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# Female Urinary and Fecal Incontinence:
## What to do in the Primary Care Setting and When to Refer.


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## Disclosures

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## Off-label/Investigational Use

None

# Objectives

- Describe the anatomy and physiology of the bladder and rectum/anus.
- Recognize the different types of urinary incontinence by defining their discreet symptomatology and workup.
- Review the updated recommendations for treatment of urinary incontinence in females.
- Review the updated recommendations for treatment of fecal incontinence in females.

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# Urinary Incontinence

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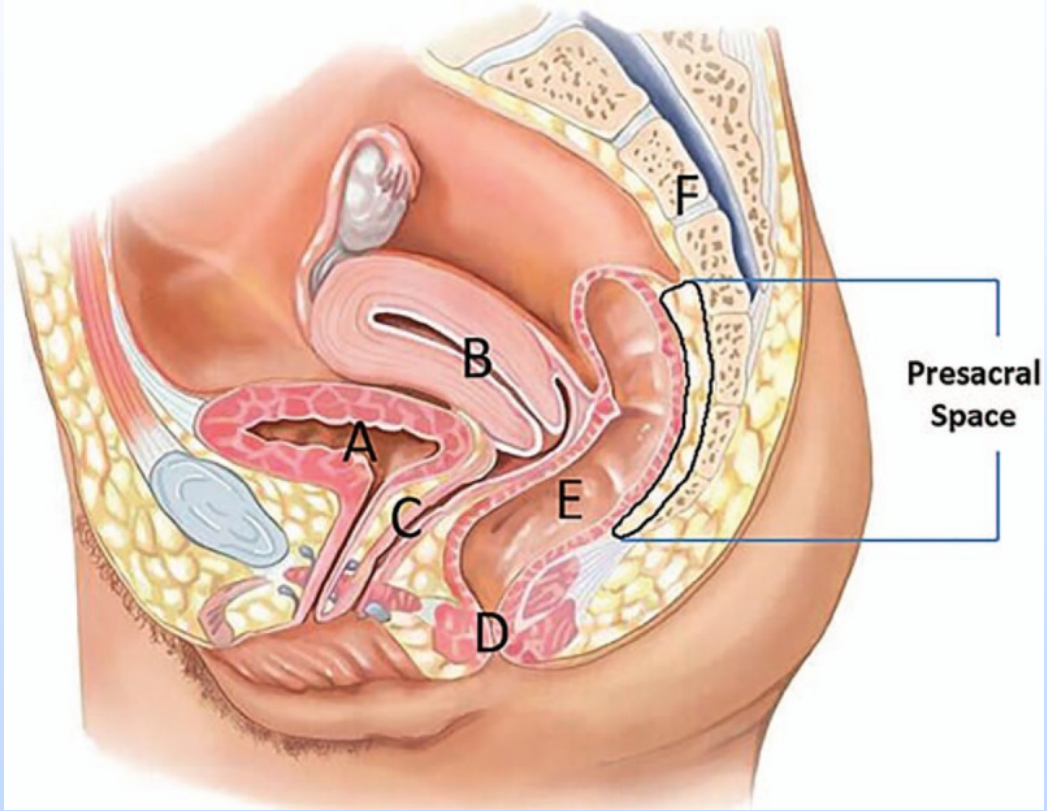
# Urinary Anatomic and Physiologic Review




- A – urinary bladder
- B – uterus
- C – vagina
- D – anus
- E – rectum
- F – sacrum

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# Urinary Incontinence

- Involuntary loss of urine
- Prevalence in the US approximately 50% of adult women
- Types
  - Stress urinary incontinence (most common 50-70%)
  - Urgency urinary incontinence - OAB
  - Mixed
  - Functional or Structural

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# Stress Urinary Incontinence

- Prevalence:
  - Age-dependent: ranges 29% to 75%
  - More common in younger women
  - Daily symptoms, 10% in community-dwelling middle-aged women
  - 11% undergo surgery for SUI by 80 years of age

Al-Shaikh G, Syed S, Osman S, Bogis A, Al-Badr A. Pessary use in stress urinary incontinence: a review of advantages, complications, p satisfaction, and quality of life. *International Journal of Women's Health.* 2018;Volume 10:195

# Stress Urinary Incontinence

- Causes:
  - Anatomic
  - Intrinsic Sphincter Deficiency: Abnormalities of the urethral sphincter mechanism

- Risk factors:
  - Obesity
  - Menopause
  - Number of pregnancies and vaginal deliveries,
  - Medications relax urethral sphincter
  - Lung disease causing chronic cough
  - Prior pelvic surgeries

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# Urgency Urinary Incontinence

- Urgency urinary incontinence:
  - involuntary loss of urine
  - associated with urgency that is difficult to defer
- Overactive bladder:
  - urinary urgency, typically
  - accompanied by frequency and nocturia, with and without urge urinary incontinence
  - absence of urinary tract infection or other obvious pathology

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# Evaluation - History

- Characterization of incontinence (SUI, OAB, mixed)
- Duration
- Precipitating factors
- Fluid intake
- Frequency of occurrence
- Interference with ADLs
- Severity
- Pad use
- Bladder storage – frequency, nocturia, urgency, incontinence
- Emptying – hesitancy, slow stream, straining to void, dysuria, feeling of incomplete emptying



 

# Evaluation:

- UA/culture
- Examination
  - Urethral diverticulum, caruncle/prolapse
  - Pelvic organ/vaginal prolapse
  - Speculum – atrophy, fistula
  - Bimanual exam - pelvic floor muscle assessment for strength and voluntary muscle relaxation.
  - Rectal – sphincter tone/strength, impaction
  - Reflexes – anal wink, bulbocavernosus
  - Cough stress test
  - PVR – catheterized or bladder ultrasound (<150mL)



 

# Identify Reversible Conditions

- Delirium
- Infection
- Atrophic vaginitis
- Pharmacologic
- Psychological
- Endocrine
- Restricted mobility
- Stool impaction

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## Commonly used drugs that can influence bladder function

| Drug | Side effect |
|---|---|
| Antidepressants, antipsychotics, sedatives/hypnotics | Sedation, retention (overflow) |
| Diuretics | Frequency, urgency (OAB) |
| Caffeine | Frequency, urgency (OAB) |
| Anticholinergics | Retention (overflow) |
| Alcohol | Sedation, frequency (OAB) |
| Narcotics | Retention, constipation, sedation (OAB and overflow) |
| Alpha-adrenergic blockers | Decreased urethral tone (stress incontinence) |
| Alpha-adrenergic agonists | Increased urethral tone, retention (overflow) |
| Beta-adrenergic agonists | Inhibited detrusor function, retention (overflow) |
| Calcium channel blockers | Retention (overflow) |
| ACE inhibitors | Cough (stress incontinence) |



 

# Treatment – SUI

- First line – Behavioral
  - Pelvic floor PT
  - Weight loss
- Second line – Medical
  - Impressa® bladder support (OTC)
  - Uresta® bladder support device
  - Vaginal bladder support pessary*

*Fit by GYN or URO-GYN

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# Intravaginal bladder support devices

- Impressa®
  - Over the counter
  - Non-absorbent, disposable, intravaginal device with applicator
  - Lift the urethra when pressure is placed on the bladder to help prevent leaks.
- Uresta®
  - Manufactured in Canada
  - 5 sizes
  - Reusable for one year
  - $299/year, escribed to American Mail Order Pharmacy

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UROGYNECOLOGY

## Effectiveness of a new self-positioning pessary for the management of urinary incontinence in women

Scott A. Farrell, MD; Sandra Baydock, MD; Baharak Amir, MD; Cora Fanning, BN, RN

- 75% noted leakage stopped or was significantly reduced
- 82% felt more comfortable in public when using device
- 72% would recommend to a friend


Farrell SA, Baydock S, Amir B, et al. Effectiveness of a new self-positioning pessary for the manageme
urinary incontinence in women. Am J Obstet Gynecol 2007;196;474.e1-474.e

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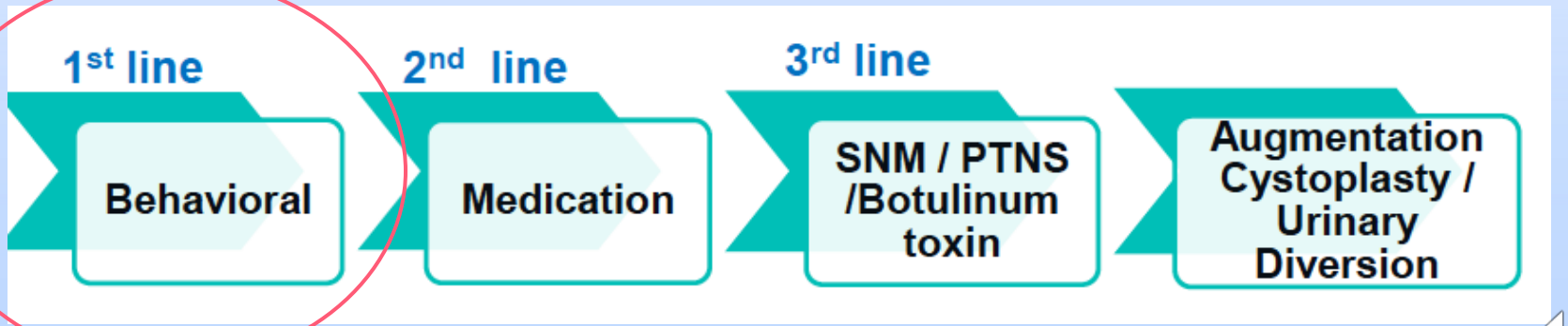
# Treatment – OAB/Urge

- Behavioral therapy first line:
  - Bladder training
  - Bladder control strategies
  - Pelvic floor muscle training
  - Fluid management
- Randomized controlled trial
  - Behavioral therapy – 50% reduction in mean incontinence episodes
  - Controls – 15% reduction




Subak LL, Quesenberry CP, Posner SF, Cattolica E, Soghikian K. The effect of behavioral therap
urinary incontinence: a randomized controlled trial. *Obstet Gynecol.* 2002;100(1):72-7

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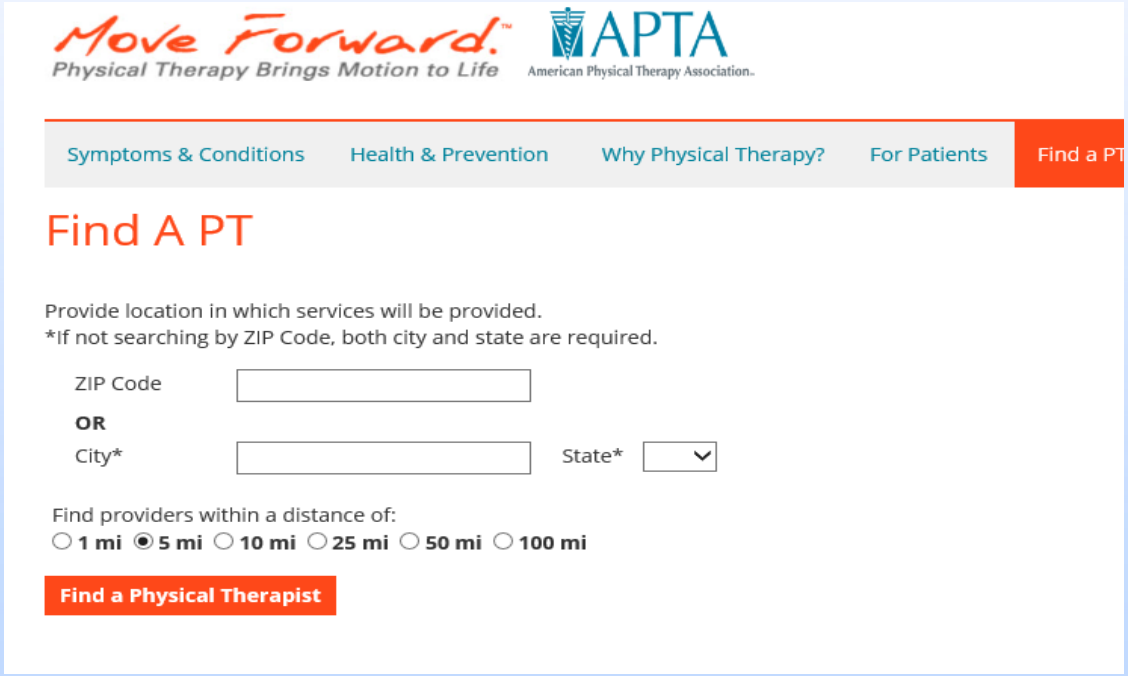
# Pelvic Floor PT

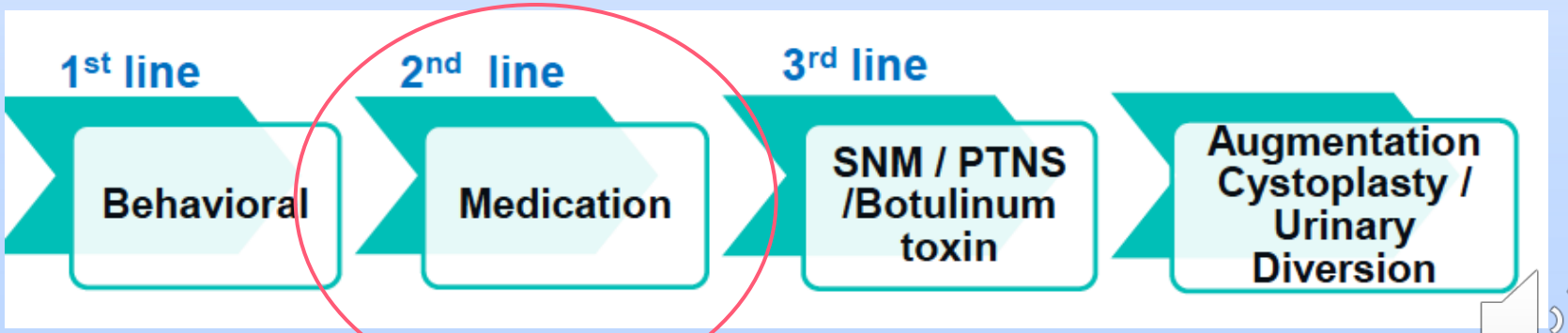
- APTA.org to find someone who specializes in Women's Health




http://aptaapps.apta.org/findapt/default.aspx?navID=10737422525&UniqueKe

# Treatment: anti-muscarinic medications

- Second line therapy:
  - Prefer ER over IR as these have less side effect of dry mouth.
  - Oral including darifenacin, fesoterodine, oxybutynin, solifenacin, tolterodine or trospium
  - Transdermal oxybutynin (patch or gel)



# Treatment: anti-muscarinic medications

- Use caution in patients with narrow angle glaucoma, impaired gastric emptying or a history of urinary retention
- Dose modification or a different anti-muscarinic medication may be tried in patients with inadequate symptom control and/or unacceptable adverse drug events
- Manage constipation and dry mouth before abandoning effective therapy. May include bowel management, fluid management, dose modification or alternative anti-muscarinics.
- Use caution if patient taking medications with anti-cholinergic properties.

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# Treatment: beta-3 agonist

- Mirabegron
  - Activates beta-3 andrenergic receptor in the detrusor muscle
  - Muscle relaxation and increased bladder capacity
- FDA approved: urinary urgency, frequency and urge incontinence.
- Avoid if: uncontrolled HTN, ESRD, liver impairment
- Kelleher et. al. - mirabegron 50mg was as effective with less anticholinergic side effects.

Kelleher C, Hakimi Z, Zur R, et al. Efficacy and Tolerability of Mirabegron Compared with Antimuscarinic Monotherapy or Combin
Therapies for Overactive Bladder: A Systematic Review and Network Meta-analysis. *European Urology*. 2018;74(3):324



 

# When to refer

- Patient refractory to behavioral and medical therapy
- Urogynecology or Urology for cystoscopy and urodynamic studies

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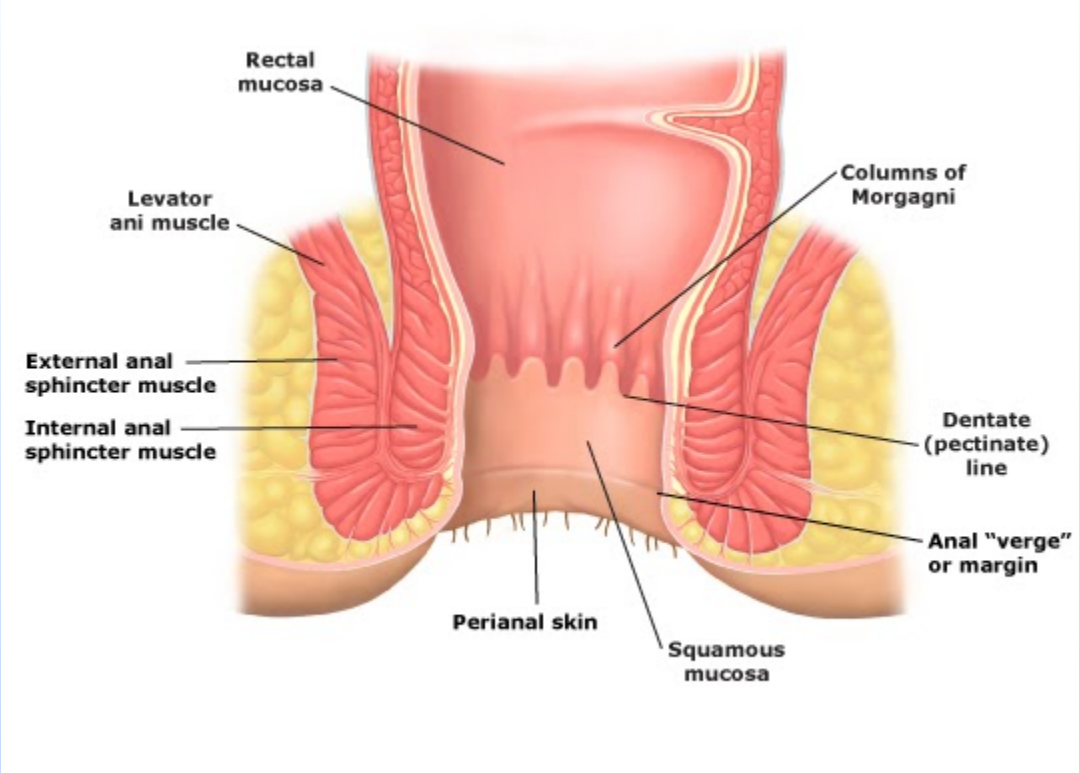
# Fecal Incontinence



# Rectal anatomic and physiologic review




http://msk-anatomy.blogspot.com/2013/01/anus-anatomy.html#!/2013/01/anus-anatomy.



# Normal rectal functioning

- Rectum fills with feces, increasing intra-rectal pressures against the walls of the anal canal.
- The internal anal sphincter responds to pressure by relaxing.
- Feces enters the anal canal and rectum shortens.
- Peristaltic waves push the feces our of the rectum.
- Relaxation of the internal and external sphincters allows feces to exit the anus and the levator ani muscles pull the anus up over the exiting feces.



# Fecal Incontinence

- Accidental bowel leakage
- Involuntary loss of liquid or solid fecal material
- Types
  - Passive loss of fecal matter without warning
  - Urgency with fecal loss despite the efforts of the patient to actively attempt retaining the stool
  - Mixed presentation



# Fecal Incontinence

- Incidence increases with age.
  - 8% of the general population
  - 15% of patients over age 70.
- Slightly more common in women than men.
  - 1 in 10 woman older than age 40 will experience fecal incontinence

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# Fecal Incontinence - Causes

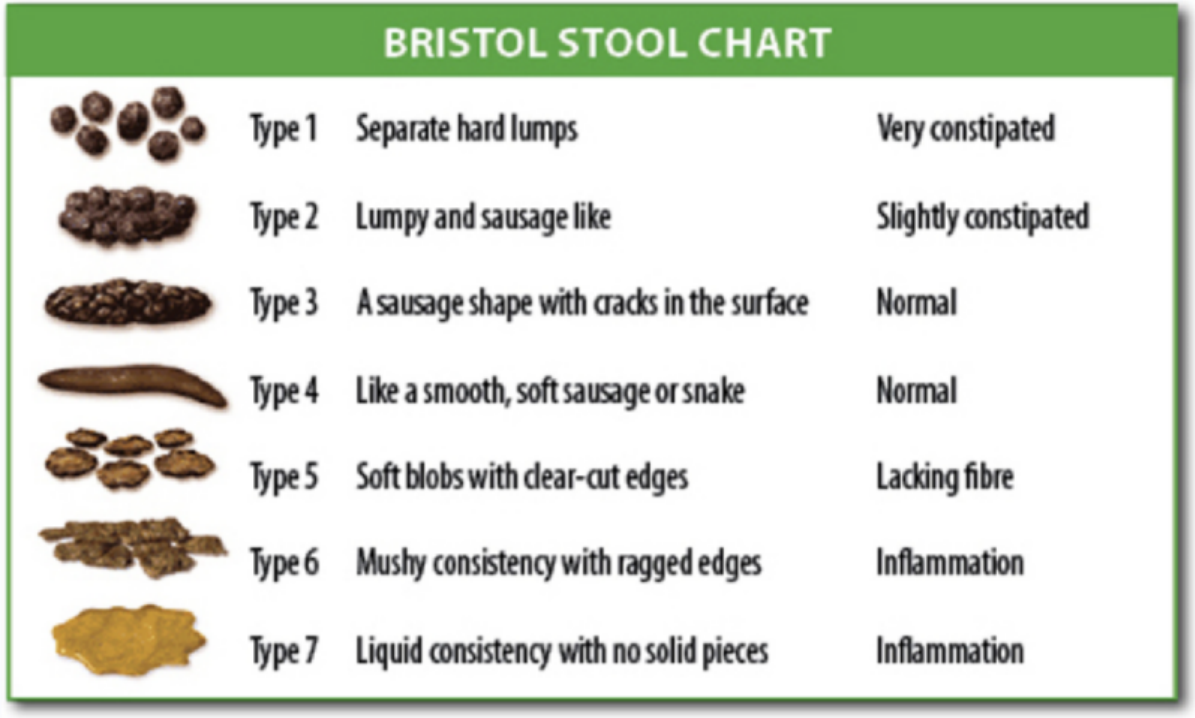
- Multifactorial
  - Muscular
  - Intrinsic or neurologic
  - Functional – delivery of feces to rectum
- Known sequela of pregnancy and obstetric injury during delivery
- Damage to the external with/without damage to the internal anal sphincter (surgery)
- Nerve damage
- Loss of storage capacity in the rectum
- Recurring (chronic) constipation

# Evaluation - History

- Frequency, duration, associated urge
- Medications – diarrhea, constipation
- Standardized questionnaires to qualify the symptoms and effect they are having on patients quality of life
  - Wexner scale
  - Modified Manchester Health Questionnaire (MMHQ), which is a validated questionnaire that also includes the Fecal Incontinence Severity Index (FISI)

# Evaluation - History

- Bristol stool chart



# Physical Exam

- Perineal body
- Vaginal examination to evaluate strength of kegel and pelvic floor musculature
- Digital rectal exam to evaluate patency and strength of external sphincter
- Neuromuscular: bulbocavernosus reflex, anal wink

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# Pelvic Floor Muscles

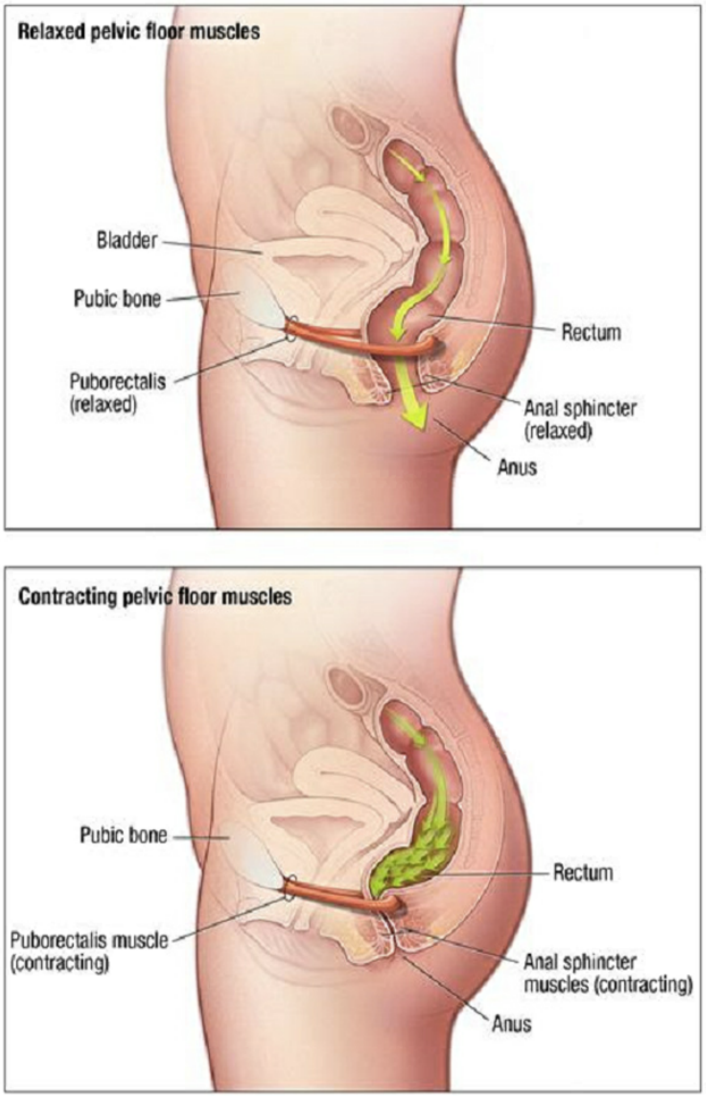


**Figure 6.** Relaxed and contracting pelvic floor muscles

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# Advanced Imaging

- Endoscopy
  - Exclude mucosal inflammation or masses
  - Patients with high risk for colorectal cancer.
- Dynamic MRI
  - Structural issues in sigmoid colon and distal rectum (ie redundancy or prolapse)
  - dysfunction of the levator ani musculature for defecation.
- Anal manometry with balloon expulsion
  - detect defecation dyssynergia/paradoxical contractions in those with fecal impaction and overflow incontinence.

# Treatment

- Bowel training
- Pelvic floor physical therapy and appropriate posture
- Physical exercise and activity
- Diet
  - Fluids (60-80 ounces/day)
  - Fiber-rich foods (20-40 grams/day)
  - Remove irritating foods

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# Treatment

- Remove irritating foods and drinks to GI tract
  - Caffeine
  - Alcohol
  - Artificial sweeteners and high fructose corn syrup
  - Fatty or greasy foods
  - Dairy products if lactose intolerant
  - Spicy foods
  - Cured or smoked meat
  - Carbonated beverages other than carbonated water

# Medications

- To adjust consistency of stool
  - Fiber
  - Stool softeners
- Antidiarrheal to decrease motility of bowels
- Laxatives to increase motility of bowels

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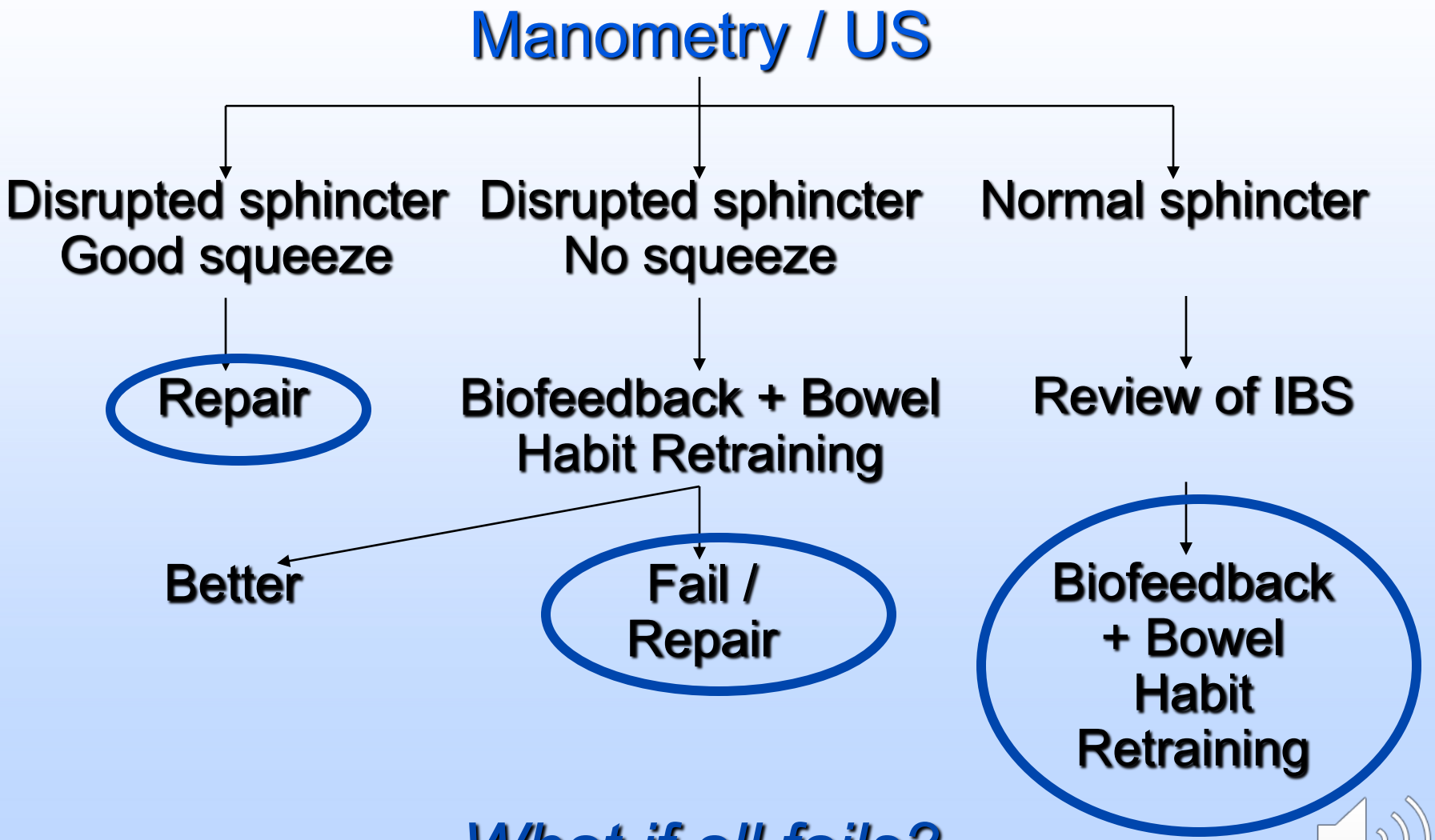
# Therapy: FI




*What if all fails?*

# Urinary & Fecal Incontinence: Specialist Evaluation & Treatment Options

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# Urinary Specialist Evaluation:

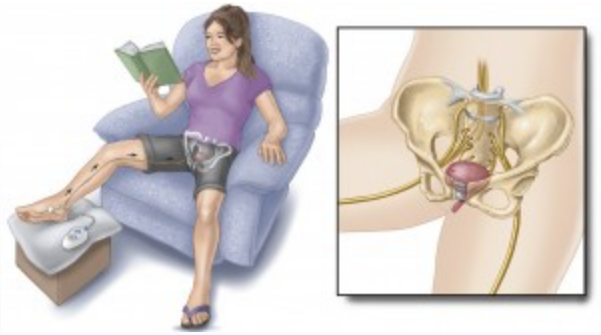
- Cystourethroscopy
  - Rigid or flexible fiberoptic endoscope is used to examine the lumen of the bladder (cystoscopy) and urethra (urethroscopy)
  - Consider as part of an incontinence evaluation in women with microscopic hematuria, acute-onset or refractory urgency incontinence, recurrent urinary tract infections, or suspicion for fistula or foreign body after gynecologic surgery
- Urodynamic Studies
  - Assess lower urinary tract function by measuring various aspects of urine storage and evacuation.
  - Understanding physiologic mechanisms of lower urinary tract dysfunction
  - Improves accuracy of diagnosis and facilitating targeted treatment.

# Specialist treatments

- Non-surgical
  - Posterior Tibial Nerve Stimulation (PTNS)
  - Intradetrusor onabotulinumtoxinA
  - Urethral Bulking Agents
  - Vaginal pessary

- Surgical
  - Sacral Neuromodulation (SNM) with InterStim device
  - Urinary: retropubic urethropexy ( Burch, MMK), autologous sling, synthetic midurethral sling ( TOT and retropubic)
  - Fecal: anal sphincteroplasty, implantable sphincter devices, rectal sling, diverting colostomy

# PTNS (OAB)



- STEP (Sustained Therapeutic Effects of Percutaneous Tibial Nerve Stimulation) Study
  - First sham-controlled trial of any neuromodulation device for OAB
  - Provided level I evidence that PTNS is effective in treating OAB
  - 36 month data showed continued effective control of symptoms with once monthly treatments
- Not FDA approved for FI

Peters KM, Carrico DJ, Woolridge LS, et al. Percutaneous Tibial Nerve Stimulation for the Long-Term Treatme
Overactive Bladder: 3-Year Results of the STEP Study. The Journal of Urology. 2013;189(6):2194-2200

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# onabotulinumtoxinA (OAB)

- Intradetrusor onabotulinumtoxinA
  - FDA approved for overactive bladder
  - Muscle paralytic inhibiting presynaptic release of acetylcholine at neuromuscular junction
- Benefits:
  - Similar reduction of incontinence episodes
  - More complete resolution of incontinence
  - Less cholinergic side effects
- Risks:
  - UTIs
  - Voiding dysfunction
    - Incomplete bladder emptying
    - Retention requiring self-catherization

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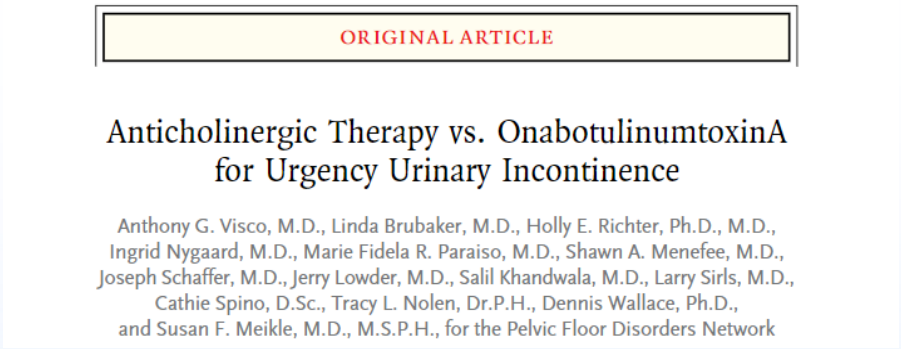
The NEW ENGLAND JOURNAL of MEDICINE


ORIGINAL ARTICLE

Anticholinergic Therapy vs. OnabotulinumtoxinA for Urgency Urinary Incontinence

Anthony G. Visco, M.D., Linda Brubaker, M.D., Holly E. Richter, Ph.D., M.D., Ingrid Nygaard, M.D., Marie Fidela R. Paraiso, M.D., Shawn A. Menefee, M.D., Joseph Schaffer, M.D., Jerry Lowder, M.D., Salil Khandwala, M.D., Larry Sirls, M.D., Cathie Spino, D.Sc., Tracy L. Nolen, Dr.P.H., Dennis Wallace, Ph.D., and Susan F. Meikle, M.D., M.S.P.H., for the Pelvic Floor Disorders Network

- Multicenter randomized trial
  - 6 months daily antimuscarinic therapy
  - Single intradetrusor injection of 100U of onabotulinumtoxinA
  - Treatments resulted in similar reductions in daily incontinence episodes at 6 months
  - Complete resolution of urgency incontinence
    - 27% in onabotulinumtoxinA group
    - 13% in antimuscarinic group

Visco AG, Brubaker L, Richter HE, et al. Anticholinergic Therapy vs. OnabotulinumtoxinA for Urgency Urinary Incontinence. *New En... Journal of Medicine.* 2012;367(19):1803-...

# Urethral Bulking Agents (SUI)

- Injected into submucosal tissues of urethra or bladder neck
- Ideal material
  - Biocompatible
  - Nonimmunologic
  - Hypoallergenic
  - Retain its bulking characteristics for a prolonged interval and not biodegrade or migrate
  - Easy to prepare and implant

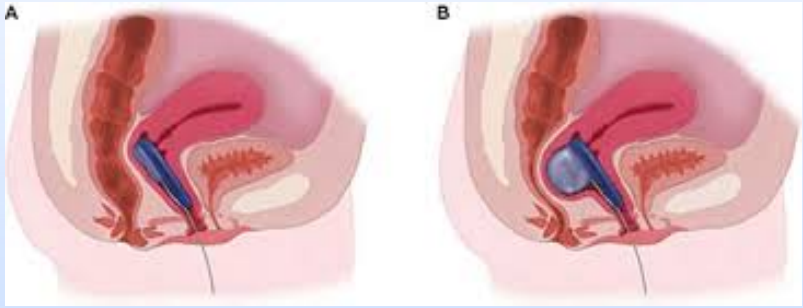
Hussain SM, Bray R. Urethral bulking agents for female stress urinary incontinence. *Neurourology Urodynamics.* 2019;38(3):887-89

# Urethral Bulking Agents (SUI)

- One prospective cohort study: patient-reported “cure rate” of 68% at 12 months.
- Currently available:
  - calcium hydroxyl apatite (Coaptite®)
  - carbon coated zirconium (Durasphere®)
  - polydimethylsiloxane elastomer (Macroplastique®)
  - polyacrylamide hydrogel (Bulkamid®)
  - PDMS-U (Urolastic ®) - silicone gel that polymerizes when injected.

# The Eclipse System®

- Fecal Incontinence
- Urogynecology specialist
- Sizing kit
- Trial insert for two weeks.
- If >50% decrease of incontinence episodes - success.
- Long term device replaced annually secondary to wear of the materials.
- Contraindications: vaginal infection, open wound, shorter vaginal length

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A 12-Month Clinical Durability of Effectiveness and Safety Evaluation of a Vaginal Bowel Control System for the Nonsurgical Treatment of Fecal Incontinence

*Holly E. Richter, PhD, MD,* Gena Dunivan, MD,† Heidi W. Brown, MD,‡ Uduak Andy, MD,§ Keisha Y. Dyer, MD,|| Charles Rardin, MD,¶ Tristi Muir, MD,** Shane McNevin, MD,†† Ian Paquette, MD,‡‡ Robert E. Gutman, MD,§§ Lieschen Quiroz, MD,|||| and Jennifer Wu, MD¶¶*

- Positive results at 3, 6, and 12 months.
- Nearly half of study participants had complete continence
- 80% of the remaining participants had more than 75% reduction in incontinence episodes
- Statistically significant improvement in Fecal Incontinence Quality of Life and Modified Manchester scores when compared to their baseline.
- Offers an effective and durable nonsurgical treatment option for FI.

Richter HE, Dunivan G, Brown HW, et al. A 12-Month Clinical Durability of Effectiveness and Safety Evaluation of a Vaginal Bowel C System for the Nonsurgical Treatment of Fecal Incontinence. *Female pelvic medicine & reconstructive surgery*. 2019;25(2):113

# Sacral Neuromodulation


- InSite study
  - Randomized comparison of Sacral Neuromodulation (SNM) as delivered by the InterStim System and standard medical treatment
  - First study to test the safety and efficacy of the minimally invasive technique using the tined lead
  - Demonstrated that SNM is a significantly better treatment option than medications for patients with refractory OAB
- Approved by FDA for refractory FI in 2011

Siegel S, Noblett K, Mangel J, et al. Results of a prospective, randomized, multicenter study evaluating sacral neuromodulation with InterStim therapy compa
standard medical therapy at 6-months in subjects with mild symptoms of overactive bladder. *Neurourology and Urodynamics.* 2015;34(3): 224-2
Mellgren A, Wexner SD, Coller JA, et al. Long-term efficacy and safety of sacral nerve stimulation for fecal incontinence. *Dis Colon Rectum.* 2011;54(9):1065-1075.



 

# Axonics® Sacral Neuromodulation (r-SNM™) System

- Implanted device with lifespan of 15 years
- Rechargeable pulse generator
- MRI compatible.

# SUI: Surgical Intervention

- Synthetic midurethral sling (transobturator, retropubic)
- Autologous sling (tensor fasciae latae)
- Retropubic urethropexy procedures ( Burch, MMK)

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# FI: Surgical Intervention

- Anal sphincteroplasty
- Dynamic graciloplasty
- Implantable sphincter devices
- Rectal sling
- Diverting colostomy

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# Take Home

- First line – behavioral modifications, physical therapy
- Second line – medications
  - OTC or RX vaginal insert for bladder support
  - antimuscarinics and beta 3 agonist (OAB)
  - antidiarrheals, stool softeners
- Refer to specialist when conservative treatments fail.

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# References


- ACOG Practice Bulletin No. 210: Fecal Incontinence
- ACOG Practice Bulletin No. 155: Urinary Incontinence in Women
- Rubin EB, Buehler AE, Halpern SD. States Worse Than Death Among Hospitalized Patients With Serious Illnesses. *JAMA Internal Medicine.* 2016;176(10):1557.
- Subak LL, Quesenberry CP, Posner SF, Cattolica E, Soghikian K. The effect of behavioral therapy on urinary incontinence: a randomized controlled trial. *Obstet Gynecol.* 2002;100(1):72-78.
- Farrell SA, Baydock S, Amir B, et al. Effectiveness of a new self-positioning pessary for the management of urinary incontinence in women. Am J Obstet Gynecol 2007;196;474.e1-474.e8.
- Kelleher C, Hakimi Z, Zur R, et al. Efficacy and Tolerability of Mirabegron Compared with Antimuscarinic Monotherapy or Combination Therapies for Overactive Bladder: A Systematic Review and Network Meta-analysis. *European Urology.* 2018;74(3):324-333.
- Richter HE, Dunivan G, Brown HW, et al. A 12-Month Clinical Durability of Effectiveness and Safety Evaluation of a Vaginal Bowel Control System for the Nonsurgical Treatment of Fecal Incontinence. *Female pelvic medicine & reconstructive surgery.* 2019;25(2):113-119.
- Peters KM, Carrico DJ, Woolridge LS, et al. Percutaneous Tibial Nerve Stimulation for the Long-Term Treatment of Overactive Bladder: 3-Year Results of the STEP Study. *The Journal of Urology.* 2013;189(6):2194-2201.
- Siegel S, Noblett K, Mangel J, et al. Results of a prospective, randomized, multicenter study evaluating sacral neuromodulation with InterStim therapy compared to standard medical therapy at 6-months in subjects with mild symptoms of overactive bladder. *Neurourology and Urodynamics.* 2015;34(3): 224-230
- Mellgren A, Wexner SD, Coller JA, et al. Long-term efficacy and safety of sacral nerve stimulation for fecal incontinence. *Dis Colon Rectum.* 2011;54(9):1065-1075
- Al-Shaikh G, Syed S, Osman S, Bogis A, Al-Badr A. Pessary use in stress urinary incontinence: a review of advantages, complications, patient satisfaction, and quality of life. *International Journal of Women's Health.* 2018;Volume 10:195-201.
- Visco AG, Brubaker L, Richter HE, et al. Anticholinergic Therapy vs. OnabotulinumtoxinA for Urgency Urinary Incontinence. *New England Journal of Medicine.* 2012;367(19):1803-1813.


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# Thank you!

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