

Pelvic Pain – Evaluation and Treatment

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Disclosure

Neither I, Kelly Scott, MD, nor any family member(s), have any relevant financial relationships to be discussed, directly or indirectly, referred to or illustrated with or without recognition within the presentation.

Pelvic Pain – A Common Problem

- CPP affects 5-25% of all community-dwelling adult women.^{1,2}
- 61% of women with CPP have no obvious etiology.³
- Pudendal neuralgia is thought to affect at least 1% of the population.⁴
- 3 out of 4 women will have pain with sex at some point in their lives.⁵

- 5-16% of male urologic office visits are for “chronic prostatitis,” 90-95% of these men have no pathology of

- the prostate, and 88% suffer from pelvic floor

- pain/dysfunction.^{6,7}

1. Nygaard I, Chai T, Cundiff G. et al. Summary of research recommendations from the inaugural American Gynecological Society Research Summit. Female Pelvic Medicine and Reproductive Surgery. 2011; 17(1): 4-7.
2. Lattin P, Lathier M, Say L, Gilman R, M. Khan M. WHO systematic review of prevalence of chronic pelvic pain: a neglected reproductive health morbidity. BMC Public Health. 2006; 6:177.
3. Manias S, et al. Obstet Gynecol. 1996; 87: 321-327
4. Spinosa JP, de Bisschop E, Laurencon J, Kuhn G, Dubuisson JB, Riederer BM. [Sacral staged reflexes to localize the pudendal compression: an anatomical validation of the concept]. Rev Med Suisse 2006;2(84):2416-8, 20-1
5. ACOG FAQ020. “When Sex is Painful.” 2011.
6. Stein, A. Heal Pelvic Pain. 2009.
7. Wise D, Anderson R. A Headache in the Pelvis. 2012.

Pelvic Pain...



Pelvic Pain...



CPP Patient = CHALLENGING Patient

- 1. Can't sit! Therefore, can't work...
- 2. Comorbidities: affect QUALITY OF LIFE suffering
 - Urinary problems (urinary incontinence, urgency/frequency)
 - Defecatory problems (fecal incontinence, constipation)
 - Sexual problems (dyspareunia, decreased drive)
- 3. ANXIETY (and/or depression)
- 4. History of sexual and/or physical abuse...



CPP Patients can make us feel:

FRUSTRATE

D



CONFUSE



DEFEATE



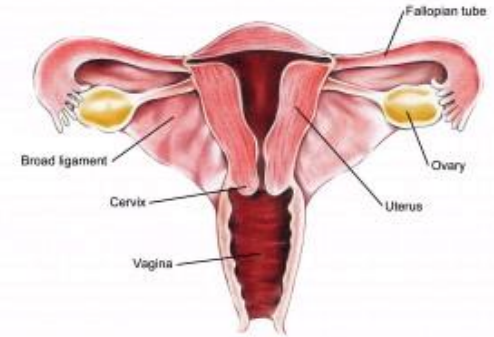
Pelvic Pain - DDX

- Visceral:
 - GYN
 - GU
 - Abdominal



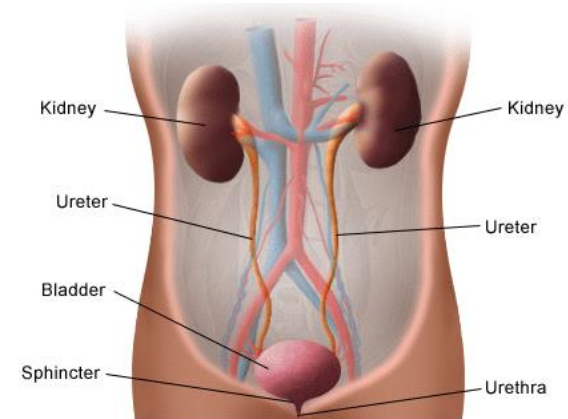
Pelvic Pain - DDX

- Visceral
 - GYN
 - Leiomyomas (fibroids), adenomyosis
 - Endometriosis
 - Cancer (uterine, ovaries)
 - Pelvic inflammatory dz, STDs, yeast infection
 - Ovarian cysts
 - Menstrual-related pain
 - Pregnancy
 - GU
 - Abdominal



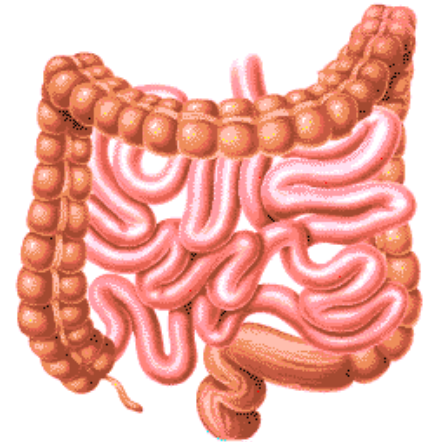
Pelvic Pain - DDX

- Visceral
 - GYN
 - GU
 - Urinary tract infection
 - Interstitial Cystitis (Bladder Pain Syndrome), urethritis
 - Cancer (bladder, testicular)
 - Kidney stones or other kidney dz
 - Epididymitis
 - Varicocele, hydrocele, testicular torsion
- Abdominal



Pelvic Pain - DDX

- Visceral
 - GYN
 - GU
 - Abdominal
 - Hernia (abdominal wall, inguinal, femoral)
 - Diverticulitis, gastroenteritis, appendicitis, abscess
 - Volvulus, intussusception, ischemic bowel
 - Surgical adhesions
 - Irritable bowel syndrome
 - Inflammatory Bowel Disease (Chron's, UC)
 - Hemorrhoids, severe constipation
 - Cancer (colon, rectal/anal, stomach)



Evaluation of visceral causes of pelvic pain

- Beyond the scope of my talk and my practice...
- Likely beyond the scope of your practice as well!
- You are going to refer to the appropriate specialists, but you do want to know if workup was sufficient to rule out what needs to be ruled out
- Find gyns, uros, colorectals, urogyns, GIs that you trust

Some tips...

- Endometriosis: laparoscopy is the gold standard for diagnosis, but a 3T MRI with contrast read by an experienced radiologist can often see it if it is significant
 - Order the MRI to be done during their menses
- Ovarian cysts: premenopausal women usually have at least one at all times, don't get too worked up about it
- IC/BPS: cystoscopy may show Hunner's ulcers or inflammatory mucosa, but typically all is normal
 - Trigonitis may be seen if someone has chronic UTIs, but this is NOT the same as IC
- Diverticulosis will not typically cause pain
- Most adhesions will not show up on any testing except laparoscopy

Chronic Pelvic Pain – Typical Story

- Has been seen by: Gynecologist, Urologist, Urogynecologist, Colorectal Surgeon, Gastroenterologist, etc.
- All testing has come back negative, but they've often been given a number of diagnoses anyway (IC, IBS, endometriosis...)
- What, then, are you, as a pain doctor, supposed to do?
 - Send the patient to even more of the same type
 - Watch as the patient has surgery after surgery or “take down adhesions” with increases in pain after surgery?
 - Prescribe antibiotics without positive cultures?
 - Prescribe lots of narcotics?
 - Dorsal column stimulator?
 - Superior hypogastric or ganglion impar block?
 - Tell them they have to live with it?
- Or...



Pelvic Pain - DDX

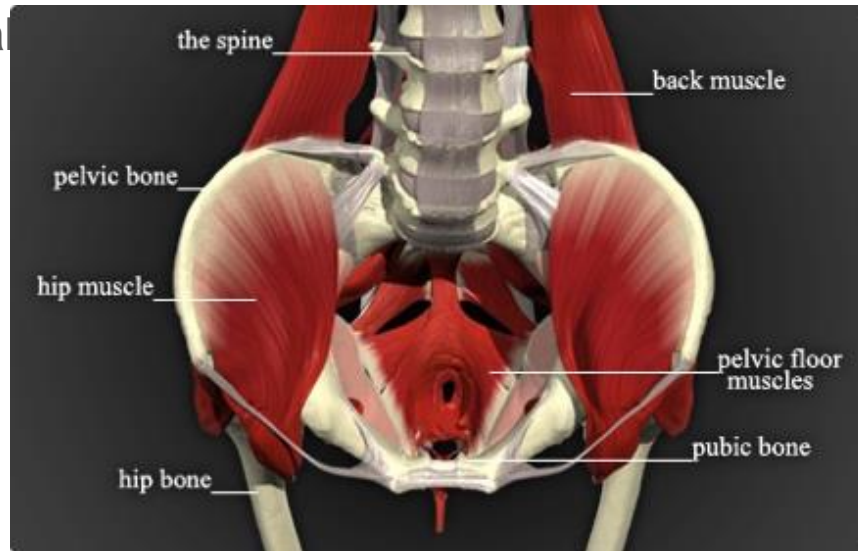
- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics



MSK Abnormalities in CPP

- Up to 70-90% of pts in CPP clinics are diagnosable with associated lumbopelvic MSK abnormalities

- Fitzgerald 1991



& Gambone JC, JRM

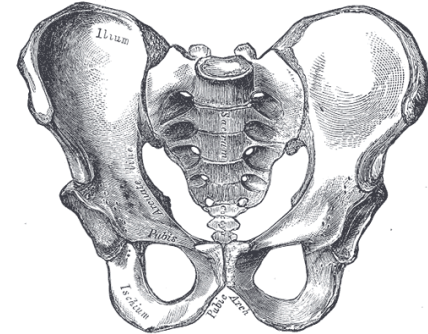
- Musculoskeletal training should not go out the window solely because we are dealing with the

Pelvic Pain - DDX

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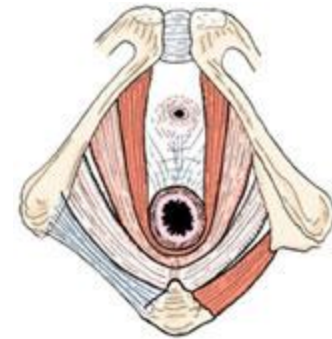
Pelvic Pain - DDX



- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
 - SI joint dysfunction or arthropathy, pelvic obliquity
 - Pubic symphysitis, coccydynia
 - Hip joint arthritis, labral tear, AVN, other hip pathology
 - Fracture (sacral insufficiency, osteoporosis, trauma)
 - Cancer (bony mets or primary)
 - Herniated disk, spinal stenosis, facet arthropathy, Tarlov cysts
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics

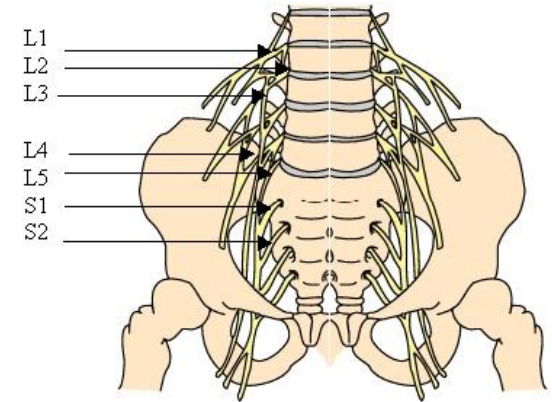
Pelvic Pain - DDX

- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
 - Myofascial pain of pelvic floor muscles
 - Myofascial pain of back or hip muscles
 - Weakness of pelvic floor: deconditioning/disuse
 - Tightness of pelvic floor and sphincters
 - Tendinopathy, ligament sprain, esp. ST/SS ligaments, adductors, hip flexors, piriformis and long dorsal ligament
 - Damage to pelvic floor muscles from trauma or radiation: childbirth, gyn instrumentation, prior surgeries, sexual abuse, sports/dance, repetitive minor trauma, cancer treatment
 - Dyssynergia: puborectalis and external anal sphincter
- Nerves
- Blood Vessels/Lymphatics



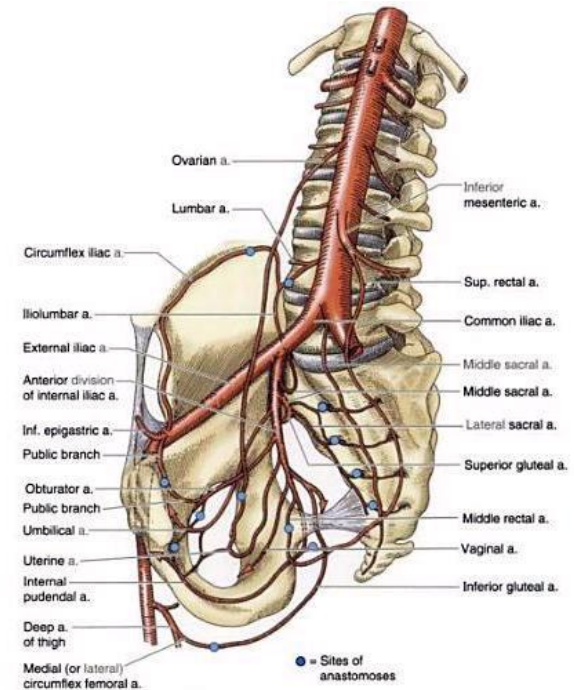
Pelvic Pain - DDX

- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
 - Traumatic nerve damage in childbirth, gyn instrumentation, etc.
 - Pudendal ilioinguinal, genitofemoral, inferior cluneal neuralgia and entrapment neuropathies, and other abdominal/pelvic mononeuropathies
 - Peripheral neuropathy affecting pelvic nerves (DM, chemo, alcohol)
 - Sacral radiculopathy and other spinal causes (conus medullaris syndrome and cauda equina)
 - LS plexopathy
 - Schwannomas of cauda equina or pelvic nerves
 - Central control issues (MS, Parkinsons)
- Blood Vessels/Lymphatics



Pelvic Pain - DDX

- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics
 - Pelvic congestion syndrome
 - Pelvic/labial varicosities
 - Pelvic lymphedema



Pelvic Pain - DDX

- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics
- **Are we done?**



Pelvic Pain - DDX

- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics
- **NEVER FORGET PSYCH!!!**
 - History of abuse (sexual, physical, verbal/emotional) is very common in chronic pelvic pain patients
 - History of anxiety, depression, other psych disorders – often goes along with pelvic pain
 - Eating disorders, body issues
 - Intimacy issues with partner



Pelvic Pain - DDX

- Visceral (GYN, GU, Abdominal)
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics
- Psych
- Central Sensitization
 - Pelvic pain is listed on the Central Sensitization Inventory as a key symptom of sensitization
 - Pelvic pain and chronic PFD probably belong on the list of CSSs (Central Sensitivity Syndromes) along with chronic migraines, fibromyalgia, RLS, and IBS




Pelvic Pain - DDX

- Visceral (GYN, GU, Abdomina
- Bony Pelvis/Joints/Spine
- Muscles/Ligaments
- Nerves
- Blood Vessels/Lymphatics
- Psych
- Central Sensitization
- Iatrogenic
 - MESH complications...
 - 10% of >300,000 surgeries per year (2004-2011) have major complications
 - FDA 2011 – Serious complications from mesh kits
 - >60,000 lawsuits to date and growing by 10,000+ per year
 - Tape/Sling complications...
 - We think these do not usually appear as quickly after placement, so we are only now starting to see the effects, will become the next big thing

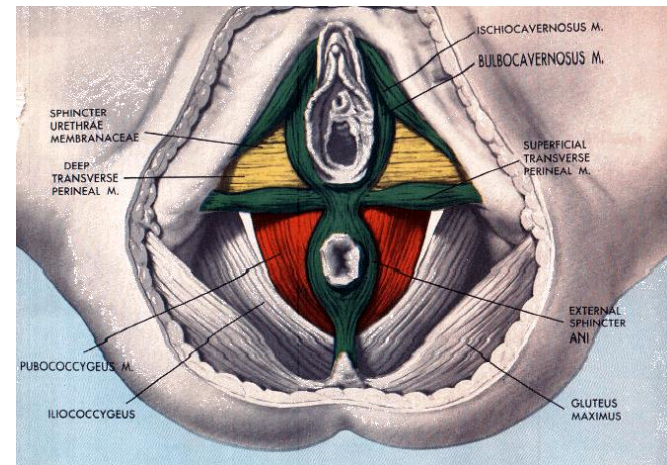


Chronic pelvic pain:

- The MOST COMMON CAUSE of chronic pelvic pain when visceral (Gyn, GU, Abd) problems have been ruled out is...
- Pelvic floor myofascial pain syn  caused by overactive pelvic floor muscles
- May affect up to 15-25% of the population
- Various studies have found pelvic floor myofascial pain to be present in 22-88% of ALL patients with CPP, even with known abdominopelvic pathology
 - Tu FF, As-Sanie S, Steege JF. Prevalence of pelvic musculoskeletal disorders in a female chronic pelvic pain clinic. J Reprod Med 2006; 51:185-189.
 - Pool-Goudzwaard AL, Vleeming A, Stoeckart R, et al. Insufficient lumbopelvic stability: A clinical, anatomical and biomechanical approach to 'a-specific' low back pain. Manual therapy 1998; 3:12-20.
 - Fitzgerald CM, Mallinson T. The association between pelvic girdle pain and pelvic floor muscle function in pregnancy. Int Urogynecol J 2012; 23:893–898.
 - Fitzgerald CM, Kotarinos R. Int Urogynecol J Pelvic Floor Dysfunct. 2003 Oct;14(4):261-8

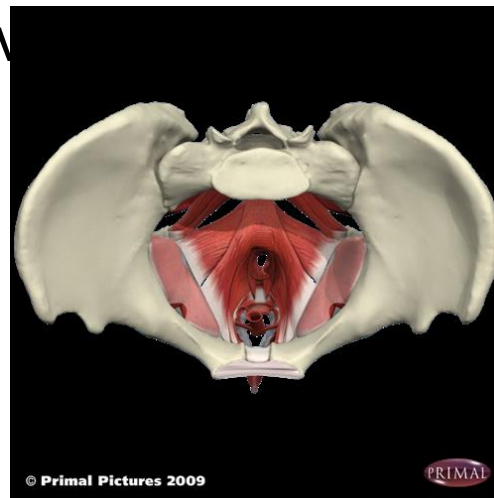
Some of the many names for this disorder:

- Levator ani syndrome
- Levator spasm syndrome
- Pelvic floor hypertonia
- Pelvic floor pain syndrome
- Pelvic myofascial pain syndrome
- Pelvic floor myalgia
- Pelvic floor spasm
- Pelvic floor trigger points
- Pelvic floor overuse syndrome
- Chronic pelvic pain syndrome
- Diaphragma pelvis spastica
- Spastic pelvic floor syndrome
- Tension myalgia of the pelvic floor
- Vaginismus
- Non-relaxing pelvic floor
- Overactive pelvic floor

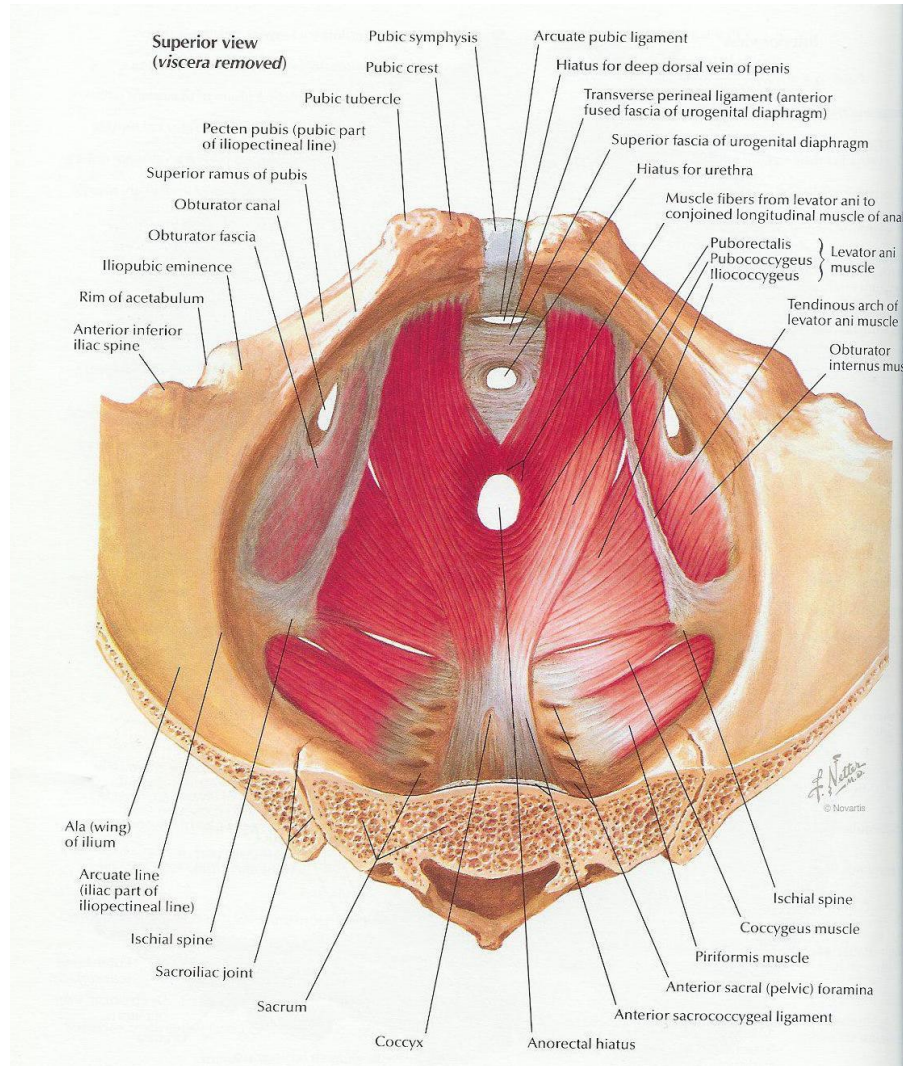


What to call this condition?

- The current best accepted terminology in the medical literature for the state of muscle tightness is “Overactive Pelvic Floor.”
 - Messelink B, et al. Standardization of terminology of pelvic floor muscle function and dysfunction. *Neurourology and Urodynamics* 2005; 24:374-380.
- “Pelvic floor myofascial pain” is the most common name used to describe the pain syndrome which arises from pelvic myofascial tightness



Brief Review of pelvic floor anatomy

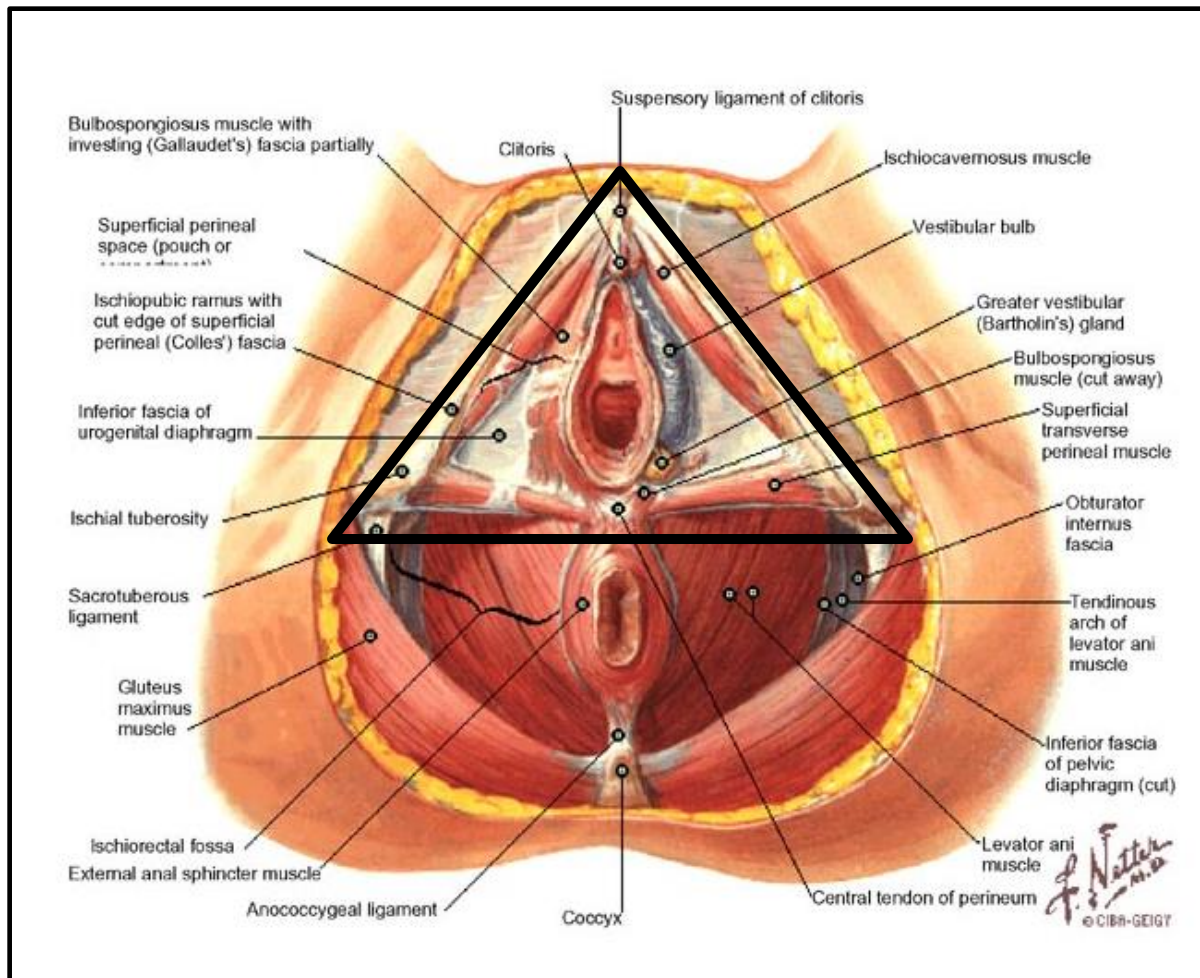


Three basic types of PF muscles...

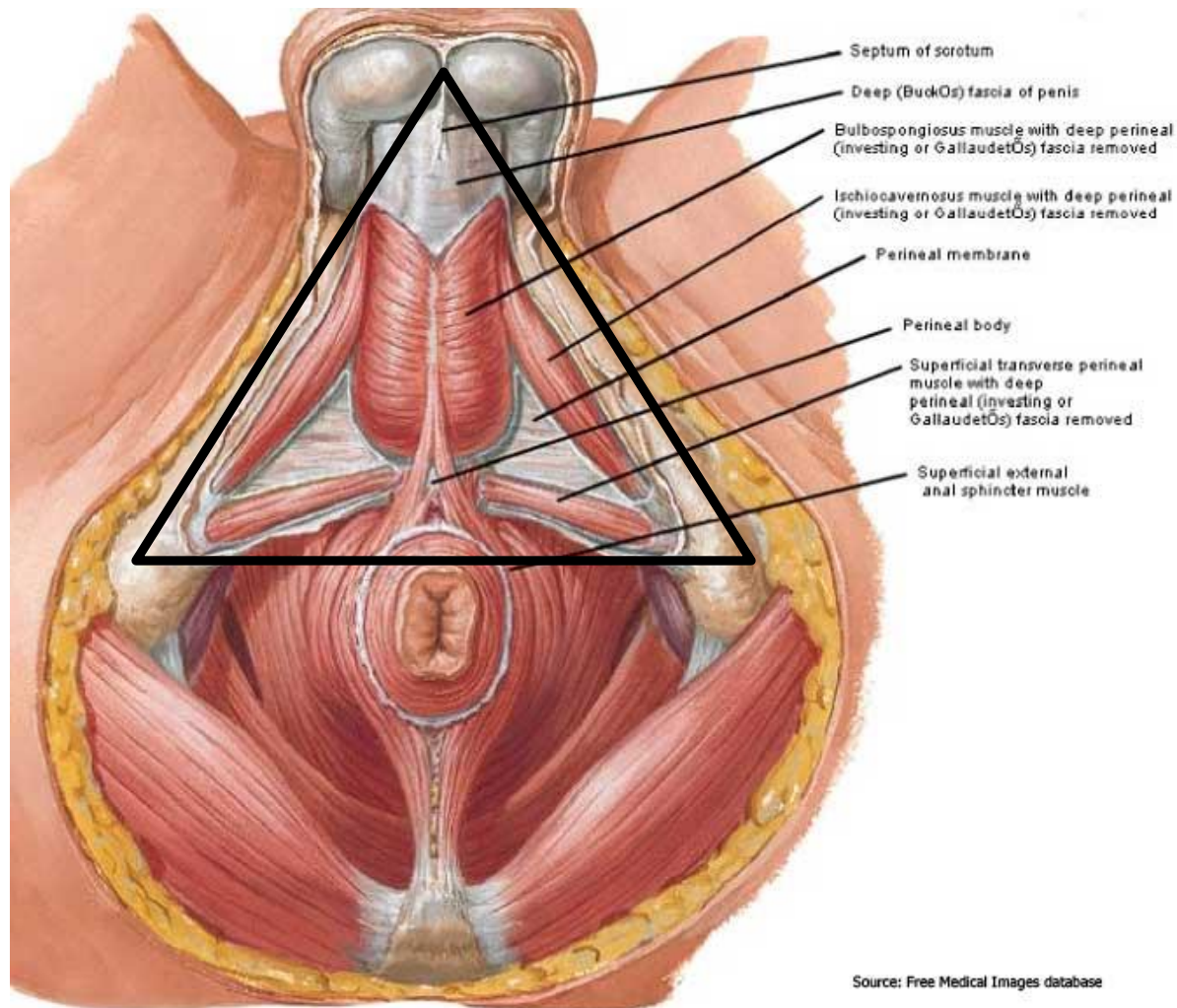
- Superficial muscles = urogenital diaphragm muscles
 - Transverse perineal (superficial and deep), bulbospongiosus (formerly called bulbocavernosus), ischiocavernosus, urethral and anal sphincters
- Deep muscles = pelvic diaphragm muscles
 - levator ani (puborectalis, pubococcygeus, iliococcygeus) and coccygeus
- Hip rotators = obturator internus and piriformis
 - not technically pelvic floor muscles, although can be sources of pelvic p



Urogenital diaphragm in women



Urogenital diaphragm in men



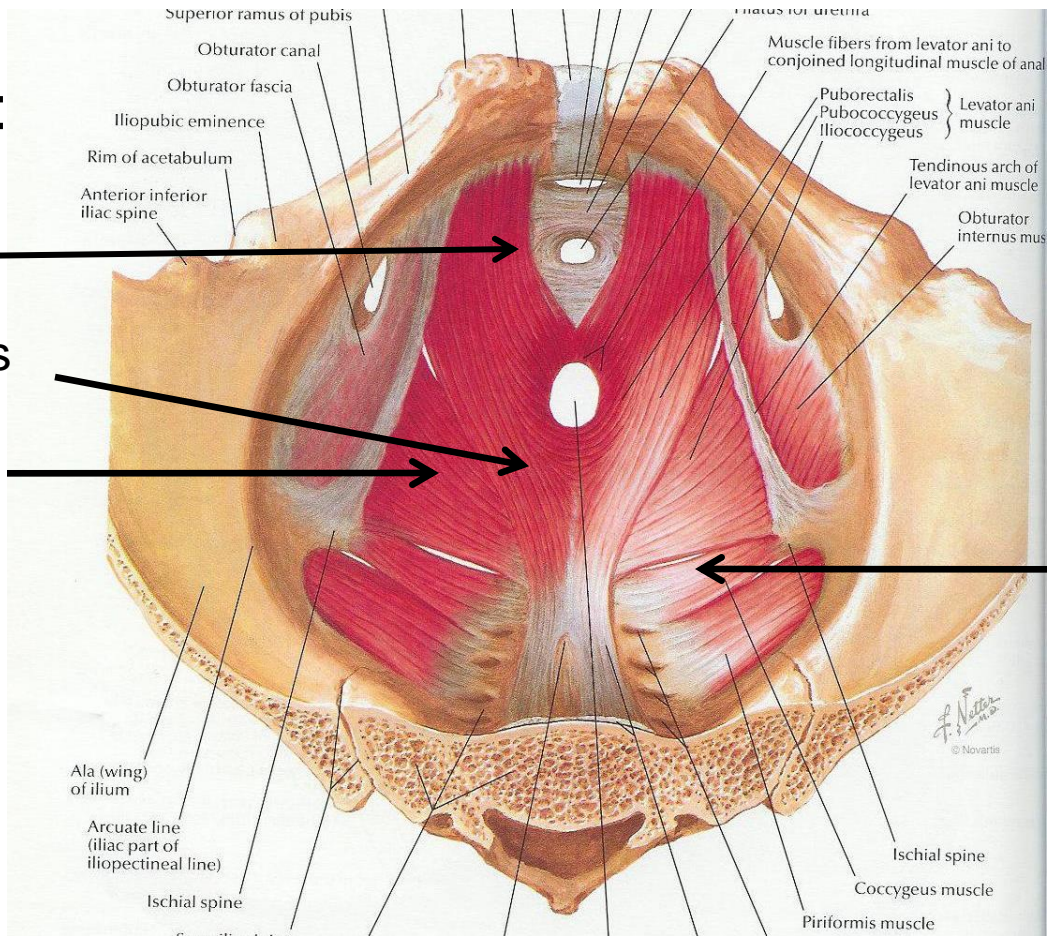
Pelvic diaphragm (deep muscles)

Levator ani:

Puborectalis

Pubococcygeus

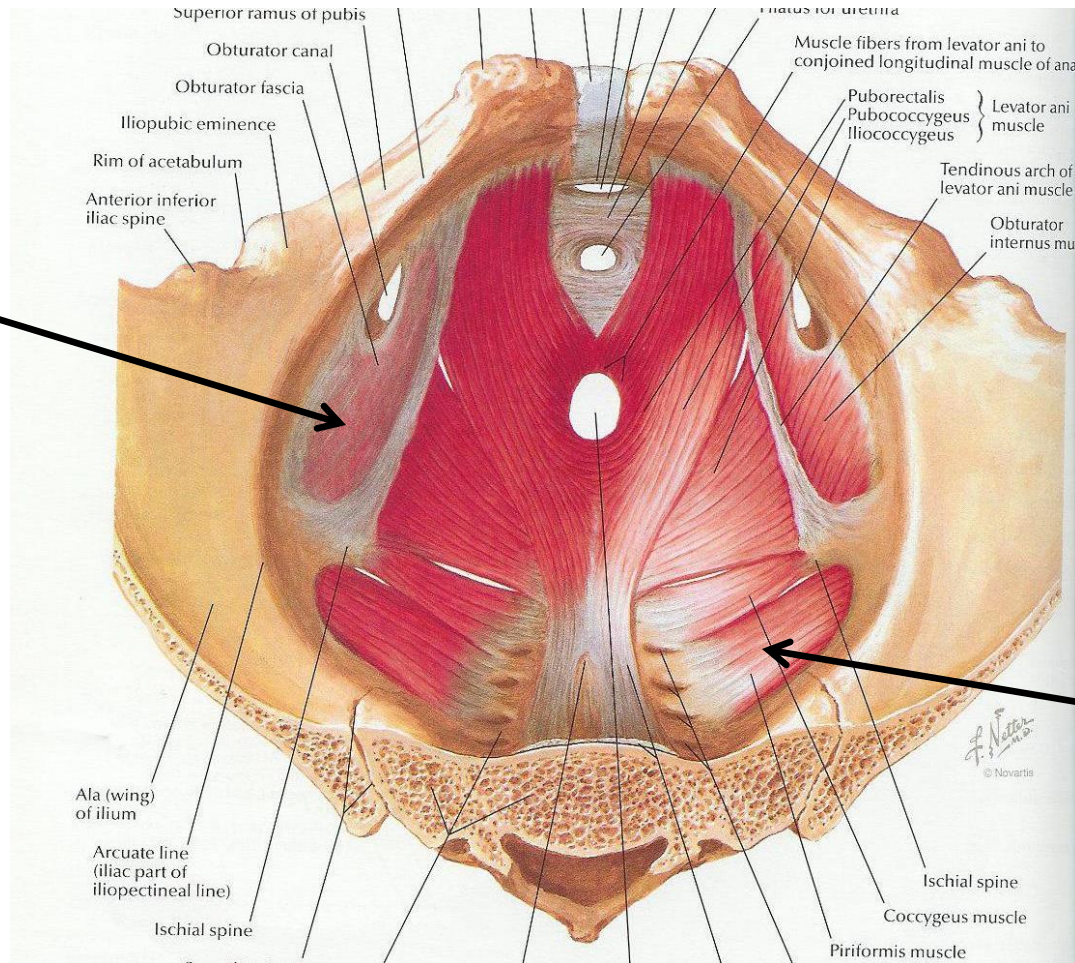
Iliococcygeus



Coccygeus

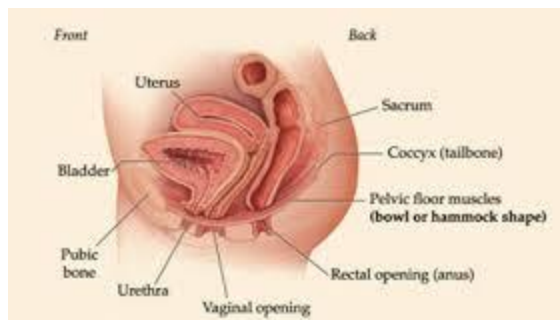
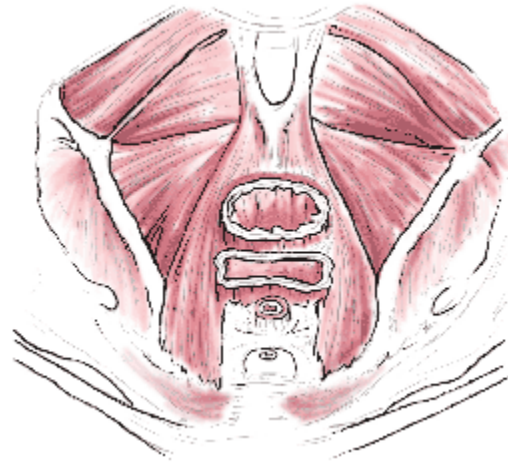
Deep Hip Rotators

Obturator Internus

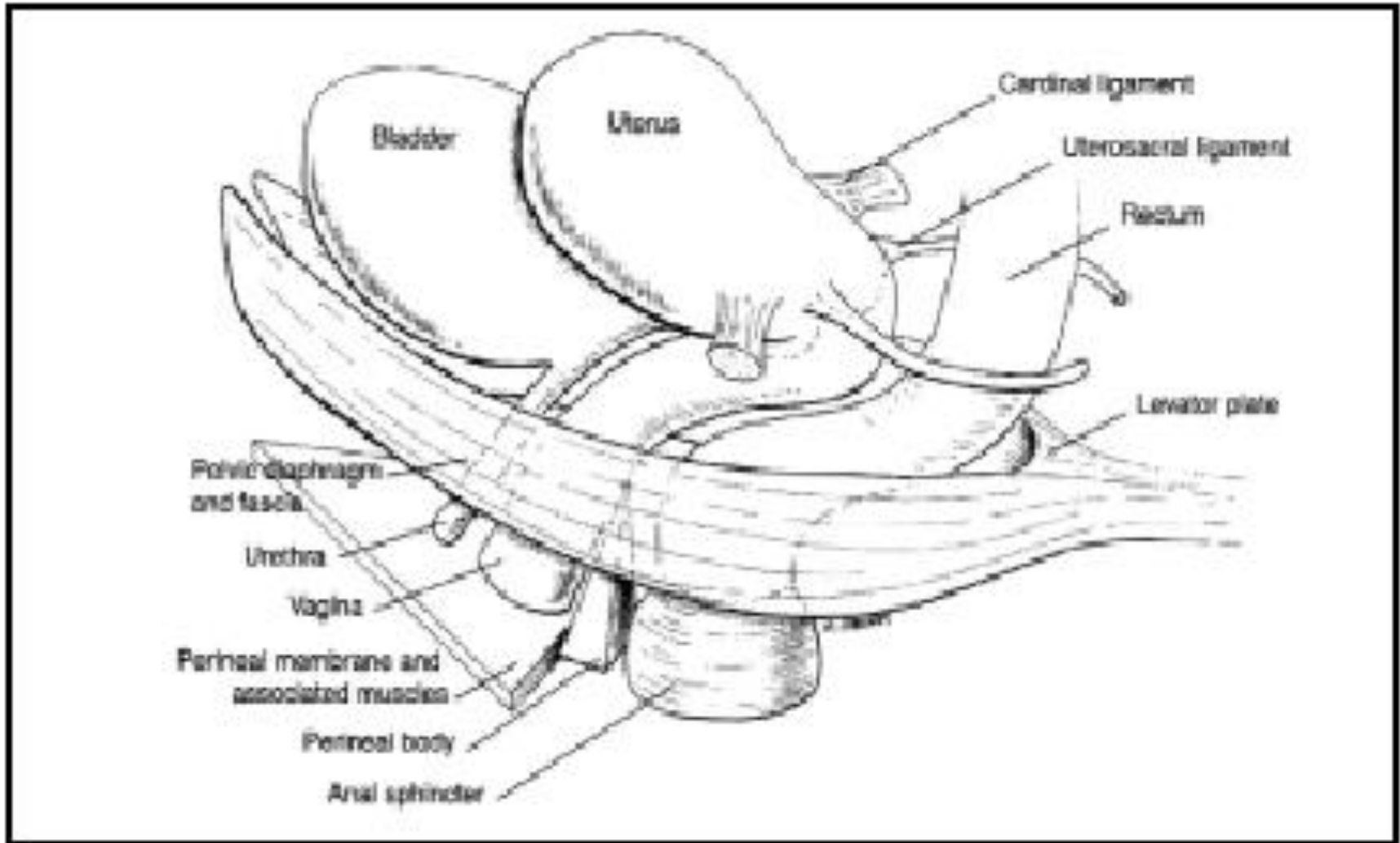


Piriformis

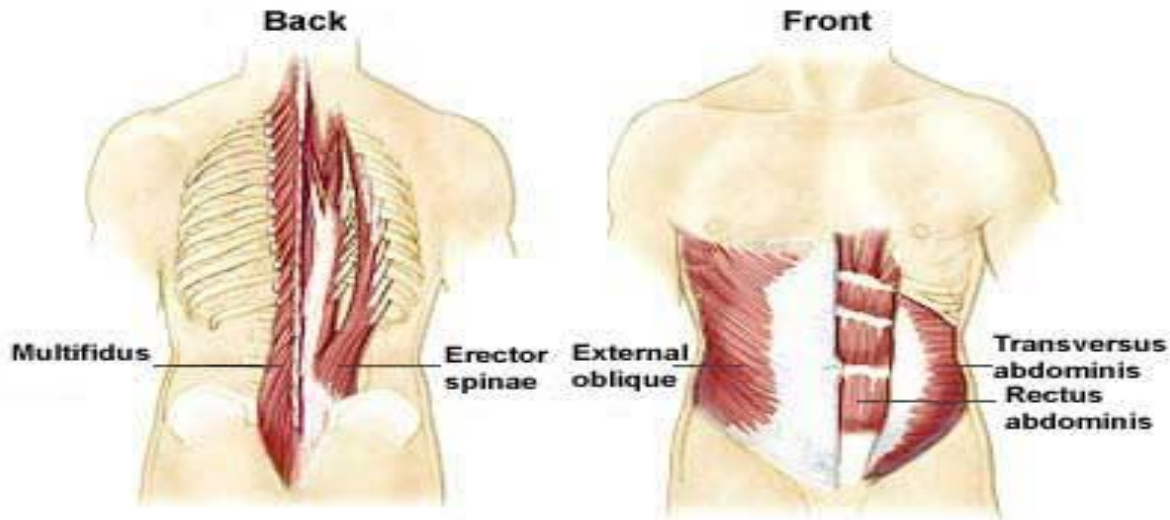
Pelvic Floor Function



Pelvic Floor Function: “basket” concept



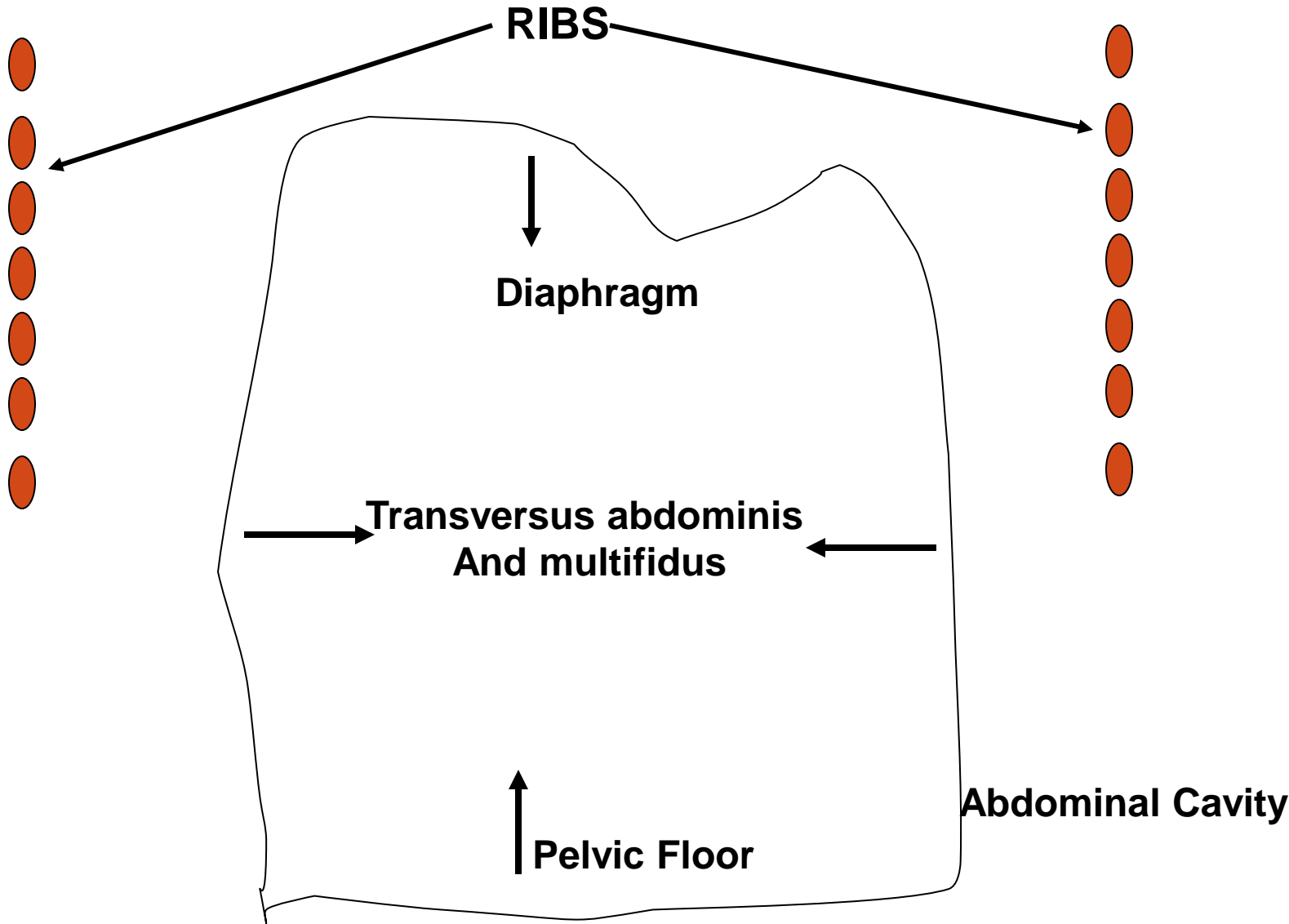
Core Muscles...



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- Rectus abdominus:** Flexion of the vertebral column, assists in pulling down ribs during forced expiration, increasing abdominal pressure
- Transverse abdominis:** In addition to above, also assists with defecation, micturition & parturition when the thoracic cage & diaphragm are fixed
- External and internal obliques:** In addition to all actions above, also rotates trunk to opposite side
- Multifidus & Erector spinae:** stabilize, extend, laterally flex, and rotate vertebral column

Can



The pelvic floor...

- Is the floor of the core!
- And... the **MOST IMPORTANT** muscle group out of all the core muscles!
- If the bottom of the soup can isn't functioning well, how can the entire can function?

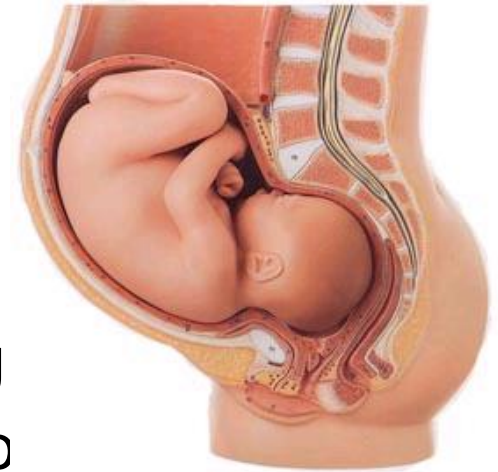


Pelvic Floor Functions

- Functioning as the “basket” -
 - Supports pelvic/abdominal viscera- prevents prolapse
- Functioning as a core muscle –
 - Resists increases in intra-abdominal pressure
 - Assists the anterior abdominal muscles in compressing abdominal contents: forced expiration, coughing, vomiting, fixation of trunk (e.g. weight lifting)
 - Maintains balance, and aids in general stabilization of the body



Pelvic Floor Functions

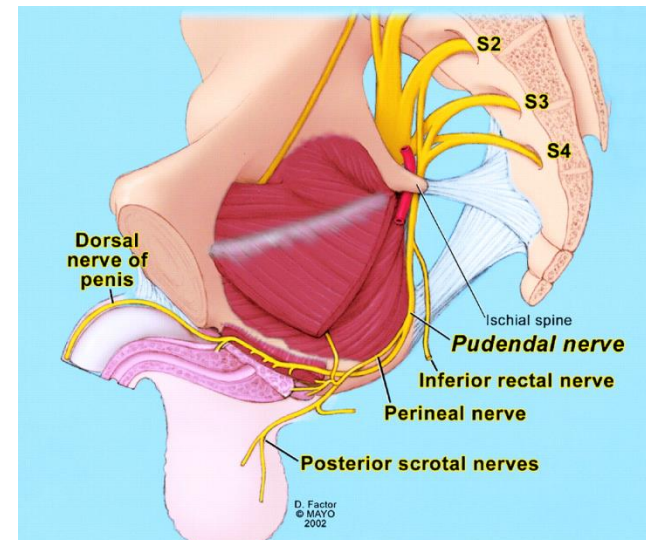
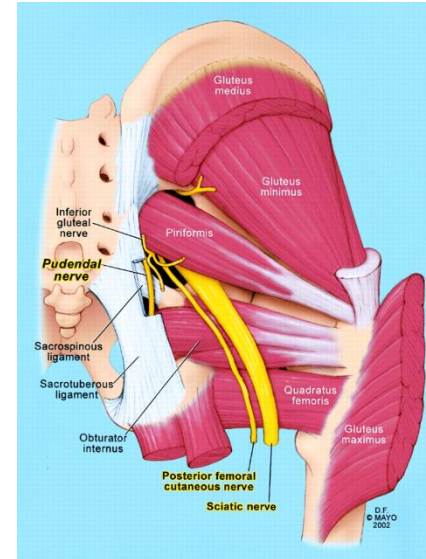


- Obstetric functioning -
 - Supports weight of the growing
 - Supports fetal head during labor
 - Permits delivery via unbelievable ability to stretch beyond the capacity of all other muscles in the body
- And, perhaps the most important of the pelvic floor muscle functions -
 - Allows for proper voiding and defecation – preventing urinary/fecal incontinence, chronic constipation and urinary retention
 - Allows for sexual appreciation

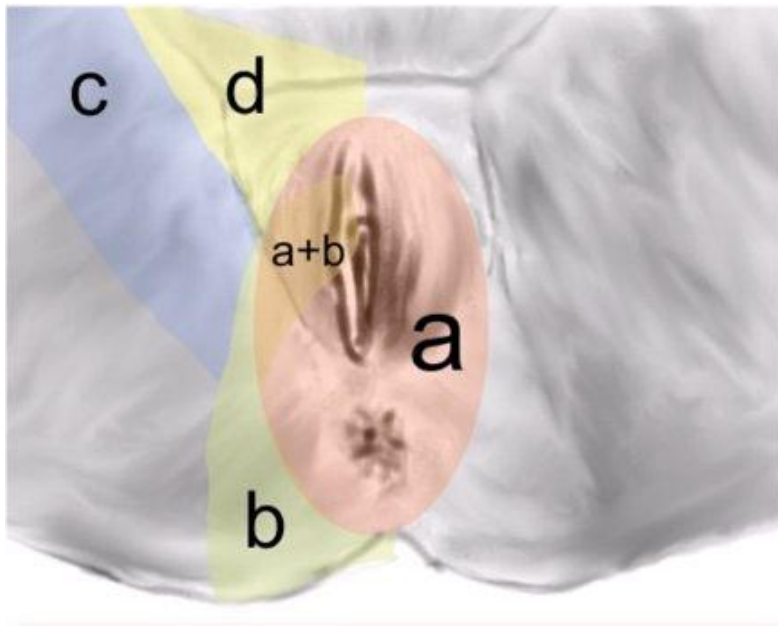


Course of the Pudendal Nerve:

- **S2, S3 and S4:** sacral roots forming the pudendal nerve
- Passes out of the pelvis and into the gluteal region, **near the sciatic nerve**
- Dives back into the pelvis, passes under the **ischial spine** and between sacrospinous and sacrotuberous ligaments
- Then courses through “**Alcock’s canal**” on the medial surface of ischial tuberosity
- Encased in obturator interus fascia for much of its distal course
- Three main branches:
 - **Inferior rectal** branch – ext anal sphincter
 - Comes off before Alcock’s
 - **Perineal** branch – urethral sphincter and superficial pelvic floor muscles
 - **Dorsal** nerve to the penis/clitoris

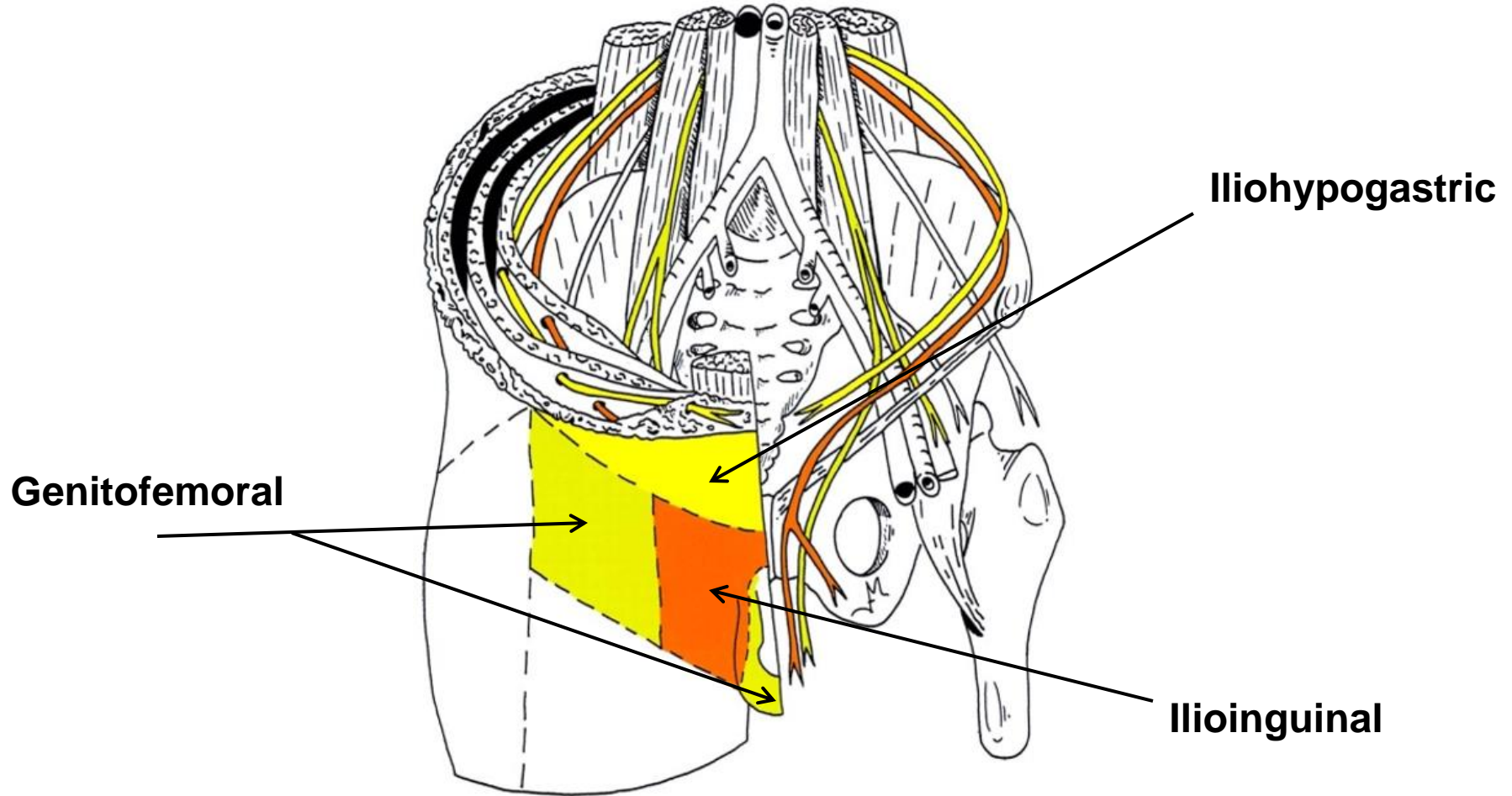


Pelvic cutaneous innervation



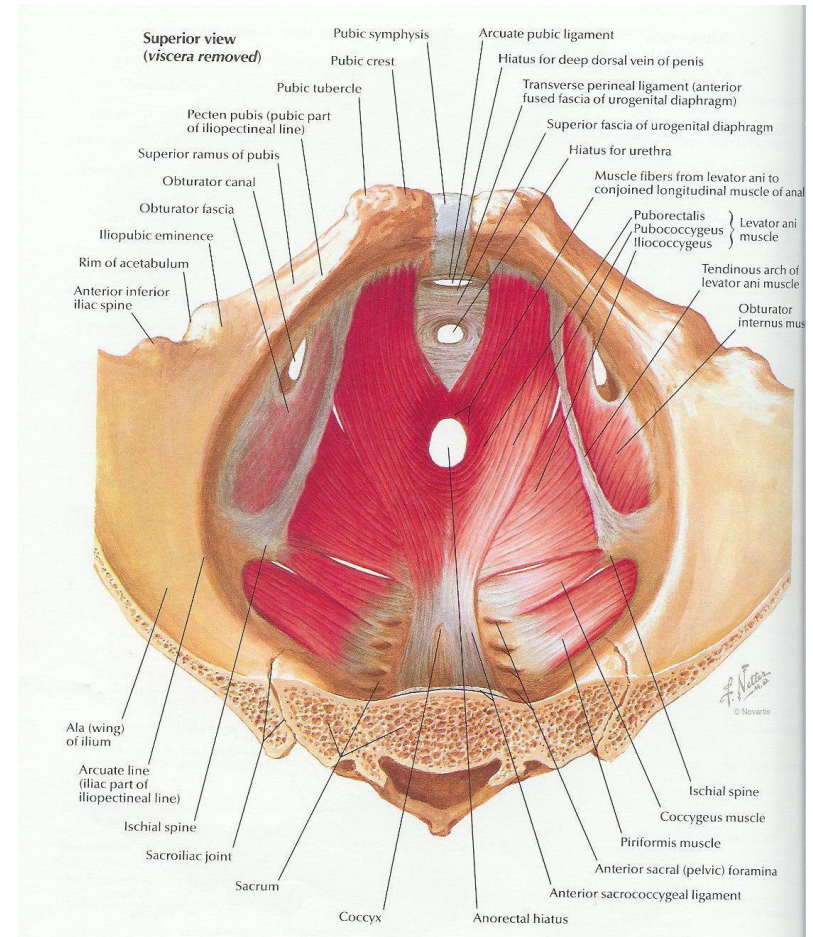
- a: Pudendal
- b: Inferior cluneal
- c: Obturator
- d: Ilioinguinal and Genitofemoral

Inguinal cutaneous innervation



Enough Anatomy...

- Let's get back to talking about overactive pelvic floor dysfunction and pelvic floor myofascial pain



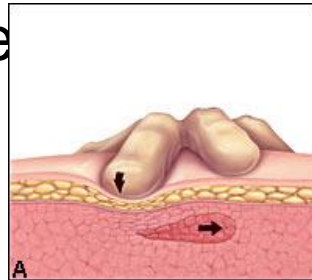
Overactive Pelvic Muscles



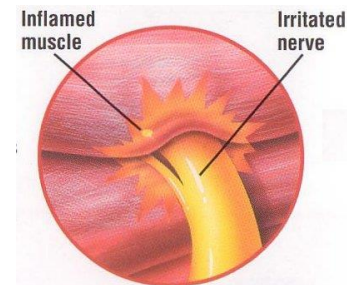
- The hallmark of this disorder = Pelvic floor muscles that do not readily let go once contracted
 - Muscles will usually be in spasm and tender when palpated vaginally or rectally
 - Can be a universal problem in all the patient's pelvic floor muscles, or just in one focal muscle (like the obturator internus on the right)
 - Can be tight all the time, or situationally tighten
 - in sitting
 - with fear of vaginal penetration
 - when trying to defecate

Why do tight muscles become painful?

- Localized ischemia can lead to trigger points – taut band of muscle that radiates pain to other locations, particularly when pressed
 - In the pelvis, the TP's are constantly activated - with sitting, walking, defecation



- Sustained contraction of muscle can put pressure on small perforating nerves, eliciting intense, radiating, burning pain



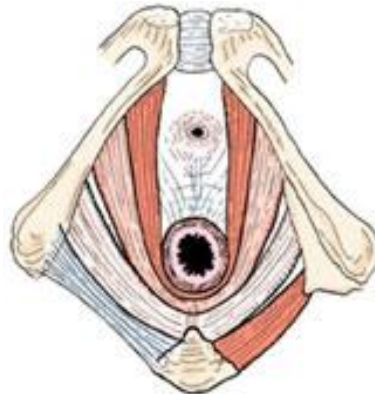
And above all...

- Muscle tightness/spasm, trigger points, nerve impingements will lead to:
 - Postural distortions
 - Biomechanical imbalances
 - Maladaptive movement patterns in how one sits, moves, voids...
- Setting the patient up for perpetuation of muscle tightness and fur



Why do the pelvic muscles tighten?

- In response to being directly injured
 - Childbirth, trauma, surgery, radiation
- Microtrauma
 - Overstretch injuries
 - Overuse injuries
 - Poor posture
 - Maladaptive voiding and defecatory patterns (straining)



Reflexive pelvic muscle overactivity

- Muscle spasms can also occur as a result of a viscerosomatic convergence phenomenon in response to other pathology in the pelvis or abdomen



- Driver vs passenger concept...
 - Endometriosis reflexive pelvic muscle spasm + a guarding response (spasm is the passenger of the “pain car”)
 - TAH-BSO done for endometriosis further pelvic muscle tightening
 - Patient still has pain, even though the uterus and ovaries are now gone and the endometriosis is eradicated – why?

- Muscle spasms have taken over as the primary pain

Psychological causes of pelvic muscle tightening

- Anxiety disorder!!!
 - “Worrier”
 - “High stress lifestyle”
 - “Type A personality”



Stress and muscle tension

- Patients internalize stress in the form of tightening muscles
- Three main places in the body where this happens:
 - Upper back and neck (causing migraines)
 - TMJ
 - **PELVIS!!!**
- Make the distinction between them being “Crazy” and tightening muscles in response to stress and worry
 - They aren’t somaticizing – the muscle spasm is real and the pain is organic

Abuse

- History of abuse is common
 - Sexual, but ALSO and equally with physical abuse
 - Particularly as a child
- Studies have shown that anywhere from 40-60% of chronic pelvic pain patients have been abused as children or adults, compared with the general population numbers of 20-30%
 - Rapkin AJ et al. 1990. Walling MK et al. 1994.

Overactive PF muscles: associated neural sensitization phenomena

- **Peripheral sensitization:**
 - Chronic nerve injury (either via direct damage or chronic compression by tight muscles) can lead to abnormal nerve regeneration, ultimately causing spontaneous ectopic activity in sensory neurons
 - Leads to peripheral nerve hyperexcitability and heightened sensitivity to chemical, thermal, and mechanical stimuli
 - Campbell JN, Meyer RA. Mechanisms of neuropathic pain. *Neuron* 2006;52(1):77-92.
- **Central sensitization:**
 - Increased responsiveness of neurons in the dorsal horn of the spinal cord
 - Increased intracellular calcium conducted by NMDA receptors enhances synaptic inputs by increasing the number of synapses on dorsal horn neurons
 - Leads to neuronal excitability, nerves respond to noxious and innocuous stimuli, causing allodynia and hyperalgesia
 - Bradley WG. *Neurology in clinical practice*. 5th ed. Philadelphia, PA: Butterworth-Heinemann/Elsevier; 2008.
 - fMRI changes seen in the cerebral cortexes of chronic pain patients (low back pain, fibromyalgia)

Ultimately...

- I usually see a variety of multiple physical insults to the pelvis over prolonged period of time in combination with psychological factors such as anxiety disorder



Evaluation of Pelvic Pain

- Ensure visceral causes have been ruled out!
 - Cancer or cancer recurrence/mets (men and women)
 - Endometriosis (3T MRI with contrast, laparoscopy)
 - IBD (Crohn's, UC)
 - Cystitis/urethritis – cystoscopy
- Mesh/Tape Disasters
 - Send to UT Southwestern Urology
 - Dr. Zimmern, Dr. Lemack, Dr. Carmel
 - Very few people in the country have the experience to safely remove the mesh (although it can never be fully removed)

Diagnosis of PF Overactivity:

- Purely your history and physical exam – no imaging, lab work, etc!



General External Physical Exam for Pelvic Pain

- Spine exam, hip exam
 - Piriformis spasm/pain
 - FAI
 - Labral tear
 - Iliopsoas tendinopathy
 - GT bursitis
 - Ischiofemoral impingement
 - Gluteus medius weakness
- Neuro exam, esp of BLE
 - MS, Parkinsons, cauda equina syndrome, tethered cord with SBO

Sacroiliac Joint Tests

- Check for pelvic obliquity, scoliosis and leg length discrepancy



- Stork Test (Hungerford) – test of SIJ function (load t



Negative right support-phase test

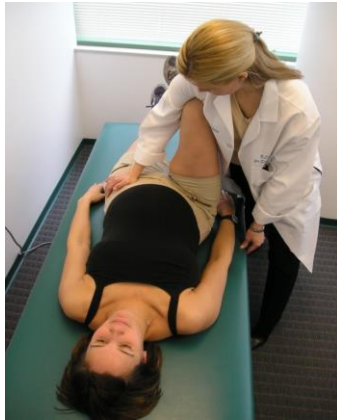


Positive left-side support phase test with cephalad motion of the left PSIS relative to central S2

Sacroiliac Joint Tests

- Pain Provocation Tests

- AP glide/Posterior Pelvic Pain Provocation (4P)/90-90



- Sacral sulcus palpation
- Active Straight Leg Raise
- Gaenslen's
- Long dorsal ligament palpation
- Compression/distraction

- Fick



- ❖ Laslett, et al. Manual Therapy. 2005 – 3 p tests gives you sensitivity 94%, specificity 7

Abdominal Exam

- Palpate for masses, distention
- Evaluate abdominal wall tonicity and tenderness, connective tissue restriction, scar.
- Carnett's testing.
- Evaluate for abdominal wall rectus diastasis or hernia



rectus diastasis



hernia

- Neurologic testing (sensory)

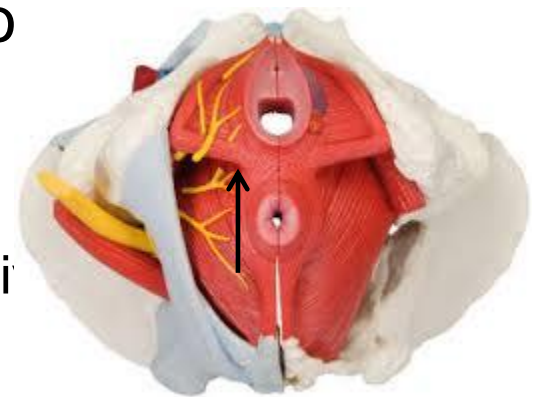
Neuromuscular Pelvic Exam

- Chapter in Braddom next edition – PF exam is now a standard part of PM&R
- Chaperone – your choice, but I'd recommend it (at least for patients of the opposite gender)
- Explain that you will be doing a muscle and nerve exam, which will be quite different than the typical pelvic exam they have had
- Hook Lying Position on a flat exam table
- Patient's feet hip width apart
- Patient's left shoulder/hip/foot near the wall
- Sit on the side of the bed near/on their right foot
- Explain to the patient why you are sitting there, and that you will be talking them through every step of the exam
- For men: combination of supine and left lateral decubitus



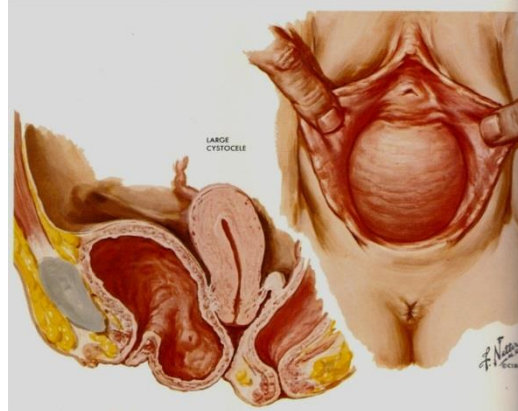
External Pelvic Exam

- Observe external genitalia – erythema, lesions, atrophy
- Neurologic exam
 - S2-5 dermatomes (LT and pinprick)
 - GF, II, IH, pudendal cutaneous (LT and pinprick)
 - Use a neurotip for pinprick sensation
 - Anal wink (pudendal reflex)
 - Often absent in parous women, overactive and anxious people



External Pelvic Exam

- Observe pelvic floor functioning
 - Voluntary contraction (Kegel) – contract and LIFT
 - Voluntary relaxation (can they relax back down after Kegel)
 - Involuntary contraction (cough)
 - Involuntary relaxation (Valsalva) – descend and relax
- Observe for pelvic organ prolapse or SUI with cough/Valsalva

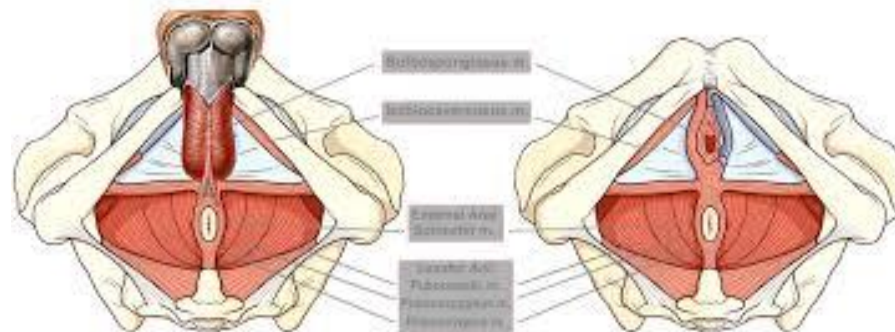


External Pelvic Exam

- Hart's cotton swab test (Q-tip test) for vulvodynia/vestibulitis



- Palpate pubic symphysis and superficial pelvic floor muscles bilaterally for tenderness/spasm

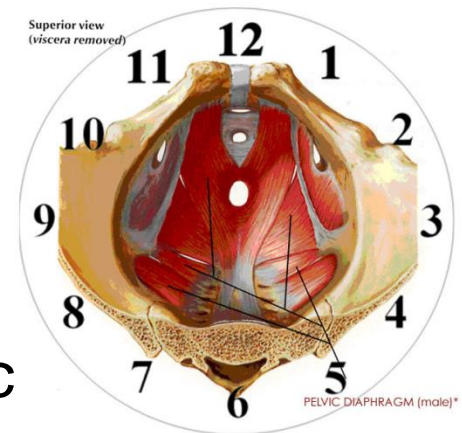


Vaginal/Rectal Pelvic Floor exam

- Vaginal: hook-lying
- Rectal: left lateral decubitus
- Insert one finger with surgilub



- Crook your finger and palpate levators and obturator internus around the face of a clock
 - 12 o'clock = pubic symphysis
 - 6 o'clock = coccyx
 - 10 and 2 o'clock = OI (externally rotate the hip against your other hand to feel it)
- Feel for spasm = tight, shortened muscle
- Evaluate for myofascial tenderness



Vaginal/Rectal Exam

- While your finger is inside, ask them to do voluntary contraction and grade strength, each side independently
 - Modified Oxford Scale:
 - 1 = trace
 - 2 = squeeze but no lift
 - 3 = squeeze and lift but can't sustain
 - 4 = squeeze and strong lift less than 5 seconds
 - 5 = squeeze and strong lift more than 5 seconds
- “Quick Flicks” – fast, repetitive Kegels
 - Usually a pain patient will be unable to relax between contractions
- Valsalva – eval for dyssynergia (contraction with attempts at defecation)

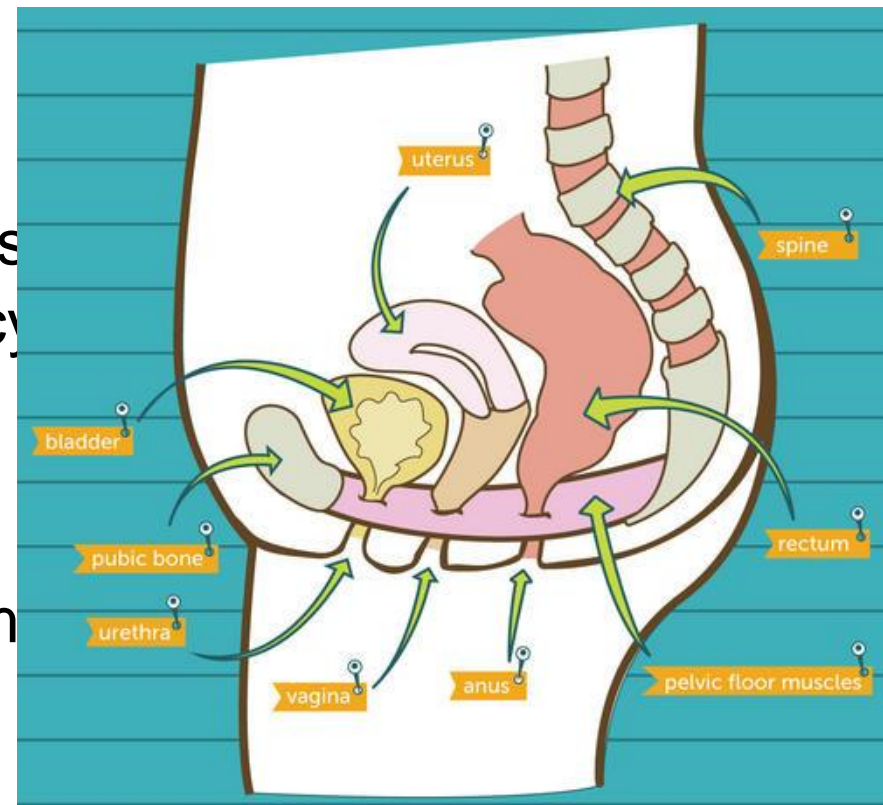
Vaginal/Rectal Exam

- Palpate urethra and rectum on vaginal exam, palpate prostate on rectal exam
- Feel for scar tissue, exposed mesh, levator defects/avulsion
- On rectal exam: palpate coccyx, coccygeus and piriformis muscles, evaluate coccyx mobility (30 degrees = normal)
- Palpate ischial spines for pudendal neuralgia



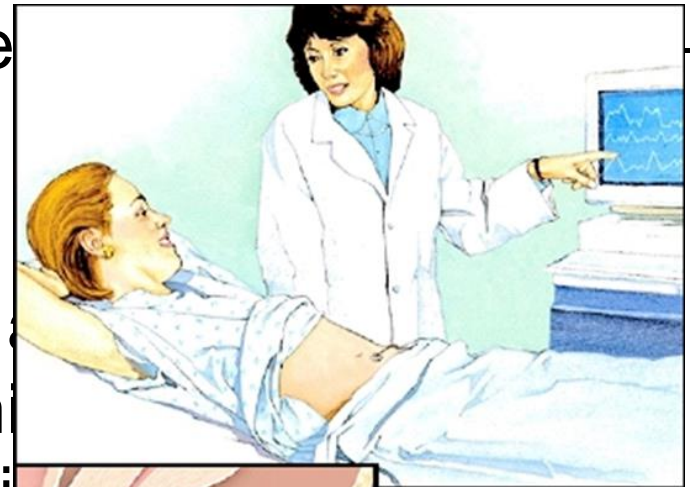
If you don't/won't do a pelvic exam...

- High index of suspicion for PF overactivity/pain based on history:
 - Pain with sitting
 - Coccydynia
 - Describe pain as “tightness”
 - Urinary urgency/frequency/retention
 - Constipation/straining/incomplete defecation
 - Dyspareunia (men + women)
 - Anxiety
 - +/- History of abuse



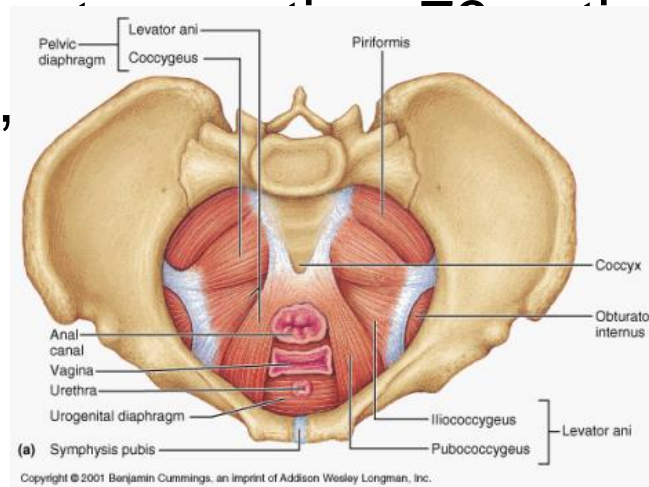
Treatment of overactive pelvic muscles

- Mainstay of treatment is **pelvic floor physical therapy**
 - Vaginal/rectal PT
- 15-20 pelvic floor PTs in the very rare
- Uro/urogynecologic nurses do “pelvic floor muscle training” which is typically quite inferior



Treatment expectations:

- Minimum of 40-50% improvement after 8 sessions at once per week, often 70-90% improvement by 12 sessions
 - Significantly improved voiding, defecation, less pain with sex
 - Not a cure! Management program...
 - Coccyx pain
 - PT sessions,
- ... patients, averaged 9
... in NPRS



Reasons for PT treatment failure

- What if your patient says “I’ve done pelvic PT and it didn’t work?” – 4 main reasons
 - 1. Sub-par physical therapy treatment protocols ***
 - 2. Patient wants a quick fix or wants to be a “table slug”
 - 3. Significant psychiatric comorbidities (anxiety/depression, but also including narcotic dependence and dementia)
 - 4. Inguinal (GF/II/IH) or pudendal neuropathy or other primary pain source that is not within the PF muscles

PT Treatment of Overactive PFM

- Typically: pain, dyspareunia, urge UI, voiding dysfunction, constipation, fecal urgency, IBS, IC, chronic prostatitis, etc.
- Biofeedback-guided Kegel strengthening +/- E-stim – great for UI/FI, but a TERRIBLE treatment for overactive PFM
 - Chiaroni et al. Gastroenterology [Volume 138, Issue 4](#) , Pages 1321-1329, April 2010
 - Fitzgerald et al. [J Urol.](#) 2012 Jun;187(6):2113-8.
 - Guerineau et al. [Prog Urol.](#) 2010 Nov;20(12):1103-10
 - Spitznagle et al. [Obstet Gynecol Clin North Am.](#) 2014 Sep;41(3):409-432
 - Hartmann et al. [Best Pract Res Clin Obstet Gynaecol.](#) 2014 Jul 17
 - Stein, A. Heal Pelvic Pain. 2009.
- You CANNOT treat all pelvic floor disorders the same way!

Proper Pelvic PT for Pelvic Pain:

- **DOWNTRAINING:**

- Use of biofeedback to teach relaxation via mental imagery, diaphragmatic breathing, perineal bulging of the pelvic floor muscles.
- Retraining of voiding and defecatory techniques, postural retraining, vaginal and rectal myofascial release, connective tissue mobilization, vaginal/rectal dilators, rect
- Home exercise program!

- **NO KEGELS!**

- **NO E-STIM!**



Other (secondary) treatment interventions

- Pharmacologic treatment:
 - Traditional pain meds: tylenol, NSAIDs
 - Narcotics – TRY TO MINIMIZE AND WE
 - Muscle relaxants – baclofen, zanaflex, etc.
 - Neuropathic meds: neurontin, lyrica, cymbalta, pamelor, etc.
 - Psychotherapeutic meds: anxiolytics, antidepressants (SSRIs/SNRIs), minimize benzos
 - Vaginal/Rectal suppositories and creams
 - Lidocaine jelly, Valium, Baclofen, ABG cream
 - Sleep aides
 - Laxatives and stool softeners
 - OAB meds, flomax



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Other treatment interventions

- Referral to psychology for CBT for anxiety, behavioral modification, and pain coping strategies (reduce catastrophizing)
- Orthotics/modalities: cushions, SIJ belts, TENS, heat (Sitz baths), cold (gel ice packs or ice massage)
- Chiropractic care, acupuncture, massage – won't hurt...

Other treatment interventions

- Trigger point injections or dry needling (pelvic floor, OI, piriformis)
- Other injections (sacroiliac joint, PS, ganglion impar, caudal ESIs, superior hypogastric plexus).
- Botox +/- (mostly minus)... (Non-FDA indication)
- Spinal cord stimulator? Probably not, maybe a tricolumn stimulator or a retrograde placement, but not a standard DCS... (Non-FDA indication)
- Sacral neuromodulation? Maybe... (Non-FDA indication)
 - A few studies show minimal benefit for primary bladder pain, but no studies benefit for pelvic floor myofascial pain



Abdominopelvic neuropathic pain

- Inguinal: Iliohypogastric, ilioinguinal, genitofemoral – often as a result of surgery (hernia repairs, open prostatectomies, etc.)
- Pudendal – pelvic mesh surgeries, pelvic trauma, childbirth, bicycle riding, anal intercourse
- Can be hard to distinguish neuralgia from overactive pelvic floor myofascial pain:
 - Almost all patients with such neuropathic pain develop reflexive overactivity of the pelvic floor and vice versa
- Often the nerve is not “entrapped” but rather under traction/compression because of dynamic factors (muscle spasm, unstable pelvic bony alignment)
 - Chicken or the egg?

Diagnosis of abdominopelvic neuropathy

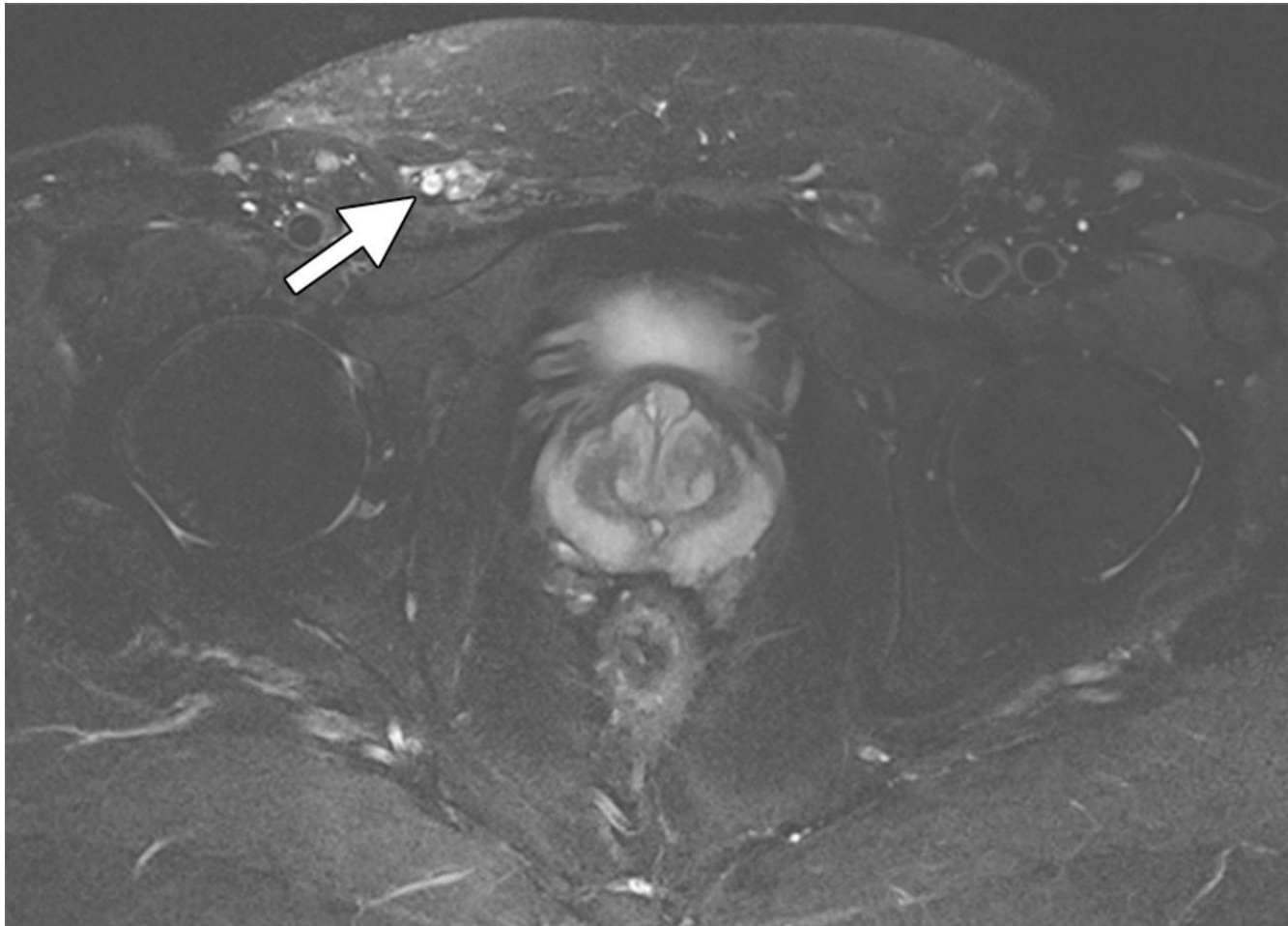
- Criteria for diagnosis are vague currently:
 - Nantes criteria – clinical diagnostic criteria for pudendal
 - All criteria can also apply to pelvic floor myofascial pain/overactivity – sensitive but not specific
Labat JJ, et al Neurourol Urodyn 2008;27(4):306-10.
- Neurophysiologic testing:
 - None readily available for IH, II, GF although described in the literature.
 - What is available for pudendal (PNTML, anal sphincter EMG, QST): unreliable (operator dependent) and/or painful and generally in the literature not recommended

Diagnosis of abdominopelvic neuropathy

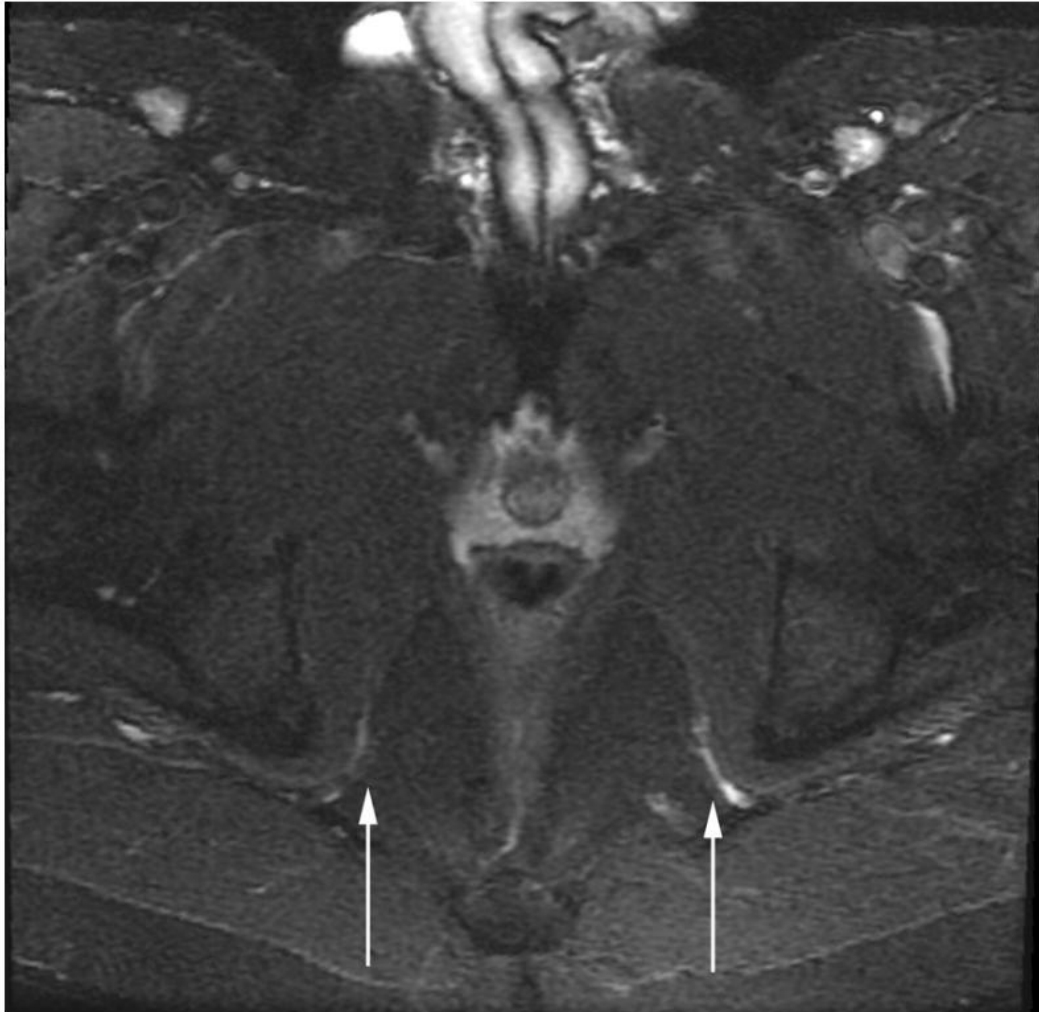


- Diagnostic blocks:
 - Diagnostic for IH/II/GF if guided (CT/Ultrasound),
 - NOT diagnostic for pudendal (because the nerve controls some of the pelvic floor muscles and sphincters and a block to the pudendal will block also block pain from those structures)
 - A negative guided pudendal block RULES OUT pudendal neuropathy, a positive block does not absolutely confirm it
- MR neurography – new and promising...

Right genitofemoral neuropathy with surrounding fibrosis at surgery site



Left pudendal neuropathy within Alcock's canal



Treatment of abdominopelvic neuropathies

- Pelvic/abdominal physical therapy
 - Relieve muscle spasm, restore proper alignment and body mechanics, soften scar tissue and connective tissue (fasical) restrictions
- Pharmacologic – neuropathic meds
- Local/steroid injections – typically short-lived relief, may need to do multiple rounds, 50% respond
- RFA (for IH/II/GF, not for pudendal) – may get 6-12 months relief
- Pulsed RF for IH/II/GF/pudendal – experimental but promising
- Cryotherapy??? Botox to the nerve???
- Targeted nerve stimulation??? Sacral/spinal stimulation???

Surgical treatments for neuropathies

- Surgical role? – very limited
 - Lack of experienced surgeons, patient selection needs to be just right
- Surgery for IH, II, GF when proven by a diagnostic block (+/- MR neurography) – neurolysis or neurectomy
 - 75% success rate for complete relief of pain with 3 year follow up, reported by UTSW plastic surgery department in over 80 patients (will be published soon) – neurectomy and reimplantation into the abdominal wall
- Surgery for pudendal, but only in the right patient (entrapment or neuroma, NOT a tension neuralgia) – neurolysis/decompression or selective sensory branch neurectomy/reimplantation
 - Very few surgeons in country, steep learning curve of 3+ years (Dellon...)
 - No established protocols/techniques
 - Outcomes not great, can have major complications

So much more to say, so little time...

- **Comprehensive Pelvic Rehabilitation Program**

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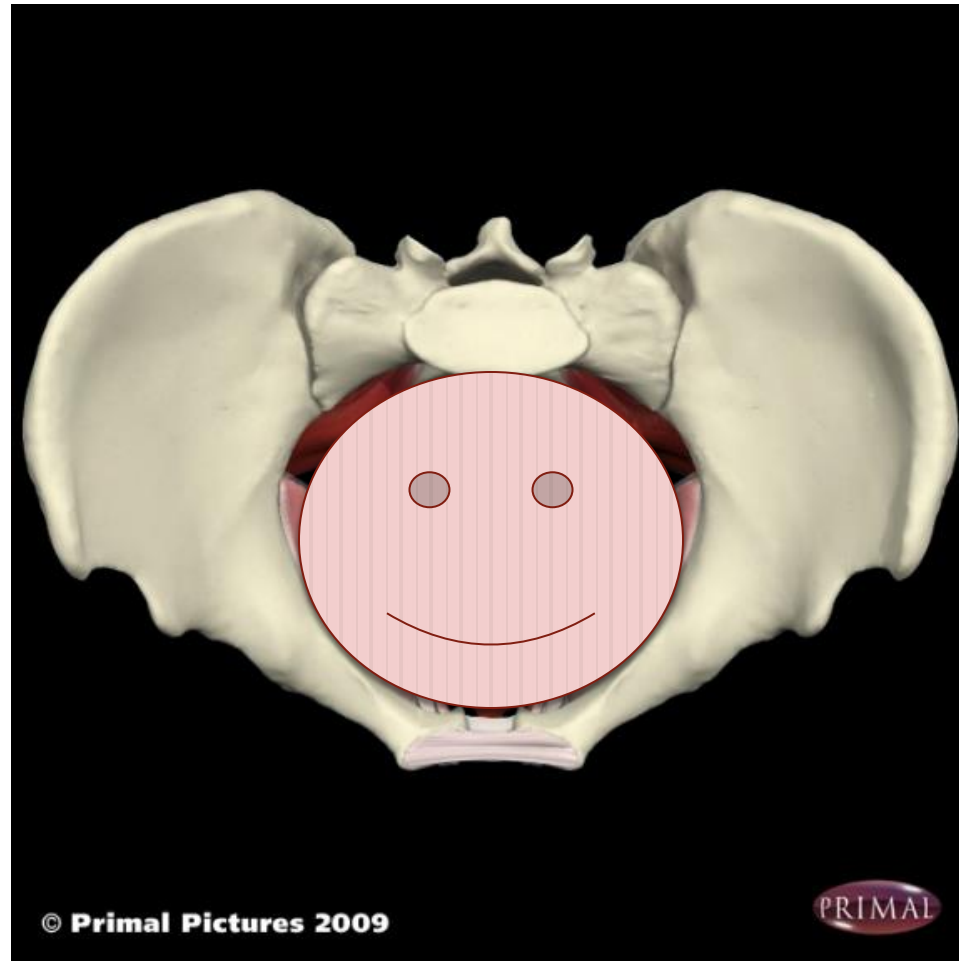
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Thank You!



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