

# Bladder Basics in Polio Survivors

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*Dr. DeMayo, I have PPS. In the last few years I have experienced bladder issues. I have urine retention. On a recent CT Scan, It showed pelvic muscle atrophy. Is there a connection with Bladder problems and Polio? Were Pelvic muscles effected by the virus?*

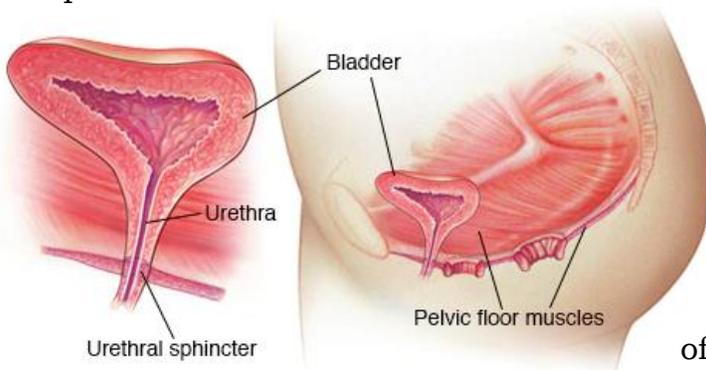
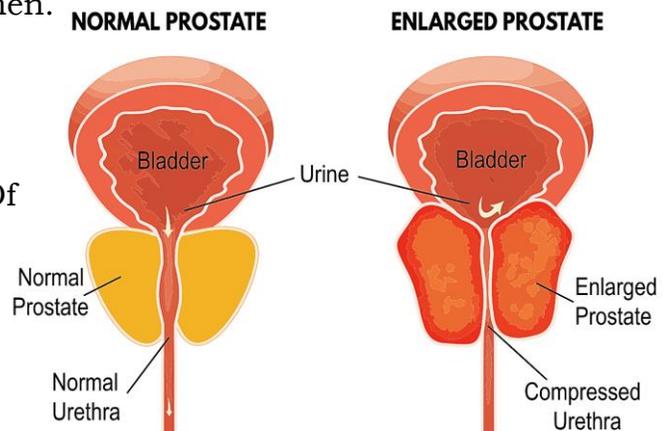
Great Question! Unfortunately, there is not a great, short answer. Nevertheless, like most good questions, there is an opportunity to use this as a learning opportunity.

First a few basics...

- 1) The first Basic Bladder issue is that bladder issues in men are far different then in women. I will discuss both men and women.

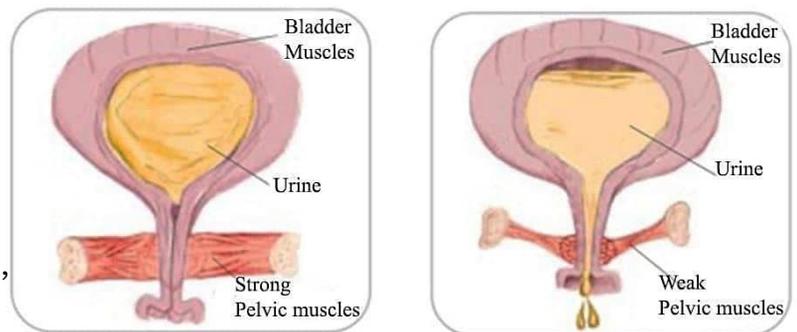
By far, the most common source of urine retention (inability to empty the bladder) is obstruction of outflow caused by the prostate in men.

PPS itself does not cause urine retention in the bladder. Having said that, one needs to be sure that retention is in fact the problem. This is usually done with an ultrasound of the bladder after a void to see if to much urine still remains. Of note, frequent urine incontinence (inability to control urine / wetting one's self) can be either due to urine retention with "overflow" leakage OR due to a lack of resistance to flow. The latter is far more common in PPS due to weakening of the pelvic floor as discussed below.



Also, incontinence is for more common in women compared to men due to multiple factors including a shorter urethra (the tube connecting the bladder to the outside), the urethra having less of a bend (especially when the pelvic floor drops), and lack of resistance of the prostate. Additionally, the bladder storage capacity in women tends to be smaller (partly due to presence of the uterus).

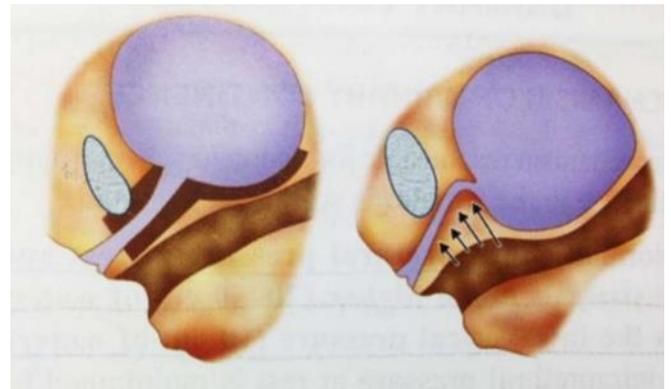
- 2) The second Basic Bladder issue is that neurological issues can have a major impact on urologic function. The bladder can become either over active or one can loose the awareness of bladder filling. Coordinated control of the bladder storage and emptying requires the interaction of muscles in the bladder wall, nerves from the bladder to the spinal cord, reflexes coordinated within the spinal cord and control from the brain (both with conscious awareness and without). Stroke, Brain Injury, Spinal Cord Injury, Multiple Sclerosis and many other neurological conditions can result in incontinence due to what is termed an "upper motor neuron



**Weak pelvic muscles causes poor bladder control and Urinary Incontinence**

bladder”. Since Polio is a lower motor neuron problem, we won’t discuss these more other than to say that Polio patients are not immune from any of the above conditions so they should always be considered. Also, the normal aging process can create a “hyper reflexive bladder” that can mimic an upper motor neuron problem.

- 3) The Bladder Basic that is most pertinent to Polio survivors is that the pelvic floor muscles play a profound role in bladder function. Any older individual is subject to this issue but those who have restricted mobility or a prior reason to have pelvic floor weakness are certainly more at risk. “Stress Incontinence” results when a cough, a laugh or a sneeze increases the pressure in the abdomen and thereby increases pressure on the bladder. It occurs when the resistance to outflow is low and this is especially the case in women. Polio can certainly cause weakness in the pelvic floor muscles and this weakness can progress in cases of PPS.



Additionally, a history of child birth, recent sedentary lifestyle and weight gain can all add to relative weakness of the pelvic floor. Weak pelvic floor muscles are directly associated with less resistance to outflow. They play an important role in supporting the bladder, directly tightening the area around the urethra as well as creating a “kinking” effect with cough, sneeze or other activity which further increases resistance.

- 4) The last Bladder Basic is that many times bladder management is NOT Basic. Urine infection, bladder / kidney stones, stress, physical activities, behavioral concerns and many other issues can significantly impact bladder function. As such, all significant symptoms that do not resolve, should be evaluated. Referral to a urologist should always be considered if symptoms fail to resolve with treatment by a PCP.

Additionally, some Physical Therapists specialize in Pelvic Floor therapy. They can often be found through your urologist, [PM&R](#) physician or GYN. Like any muscle, the pelvic floor can be over fatigued and so treatment of a patient with PPS should be individualized and not focused on just intensive pelvic floor strengthening. A good PT specializing in this area can often provide lots of tips to improve symptoms. An example would be an older person who repeatedly has incontinence on the way to the bathroom. By the time they realize the bladder is full they risk an accident because the act of moving from sit to stand causes a reflex spasm of the bladder and the pelvic floor is not strong enough to resist this. Thankfully, there is an opposing reflex that inhibits the bladder (briefly) after 3 strong but quick contractions of the pelvic floor (Kegel type contraction). Thus, if this person takes 10 seconds to do these 3 contractions prior to standing, they can sometimes counteract the reflex bladder activity just long enough to get to the toilet.

A full explanation of bladder management is obviously well beyond the scope of this brief article. At the same time, I hope I have provided some insight into the way some bladder issues arise and provided hope that there are solutions.

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