



Female Chronic Pelvic Pain: Considerations for Military Servicewomen

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Lt Col (Dr.) Christina Ramirez is the Flight Commander for Gynecologic Surgery and Obstetrics (GS&O) within the Fort Sam Houston Surgical Operations Squadron at Joint Base San Antonio-Fort Sam Houston and serves as the Division Chief of Urogynecology-Minimally Invasive Gynecologic Surgery (MIGS) at Brooke Army Medical Center (BAMC). Her clinical leadership experience also includes Surgical Director of the BAMC Simulation Center and Site Director for the Obstetrics and Gynecology Medical Student Core Clerkship.

Dr. Ramirez is an Assistant Professor at the Uniformed Services University (USU) and serves as Core Faculty for the San Antonio Uniformed Services Health Education Consortium (SAUSHEC) GS&O Residency Program. She has been honored with several prestigious accolades, including the SAUSHEC Best Clinical Faculty Educator Award (2025), the SAUSHEC Outstanding Faculty in Gynecology Resident Teaching Award (2022), and the ACOG Armed Forces District Mentor of the Year Award (2021). She holds board certifications with the American College of Obstetricians and Gynecologists with a focused practice designation in MIGS and the American College of Surgeons.

Dr. Ramirez was a Distinguished Graduate of the United States Air Force Academy. She earned her medical degree from Harvard Medical School, GS&O residency training at Walter Reed National Military Medical Center, and fellowship training in Minimally Invasive Gynecologic Surgery at University of Pittsburgh.



Air Force Col. Shana Miles, M.D., Ph.D.



Col (Dr.) Shana Miles serves as the Gynecologic Surgery and Obstetrics (GS&O) and Lifestyle Medicine Consultant to the Air Force Surgeon General, the Director of Operations for the Fort Sam Houston Surgical Operations Squadron assigned to Brooke Army Medical, and GS&O Master Clinician. Her extensive leadership experience includes serving as the Military Program Director for the joint University of Nevada-Las Vegas/Nellis AFB GS&O Residency, Deputy Chief of Surgery, and Chief of the Medical Staff for the 2nd Medical Group at Barksdale Air Force Base.

Dr. Miles is an Associate Professor at the Uniformed Services University (USU) and serves on the American College of Obstetricians and Gynecologists (ACOG) Clinical Practice Guidelines-Gynecology Committee. Her contributions have earned several prestigious accolades, including the USU Dean's Faculty Award (2023), ACOG's Mentor Award (2024), and Air Combat Command's Academic Physician of the Year (2024). She holds board certifications in Obstetrics and Gynecology—with a focused practice designation in Minimally Invasive Gynecologic Surgery—and in Lifestyle Medicine.

Dr. Miles received a direct commission to the Air Force in 2008, subsequently earning her PhD in Emerging Infectious Diseases (2010) and her MD (2012) from USU. She completed her GS&O residency training at Walter Reed National Military Medical Center, followed by a fellowship in Minimally Invasive Gynecologic Surgery and a Master's in Medical Education from the University of Pittsburgh.



Navy Lt. Michelle Vail, P.T., DPT, LAT, ATC



Lieutenant Vail was raised around the country as the daughter of two Air Force Academy graduates. She received a Bachelor of Science in Athletic Training from Purdue University in 2019 and a Doctor of Physical Therapy (DPT) from Army-Baylor University in 2022. She commissioned in 2019 prior to beginning her DPT.

LT Vail completed her DPT internship at Navy Medicine Readiness and Training Command San Diego. After graduation in 2022, she reported to Navy Special Warfare Group Two (NSWG2) as a licensed physical therapist. While at this command, she completed further training and became the second active-duty Navy physical therapist to be a pelvic floor physical therapist and the first at NSWG2. She trained in both men's and women's pelvic health. She organized two Women's Health Symposiums for all regional special operation units.

In 2024 she reported to Navy Medicine Readiness and Training Command Portsmouth where she has brought pelvic health to the aviation community at Naval Air Station Oceana. LT Vail was a spotlight speaker at the 2025 National Strength and Conditioning Association's Tactical Annual Training Conference as well as the National Athletic Trainers' Association 2026 Clinical Symposium, providing instruction concerning the connection between low back pain and pelvic health in the tactical community.



Disclosures



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Learning Objectives



At the conclusion of this activity, participants will be able to:

1. Explain the difference between acute and chronic pain and how the difference impacts treatment.
2. Describe the evaluation and management of endometriosis.
3. Summarize how pelvic floor physical therapy is used to treat chronic pelvic pain.
4. Outline when to refer patients for pelvic floor physical therapy.



Background



- Chronic pelvic pain affects 15–26% women worldwide
- Higher frequency
 - Office and emergency room visits
 - Diagnostic testing, medication use, surgical procedures
- Missed work/loss of productivity
- Reduced quality of life
- Stigma and impact on emotional and psychologic health

(Lamvu et al., 2021), (Soliman et al., 2019), (Green et al., 2024), (Manko et al., 2025), (Rice et al., 2025), (As-Sanie et al., 2024), (Missmer et al., 2022)



Chronic Pelvic Pain (CPP) Definition



- American College of Obstetricians and Gynecologists (ACOG)
 - Pain symptoms perceived to originate from pelvic organs/structures *typically lasting more than six months**
 - Associated with negative cognitive, behavioral, sexual and emotional consequences.
 - Symptoms suggestive of lower urinary tract, sexual, bowel, pelvic floor, myofascial, or gynecologic dysfunction.
- Some societies use three months duration



(ACOG, 2020)



Chronic Pelvic Pain and Servicewomen

- Study of 491 Active-Duty Service Women (O'Shea et al., 2025)
 - 71% had pelvic health concerns
 - 41% sexual dysfunction
 - 34% gynecological surgery
 - **20% chronic pelvic pain**
 - **18% endometriosis**
 - 17% irregular menstrual cycles
 - 10% pelvic injury
- VA Study of Female Veterans (Cichowski et al., 2018)
 - 30% report chronic pelvic pain
 - Only 10% civilian counterparts report chronic pelvic pain
- How many more are not reporting?



Special Considerations for Servicewomen



- Combat
 - Exposure/trauma, environmental exposures
- Sexual trauma
- Training volume
 - Physical, mental, emotional strain
- Lack of recovery time
- Deployment and/or work-related injuries
- Breaks in care due to operational requirements

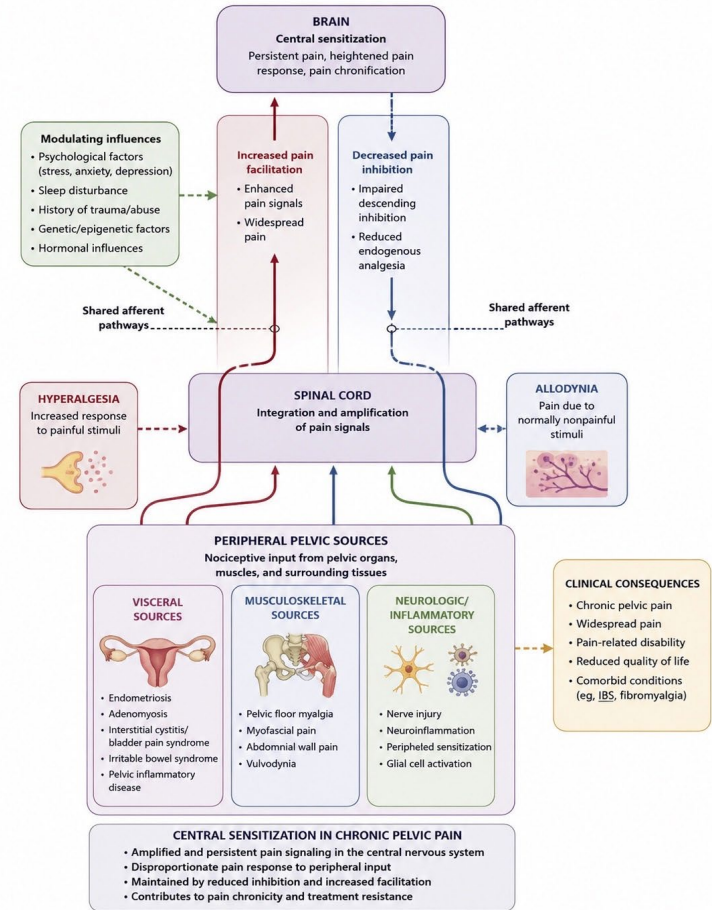


Acute vs. Chronic Pain

- Acute pain
 - Inflammation, infection, trauma
 - Treatment leads to pain resolution

- Chronic pain
 - Multifactorial/Overlapping
 - Central sensitization
 - ✓ Nociceptive chronicity
 - ✓ Dorsal Horn wind-up
 - ✓ Altered brain processing

(ACOG, 2020)
(Till et al., 2022)



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Peripheral vs. Central Sensitization

Peripheral Sensitization

- Local action
- Mechanism
- Clinical Signs

Central Sensitization

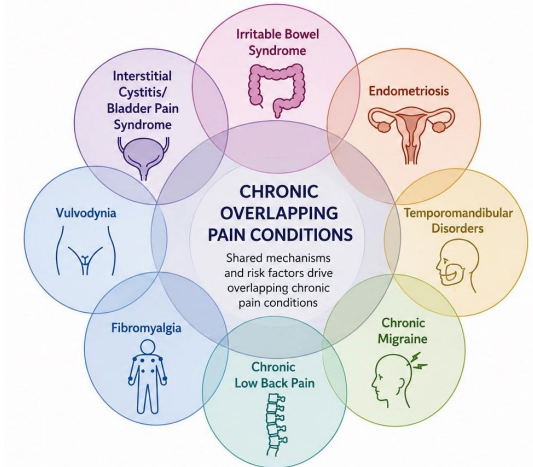
- Systemic action
- Mechanism
- Clinical Signs



Chronic Overlapping Comorbidities



- Chronic pain conditions with high probability of co-occurring in same patient
 - Chronic pain at one site 2x risk of chronic pain at another site
- Women diagnosed with endometriosis
 - 24% migraine headaches
 - 17% chronic lower back pain
 - 17% irritable bowel syndrome
 - 11% fibromyalgia



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Clinical Presentation



Affected area/System	Pathological Mechanism	Clinical Manifestation
Lower urinary tract	Altered bladder wall afferent processing and lowered threshold	Urinary pain/urgency influenced by bladder filling or post voiding empty
Lower GI tract	Hyperexcitable gut nociceptive loops	Defecatory distress influenced by gas and solid distension
Vulvovaginal	Allodynia of perineal & vulvar somatosensory pathways	Perineal hyperreactivity preventing tampon use or wearing tight clothes
Musculoskeletal System	Myofascial Trigger points, muscle guarding	Severe hypertonicity in piriformis, obturator internus, levator ani



Initial Evaluation



- Detailed history
 - Pain chronicity, characteristics, triggers, response to prior treatments
 - Standardized questionnaires
- Focused physical exam
 - Carnett's test
 - Q-tip test
 - Pelvic floor muscle assessment
 - Bimanual exam: cervical/uterine/adnexal pain

THE INTERNATIONAL PELVIC PAIN SOCIETY

Pelvic Pain Assessment Form

Physician: _____ Date: _____

Initial History and Physical Examination
This assessment form is intended to assist the clinician with the initial patient assessment and is not meant to be a diagnostic tool.

Contact Information

Name: _____ Birth Date: _____ Chart Number: _____
 Phone: Work: _____ Home: _____ Cell: _____
 Referring Provider's Name and Address: _____

Information About Your Pain
Please describe your pain problem (use a separate sheet of paper if needed): _____

What do you think is causing your pain?
 Is there an event that you associate with the onset of your pain? ☐ Yes ☐ No If so, what?
 How long have you had this pain? ____ years ____ months

For each of the symptoms listed below, please "bubble in" your level of pain over the last month using a 10-point scale:
 0 = no pain 10 = the worst pain imaginable

How would you rate your pain?	0	1	2	3	4	5	6	7	8	9	10
Pain at ovulation (mid-cycle)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain just before period	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain (not cramps) before period	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Deep pain with intercourse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain in groin when lifting	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pelvic pain lasting hours or days after intercourse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain when bladder is full	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Muscle / joint pain	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Level of cramps with period	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain after period is over	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Burning vaginal pain after sex	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain with urination	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Backache	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Migraine headache	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pain with sitting	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Provider Comments

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 (201) 877-2950 www.pelvic-pain.org (800) 624-9876 (if in the U.S.)



Diagnostic Testing



- Labs (as indicated)
 - Urinalysis/culture, pregnancy test, chlamydia/gonorrhea Nucleic Acid Amplification Test (NAAT)
- Imaging
 - Pelvic ultrasound is first-line
 - Pelvic magnetic resonance imaging (MRI) if ultrasound abnormalities or concern for deep infiltrating endometriosis
 - Computed tomography (CT) abdomen/pelvis if concerns for non-gynecologic pain



Multidisciplinary Team



-
- Primary care manager
 - Gynecology
 - Urology
 - Colorectal
 - Pelvic Floor Physical Therapy
 - Pain psychology
 - Pain management



Non-surgical Treatment



- Retraining the brain – Cognitive behavioral therapy (CBT)
- Neuropathic pain
 - Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)
 - Tricyclic Antidepressants (TCAs)
 - Gabapentin/pregabalin
- Trigger point injections
- Complementary and integrative treatments



Surgical Treatment Considerations

- Laparoscopic adhesiolysis is not recommended for management of chronic pelvic pain (ACOG, 2020)
- Hysterectomy for chronic pelvic pain
 - Most effective for uterine or menstrual-related causes of pain
 - Centralized pain increases odd of persistent pelvic pain
 - Patients with myofascial pelvic pain may have worse pain immediately postoperative
- Active component surgical considerations
 - Laparoscopy – 60 day profile
 - Hysterectomy – 90 day profile

As-Sanie et al., 2021)



Recent Hot Topic: Endometriosis

- Endometrial tissue (glands and stroma) outside uterus
- Symptoms: chronic pelvic pain, painful menses, heavy menses
- Up to 9% of reproductive age women
 - 70% women with chronic pelvic pain or infertility
 - 64% adolescents undergoing laparoscopy for pelvic pain
- Diagnostic delay on average four to eleven years from symptom onset

(ACOG, 2026)



Endometriosis and Servicewomen

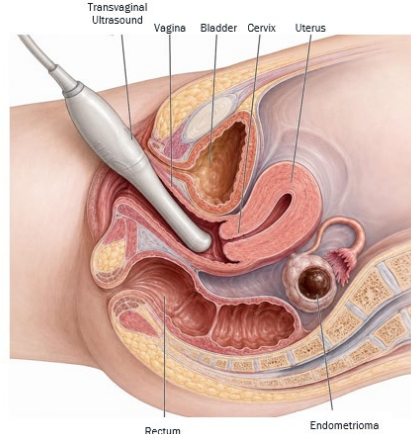
- Operation Enduring Freedom/Operation Iraqi Freedom veterans with posttraumatic stress disorder (PTSD) and depression (Cohen et al., 2012)
 - 4.88 times more likely to have pelvic pain
 - 3.69 times more likely to have endometriosis
- Active-duty service component (Murray et al., 2026)
 - Endometriosis rate increased 42% from 2017 to 2024
 - 23.1% menorrhagia and 21.1% infertility
 - 76% on contraception



Endometriosis Diagnostic Shifts

Clinical Diagnosis

- Chronic pelvic pain
- Cyclic dysmenorrhea
- Dyschezia
- Dysparuenia
- Dysuria



(AI Generated by ChatGPT, OpenAI, 2026)

Imaging

- Transvaginal ultrasound
- Pelvic MRI

Surgery

- Laparoscopy

Non-invasive testing (saliva/blood)

- NOT Food and Drug Administration (FDA) approved



Endometriosis Treatment Goals (ACOG, 2018)



-
- Symptom relief
 - Suppression of disease progression
 - Preserve fertility (if desired)



Endometriosis Non-surgical treatment (ACOG, 2018)



- Medical:
 - Nonsteroidal anti-inflammatory drugs (NSAIDS) (+/-)
 - Hormonal
 - ✓ Combined contraceptives (oral, patch, ring)
 - ✓ Progestins (oral, intrauterine device (IUD), injection, implant)
 - ✓ Gonadotropin-releasing hormone (GnRH) agonists
 - ✓ GnRH antagonists
 - ✓ Aromatase inhibitors
 - ✓ Selective estrogen receptor modulators
 - ✓ Danazol



Endometriosis Non-surgical Treatment (ACOG, 2018)



- First-line:
 - NSAIDs with oral contraceptive pills (OCPs) or Progestins

- Six-month trial GnRH agonists
 - Equivalent results but higher side effects/cost
 - Add-back therapy is recommended



Systematic Review Endometriosis Surgery (Singh et al., 2020)



- Postoperative pain and reoperation rates for laparoscopic ablation, excision, and hysterectomy
- Laparoscopic ablation (superficial endometriosis)
 - Visual analogue scale (VAS) score decreased 2.4cm
 - 11.4% - no pain improvement
 - No data – recurrent pain after surgery
 - No data – reoperation rates



Systematic Review Endometriosis Surgery (Singh et al., 2020)



- Laparoscopic excision - Superficial endometriosis
 - VAS score decreased 3.6cm
 - 11.8% - no pain relief
 - 25% - incomplete improvement in pain
 - 15.8% - recurrent pain at 22 months
 - 22.6% - repeat surgery at 24 months



Systematic Review Endometriosis Surgery (Singh et al., 2020)

- Laparoscopic excision - Deep endometriosis
 - VAS score decreased 6.2cm
 - 0% - no pain relief
 - 2.3% - incomplete improvement in pain
 - 7.0% - recurrent pain at 9 months
 - 4.1% - repeat surgery at 30 months
- Hysterectomy with ovarian preservation
 - 19.1% - repeat surgery at 92 months
- Hysterectomy with removal of ovaries
 - 8.0% - repeat surgery at 92 months



Postoperative Hormonal Suppression

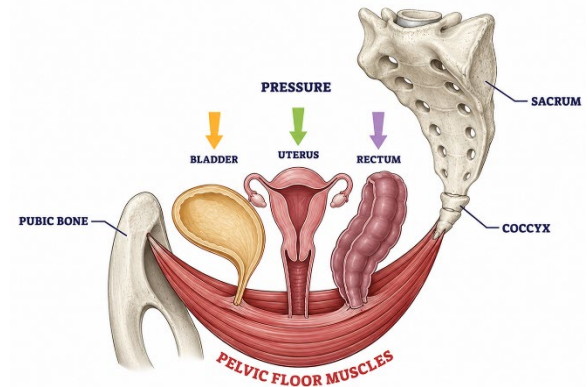
- Systematic review and meta-analysis (Zakhari et al., 2021)
 - Hormonal (pills/levonorgestrel IUD/GnRH agonist) vs. no suppression
 - ✓ Median follow-up 18 months
 - ✓ Hormonal suppression
 - Significant reduction risk of recurrence
 - Significantly lower pain scores
- Postoperative hormonal suppression is recommended after endometriosis surgery



Role of Pelvic Floor Physical Therapy (PFPT)



- Ensuring the musculoskeletal environment optimally supports the underlying condition
- Study by Tu et al. looked at 20 musculoskeletal items to evaluate for those with CPP/Endometriosis (Tu et al., 2008)
 - Bony landmark changes (iliac crest, pubic symphysis)
 - Sacroiliac joint compression pain
 - Increased tenderness through abdominal musculature
 - Increased pelvic floor tenderness and tone
 - Decreased pelvic floor motor control
- But why? (Quaghebeur, 2021)
 - Systemic inflammation
 - Location of endometrial deposits
 - Guarding from pain
 - Stress/emotional connections
- Important at all stages of care (Wójcik et al., 2022)
 - Including preoperative, postoperative



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PFPT Evaluation



Educate patients of what's entailed in a PFPT evaluation at time of referral

- History taking
 - Detailed questions concerning each of the body systems involved, pain, lifestyle, activity, past medical history
- Physical examination
 - “Orthopedic” component
 - ✓ Joint range of motion (hip, spinal), strength, functional performance (squats, balance, core), breathing, palpation
 - Direct pelvic floor muscle (PFM) testing
 - ✓ Internal pelvic floor muscle evaluation is not mandatory but is the gold standard to determine PFM function
- Education
 - Discussion, hand-outs, models, symptom diaries, collaborative treatment planning



PFPT Modalities



- Biofeedback
 - Intravaginal, intrarectal, or external sensors
 - Digital
 - Ultrasound
- Transcutaneous Tibial Nerve Stimulation
- Instrument assisted soft tissue mobilization
 - Clinician or patient performed
 - Internal or external
- Cupping
- Dry needling with and without electrical stimulation



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Therapeutic Exercise



- Downregulation
- Mobility
- Motor control
- Strength
- Endurance
- Functional activities

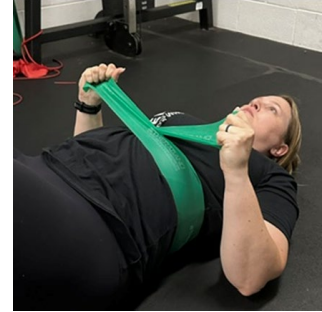


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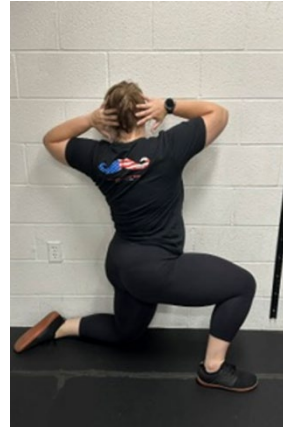


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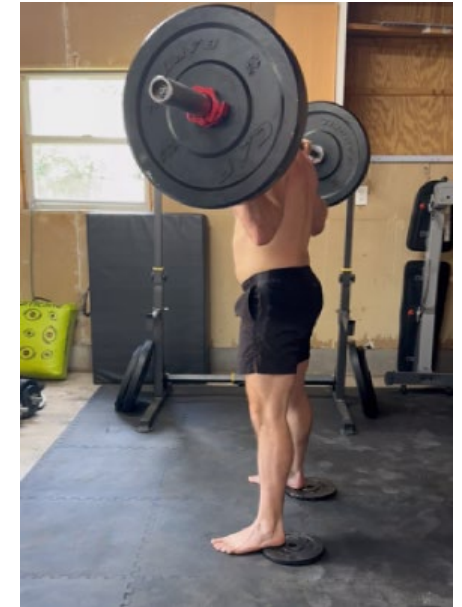


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Case Study



- Background:
 - 51-year-old female G1P0 complains of pelvic and left lower quadrant (LLQ) abdominal pain, dyspareunia, urinary incontinence. History of endometriosis with multiple laparoscopic surgeries (endometrial excision, myomectomy, left oophorectomy)
 - Referred to PFPT by Gynecology
- Examination:
 - Reactive pain to palpation of left upper quadrant (LUQ) and LLQ with increased tone
 - Increased tone and painful palpation to PFM all levels w/decreased motor control
 - Poor posturing/core control during functional testing



Case Study Continued



- Treatment:
 - Bladder and urge suppression education
 - Abdominal and hip mobility exercises
 - Intravaginal biofeedback
 - Abdominal manual soft tissue mobilization and abdominal cupping
 - Progressive core retraining and pressure management exercise
- Eight months later:
 - LLQ pain reduced to pin-point and non-radiating, improved core strength and exercise engagement, ability to mitigate flares of cyclical pain, improved PFM strength and control, no urinary leakage, and pain-free intercourse



Key Takeaways



- Chronic pelvic pain multifactorial and often overlaps with other chronic comorbidities making evaluation and treatment is challenging.
- History and exam are critical to diagnostic evaluation
- Pelvic floor physical therapy can be a useful treatment modality for chronic pelvic pain



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Questions?