

**Approximately 40% of women and 12% of men have a urinary tract infection at some time in their life.** Women are more likely to develop these infections because the female urethra is short. Bacteria can reach the bladder from the urethra in a woman more easily than in a man.

## Definition

Urinary tract infections can affect the bladder, kidneys, and urethra. Bacteria are usually present in the bladder and urethra and may spread to the kidney and ureters. It occurs when bacteria, parasites, or fungi enter the urinary system.

Recurrent urinary tract infections (UTIs) are much more common in females. They peak during early childhood, during the sexually active age, and then again, in later life. Bacteria from the vagina and rectum can enter the bladder through the urethra during sexual intercourse, or as a result of poor hygiene. Many factors determine if a symptomatic infection will result:

- The amount and type of bacteria introduced
- The ability of the bladder to resist infection
- The ability to empty the bladder of urine
- Frequency and amount of urine produced
- Anatomic abnormalities

## Risk Factors

- **Poor Hygiene**—Wiping from back to front will facilitate bacteria entering the urethra and bladder. Always wipe from front to back to avoid infections, and keep the area clean with daily washing.
- **Sexual Activity**—May irritate and push bacteria into the urethra. (*see Hygiene section*)
- **Poor Bladder Emptying**—Not emptying the bladder every time the urge to urinate is present. May be aggravated by an enlarged prostate, kidney stones, and urethral strictures.
- **Inherited Disorders of the Kidneys**—such as horseshoe kidney, ureteral duplication and vesicoureteral reflux) can result in increased risk of urinary infection due to abnormal urinary drainage.
- **Menopause**—Estrogen maintains an acidic environment in the vagina, which prevents urinary tract infections. The lack of estrogen associated with menopause makes infection more likely.

## Symptoms

- Painful/burning urination
- Pressure/pain in abdomen
- Poor urinary stream
- Urine odor
- Blood in urine
- Night time urination
- Urinary frequency
- Urine leakage
- Cloudy urine

## Diagnosis

- **Urine Culture**—An examination of the urine that checks for the growth of bacteria and for which drugs they are sensitive to.
- **Urinalysis**—An examination of the urine used to detect an infection through an analysis of red/white blood cells and bacteria.
- **Cystoscopy**—An examination where a narrow scope is inserted into the urethra and then into the bladder to determine abnormalities in the bladder and lower urinary tract.
- **Ultrasound**—A procedure, which uses sound waves to create images of your bladder and kidneys.
- **IVP**—intravenous pyelogram: an x-ray of the kidneys, ureters and bladder using dye injected into the arm.

## Treatment

- **Antibiotics**—Used for acute infections. May be given once the urine is tested for sensitivity levels to a variety of antibiotics. May also be given to help prevent future infections.

**Prevention** (*provided there are no other underlying conditions, i.e. in an otherwise healthy person*)

- **Hydration**
  - Adequate fluid intake is an essential part of preventing urinary tract infections. The urinary tract relies on water to drive its waste detoxification process. One aspect involved in preventing urinary tract infections is the flushing of bladder contents and urine is mostly...water.
  - Recommend 8 to 10 glasses of clear liquid per day. Divide your fluid intake so that you are taking in fluids throughout the entire day. To avoid getting up at night to use the bathroom, limit fluids 2 to 3 hours before bedtime.
  - All liquids ARE NOT equal when it comes to urinary tract health. Avoid caffeine and alcohol as they may increase the symptoms of a UTI.
- **Hygiene**
  - After using the bathroom, wipe from the front to the back (Women)
  - Avoid long baths, bath additives (bubble bath, scented oils, etc.), and hot tubs
  - Avoid colored or perfumed toilet paper
  - Use condoms during sex
  - Choose a hypoallergenic, water-based lubricant
  - Void before intercourse
  - Void after intercourse
    - Drink a full glass of water soon after intercourse
    - Try to void w/i 30 mins after intercourse; do not force yourself to void
  - For women, tampons use should be minimized and when used should be removed before urinating and replaced after.
  - Avoid tight fitting pants; choose cotton over synthetics
- **Improve bladder emptying**—Urine that is not voided may cause infections; empty your bladder whenever you feel the urge to urinate.
- **Incontinence Pads**—Use for leakage (do not use sanitary napkins).
- **Antibiotics After Sex**—If infections are related to sexual intercourse, one dose of an antibiotic after sex can be a very effective preventive measure.
- **Bladder Sterilizers**—If antibiotics are a concern because of a tendency to develop yeast infections, bladder sterilizers can be used. These are medications such as Mandelamine and Hiprex that create an environment in the bladder that is hostile to bacterial growth.
- **Estrogen Replacement Therapy** — (women only) Estrace or Premarin cream, vagifem tablets or the estradiol ring can be used as local estrogen therapy. This is usually prescribed by the gynecologist after a discussion of the potential risks and benefits.

**Alternative Prevention** (*Consult your physician before attempting these therapies*)

- **Vitamins**— (The use of Vitamin C has not been clinically proven effective in decreasing the incidence of UTI) Vitamin C serves many uses in the human body. As ascorbic acid, vitamin C contributes to keeping the urine more acidic, and may help to prevent bacterial overgrowth in those with less acidic urine. Because vitamin C is water soluble; it does not stay in the body for very long. Therefore, spacing out your vitamin C intake is important. It is important to note that high citric acid intake has been linked to an increase in bladder irritation in patients with over-active bladder.
- **Cranberry**— (Use of cranberry juice and/or extract has been clinically tested with varied results) Cranberry may help to prevent bacteria from adhering or sticking to the inside of the bladder.

- **Probiotics** — (Use of probiotics in order to decrease the incidence of UTI has not been clinically verified)  
Not all probiotics are created equal. Many probiotics on the market contain little to no actual live bacteria. For this and other reasons, it is important to choose a product that has been tested and found to have what the label claims is in the product.