Urinary Incontinence After Prostate Cancer Surgery & Radiation Therapy

Why does incontinence occur after prostate cancer surgery?

Incontinence is the unwanted leakage of urine. There are two sphincter muscles that keep men continent (able to control urine) before radical prostatectomy (RP). These are the internal urethral sphincter and the external urethral sphincter. The internal sphincter is not under your control. It is found at the bottom of the bladder, called the "bladder neck." This is removed during RP surgery because the prostate cannot be taken out without removing this sphincter. The external sphincter is found below your prostate. You can control your external sphincter. It is the muscle you can use to stop your urine stream. You can strengthen this sphincter with pelvic floor muscle (Kegel) exercises.

Normally, an intact, healthy external sphincter is enough to help a man remain continent after surgery. However, after RP, there can be some damage or dysfunction of the external sphincter. This damage or dysfunction can prevent recovery of bladder control. This may be due to damage to the nerves, blood supply, supporting structures, or the muscle itself as the external sphincter is located just below the prostate gland.

What types of incontinence can occur after RP surgery?

There are two main types of urinary incontinence in men after RP.

- **Urgency incontinence** is when you feel the "urge" to urinate but cannot make it to the toilet in time. This is generally due to bladder spasms and often responds to medical therapy. This type of incontinence is thought to be mostly due to changes in the way the bladder behaves after surgery.
- **Stress urinary incontinence (SUI)*** is leakage of urine with exertion or effort and can happen when you cough, sneeze, lift something heavy, change position, swing a golf club or exercise. This type of incontinence may be caused by damage to your external sphincter muscle as described above. Almost all men will have some degree of SUI immediately after catheter removal. You may be given instructions on how to perform pelvic floor exercises to improve urinary control.

Do all men have incontinence after RP surgery?

No, most men see a quick improvement in incontinence during the first few months once the catheter is removed. However, incontinence can remain an issue for some men 1 year after surgery. Most surgeons will consider a man continent if they do not regularly use incontinence pads and only have occasional dribbling with lots of activity. Most importantly, however, is how bothersome your urinary incontinence is to you. The goal is to improve your quality of life as much as possible.

Who is at risk for developing incontinence?

We are not sure why some men have troublesome incontinence that continues after surgery, while other men do not. There is some evidence that many things may contribute to the persistence of SUI after surgery, including:

- Older age.
- Larger prostate size prior to its removal.
- Smoking.
- Diabetes or other neurological disease.
- Excessive blood loss during surgery.
• Need for cutting nerves during surgery.
• Size or stage of prostate tumor.
• Radiation after surgery (see below).
• Previous surgery for BPH.

How can radiation therapy after prostatectomy affect incontinence?

Some men may need additional treatment after prostatectomy. This might include radiation therapy to the "prostate bed" (the area where the prostate was located). While every effort is made to lessen the amount of radiation that hits normal tissue around the prostate bed, some normal tissue will receive a low dose of radiation. This includes the external urinary sphincter. The radiation may irritate the external sphincter, urethra, and bladder during radiation therapy and for a short time after. This can lead to worsening incontinence that often improves in the weeks to months after completing radiation. Some men may develop increased incontinence in the months to years after radiation therapy, due to scar tissue buildup. This can cause the external sphincter to not properly open and close.

What should I do after radiation therapy to reduce incontinence?

After radiation therapy, men should continue with the daily pelvic floor (Kegel) exercises they performed after their prostatectomy. Pelvic floor exercises help strengthen the muscles at your bladder outlet, which helps to improve, regain, or maintain bladder and bowel control.

To identify your pelvic floor muscles, stop urination in midstream or tighten the muscles that keep you from passing gas. If you tighten your pelvic floor muscles while looking in the mirror, the base of your penis will move closer to your belly and your testicles will rise. Do not tighten the muscles in your belly, thighs, or buttocks.

Once you have identified the muscles, aim to perform 3-10 sets of 10 repetitions every day. Some sets should be with long muscle contractions (tightening of the muscles) and others with quick muscle contractions:

• Long contractions: Slowly increase the time you can hold the contraction until you can hold for 10 seconds. Rest for 10 seconds between each contraction.
• Quick contractions: Quickly tighten then relax the muscles.

Decreasing intake of caffeine, alcohol, and bladder irritants (sugary juices, acidic foods, like tomatoes, carbonated drinks) can also help decrease incontinence. Aim to drink at least 4-6 glasses (32-48 oz) of water every day.

What if the incontinence does not improve or is bothersome?

If you have a bothersome amount of incontinence or if it does not improve with the above measures, many men will benefit from seeing an incontinence practitioner. There is a wide range of treatments available.

Once you decide to see an incontinence practitioner, be prepared to answer questions regarding the type of symptoms you are having, the number and type of pads you might be using, and previous treatments you have had for prostate cancer and for incontinence. You should be honest about how much the incontinence bothers you, and how willing you are to have additional treatments, potentially including surgical procedures.

During your first visit, the incontinence specialist will take your history and perform an exam. You will likely be asked to give a urine sample to rule out infection or blood in the urine. A "bladder scan" (quick ultrasound of the bladder) is often done in the office to see if you are completely emptying your bladder when you urinate.

The incontinence specialist will likely discuss more conservative treatments at first. A more rigorous pelvic floor exercise program might be recommended. You may also be given a biofeedback machine that allows you to see how strong your pelvic floor muscles are. The specialist may also discuss various medication therapies.

What if these treatments do not work?
If these interventions do not work, you may be referred to a urologist for additional tests on your bladder and sphincter. These tests will determine what type of incontinence you have, how well your bladder is working, and what other treatments might be best for you. This often involves a urodynamic test and a cystoscopy. Both of these procedures are performed in the office, usually during the same visit. They provide your urologist with specific information to help find which procedure might be best for you.

The urodynamics test involves placing a very small catheter in your bladder. This catheter fills the bladder with fluid and measures bladder activity and pressure during filling and voiding (urination). You will also be asked to cough and strain so your provider can see if and how easily you leak urine.

A cystoscopy may also be performed to look at the urethra, the anastomosis (the area where the bladder is put back together with the urethra after the prostate is removed during surgery), and the bladder. After these tests, your provider will go over the results with you and recommend which treatments are best suited for your condition.

**What are the different surgeries for incontinence?**

There are three main types of surgical treatments for men who have incontinence following a RP:

1. **Urethral bulking** procedures are minimally invasive treatments performed endoscopically (through a cystoscope). A certain material is injected just underneath the lining of the urethra. This makes the urinary passageway smaller and can lead to an improvement in incontinence. This is usually performed as an outpatient procedure, either with or without anesthesia. You can often return to normal activity immediately. Since your body usually reabsorbs the material over time, this procedure often needs to be repeated every 9-15 months as the incontinence may recur. The risks of this procedure are generally minor and can include, but are not limited to, bleeding, urinary tract infection, and temporary urinary retention. Rarely, patients may feel that their incontinence is made worse by the procedure.

2. **Male perineal sling** procedures are done in the operating room under anesthesia. The operation entails a small incision in your perineum (the area between the scrotum and anus). A strip of mesh is placed underneath the urethra and is used to elevate and slightly compress the urethra. Recovery is short and there is usually minimal discomfort or pain after the procedure. You will be asked to limit your activity for 4-6 weeks after surgery to allow the sling to scar into place so it does not move after the procedure. Success tends to be best in men with minimal to moderate incontinence (1-3 pads per day). Risks of the procedure include, but are not limited to, bleeding, skin or mesh infection, pain, erosion into the urethra (rare), inability to urinate (rare) and failure of the surgery to improve continence.

3. **The Artificial Urinary Sphincter (AUS)** is the most reliable and often most effective surgical treatment for incontinence after RP. It is a silicone implant with 3 parts: a cuff that goes around the urethra and squeezes it closed, a small fluid reservoir, and a control pump that is placed underneath the skin in the scrotum. The cuff is normally closed and squeezes the urethra shut, which prevents leakage of urine. You must squeeze the small pump in the scrotum to open the cuff and urinate. The cuff refills and closes on its own after 3-4 minutes. You are kept overnight in the hospital. The operation can be performed either through one small incision at the top of the scrotum, or through two separate incisions: one in the perineum and one in the groin. Recovery is also short with this procedure, although the device will not be activated for 4-6 weeks after surgery. Your incontinence will not change until the device is activated in the office. This procedure is suitable for all degrees of incontinence severity. This surgery, however, has slightly more risk of serious complications, mostly relating to the implant itself. Risks include, but are not limited to, bleeding, skin or device infection, erosion into the urethra, device malfunction, and urethral atrophy (the tissue surrounding the urethra becomes compressed and thin over time which may lead to recurrent incontinence).

Talk to your urologist for more details about your options and the risks and benefits of your situation.