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Objectives

1. Describe male specific pelvic and pelvic floor muscle anatomy.
2. Define most common prostate related medical conditions and the possible surgical interventions.
3. Outline the differences and benefits of three different prostatectomy approaches.
4. Clearly describe the post prostatectomy impairments that lead to male SUI post operatively.
5. Understand the contributing medical conditions to both organic and secondary post prostatectomy erectile dysfunction.
6. Define the four classifications of prostatitis and the form treated with PFPT.
7. Formulate the male specific questions in the pelvic subjective examination.
8. Describe the male specific assessment scales and proper use of Medicare G codes.
9. Explain the goals of male pelvic floor strengthening following post prostatectomy surgical intervention.
10. Understand the treatment techniques used for patient’s with chronic pelvic pain.
Male Specific Pelvic Anatomy

Male Pelvic Anatomy

Male Urogenital Anatomy
Male Urethral Sphincter Anatomy

Prostate Specific Anatomy

Male Pelvic Floor Muscles
Innervation

Most Common Diagnoses Treated in Pelvic Floor PT (PFPT)

- Benign prostatic hyperplasia
- Post prostatectomy urinary incontinence
- Erectile dysfunction
- Prostatitis
  - Chronic pelvic pain

Benign Prostatic Hyperplasia

- BPH: Multiplication of normal cells causing enlargement of the prostate gland.
- Leads to urethra obstruction painful micturition
Benign Prostatic Hyperplasia

- **Age statistics:**
  - ~25% men aged 40-59
  - ~43% men aged 60-69

- **2 Main Stages:**
  - Microscopic - infiltration into periurethral zone
  - Macroscopic - infiltration into urethra causing stream changes

- Acute urine retention is a **red flag**

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BPH Surgical Options

1. Trans Urethral Resection Prostate (TURP)
   1. Treatment for BPH

2. Radial Prostatectomy
   1. Perineal approach
   2. Retropubic approach
   3. Da Vinci: Robotic Assisted Laproscopic

---

BPH Surgical Options

- **TURP:**
  - Bladder neck is resected

- Postoperative continence depends on strength and integrity of external urethral sphincter.
Prostate Cancer

- Estimated new cases and deaths from prostate cancer in the United States in 2016:
  - ~ 180,890 new cases
  - ~ 26,120 deaths
- 1 man in 7 will be diagnosed during his lifetime
  - Occurs mainly in older men
  - ~ 6 cases in 10 are diagnosed in men aged 65 or older, and it is rare before age 40
- Begins with adenocarcinoma originating in the cortex of the gland
  - Leads to blockage of urethra
- Etiology unclear

Prostate Cancer: Staging

- Stage 1: the cancer is small and only in the prostate gland
- Stage 2: the cancer is larger and in both lobes of the prostate but confined to the gland
- Stage 3: the cancer has spread beyond the prostate to local lymph glands or seminal vesicles
- Stage 4: metastatic cancer; has spread to other organs. Most common is bone.

Prostate Cancer: Gleason Scoring

- Rates how aggressively the cancer is developing.
  - **Gleason’s Pattern**:
    1. Small, uniform glands
    2. More cross between glands
    3. Distinctive infiltrative margins
    4. Irregular masses of neoplastic glands
    5. Only acinar architectural formation

---
Prostate Cancer: Staging

- **Low Risk**
  - Gleason score of 6 or lower
  - PSA level of 10-20 ng/ml
  - Unlikely to grow or spread to other tissues or organs for many years.

- **Medium Risk**
  - Gleason score of 7
  - PSA between 10 and 20 ng/ml
  - Unlikely to grow or spread for several years.

- **High Risk**
  - Gleason score of 8 or higher
  - PSA level higher than 20 ng/ml
  - Likely to grow or spread within a few years.

Prostate Surgeries: Retro-perineal Prostatectomy (RPP)

- Prostate removed through perineum
- **Risks:**
  - Wound infections
  - Wound dehiscence
  - Urinary retention
- **Benefits:**
  - Reduced blood loss
  - Early time to ambulation

Prostate Surgeries: Retro-pubic Prostatectomy (RRP)

- Prostate is removed through lower abdomen
- **Risks involved:**
  1. Longer hospitalization
  2. Longer recovery period
  3. Local muscular damage
Prostate Surgeries: Robot-Assisted Prostatectomy (RAP)

- Surgical method of choice
- Robot assisted results:
  - Significantly less pain
  - Less blood loss
  - Fewer complications than traditional methods
  - Significantly less scarring
  - Shortest hospital stay
  - Faster return to normal daily activities

Post Prostatectomy Impairments: All Surgeries

<table>
<thead>
<tr>
<th>Urinary incontinence</th>
<th>Erectile Dysfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% all pts post op</td>
<td>Return to Erectile Function (18 mths):</td>
</tr>
<tr>
<td>Internal urethral sphincter deficiency</td>
<td>RRP: 10-93%</td>
</tr>
<tr>
<td>8-71% lead to stress UI</td>
<td>RAP: 70-80%</td>
</tr>
<tr>
<td>Overall Continence Rate (12-18 mths):</td>
<td></td>
</tr>
<tr>
<td>RRP: 60-93%</td>
<td></td>
</tr>
<tr>
<td>RAP: 84-97%</td>
<td></td>
</tr>
</tbody>
</table>
Post Prostatectomy Impairments: All Surgeries

- Internal Urethral Sphincter Deficiency
- VIDEO

Post Prostatectomy Impairments

- Retro-pubic/Retro-perineal:
  - Decreased bladder compliance
    - 47% following radical approach
  - Involuntary detrusor contractions
    - 13-38% following radical approach
  - Impaired bladder filling sensation

Secondary Erectile Dysfunction

- Goal of medical interventions: means of obtaining an erection to facilitate resume sexual relations

- Treatment recommendations:
  - Penile rehabilitation: begin 4 weeks following surgery
    - Pharmaceutical
      - Cialis (tadalafil): increases blood flow to help men achieve and maintain an erection
    - Vacuum erection device
  - Sexual interaction: resume 6 weeks following surgery
Secondary Erectile Dysfunction

- Post Surgical ED Outcome
  - Depends on the following factors:
    - Patient age
    - Surgery type
    - Extent of cavernous nerve damage
    - Pharmaceutical dosage

Organic Erectile Dysfunction

- The persistent failure to achieve and sustain erections of sufficient rigidity for penetration during sexual intercourse.
- Prevalence: ~10% healthy men
- Prevalence related to age:
  - 40% in 50’s
  - 66% in 70’s

Organic Erectile Dysfunction

- Possible causes:
  - Vascular: leading cause
  - Psychological
  - Hormonal
  - Neurological
  - Muscular impairment:
    - Ischiocavernous
    - Bulbospongious

- Related co-morbidities:
  - HTN: Inc. 15%
  - Diabetes: Inc. 28%
  - Heart Disease: Inc 39%
Prostatitis

- Inflammation or infection of the prostate gland
- 4-11% in general population
- Under age 50

Prostatitis

- 4 Classifications:
  1. Acute bacterial
     - Requires urgent medical treatment
  2. Chronic bacterial
     - Presents as intermittent urinary tract infections
  3. Pelvic pain syndrome
     - Presents with bladder, pelvic and prostate pain
  4. Asymptomatic inflammatory
     - No pain

Prostatitis

- Cause: UNKNOWN
  - Interstitial cystitis
  - Inc. tension/stress
  - Physical injury
  - Urethral stricture
  - Yeast infection
  - Virus
  - Etc.

- Symptoms: VARIED
  - Inc. urgency/frequency
  - Dysuria
  - Pain in the pelvic/low back/genital area
  - Difficulty sitting common
  - Nocturia
  - Difficulty starting to urinate, or diminished urine flow
  - Hematuria
  - Painful ejaculation
  - Recurring bladder infections
Prostatitis: Treatment Options

- **Category 1 and 2:**
  - Pain relievers
  - Antibiotic therapy

- **Category 3:**
  - Focus on pain relief:
    - Pelvic Health PT
    - Pain medication

- **Category 4**
  - Doesn’t require treatment

---

Break!

---

Pelvic Health Subjective Examination

- **Post Prostatectomy:**
  - Determine type of UI
    - Cause
    - Size of leakage
    - “Spontaneous UI?”
  - Voiding
    - Frequency
    - Size
    - Stream presentation
    - Post micturition dribble
  - Urinating position
  - Beverage intake
  - Bladder irritants
  - Daily activity/exercise
  - Job duties
Pelvic Health Subjective Examination

- Pelvic pain:
  - Typical pain related ?s
    - Regional pain
    - Aggravating and alleviating factors
  - Duration of positional tolerance
  - Job duties:
    - Sitting position/posture
    - Chair specifics?
  - Sexual activity/associated pain
  - Bladder specific ?s
    - Voiding frequency/stream
    - Previous treatment/home relief

Objective Examination: Perineal Assessment

- Observe for:
  - Hemorrhoids
    - Internal: palpation
    - External: observation and palpation
  - Skin irritation

Objective Examination: Perineal Assessment

- Sensation Testing:
  - Sacral 2-4
Objective Examination: Perineal Assessment

- Special Tests:
  - Anal wink reflex
    - Pudendal nerve
      - S2-S4
  - Cremasteric reflex
    - Genitofemoral nerve
      - L1-L2

- Pelvic floor muscle reactions:
  - Voluntary contraction
    - Contraction of the pelvic floor with cuing
  - Involuntary contraction
    - Cough reflex: Contraction of the pelvic floor with cough response
  - Involuntary relaxation
    - Bulge: Relaxation of the pelvic floor with bowel movement simulation

Objective Examination: Perineal Assessment

- Anal Wink and pelvic floor muscle reactions:
  - VIDEO
Objective Examination: Internal Assessment

- MMT (Laycock Scale)/ voluntary contraction:
  - EAS
    - Insert 1-2cm depth
  - PF Diaphragm/ Puborectalis muscle
- Endurance holds
- Quick contractions
  - 1:1 cadence is normal

- Pelvic floor muscle reactions:
  - Voluntary relaxation
  - Involuntary contraction
  - Involuntary relaxation

- Muscle Health:
  - Tone
  - Trigger points
  - Reproduction of concordant pain

Objective Examination: Internal Assessment

- Pain Referral Patterns:
  - Obturator Internus

Objective Examination: Internal Assessment

- Pain Referral Patterns:
  - Levator ani and Coccygeous
Objective Examination: External Assessment

- Pain Referral Patterns:
  - Quadratus Lumborum
  - Abdominals

Objective Examination: External Assessment

- Pain Referral Patterns:
  - Adductor magnus

Objective Examination: External Assessment

- Pain Referral Patterns:
  - Gluteus maximus
Objective Examination: External Assessment

- Pain Referral Patterns:
  - Piriformis

Assessment Scales

- UI:
  - International Prostate Symptom Score (I-PPS): Recommended
    - Higher score = increased bladder dysfunction
  - Urinary Distress Inventory (UDI-6)
    - Higher score = increased QOL impairment
    - Validated in female only

- Pelvic Pain:
  - NIH-Chronic Prostatitis Symptom Index (NIH-CPSI): Recommended
    - Male specific version
    - Assesses pain, QOL, psychological outlook
    - Higher score = increased QOL impairment

- ED:
  - International Index of Erectile Dysfunction
    - Lower the score = higher ED

Assessment Scales: G codes

- International Prostate Symptom Score (I-PPS)

<table>
<thead>
<tr>
<th>TEST SCORE</th>
<th>PERCENTAGE Impaired</th>
<th>MODIFIER</th>
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<tr>
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<td>7-13</td>
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<td>35</td>
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### Assessment Scales: G codes

#### Urinary Distress Inventory (UDI-6) - raw score

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<th>TEST SCORE</th>
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#### NIH-Chronic Prostatitis Symptom Index (NIH-CPSI)

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<td>1-19%</td>
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#### International Index of Erectile Dysfunction

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</table>
PT Interventions: Strengthening

Prostatectomy Related Points:
- Exercise initiated pre-op increases pre-surgical strength enhancing outcomes
- Resume immediately following catheter removal
- Anticipate 3-6 months for full strength recovery
  - MD’s will likely not pursue other treatment/testing until 1 yr post op

PT Interventions: Post-op RAP specific
- Recommended involvement POC post operatively
  - Seen day of catheter removal
  - Modified evaluation and examination
  - Long term HEP established most often with option to follow up prn
  - Confirm:
    - Void prior to leaving facility
    - PF HEP established
    - Bladder health and recovery education
    - Information on sexual function medication/penile pump

PT Interventions: Post-op RAP specific
- Bladder health
  - Avoid bladder irritants
    - Caffeine/ Carbonation/ Alcohol/ Acidity
  - 2 hr timed voiding
  - Sit vs. stand
  - Hydration
  - Pad education
    - Male specific incontinence pad
PT Interventions: Post-op RAP specific

- Penile Pump: EDUCATION ONLY
- VIDEO

Important notes:
- Lubrication is essential
- 3 pumps/10 sec wait
  - Goal: 10 sec: blood flow and tissue saturation
- Erection: once generated wait 1 min
  - Goal: tissue healing with blood saturation
- Treatment goal: duration of time: 10-20 minutes daily
  - * NOT number of erections generated
  - NO PAIN

PT Interventions: Strengthening

- Proper isolation: visualize scrotal lift
  - Quality significantly more important
- Focus on endurance and sub maximal contraction
  - Incorporate some maximal contractions
- Pelvic brace/ “the knack”
- Gradual increased difficulty in position of performance
- Compliance!
PT Interventions: Strengthening

- **EMG Biofeedback:**
  - Visual input of muscle performance
  - Increased sensory awareness

- **Coordination exercise:**
  - 5W/3QC/10R x 5-10
  - 5QC/10R x 5
  - 5QC/5R/5QC/10R x 5

PT Interventions: Strengthening

- **Electrical Stimulation**
  - Pulsed; max intensity
  - Frequency 50 or 100 Hz
  - 20 mins
  - Internal rectal or external electrodes
  - Normal contraindications apply

PT Interventions: Strengthening

- **Core stabilization**
  - Transversus Abdominis
  - Multifidi
  - Pelvic Floor Muscles
PT Interventions: Core Stabilization

- Transversus Abdominis
  - Pelvic tilt progression

---

Incorporate ball

---

PT Interventions: Core Stabilization

- Transversus Abdominis
  - Incorporate ball

---

PT Interventions: Core Stabilization

- Core stabilization
  - Multifidi
PT Interventions: Core Stabilization

PT Interventions: Chronic Pelvic Pain
- Postural re-training

PT Interventions: Chronic Pelvic Pain
- Cushion options
  - Gel honeycomb matrix
  - Rolled towel reverse horseshoe

www.miricet cushion.com
PT Interventions: Chronic Pelvic Pain

- Diaphragmatic breathing
  - Alter response to pain: breath holding

PT Interventions: Chronic Pelvic Pain

- Manual therapy focus
  - External
    - Piriformis
    - Ileopsoas
    - Abdominals
    - Hip rotators
    - Gluteals

PT Interventions: Chronic Pelvic Pain

- Manual therapy focus
  - Internal:
    - Coccygeous
    - Levator Ani: anterior insertion
    - Obturator internus
PT Interventions: Chronic Pelvic Pain

- EMG Biofeedback:
  - Systemic Relaxation

- Pelvic floor down training:
  - Reduction of muscular resting tone
  - Fatigue exercise
  - 2 step sub-maximal contraction exercise
  - Quick contractions with slow cadence (1:3 or 1:5)

PT Interventions: Chronic Pelvic Pain

- Pelvic floor stretch

PT Interventions: Chronic Pelvic Pain

- Abdominal stretch
PT Interventions: Chronic Pelvic Pain

- Functional movement/lengthening
  - Child’s pose
  - Cat/Cow

PT Interventions: Chronic Pelvic Pain

- Functional movement/lengthening
  - Side lying book opening

PT Interventions: Chronic Pelvic Pain

- Ileopsoas/Psoas stretch
PT Interventions: Chronic Pelvic Pain

- Piriformis stretch

- Hamstring stretch

- Functional strength: basic
PT Interventions: Chronic Pelvic Pain

- Functional strength: basic

PT Interventions: Chronic Pelvic Pain

- Functional strengthening: advanced
  - Kneeling bridge with resistance

PT Interventions: Chronic Pelvic Pain

- Functional strengthening: advanced
  - Monster walk
PT Interventions: Chronic Pelvic Pain

- Functional Interventions
  - Toileting Posture/Breathing

- Electrical stimulation
  - Goal: fatigue
    - 200 Hz
    - Continuous setting

- Home treatment:
  - Thera-wand
    - "Premium"

www.squattypotty.com

www.therawand.com
Online Resources:

- [www.womenshealthapta.org](http://www.womenshealthapta.org)
  - Practice: assessment scales
- [www.mirclecushion.com](http://www.mirclecushion.com)
- [www.prostatitis.org](http://www.prostatitis.org)
- [www.davinciprostatectomy.com](http://www.davinciprostatectomy.com)