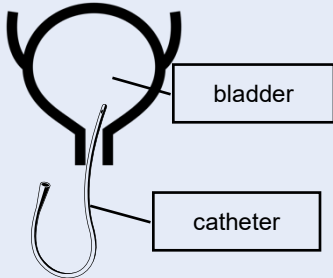
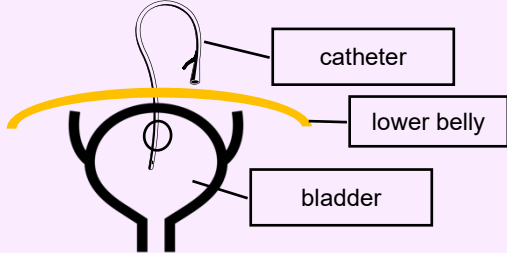
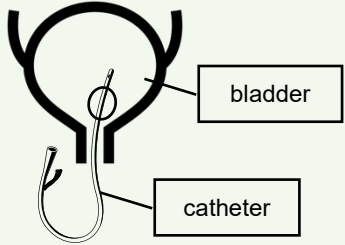
- Review the steps above to see what matters most to you.
- Find people who know what it is like to experience the benefits and risks
- Talk to others who have made the decision
- Read stories about what mattered most to others
- Discuss with others what matters most to you

**Support: If you feel you do not have enough support**

- Discuss options with a trusted person (for example: healthcare provider, friend, counselor, family member)
- Find help to support your choice (for example: funds, transportation, childcare)

**Certainty: if you feel unsure about the best choice for you.**

- Work through steps above focusing on your needs

General information	Clean intermittent catheterization (CIC)	Suprapubic indwelling Catheter (SPT)	Urethral indwelling catheter
<p><b>How is it done?</b></p>	 <p>A person (or their caregiver) passes a catheter through their own urethra at regular intervals to drain the bladder.</p> <p>The catheter is removed after the bladder is emptied and thrown away.</p> <p>A new catheter is used each time.</p> <p>Reconstructive surgery can be used to make clean intermittent catheterization easier for people with spinal cord injuries.</p>	 <p>A direct connection between the bladder and the skin of the lower abdomen is created by a doctor during a surgery.</p> <p>An indwelling catheter is placed through the connection between the lower abdomen and the bladder. A balloon is inflated at the tip of the catheter and keeps it in place.</p> <p>The catheter remains in place through this connection all the time and drains to a bag.</p> <p>The catheter is changed for a new one at least every 4 weeks.</p>	 <p>A catheter is passed through the urethra into the bladder and a balloon on the tip of the catheter is inflated to keep it in place.</p> <p>The catheter remains in place through this connection all the time and drains to a bag.</p> <p>The catheter is changed for a new one at least every 4 weeks.</p>
<p><b>Where is the catheter placed?</b></p>	<p>The catheter is placed in the urethra, the tube that urine naturally passes through.</p>	<p>The catheter is placed through a new opening that is surgically created between the bladder and the skin on the lower abdomen.</p>	<p>The catheter is placed in the urethra. In men it is in the penis, in women it is near the vagina.</p>

General information	Clean intermittent catheterization (CIC)	Suprapubic indwelling Catheter (SPT)	Urethral indwelling catheter
<p><b>Where is the catheterization done?</b></p>	<p>People can perform intermittent catheterization wherever is convenient and accessible to them</p>	<p>Suprapubic catheters are first placed in the hospital setting (operating room or procedure clinic) by a physician.</p> <p>Catheter changes can be done at home, by trained caregivers, or at a doctor's office.</p>	<p>Urethral foley catheters can be placed at home by trained caregivers or in a doctor's office.</p> <p>Catheter changes can be done at home, by trained caregivers, or at a doctor's office.</p>
<p><b>How often is catheterization done?</b></p> <p><b>How much time do I need to spend caring for this?</b></p>	<p>The number of times a catheter needs to be passed during the day can vary between people with spinal cord injuries.</p> <p>The bladder should be emptied <b>at least every 4 hours while awake</b>. Some people can go longer periods overnight without draining their bladder.</p> <p>Talk to your doctor about the schedule that is recommended for you.</p>	<p>After the catheter is in place, the drainage bag must be kept clean and emptied regularly.</p> <p>The entire catheter and drainage bag system needs to be exchanged <b>at least every 4 weeks</b>.</p>	<p>After the catheter is in place, the drainage bag must be kept clean and emptied regularly.</p> <p>The entire catheter and drainage bag system needs to be exchanged <b>at least every 4 weeks</b>.</p>
<p><b>How much recovery time is needed?</b></p>	<p>No recovery time is needed.</p>	<p>The procedure to place the catheter usually lasts less than 1 hour. People usually go home the same day and can return to their regular schedule the day after the tube is placed.</p>	<p>No recovery time is needed.</p>

<b>General information</b>	<b>Clean intermittent catheterization (CIC)</b>	<b>Suprapubic indwelling Catheter (SPT)</b>	<b>Urethral indwelling catheter</b>
<b>Who can't have this type of catheter?</b>	Intermittent catheterization is not recommended in people who cannot catheterize or be catheterized by a caregiver regularly.	Suprapubic catheters can be placed in most people. However, placement of a suprapubic tube may be more difficult in those who have had prior surgery on their lower abdomen.	Urethral catheters can be placed in most people. However, placement may be more difficult in people who have history of scar tissue in their urethra (stricture).
<b>How much does it cost?</b>	Your doctor's office can help you order catheter supplies from a medical equipment company. Insurance companies usually will pay all or some of the cost of the supplies. The amount of money you pay for supplies may vary from person to person.	Insurance companies usually will pay all or some of the cost of the procedure to place the suprapubic tube. Ask the doctor that is placing the tube what amount of money you may be required to pay.  Insurance companies usually pay all or some of the cost of catheter exchanges. The amount of money you pay for supplies may vary from person to person.	Insurance companies usually pay all or some of the cost of catheter placement and exchanges. The amount of money you pay for supplies may vary from person to person.
<b>Will I have a tube or drainage bag all the time?</b>	No. The catheter is placed only when you need to empty your bladder and there is no drainage bag or tube in the bladder for long periods.	Yes, the urine drains continuously into a bag.	Yes, the urine drains continuously into a bag.
<b>How does my bladder work with the catheter?</b>	The bladder continues to fill and empty at usual intervals, which keeps the bladder muscle active.	The bladder is always emptied; it does not continue to fill and empty. Some people think this makes the bladder muscle behave differently over long periods of time.	The bladder is always emptied; it does not continue to fill and empty. Some people think this makes the bladder muscle behave differently over long periods of time.

<b>General information</b>	<b>Clean intermittent catheterization (CIC)</b>	<b>Suprapubic indwelling Catheter (SPT)</b>	<b>Urethral indwelling catheter</b>
<b>Can I have penetrative sex with this type of catheter?</b>	Yes. The catheter should not prevent sex.	Yes. The catheter is not traveling through the penis or vaginal area so it should not interfere with sex.	Penetrative sex can be difficult or impossible with an indwelling urethral catheter because the catheter located in the penis and near the vagina.
<b>How many people have symptomatic bladder infections?</b>	Among people with spinal cord injury that use CIC, about 17% (17 out of 100 people) will have a symptomatic bladder infection over the course of a year.	Among people with spinal cord injury and indwelling catheters, 30% (30 out of 100 people) will have a symptomatic bladder infection over the course of a year.	
<b>How will the catheter change how my body looks?</b>	Intermittent catheters will not change how your body looks on the outside.	People with suprapubic catheters will have a new tube in the lower part of the belly.	People with urethral catheters will have a catheter coming out of the urethra. Over time this can put pressure on the skin around the urethra and cause the skin to break down.

<b>General information</b>	<b>Clean intermittent catheterization (CIC)</b>	<b>Suprapubic indwelling Catheter (SPT)</b>	<b>Urethral indwelling catheter</b>
<b>How would people feel if they had to rate their quality of life with this type of catheter?</b>	64% of people with spinal cord injury using CIC report that they are either pleased, mostly satisfied, or have mixed feelings about their satisfaction with CIC.	<p>Women with spinal cord injury and suprapubic indwelling catheters rank their quality of life as “mixed.” They are equally satisfied and unsatisfied.</p> <p>There is no difference in satisfaction with suprapubic catheter compared to people who perform CIC for people who are paraplegic or tetraplegic.</p>	<p>Women with spinal cord injury and urethral catheter rank their quality of life as between “mostly satisfied” and “mixed” (meaning they are equally satisfied and unsatisfied).</p> <p>There is no difference in satisfaction with urethral catheter compared to people who perform CIC for people who are paraplegic or tetraplegic.</p>
<b>Why do people stop using this method?</b>	The most common reasons for stopping CIC are inconvenience, leaking urine, and bladder infections. People who are tetraplegic stopped because they did not want to be dependent on others.	The most common reasons for stopping use of suprapubic indwelling catheters are dislike of the catheter, bladder infections, and bladder spasms.	The most common reasons for stopping use of an indwelling urethral catheter are doctor recommendations, bladder infections, pressure injury on the tip of the urethra, and to be able to engage in sexual intercourse.



## Data sources:

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Created by: Giulia I. Lane MD, Iryna Crescenze MD

Adapted from the Ottawa Personal Decision Guide © 2015 O'Connor, Stacey, Jacobsen

Edited by: Amy McAlister MSA

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