Urinary Incontinence Treatment Following Prostate Cancer Treatment

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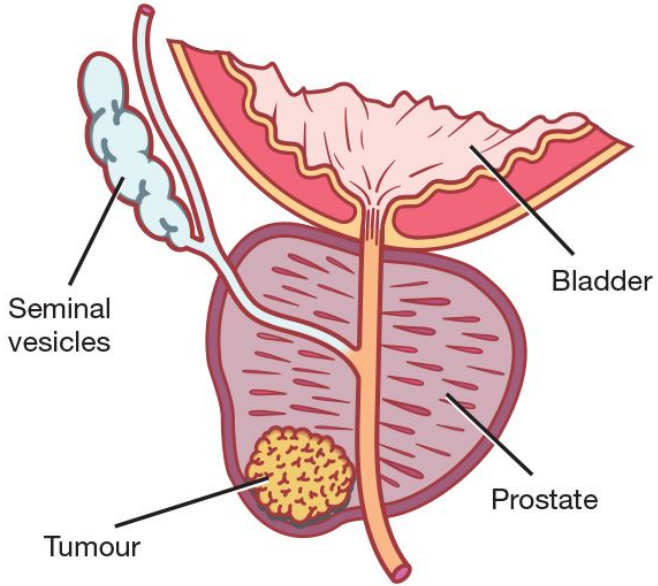
Objectives

- Learn about the pathology of prostate cancer as well as the various options for treatment, mainly the RALP procedure.
- Discuss side effects to prepare for post-prostatectomy and learn about various types of incontinence and erectile dysfunction.
- How physical therapy and exercise can help improve incontinence symptoms and outcomes post surgery
- Strategies to increase overall activity and strength for improved health outcomes and quality of life.

Quick Background

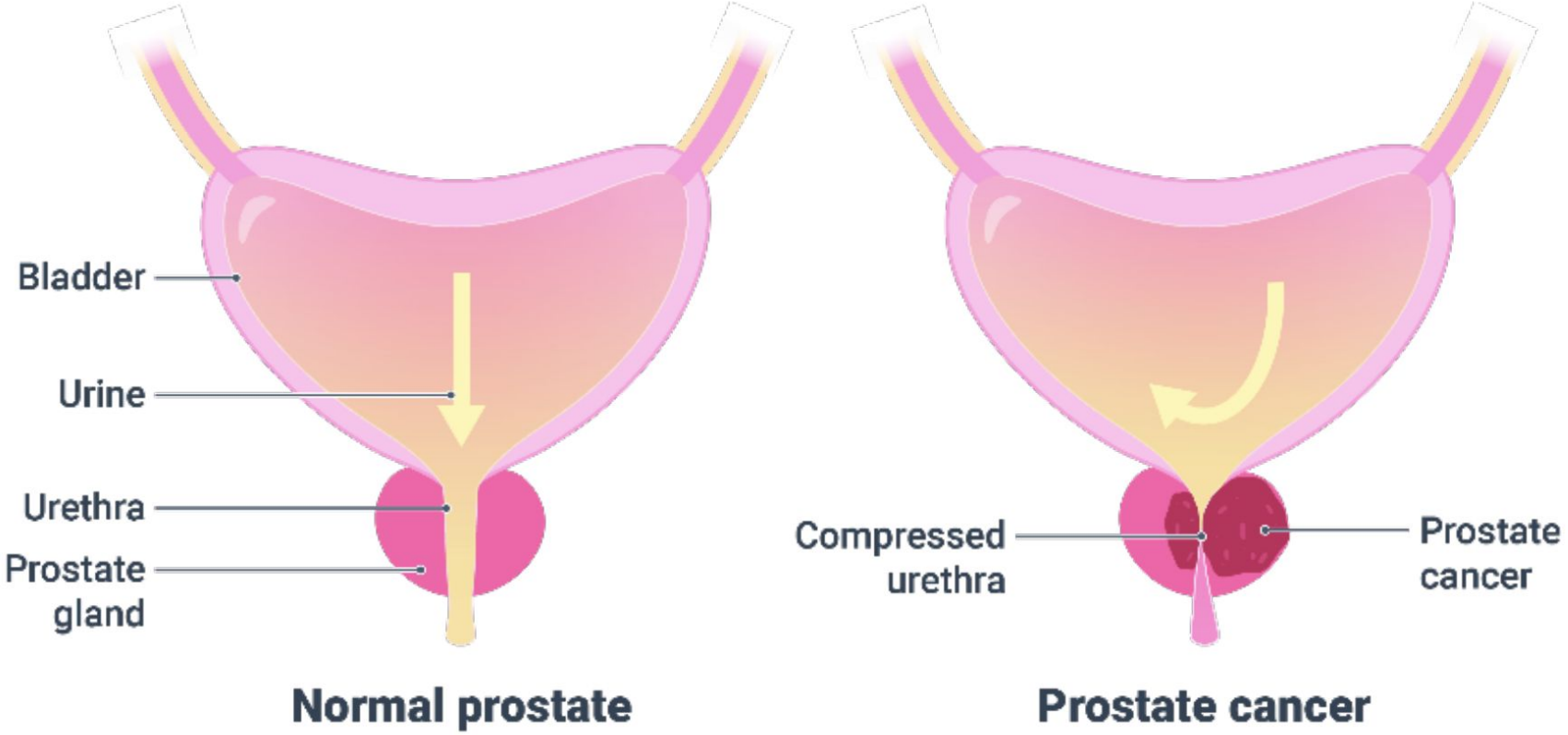
- Received DPT from MGH Institute of Health Professions in Charlestown
- Born and raised in Mass (Cambridge).
- Working with individuals with Prostate cancer for the past 2 years at BIDMC.
- Advocate for all forms of physical activity (weightlifting, running, cycling and hiking being my favorites)

Prostate Cancer (PCa) Background



- One in six men diagnosed with PCa
- One in two risk if a man has an immediate relative who has also been diagnosed with PCa
- Risk factors for prostate cancer, as well as increased side effects following include; rising age, cardiovascular disease, diabetes, obesity, sedentary lifestyle, alcohol consumption

Aggregation of abnormal cells in the prostate gland



Treatments for Prostate Cancer

Non-Surgical:

- Chemotherapy: Medications which are toxic to the cancer cells
- Radiation: High doses of targeted radiation to damage the cancer cells

Surgical:

- Robotic Assisted Laparoscopic Prostatectomy (RALP): Gold standard treatment, globally.
- Other options for benign prostatic hyperplasia (BPH) include HoLEP and TURP procedures.

Robotic Assisted Laparoscopic Prostatectomy.

- Involves removal of the whole prostate gland, seminal vesicles (where semen is produced) and, if indicated, removal of surrounding lymph glands.

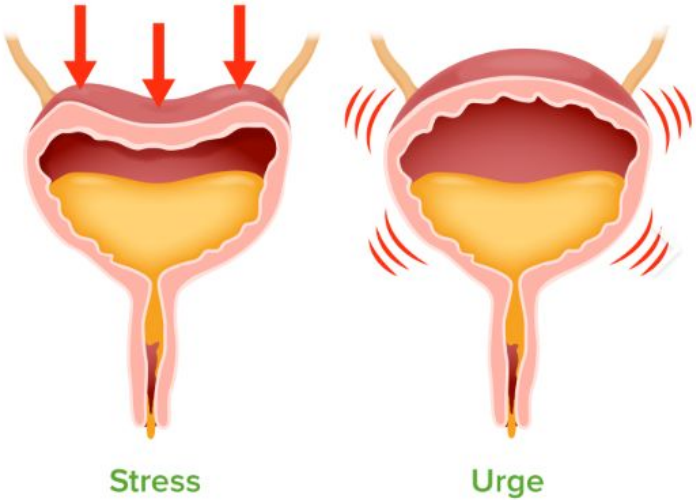
-During this procedure certain musculature that helps control continence must be removed and there is possibility of nerve damage.

-Many men are candidates for nerve sparing procedures.

Side Effects Following Prostate Removal

- Urinary Incontinence: 80-98% of men affected
  - -Typically a 6-12 month recovery
- Erectile Dysfunction 68-98%
  - Typically a 1-3 year recovery. (More dependent on surgical techniques and prior status vs exercise)
- Peyronie's disease 16% (23% with radiation therapy)
- Those undergoing radiation or chemo may also experience bowel sx: diarrhea, constipation, rectal bleeding, incontinence.

Urinary Incontinence



- 2 main forms; Stress and Urge
- Urge Incontinence: Presents as a very strong urge to urinate which increases until so intense that individuals are unable to hold it.
- Stress Incontinence:
  - The type following RALP
  - Typically presents as incontinence during activities (Cough/Laugh/Sneeze/STS/Lift/Stairs/Walking.)
  - Can also become more prevalent by the end of the day, when these muscles are fatigued from working all day.
  - Climacturia: urinary incontinence after orgasm
  - Bladder irritant Consumption: Caffeine, Alcohol, Carbonated and Acidic Beverages

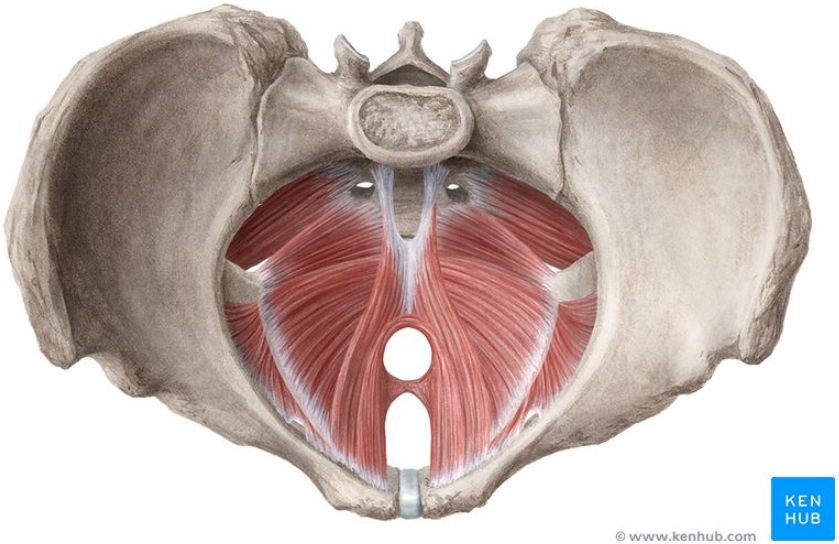
Erectile Dysfunction

- 98% will experience ED
- 100% will experience loss of ejaculate (Removal of Seminal Vesicles)
- 47% can experience penile length loss ~1-4cm
- 25% will experience penile sensory changes
- Orgasm: climacturia (93%) and decreased orgasm intensity. Very few men will experience pain or loss of orgasm (5%)

The Function of the Pelvic Floor in Men

- Most men have never heard of the pelvic floor or are unaware that they can have problems with it.
- Acts as muscular connection between the trunk and the lower limbs
- Balance and core stability
- Breath and respiration
- Continence (urinary and bowel)
- Sexual functions

Anatomy of the Pelvic Floor

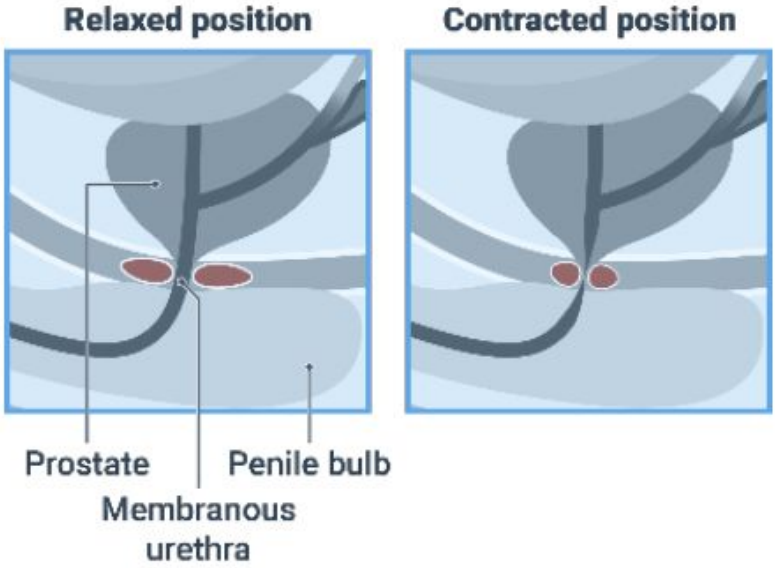


- **3 main muscles involved in continence**
- Innervated by important nerves such as the pudendal and the hypogastric
- Split between powerful fast twitch muscle fibers (think sprinter) and endurant slow twitch muscle fibers (think marathon runner). These are trained in different ways but are equally important.

Pelvic Floor Muscle Tension

- Falls into 2 general classifications (similar to other muscles):
- Decreased Tension: Weak and under active. This results in stress incontinence and urinary urgency
- Increased Tension: Tight and over active. This results in painful spasms, urgency and incomplete emptying.

Pelvic Floor Muscle Training



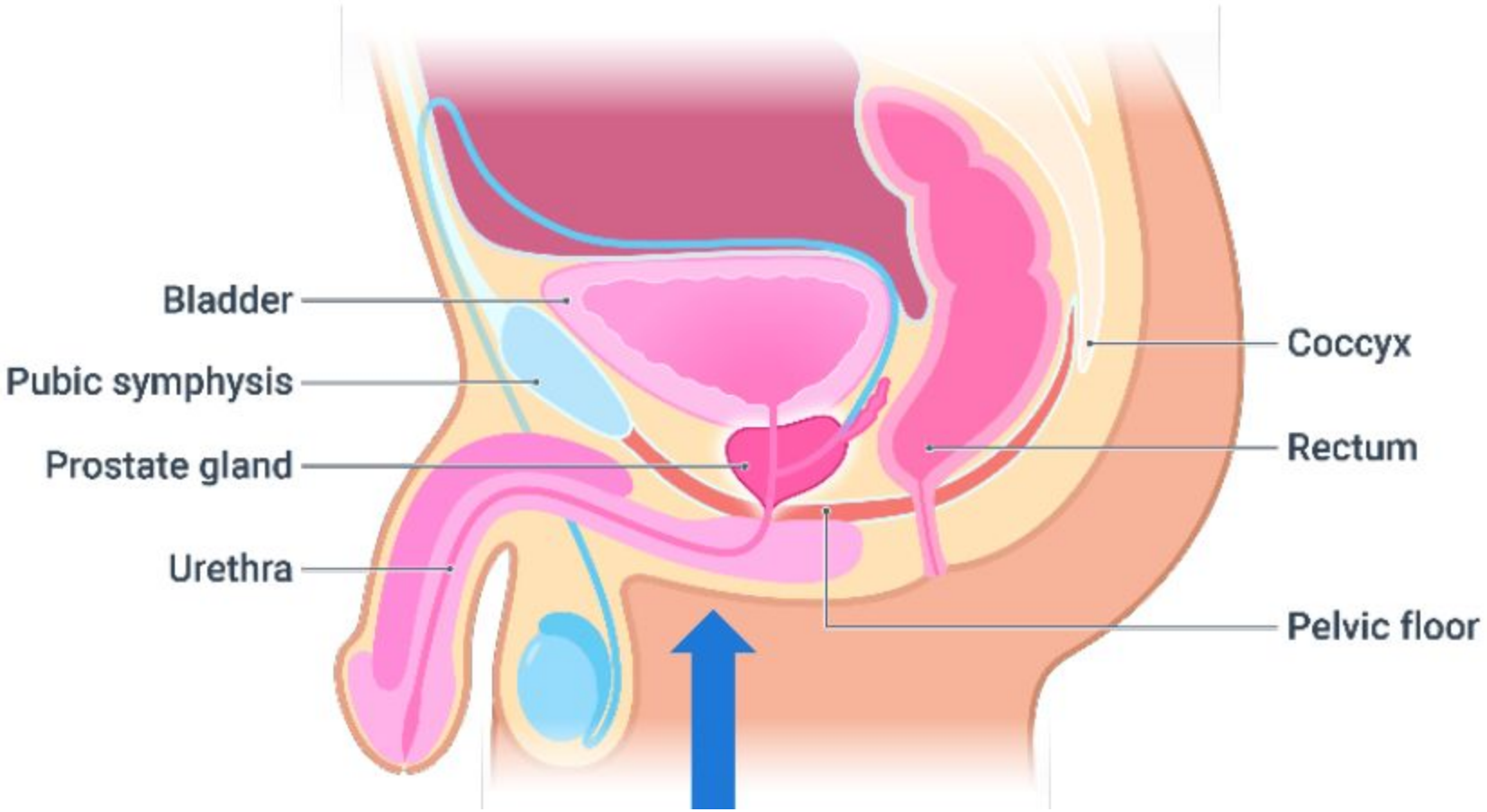
- Specifically to improve control of urinary continence.
- Goals: Building Awareness (avoiding unwanted contraction or relaxation, avoiding compensations), Building strength, endurance and power
- Kegel Exercise: This is using the muscles of the pelvic floor that we can voluntarily control to lift and tighten the pelvic floor, closing off the urethra to inhibit urinary flow.

Technique for Pelvic Floor Muscle Contractions (Kegels)

3 Cues:

- “Stopping the flow of urine”
- “Draw the testicles up or cause the penis to lift/retract”
- “Squeeze your rectum like you are trying not to pass gas”

This all sounds very technical but as long as you are achieving a feeling of lift in the pelvic area and there is some felt movement of the penis/testicles/rectum you can be sure these muscles are contracting. **(“Nuts to Guts”)**


Bladder
Pubic symphysis
Prostate gland
Urethra
Coccyx
Rectum
Pelvic floor

Compensations:

Often when the pelvic floor is weak other parts of their body will try and kick in to help out.

2 main compensations:

- Abdominal Contraction: Avoid tensing of the abdominal muscles
- Gluteal Contraction: Avoid squeezing together of the glute muscles (should not feel like they are lifting you off your seat)

Importance of Breathing: Exhale on exertion

Exercise Prescription

Think about these exercises like any other resistance exercise. Research from Dr. Joanne Milios (top researcher in post RALP rehabilitation) out of Australia shows us that the more volume of exercise the better (up to a point).

Prescription:

- 10x10s Hold (slow twitch)
- 10x10 quick contractions (fast twitch).
- 3-6x per day
- Standing if possible (push-up analogy)
- Contract as hard as possible

The sooner you start, the better.

If you are beginning this before surgery, it is important that you not perform any kegel exercises while the catheter is inserted, ~1wk post-op.

This is a strengthening program, progress will take time, improvements start to become apparent after the 8wk mark.

If there is any pain with the exercises, stop performing them and reach out to either your MD or PT

Outcomes with PFM training

- Research demonstrates PFM training is effective in restoring continence..
- Study in 2019 compared the standard of care with a more high intensity intervention (Milios 2019)
- Significant improvements over standard of care in both continence (measured by pad weight) and reported quality of life (measured by Epic-CP QOL in prostate cancer).

Measuring Progress

- Gold standard is bladder diary (1-3 day) measuring intake of fluids, output in either jug (ml) or time, activity tracking and pad weight.
- Can also track brief/pad use but this has flaws.
- Improvements in strength: Isolated hip and core strength, Hold times and repetition max for Kegels, Compound movements such as squats deadlift and lunges and your ability to maintain continence during them.

24-hour bladder diary			Date: _____		
Time	Drinks		Urine		Pads
	Amount (ml)	Type	Amount (ml)	Bladder sensation	
6 am					
7 am					
8 am					
9 am					
10 am					
11 am					

Functional Exercise for the Pelvic Floor

- The muscles of the pelvic floor work in conjunction with the hips and the core
- Squats, deadlifts, lunges, advanced core exercises all trying to maintain PFM contractions throughout the exercise
    - It will be much easier to maintain continence lifting a package from the floor if you can also do it while deadlifting 100lb
- Long term process to improve strength. After incontinence sx are under control they will be well maintained with this type of exercise.
- Transitioning back to certain forms of exercise or work

Lifestyle Factors

- Minimize caffeine consumption: This includes coffee, tea, soda, etc.
- Minimize Alcohol consumption
- Maximize water intake: 2L recommended
- Aim for 2-4hr between emptying the bladder to allow it to stretch and contract normally. Do not go to the bathroom “just in case”
- Adhere to general activity guidelines (more on this later)

Other Treatments:

- Pads and Briefs
  - 1 pack of each before surgery
  - Pads better for out of the house and lesser sx, easier to swap
  - Briefs better for intense activities such as exercise and for heavier sx, harder to swap
- Penile clamp
- Surgery sling or artificial urinary sphincter.

Erectile Function

- A longer average recovery of 1-3yr
- Dependent on erectile function prior to surgery and surgical techniques
- Erections are very related to cardiovascular health
- Lifestyle and Exercise Factors:
  - Minimizing alcohol, fatty foods, improve cardio health, decrease smoking
  - Follow general exercise guidelines for cardio and resistance training
  - Kegel exercises are still helpful in circulating blood in the pelvic region which can assist erectile function return.
- Penile Rehab

Penile Rehab

- Exercise can be helpful throughout: blood flow to the pelvic area can help facilitate healing, this includes pelvic floor exercises but also general aerobic exercise
- Administered by MD trained in penile rehab
- **Phase 1 (1-4wk):** will begin by employing medications if not already taking them.
- **Phase 2 (4-8wk):** use of vacuum constriction devices (VCD).
- **Phase 3 (1-3 months):** if erectile response has not been restored typically this is when penile injections are tried which can help stimulate erections.
- **Phase 4 (3mo-2yrs):** continue using all previously mentioned methods including general exercise, PFM, masturbation
- Long term (2+ years) if erectile function does not improve you can inquire with your surgeon about a penile implant surgery. These are case by case basis but have a reported 97% satisfaction rate.

Penile Rehab Team at BIDMC

- Headed by Dr. Marissa Kent, MD
- BIDMC Urology
- 330 Brookline Avenue, Shapiro 3, Boston, MA 02215-5400
- (617) 667-3739

General Exercise Guidelines

- Helps to slow PSA rise
- Improves: fatigue, virility, continence, mood, CV health, fitness, strength.
- Combo of aerobic and resistance exercise is best.
    - Resistance Exercise: 2-3x per week focusing on full body movements (squat, hinge, lunge, push, pull) 3x6-12 repetitions to 1-4 reps from failure.
    - Aerobic Exercise: 150 minutes of moderate-intensity physical activity a week (e.g., 30 minutes a day, 5 days a week). Swimming, jogging, cycling, rowing, cyclical activities.

What a Physical Therapy Evaluation and Treatment Plan may look like.

- In clinic or virtual initial evaluation:
  - Detailed history of current condition
  - Assessment of current abilities
  - Personalized cuing and exercise plan focused on maximizing recruitment of pelvic floor muscles and building functional strength for your desired activities.
  - Discussion of lifestyle modifications which may be helpful for your recovery
- Follow up:
  - Typically individuals will follow up with me on a weekly to monthly basis until they are satisfied with their sx.
  - Over this time period exercises are progressed and modified based on your progress to keep improvement going at a steady rate

Conclusions

- Prostate cancer is a very prevalent disease, affecting 1 in 6 men worldwide.
- Urinary and sexual sx greatly impact male quality of life.
- Support (like this group) is critical so that men do not have to go through these big and often frightening changes alone.
- Physical Therapy is a proven method to help control urinary incontinence and can be greatly beneficial in improving QOL following surgery.
- Recovery is not one size fits all but most men I work with will see good improvements within the 2-3 months following surgery and go on to have good control of their symptoms.

Questions?

Contact Info:

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Resources:

Kegel Handout
Bladder Irritant Handout
Bladder Diary

Resources

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