



Urinary Tract Infection and Pregnancy

Question: I am 3 months pregnant and was told by my doctor that I have a urinary tract infection. I am taking antibiotics, because he said the infection can cause miscarriages. I have three questions – 1) what causes urinary tract infections, 2) why didn't I have any symptoms? (I've had a urinary tract infection before and it was very painful), 3) do you recommend cranberry juice for preventing it ?

Urinary tract infections (UTIs) are the most common bacterial infections in adult women. They are 14 times more common in women than in men. By age 24, about one-third of women have had at least one physician diagnosed UTI that was treated with prescription medication. So thanks for your important questions!

The many chemical, physiological, and anatomical changes during pregnancy help make UTIs the most common pregnancy complication. Complications can include miscarriage, kidney infection, preterm labor, preterm rupture of membranes, preterm birth, and uterine infection. Because 5-10 % of UTIs in pregnancy are asymptomatic, as yours is, a urine test for bacteria is routine at the first prenatal visit. Cause and prevention go hand-in-hand and can be greatly influenced by fluids and diet. Women with recurrent UTIs may have more hidden, underlying causes that are hard or impossible to prevent and difficult to treat.

Women are susceptible to UTIs due to the following anatomical facts: women possess a relatively short urethra (the tiny tube through which urine passes from the bladder to the outside); the external third of the female urethra is in close proximity to the rectum, the source of most pathogens involved in UTI infections; and bacteria can travel up the urethra more easily during sex. Pregnancy hormones cause the urethra to be a bit more open than usual and alter the upper urinary tract tone and movement, which can lead to urinary stasis, or pooling. Greater insulin resistance in pregnancy can cause the kidneys to spill sugar into the urine, following carbohydrate-dense drinks, snacks, or meals. These normal adaptations, along with compression of the bladder and urinary tract by a growing baby, can promote entry for and growth of bacteria.

An asymptomatic infection involves only the lower urinary tract and probably wouldn't have been detected prior to pregnancy, when you presumably weren't getting routine urine tests, or urinalyses. A lower tract infection without symptoms that is left unchecked or untreated can ascend to the bladder, causing bladder irritation and inflammation and resulting in the symptoms we associate with UTIs: lower back and pubic pain, burning, bleeding, and frequent, urgent, dribbling urination. This condition is called acute cystitis. In pregnancy, symptomatic UTIs have only about a 1-3% frequency and are usually diagnosed later. Acute cystitis that is left untreated can ascend to the kidneys, causing inflammation of one or both kidneys. This is called pyelonephritis and is usually acutely painful and can result in death (this is what Emily Dickinson died of). Kidney infection requires hospitalization for intravenous hydration and antibiotics.

Research tells us that a first-trimester asymptomatic infection most likely started before your pregnancy. The standard recommendation is to treat it with an antibiotic to prevent ascending infection. You should get another urine screen or test following treatment to make sure the infection is cured and have your urine screened or tested periodically thereafter to make sure it doesn't return. If your initial urine test is negative, your likelihood of developing an asymptomatic infection during pregnancy is 5% or less.

Commonly recommended UTI prevention techniques include wiping front to back, emptying your bladder as soon as you feel the urge, wearing cotton underwear, avoiding potentially irritating “hygiene” products and soaps, not douching, urinating as soon as possible after sex, and drinking plenty of non-sugary, non-caffeinated liquids. However, recent controlled research has shown no significant difference regarding UTI prevention in voiding habits (infrequent, post-coital, pre-coital, delayed voiding), fluid intake (<6 glasses of water a day), or “wiping” techniques. Based on my own clinical observations, I recommend avoiding long periods of sitting. If you have a desk job, long commutes, or a long trip planned, devise ways of taking stretching or bathroom breaks every hour or two.

For a more thoughtful and thorough consideration of UTI prevention, let’s talk about the mechanism by which women acquire UTIs. Harmful bacteria from the intestinal tract move up the perineum to the vagina, then to the urethra and ultimately the bladder, where the microorganisms multiply and invade. In a 2002 review article in *Urologic Clinics of North America*, the authors write, “Scientific data support the conclusion that vaginal lactobacilli are an important host defense against UTI. In healthy premenopausal women, the vaginal environment is acid, with *Lactobacillus* species as the predominant bacteria. This vaginal ecosystem is one of, if not the only, primary host defenses against UTIs.” An acidic, lactobacilli-rich environment prevents establishment of prolonged colonization by bad bacteria, particularly *E. coli*, the infectious agent in about 80% of UTIs. Factors that alter normal microflora and increase pH (towards less acidic) increase the risk of colonization by harmful bacteria. These risk factors include exposure to antibiotics and spermicide use.

If you wish to prevent a repeat UTI and future antibiotic exposure, consider actively promoting a healthy lactobacilli balance and an acidic vaginal pH. You can do this by incorporating living, enzyme-rich foods in your daily diet. Besides fresh vegetables and fruits, this includes foods with active lactobacilli cultures and naturally fermented foods. Avoid difficult-to-digest and rancid foods that irritate the lining of your gut. Limit your carb loads. You can supplement with a probiotic such as *Pb8* or *Primadophilus* or other mix of probiotic strains. You can take vitamin C with bioflavonoids every day. Prior to pregnancy, you can avoid spermicides with nonoxynol-9, a potent toxin that kills lactobacilli but not UTI pathogens.

Finally, Cranberry juice has been shown by recent high quality studies to be effective in UTI prevention for some women. It has not been shown to be an effective treatment once you have a UTI. Cranberry seems to work by inhibiting bacteria from adhering to cells lining the urinary tract. Cranberry can be taken in an unsweetened juice form, diluted with water from concentrate, or in capsule form. One capsule or one small glass of juice each day was shown to be an effective preventive dose.

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This text was originally published in the Willy Street Co-op Reader in the **Ask the Midwife** column, where Ingrid Andersson of Community Midwives, LLC in Madison, answers questions on pregnancy, childbirth and related topics. More of these articles can be found at Ingrid’s website: www.gentlehomebirth.org