



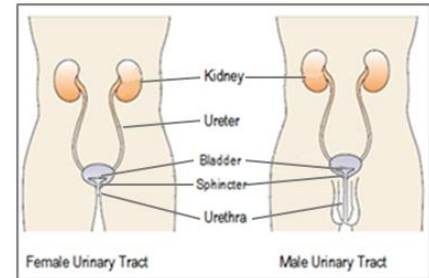
If you have a spinal cord injury (SCI), you have a higher risk for urinary tract infection (UTI). UTI is one of the most common medical problems after SCI. This fact sheet explains your risk for UTI, how to best prevent it, and what to do if you get it.

## What is a urinary tract infection?

A urinary tract infection (UTI) is an infection in your urinary system. This system includes your kidneys, ureters, bladder, and urethra.

## What causes UTI?

The most common cause of UTI starts when bacteria enter the bladder through the urethra. The bacteria may multiply in the bladder to become UTI.



## What are bacteria?

Bacteria are tiny, living organisms. Good bacteria in your body help you to digest food and protect you from bad bacteria. Bad bacteria cause infections and make you sick.

## Is UTI common after spinal cord injury (SCI)?

Yes. Here are 3 of the more common reasons people with SCI develop UTIs.

1. Most people lose normal urinary function after SCI. They need a bladder management option to empty the urine from their bladder to keep their bladder and kidneys healthy. Most bladder management options make it easier for bacteria to enter the bladder through the urethra.
  - Please read "[Bladder Management Options Following Spinal Cord Injury](#)" to learn more about normal urinary function, how it changes after SCI, and bladder management options.
2. Most people lose normal bowel function after SCI, and contact with stool is common during bowel management. Stool has bacteria that can cause a UTI. UTIs are often caused when bacteria from stool gets into the bladder when the bladder is being emptied.
  - Please read "[Bowel Function after Spinal Cord Injury](#)" to learn more about normal bowel function, how it changes after SCI, and bowel management options.
3. Once in the bladder, bacteria are hard to get rid of. People with normal bladder function can usually get rid of most bacteria by fully emptying their bladder when they urinate. However, many people with SCI can't fully empty their bladder, even with good bladder management. This allows bacteria to stay in the bladder almost all of the time, making it easier for a UTI to develop.

## What is my risk for UTI?

Anyone can get UTI. However, people with SCI have a higher risk than normal.

- People with SCI who use an indwelling Foley or suprapubic catheter may be at higher risk for UTI than those who use a clean intermittent catheterization technique or have an external sheath or condom catheter.
  - Talk to your health professional about lowering your risk for UTI if you average more than one UTI per year. Your health professional may suggest another method of bladder management that works better for you.
- Women may be at a higher risk for UTI than men because a woman's urethra (see diagram above) is shorter and located closer to the anus. This can make it easier for bacteria from the colon to enter the bladder through the urethra.

The contents of this fact sheet are based on research evidence and/or professional consensus and has been reviewed and approved by an editorial team of experts from the Spinal Cord Injury Model Systems, which is sponsored by the National Institute on Disability, Independent Living, and Rehabilitation Research (See [www.msctc.org/sci/model-system-centers](http://www.msctc.org/sci/model-system-centers) for more information).

## Can I prevent UTIs?

Most people with SCI get UTIs. Even if you can't avoid UTIs, you can do a few basic practices to reduce your chances of getting them.

### Prevent your bladder from getting too full

Empty your bladder when needed. Empty it completely each time. This will help to reduce your chances of developing two common problems that increase your risk for UTI.

1. Over-distended bladder—Your bladder becomes over-stretched when it holds too much urine. This damages the bladder wall and forces the urine back into the ureters and kidneys.
2. Bladder or kidney stones—Excess sediment and calcium in urine can form into stones that can restrict the flow of urine.

### Get plenty of water

Your body needs the proper amount of water to stay hydrated and healthy. Here are a few of the vital health benefits from staying hydrated:

- Helps to flush out bacteria from the bladder
- Helps to maintain body temperature
- Helps to ease the flow of stool through the bowel
- Helps to keep the skin moist, supple, and healthy

Your body absorbs a small amount of water from the foods you eat. But what you drink is your body's main source of water. This is why you need to drink plenty of water. The color of your urine can help guide you in getting enough water. Ideally, your urine should be golden yellow. You probably need to drink more water if your urine is darker. Here is a color guide to help you. →



- Your diet and certain medications, including dietary supplements, can affect the color of your urine. For example, blackberries, beets, and rhubarb can turn urine darker. Vitamin B can turn urine bright yellow.
- Talk to your health professional before you change the amount of water you drink. You may need to adjust your bladder management. For example, you may need to empty your bladder more often if you increase the amount of water you drink.

### Eat healthy and exercise

A healthy diet and exercise are two of the best ways for most everyone with SCI to boost their immune system. A healthy immune system helps you to fight off infections.

- Ask your health professional for advice before starting an exercise program or changing your diet.
- Consider taking vitamin and mineral supplements. Zinc; magnesium; and vitamins A, B6, B12, C, D, and E may help to boost your immune system. Ask your health professional for advice before taking any supplements.

### Proper Hygiene

Staying clean is a good way to prevent the spread of bacteria. Always wash and clean properly both before and after bladder and bowel management and after accidents.

### Take a cranberry pill

Many people insist that cranberries help to prevent UTIs. But research is mixed on the benefits of cranberries. If you think it helps, take a daily cranberry pill instead of drinking the juice. This way you get the benefits of cranberries without the added sugar that is found in most juices.

### Watch for early signs of infection

You may notice warning signs before you start to experience symptoms of UTI.

- Gritty sediment in the urine.
- Mucus in the urine. This is often a sign of high levels of bacteria in the urine.
- Dark, cloudy or bad smelling urine.

If you notice any of these, you might be able to fend off UTI.

- Cut back on drinking liquids with alcohol, caffeine, and sugar.
- Drink more water to help wash out more of the bacteria
- If you do intermittent catheterization, do it more often. If you use an indwelling catheter, change it. Consider changing it again after the early signs of infection have gone away.

## Should I take antibiotics to prevent UTI?

Not usually. Antibiotics are medicines used to kill bacteria that cause infection. When you take an antibiotic to kill bacteria, the bacteria can change or adapt in a way that it becomes “resistant” to the antibiotic being used. This means that the antibiotic can no longer kill the bacteria. It takes a stronger antibiotic to then kill the bacteria in the future. There are a limited number of antibiotics that can kill bacteria, so it’s best to use antibiotics only when needed to avoid reaching the point when the bacteria are resistant to all antibiotics.

Here are a few recommendations for using antibiotics and better avoiding antibiotic resistance.

- Do not take antibiotics that are not prescribed to you.
- Do not take antibiotics for conditions that do not require them. For example, don’t take antibiotics to treat viruses like the cold or flu.
- Do not take antibiotics simply because your urine has bacteria. It is very common for people with SCI to have bacteria in their urine, so you usually only need to take an antibiotic to treat a UTI when you begin to you have signs and symptoms.
  - Antibiotics may be used to prevent infection in some situations. For example, women with SCI are often prescribed antibiotics to prevent UTI during pregnancy.

## What are the signs and symptoms of UTI?

You may have UTI if you start having one or more of these signs or symptoms.

- Fever (usually at least 100°F or 38°C)
- Chills
- Nausea
- Headache
- Urine with mucus and/or sediment
- Feeling tired or sluggish
- Changes in muscle spasms
- Dark or cloudy urine and/or urine that smells bad
- Lower back pain, if you have sensation in that area
- Autonomic dysreflexia, if your injury is T6 or above

## What should I do if I have signs and symptoms of UTI?

- Contact your health professional right away for advice on treatment.
- Always provide your health professional with a urine sample for testing. The test results are needed to prescribe the most effective antibiotic to treat the specific bacteria that is causing the UTI. The test also helps to make sure that the infection is not being caused by other health problems.
  - Collect the urine sample in a sterile cup using a sterile catheter. Do not collect the urine from a leg bag or night bag.
  - After you’ve collected your urine sample, give it directly to your health professional within 2 hours of being collected. If there is a delay, keep the sample cool or refrigerated.
- Take the antibiotic exactly as prescribed and over the prescribed time frame. Do not stop taking it when you begin to feel better.
- Drink plenty of water to wash out more of the bacteria. Stop drinking liquids with alcohol, caffeine, and sugar.
  - Ask your health professional if intermittent catheterization should be done more often than normal.
- Contact your health professional if you continue to have signs or symptoms of infection after you finish taking the antibiotic.

## Authorship

*Urinary Tract Infection and Spinal Cord Injury* was developed by Phil Klebine, M.A., and Keneshia Kirksey, M.D., in collaboration with the Model Systems Knowledge Translation Center.

**Source:** Portions of this document were adapted from materials developed by the UAB SCI Model System and Rocky Mountain Regional Spinal Injury System.

**Disclaimer:** This information is not meant to replace the advice of a medical professional. You should consult your health care provider regarding specific medical concerns or treatment. The contents of this fact sheet were developed under a grant (number 90DP0012) from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). NIDILRR is a Center within the Administration for Community Living (ACL), U.S. Department of Health and Human Services (HHS). The contents of this fact sheet do not necessarily represent the policy of NIDILRR, ACL, and HHS, and you should not assume endorsement by the federal government.

**Copyright** © 2017 Model Systems Knowledge Translation Center (MSKTC). May be reproduced and distributed freely with appropriate attribution.