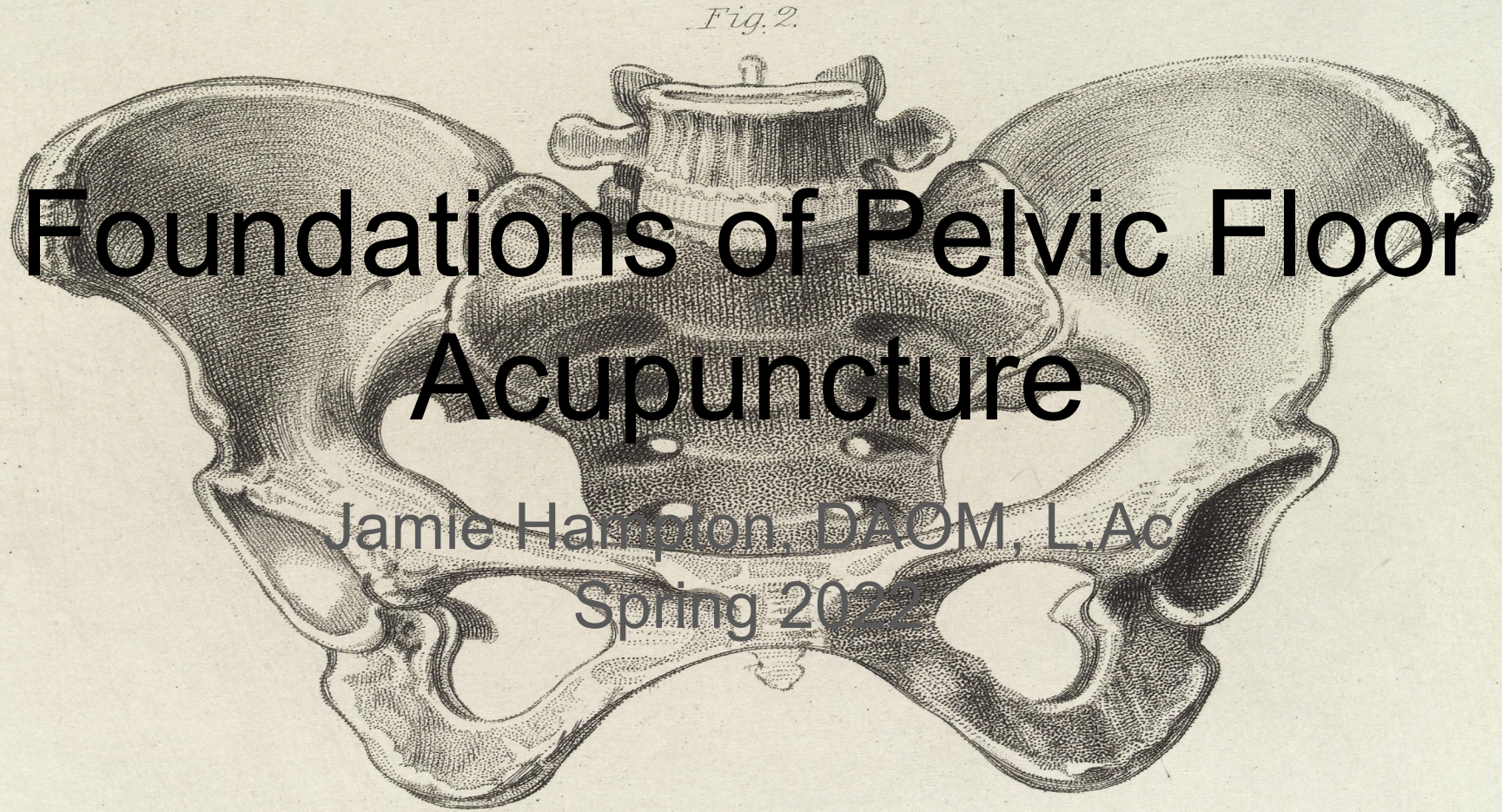


Foundations of Pelvic Floor Acupuncture

Jamie Hampton, DAOM, L.Ac

Spring 2022

Jamie Hampton, DAOM, L.Ac

Brigham and Womens Hospital Boston, MA 2000

Graduated MSTCM from ACTCM 2005 San Francisco, CA

Graduated DAOM from ACTCM 2008 San Francisco, CA

Multiple Health Care Settings, Private Clinic, Hospitals both inpatient and outpatient

Pelvic Floor? How did you get started in that?

Love treating acute/chronic pain conditions

- You get results that patients feel immediately!
- Opportunity to help address factors contributing to pain
- Collaborating with other physical health practitioners (+ learning from it)
- Love for anatomy and physiology
- Natural curiosity for whole body health (emotional, visceral/physical)

But why?

The big reason why Pelvic Floor was:

NO ONE WAS TREATING IT.

We do everything else, so why not this?

> Roughly One Quarter of **U.S.** Women Affected by **Pelvic Floor** Disorders. Nearly 24 **percent** of **U.S.** women are affected with one or more **pelvic floor** disorders, report researchers funded by the National Institutes of Health.Sep 17, 2008
>
> Roughly One Quarter of U.S. Women Affected By Pelvic Floor ...
>
> www.nih.gov › news-events › news-releases › roughly-...

Understanding the Pelvis as your foundation

Everything is anchored to the pelvis, and it acts like a very complex structure that not only holds us together, but that distributes shear forces and pressure from our limbs and organs as well as external forces.

It is important to step outside of our TCM paradigms and think about it purely as an exquisite work of architecture and structural engineering.

Understanding the Pelvis as your foundation

Traditionally we think of the pelvic floor as its own special structure. We don’t consider it outside of our patients’ pain complaints.

This is where we need to realize an important missing piece in the puzzle when our patients seek out treatments for lumbago, hip pain, abdominal pain (also consider gyn issues).

We must integrate the Pelvic Floor into our treatments.

Integrating Pelvic Floor into Our Treatments

The principles that we use as acupuncturists to treat our musculoskeletal patients isn’t terribly different than what we would do treating pelvic floor disorders.

As a matter of fact, there are so many right ways to treat your patients with Pelvic Floor Disorder that any help they are receiving from you is of course helpful.

Integrating Pelvic Floor into Our Treatments

What I mean by that is: if you have ever treated Hip Pain you have directly affected the pelvic floor

If you have ever treated Low Back Pain, you have affected the pelvic floor.

If you have ever treated abdoinal pain, infertility, gynecological disorders, hernia, Lower GI disorders you have ALREADY begun to treat Pelvic Floor structures.

Simple Graphic:

Unwrapping the Pelvis

We will construct the pelvic floor and dive into foundations of the structure.

Seeing this model in real time will help you understand the tensegrity of this strong, yet somewhat mysterious structure.

Who wants to volunteer?

Anatomy

Bony Structures: 3 Innominate Bones:

1. Pubis
2. Illium (attachment site for 28 different muscles)
3. Ischium

All three of these bones fuse together to make the acetabulum

PLUS THE COCCYX: Why is the coccyx important?

Despite its small size, the coccyx has several important functions.

- **Being the insertion site for multiple muscles, ligaments, and tendons**
- Serves as one leg of the tripod—along with the ischial tuberosities—that provides weight-bearing support to a person in the seated position.

Muscles of the Pelvic Diaphragm

Levator Ani PLUS Coccygeus (our tailwagging muscle)

This “hammock/sling” acts as a shelf to support pelvic organs.

This is the broad hammock like structure.

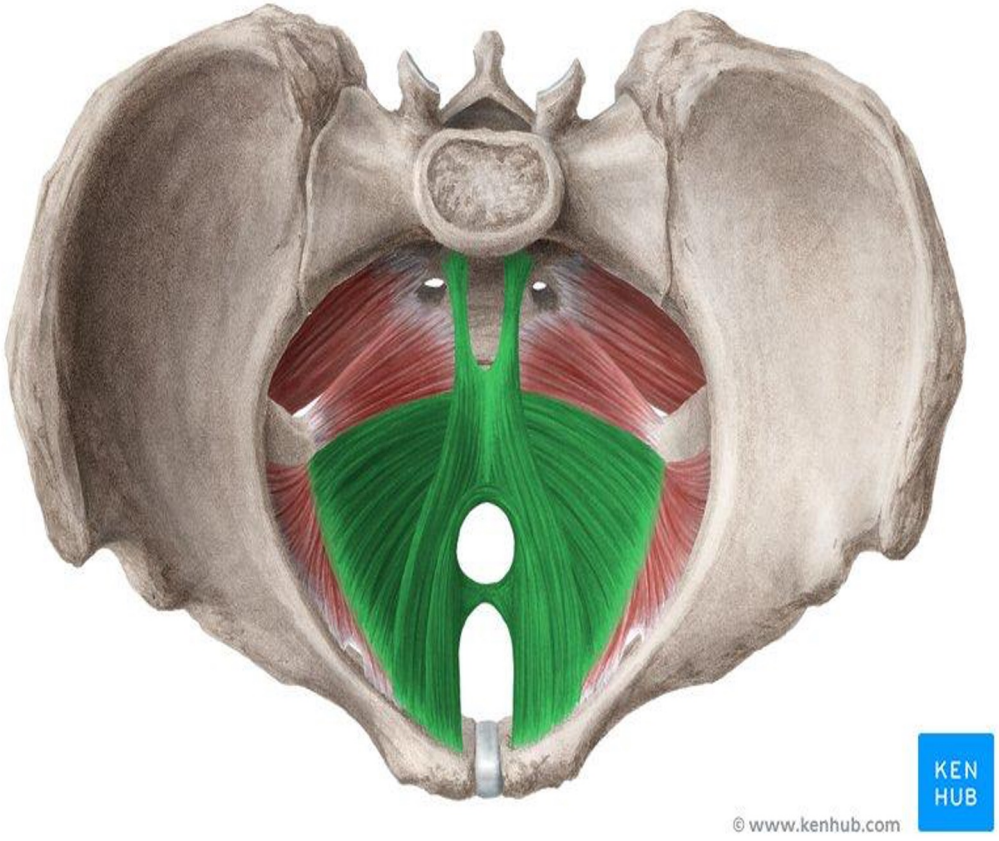
Muscles of the Pelvic Diaphragm

Levator ani muscle is the largest component of the pelvic floor

It is a broad muscular sheet that attaches to the bodies of the pubic bones anteriorly, ischial spines posteriorly and to a thickened fascia of the obturator internus muscle.

The levator ani muscle provides support to the pelvic visceral structures and play an important role in urinary voiding, defecation and sexual function. It consists of three parts: puborectalis, pubococcygeus and iliococcygeus muscle.

Levator Ani



Levator Ani

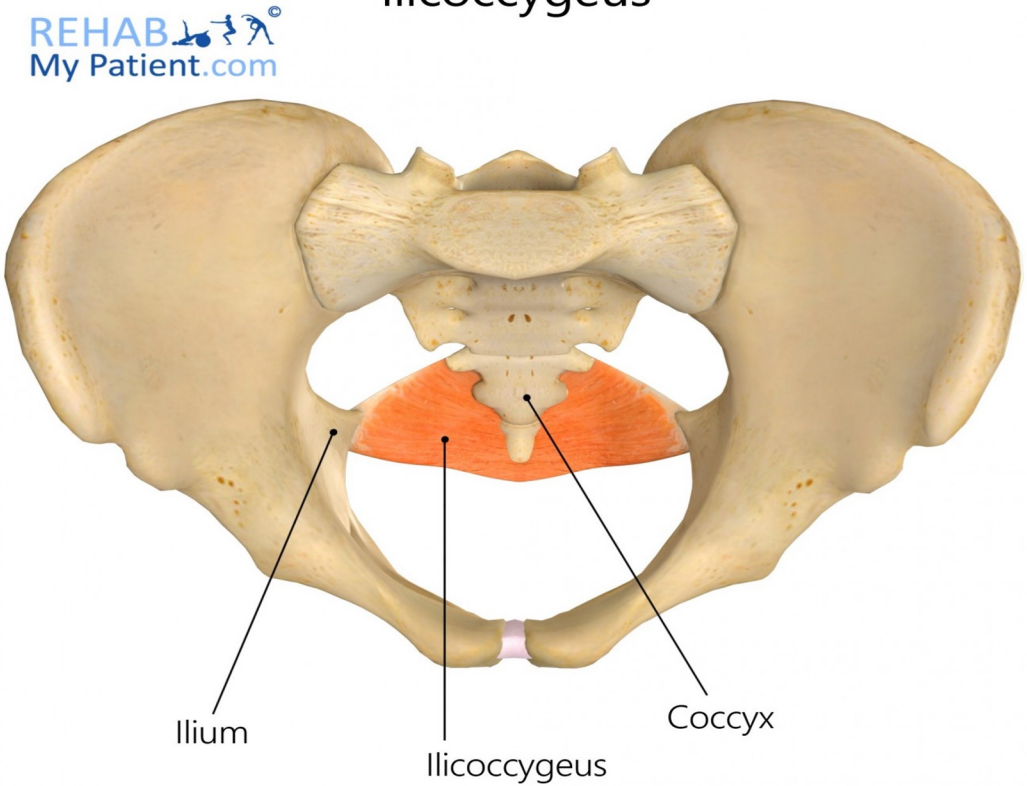
The three muscles that make up the levator ani group are:

- Illiococcygeus
- Pubococcygeus
- Puborectalis

Levator Ani – Iliococcygeus Muscle

- Arises from fascia overlying obturator internus
- Inserts onto lateral aspect of coccyx, overlapping with fibers of pubococcygeus muscle in staggered arrangement
- Muscle is active at rest and contracts as needed to maintain proper vaginal axis

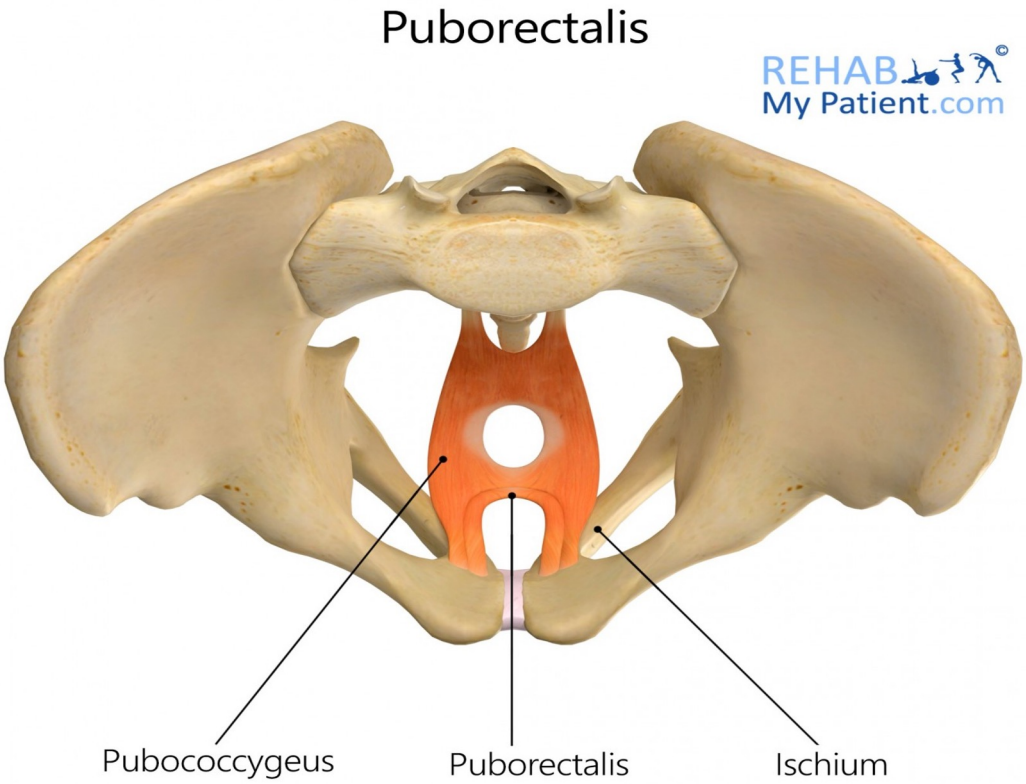
Iliococcygeus



Puborectalis

- Arises from superior and inferior pubic rami
- Muscle provides direct support for rectum
- Indirect support to vagina, bladder, and urethra by drawing these structures ventrally toward pubic bone
- Unites with contralateral puborectalis muscle posterior to rectum, forming sling

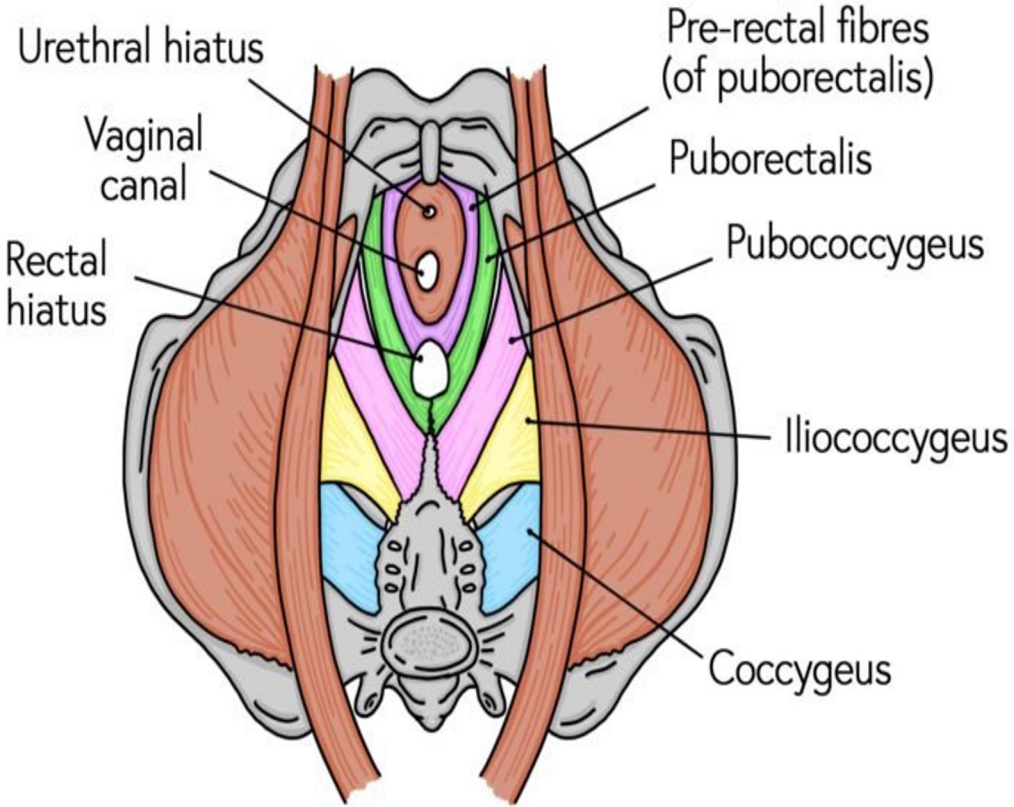
Puborectalis



Pubococcygeus

- Arises from back of pubic bone and anterior part of obturator fascia
- Inserts onto lateral aspect of coccyx

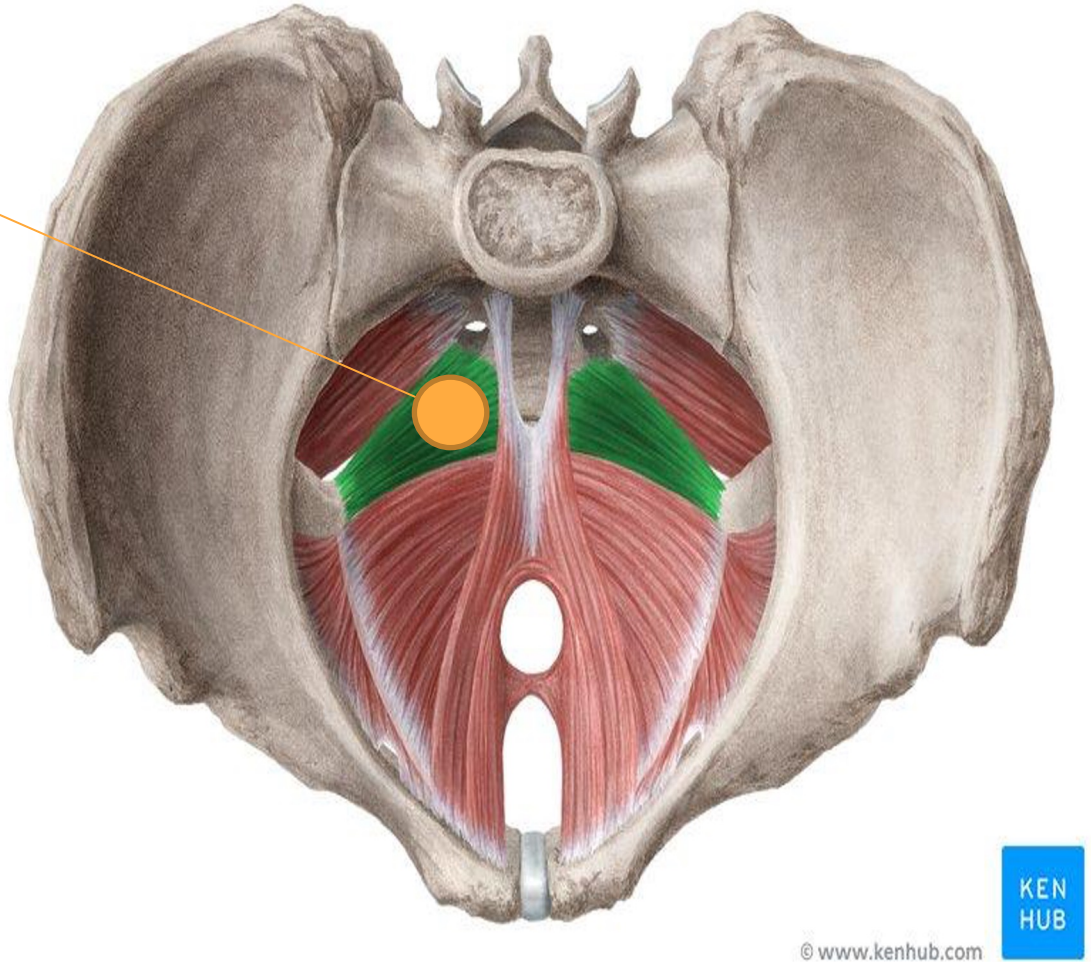
LA


Urethral hiatus
Vaginal canal
Rectal hiatus
Pre-rectal fibres (of puborectalis)
Puborectalis
Pubococcygeus
Iliococcygeus
Coccygeus

Coccygeus

- Coccygeus also known as ischiococcygeus is **a triangular-shaped sheet of muscle located posterior to the levator ani muscles in the pelvic floor**. The coccygeus, together with the levator ani, forms the pelvic diaphragm.

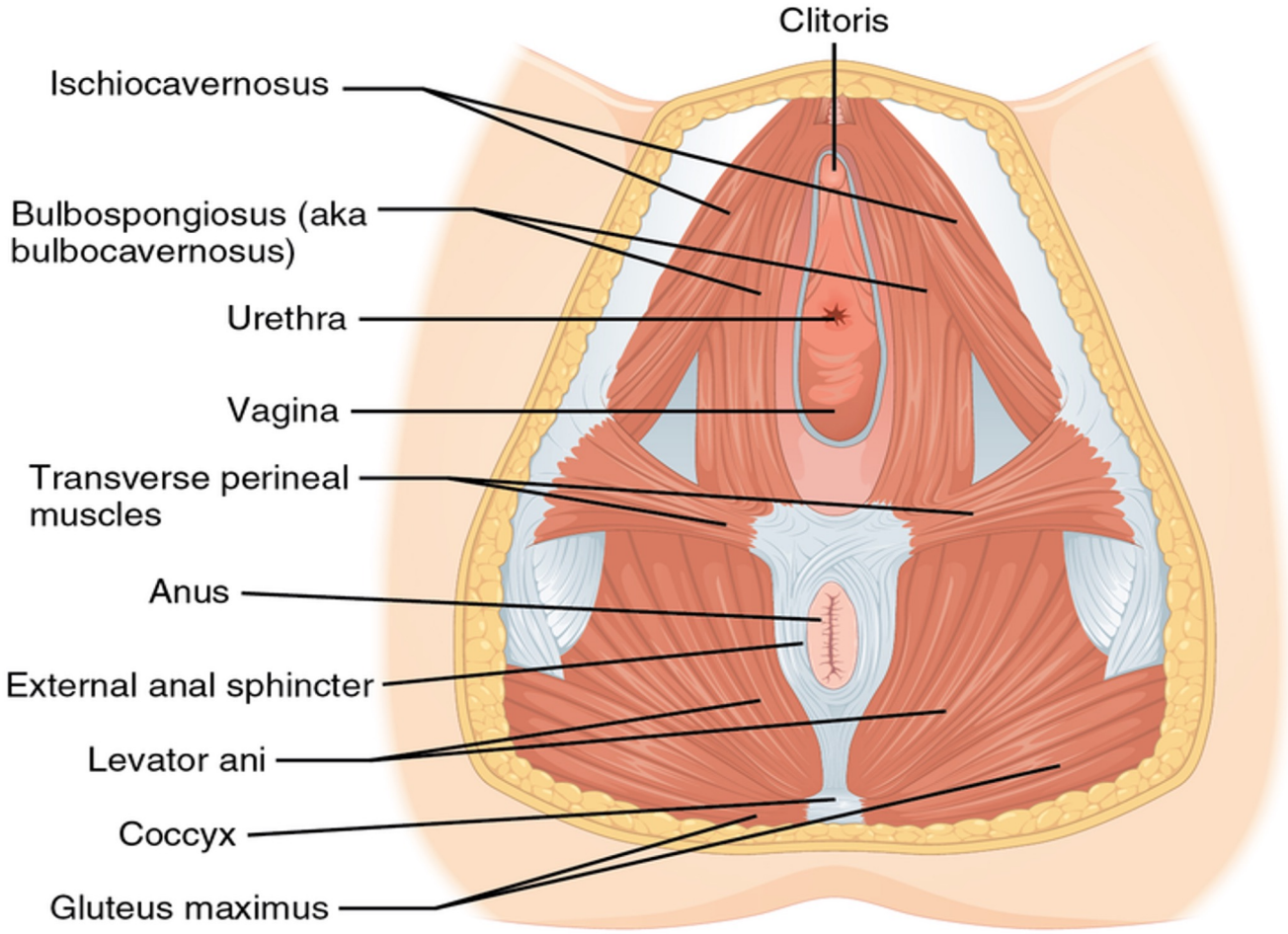
Coccygeus

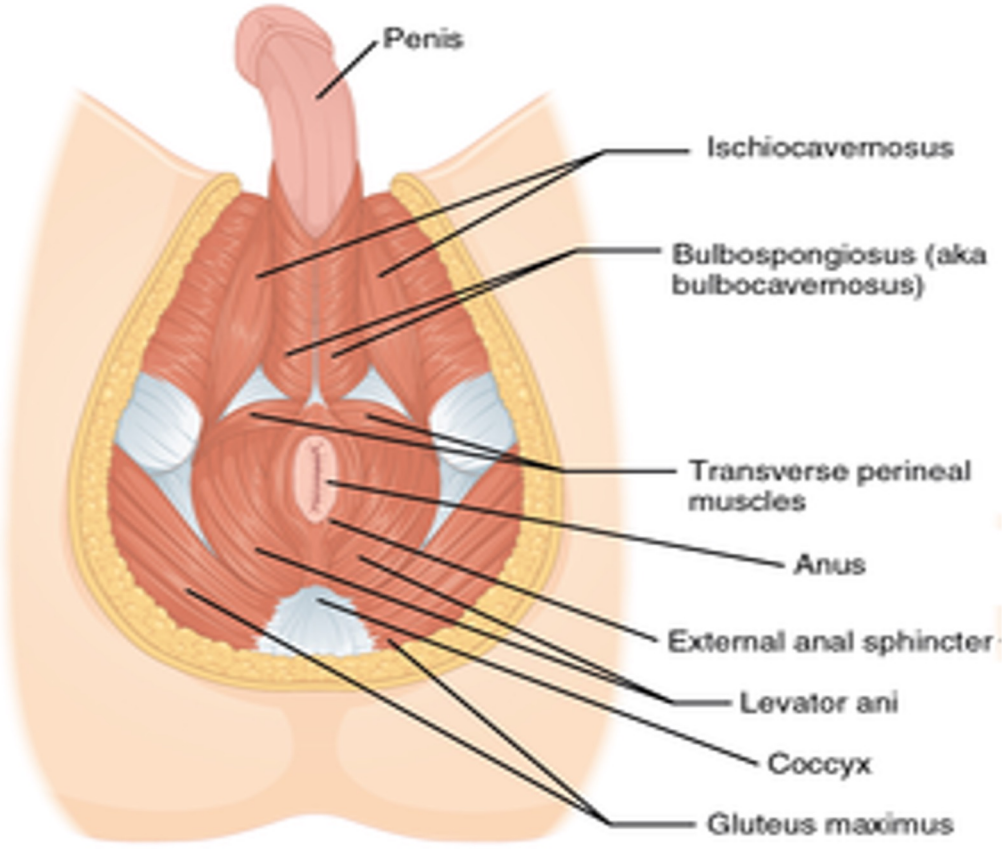


Perineum and Transverse Perineum

Transverse perineum

The deep transverse perineal muscle (**transversus perinei profundus**) lies in the perineum, a part of the pelvic floor. It arises from the inferior rami of the ischium and runs to the median plane, where it interlaces in a tendinous raphe with the other deep transverse perineal muscle of the opposite side.


Clitoris
Ischiocavernosus
Bulbospongiosus (aka bulbocavernosus)
Urethra
Vagina
Transverse perineal muscles
Anus
External anal sphincter
Levator ani
Coccyx
Gluteus maximus

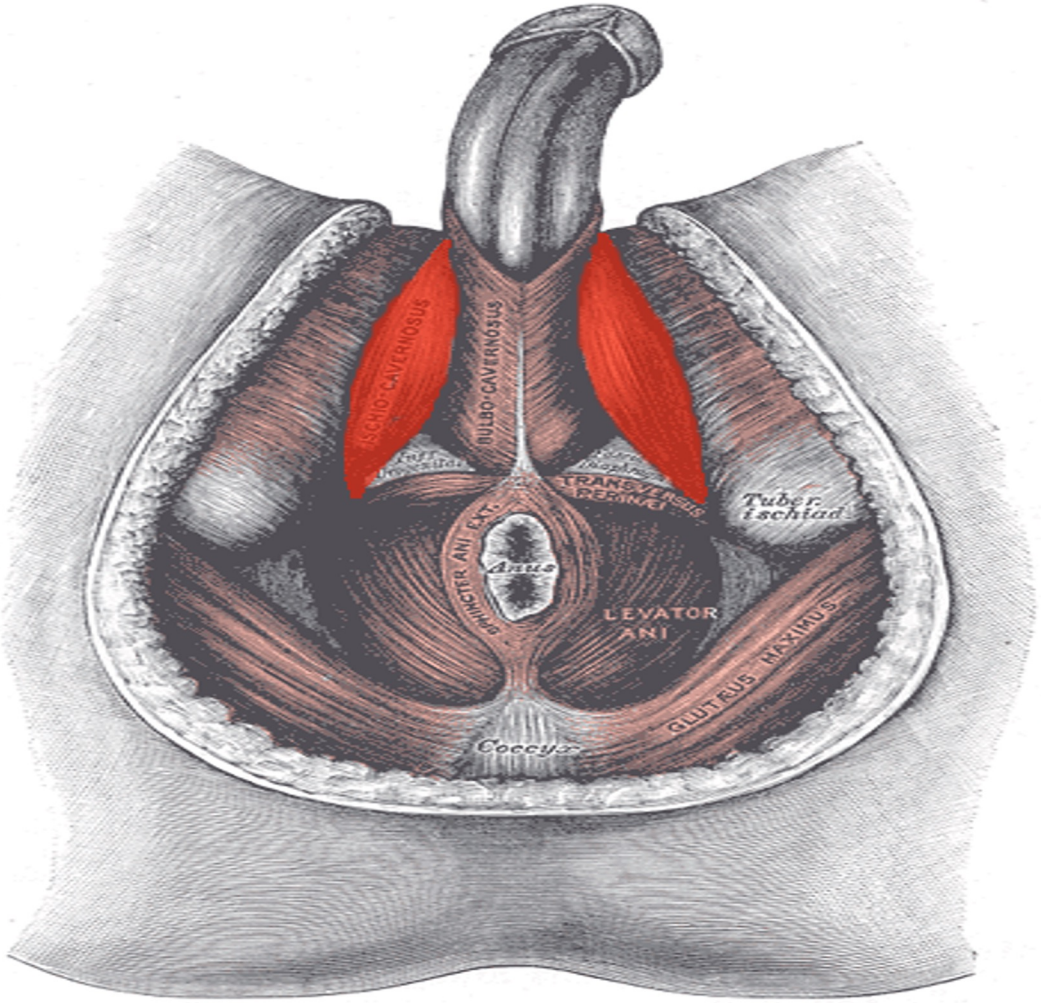

Penis
Ischiocavernosus
Bulbospongiosus (aka bulbocavernosus)
Transverse perineal muscles
Anus
External anal sphincter
Levator ani
Coccyx
Gluteus maximus

Ischiocavernosus

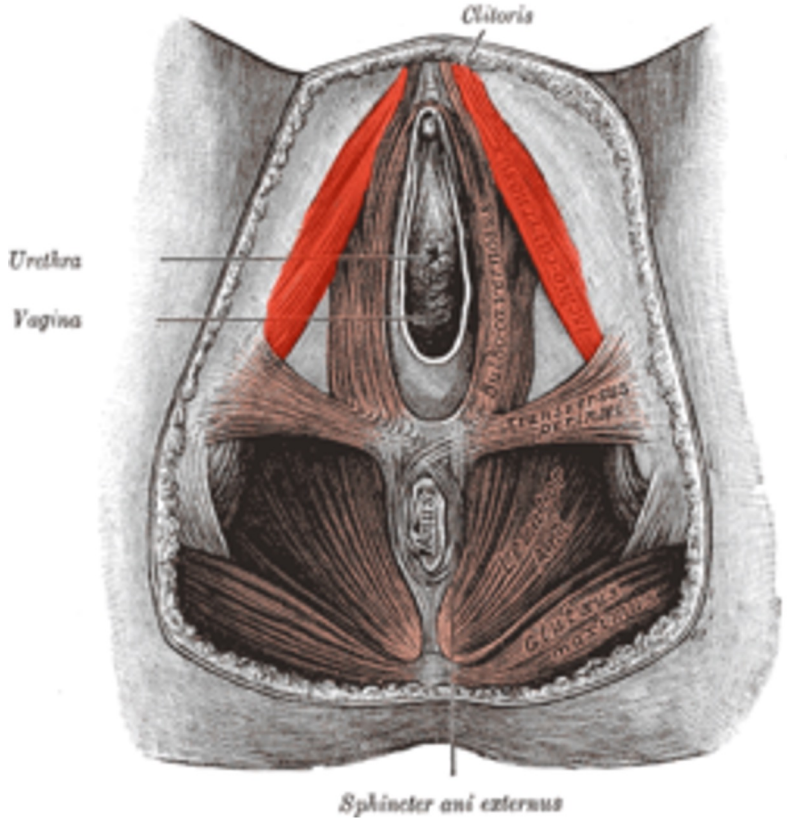
Ischiocavernosus is a **bilateral, perineal muscle located in the superficial perineal space of the urogenital triangle**. It is a part of the superficial group of perineal muscles, together with bulbospongiosus and superficial transverse perineal muscles

ACTION: Pushes blood from clitoris/penis

Ischiocavernosus



Ischiocavernosus



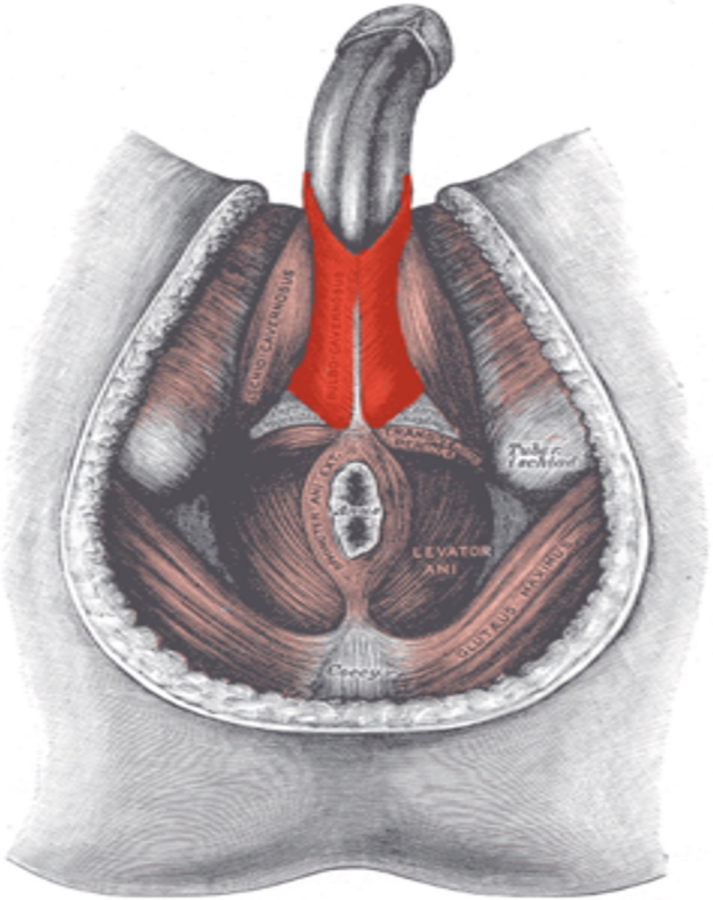
Bulbospongiosis

Bulbospongiosus is **a paired muscle of the pelvic floor**. It is found in the superficial perineal space (pouch), together with the ischiocavernosus and superficial transverse perineal muscles. ... In both sexes, the function of this muscle is based on its compressive actions upon the erectile tissues which it surrounds.

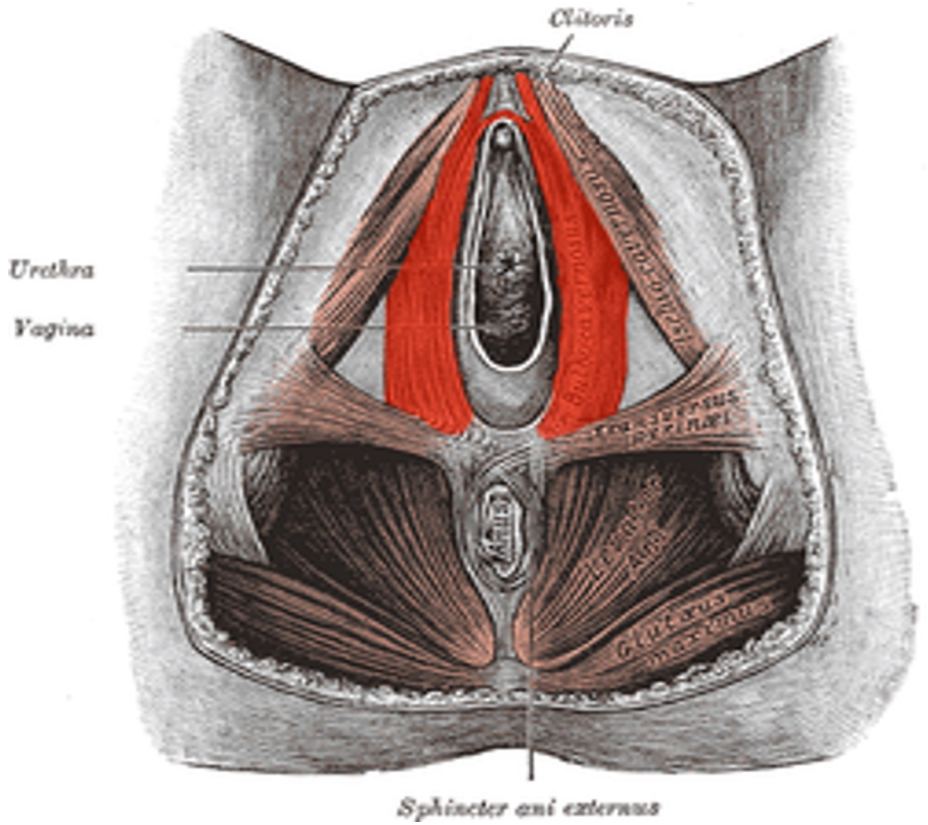
Bulbospongiosis

ACTION: The bulbospongiosus muscle **acts to expel remaining urine from the urethra after the bladder has completed its emptying**. In males it also aids in the final stages of erection by compressing the veins within the bulb of the penis to maintain tumescence. Sexual function in females In females it contributes **to clitoral erection and the contractions of orgasm, and closes the vagina**.

Bulbospongiosis



Bulbospongiosis

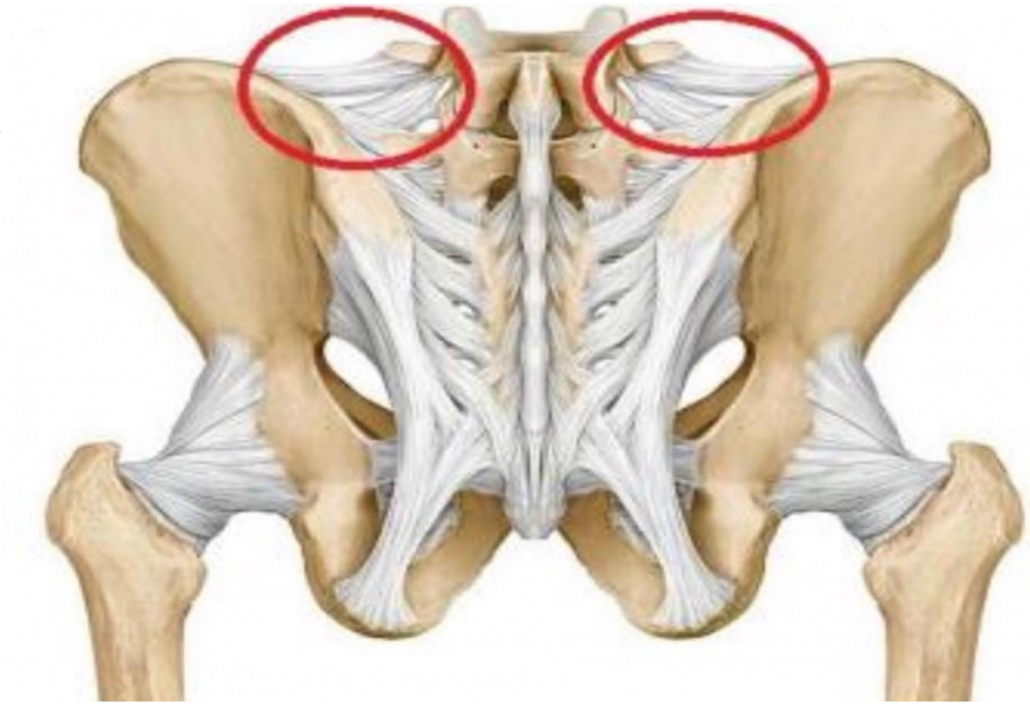


Ligaments of the Pelvis

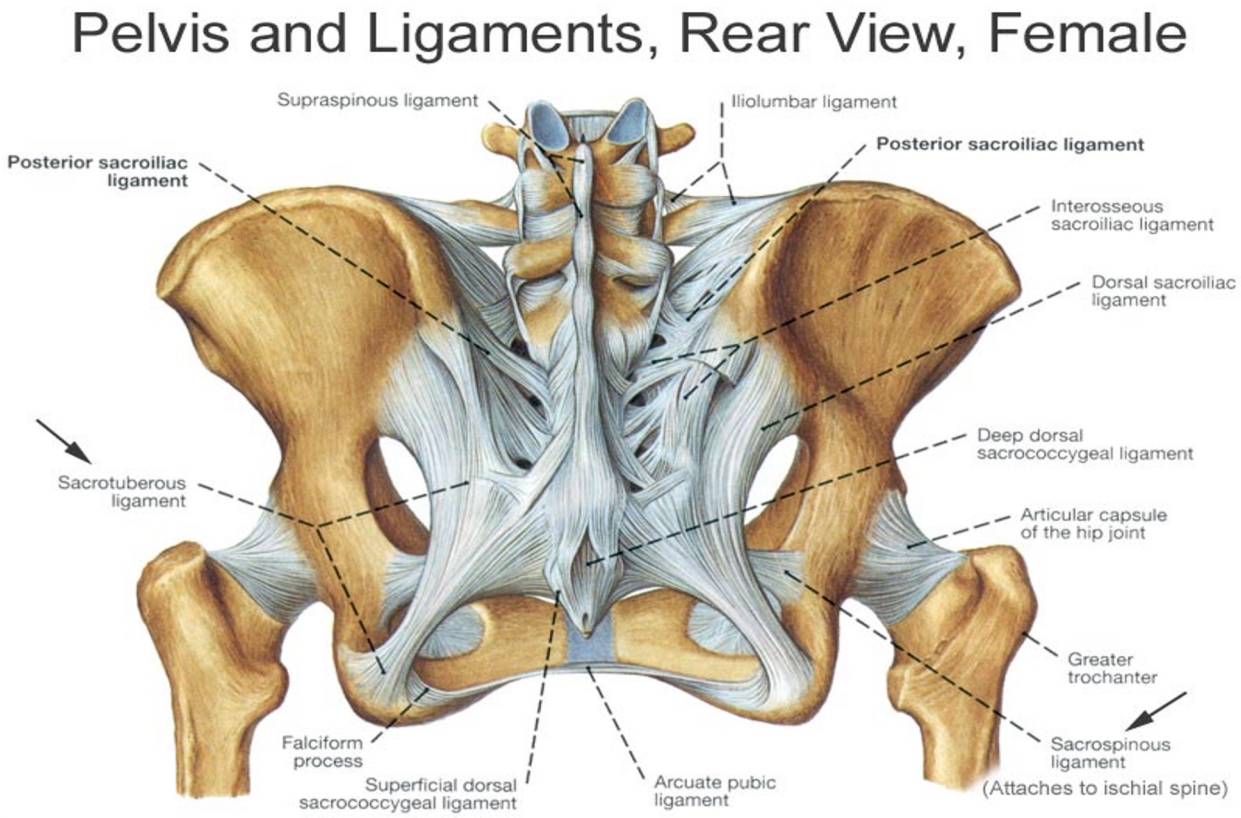
- Iliolumbar ligament - from the tip of the transverse process of L5 to posterior aspect of the inner lip of iliac crest; strengthens the lumbo-sacral joint.
- Lateral lumbosacral ligament
- Sacrotuberous Ligament- from sacrum to tuberosity of the ischium
- Sacrospinous ligament - from the ischial spine to lateral margins of the sacrum

Iliolumbar Ligament

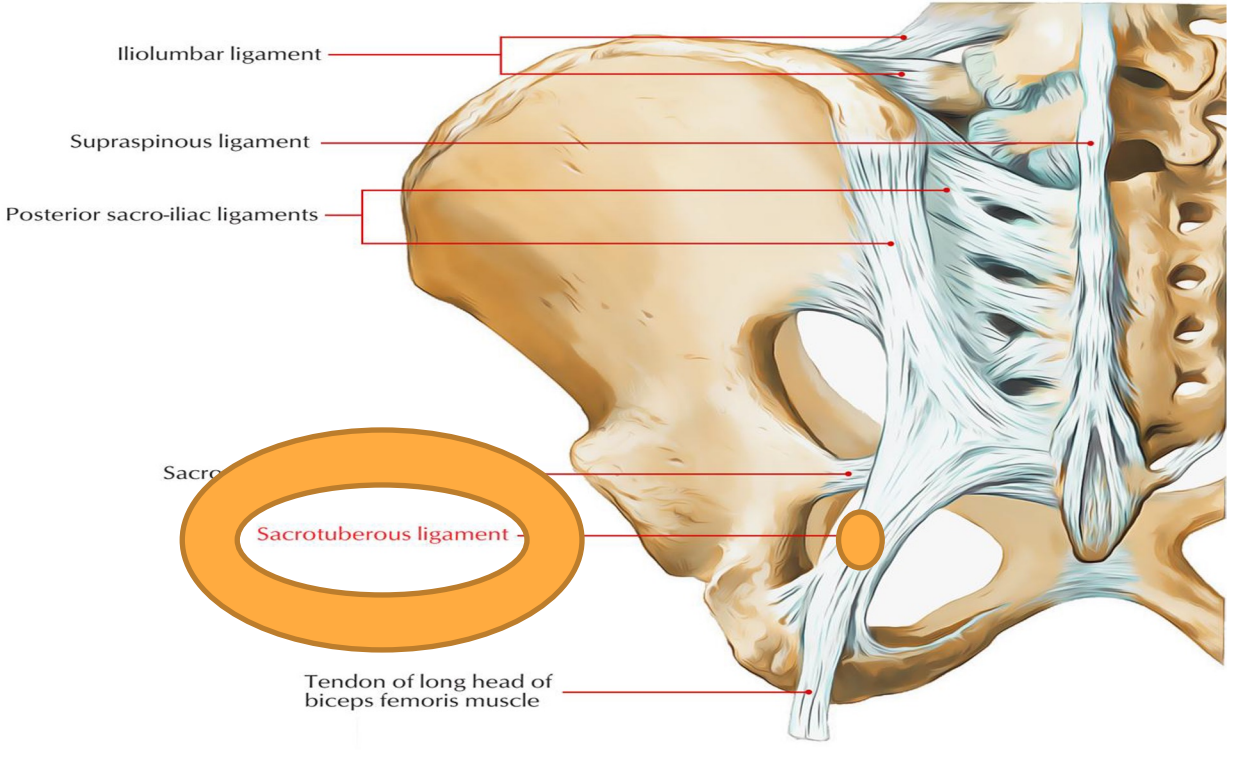
Iliolumbar ligament - from the tip of the transverse process of L5 to posterior aspect of the inner lip of iliac crest; strengthens the lumbo-sacral joint.



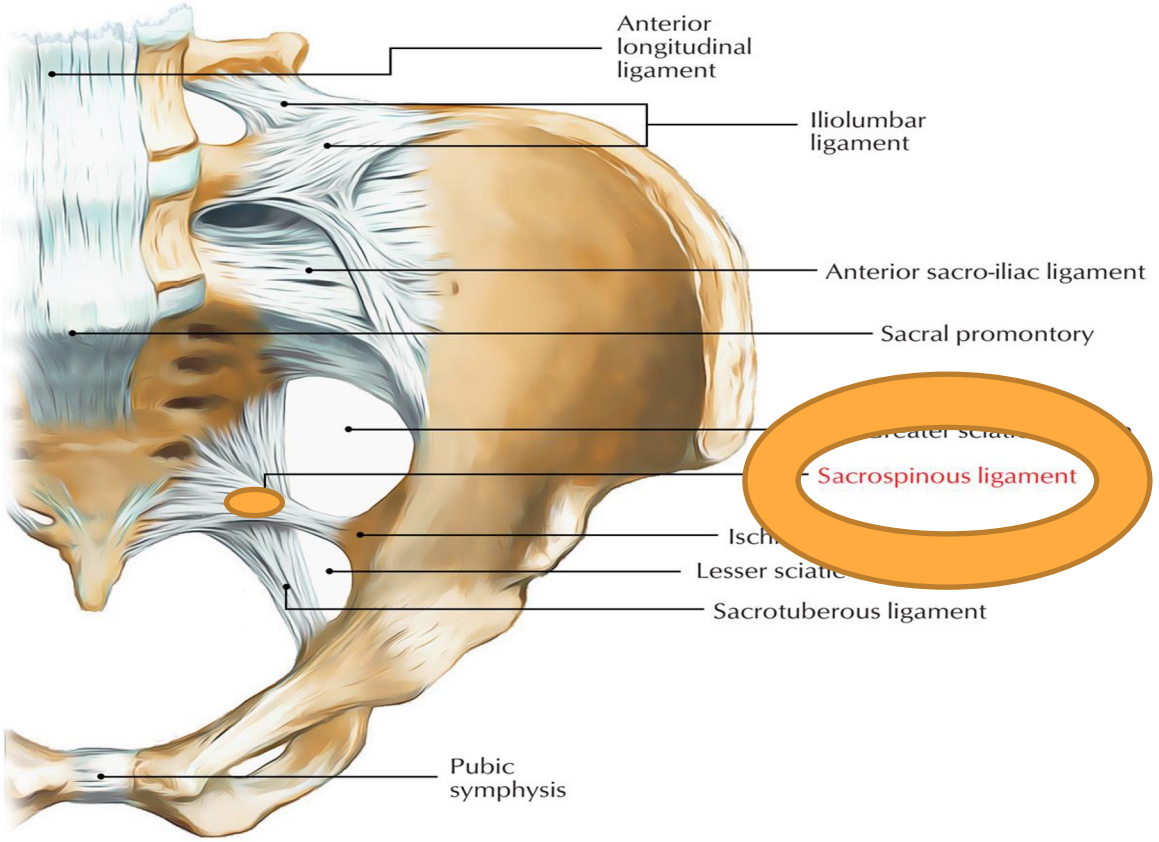
Lateral lumbosacral ligament



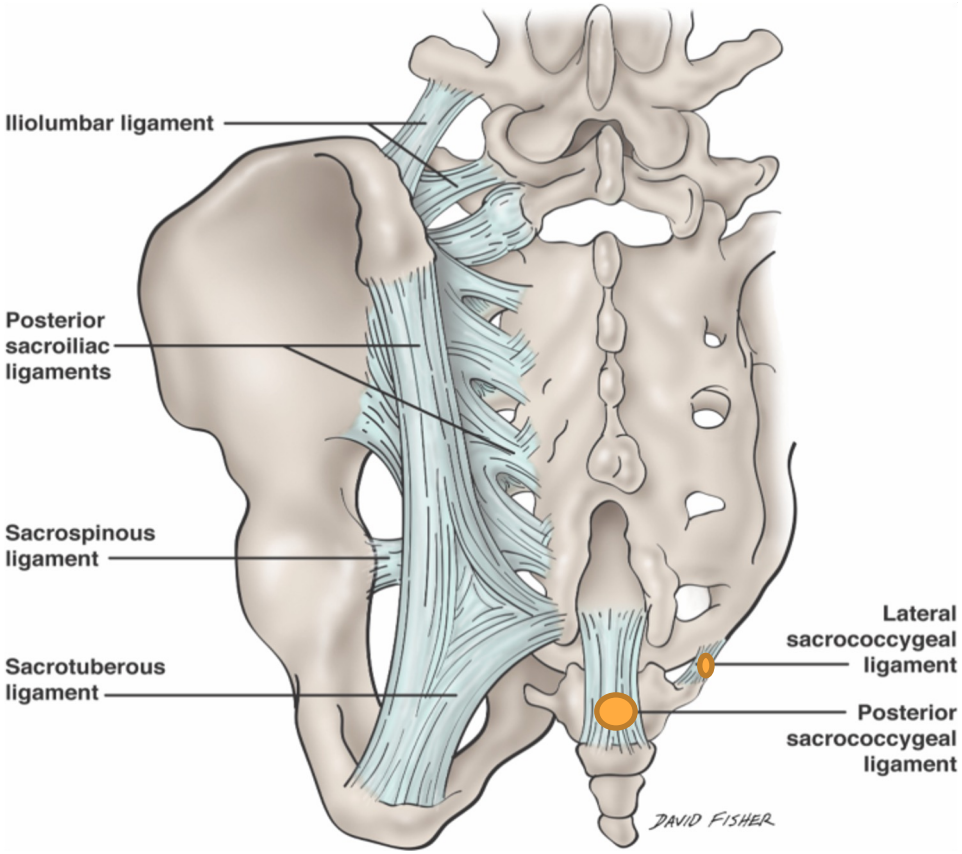
Sacrotuberous ligament



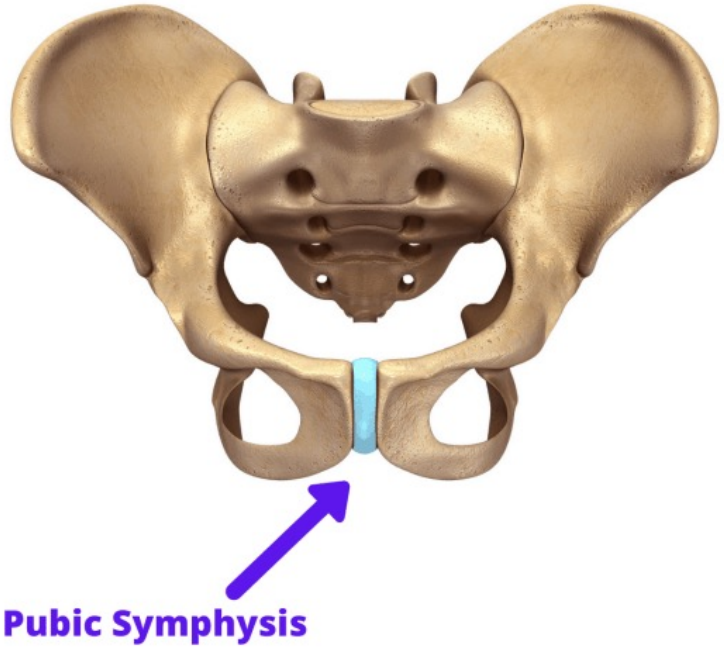
Sacrospinous ligament



Sacrococcygeal ligament



Pubic Symphysis



POSTPARTUM
TRAINER, MD

Endopelvic Fascia Ligaments

Bringing it all together:

- Pubovesical ligaments - attach bladder to pubic symphysis
- Sacrogenital - these are thickenings of the fascia, not specific ligaments
- Uterosacral ligaments - attach upper vagina, upper portion of cervix and uterus to the 3rd sacral vertebra
- Cardinal ligaments (aka Mackenrodt's) - attach upper vagina, cervix and uterus to the sidewalls of the pelvis

Endopelvic Fascia Ligaments

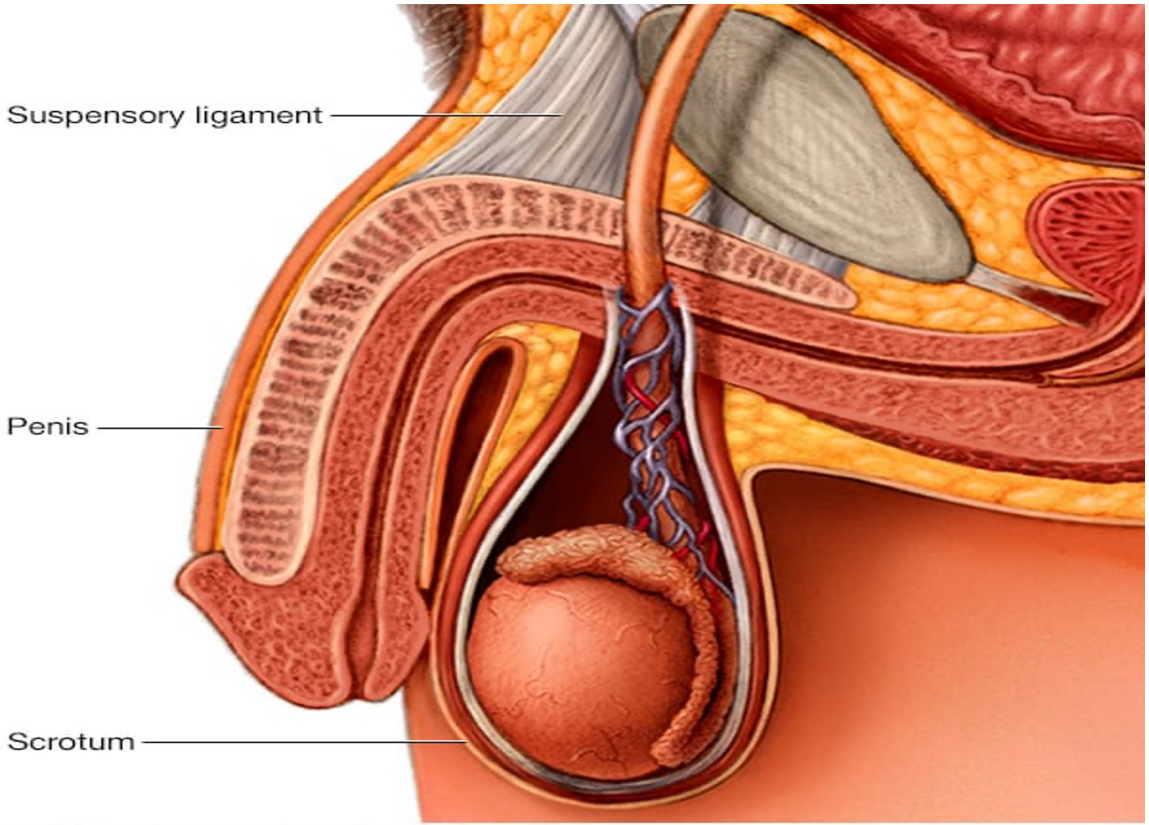
- Round ligaments - attach the uterus to the mons pubis AND Labia Majora!
- Broad ligaments - attach the uterus to the medial aspect of the ilium
- Urachus ligament - attaches bladder to the umbilicus (formed from the remnants of the umbilical vein)

Ligs continued

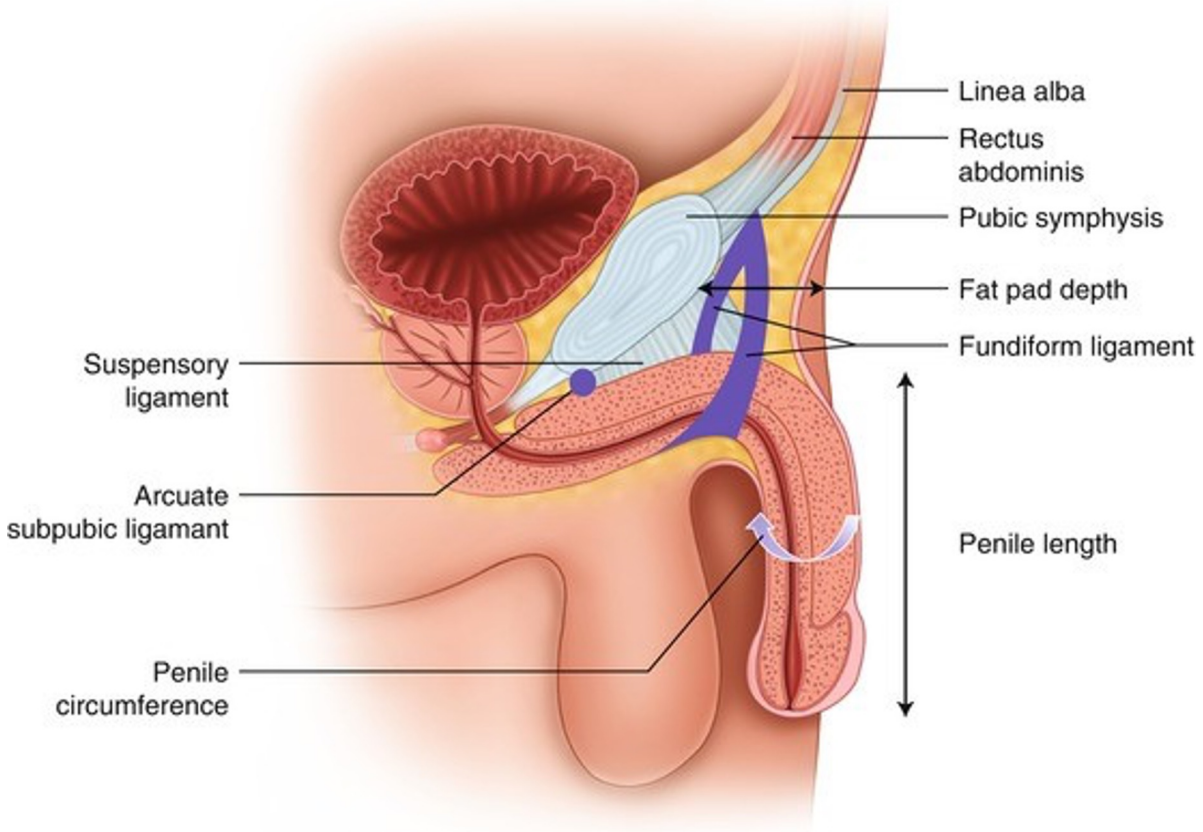
Penile Suspensory Ligaments

- Penile Suspensory ligament - attaches to the anterior aspect of the interpubic disc and divides in two to sling around the penis
- Fundiform ligament - extends from inferior linea alba and divides to wrap around the penis

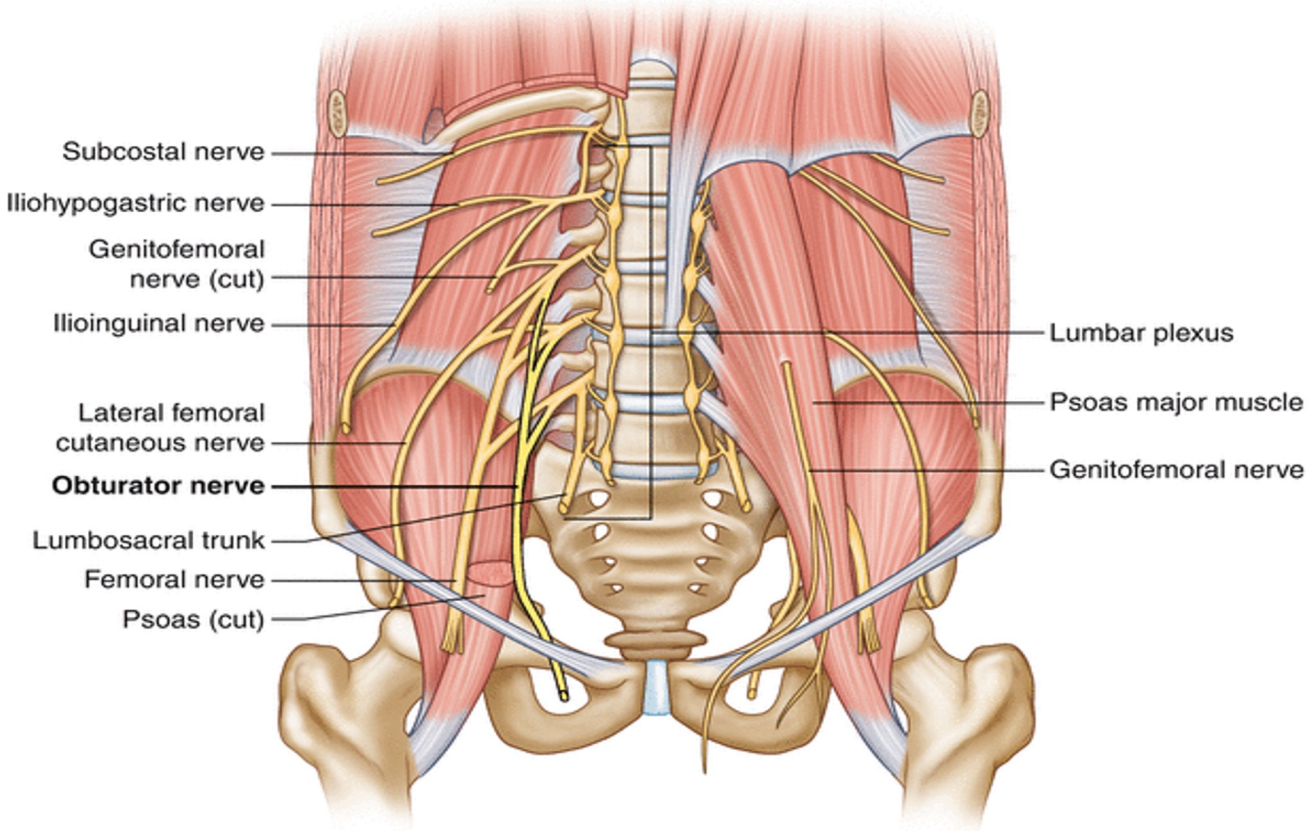
Suspensory Ligament



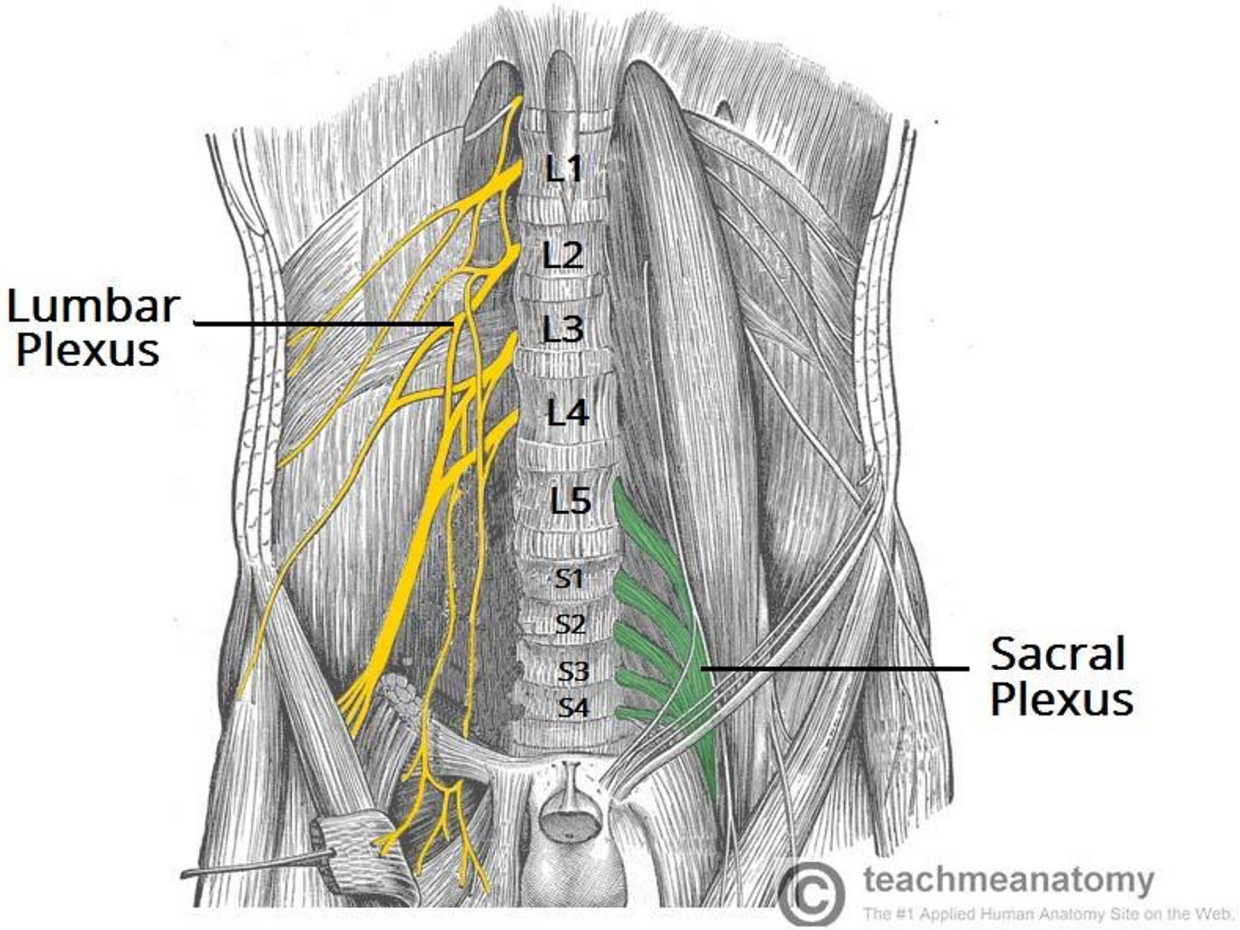
Ligs continued



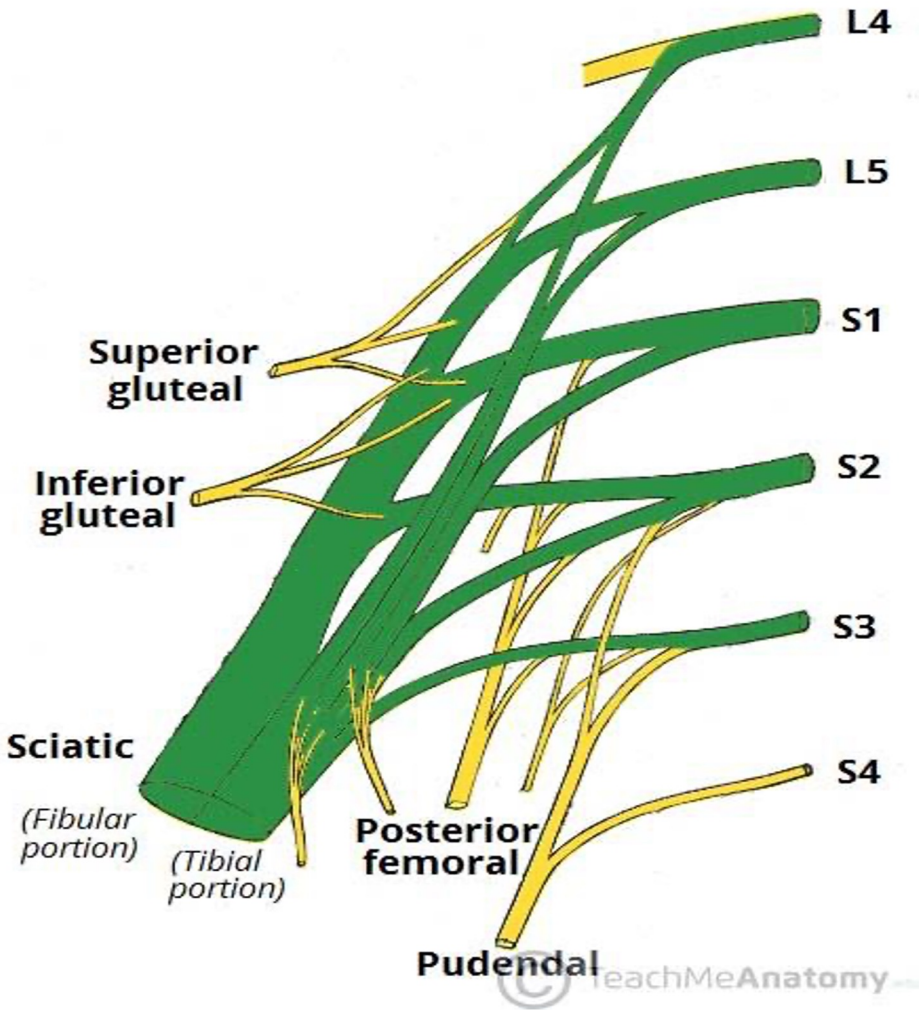
Lumbar Plexus of the Pelvis

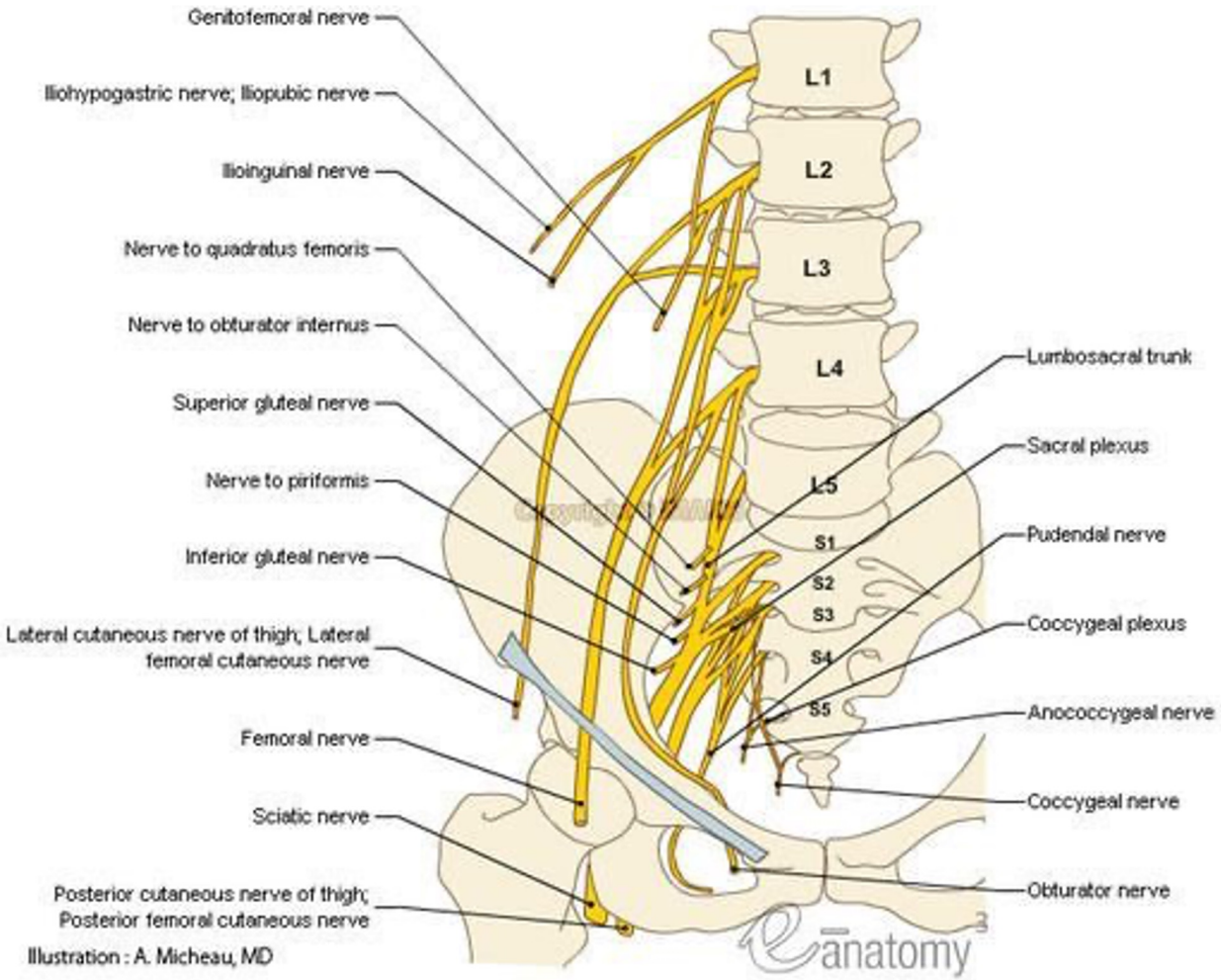


Sacral plexus



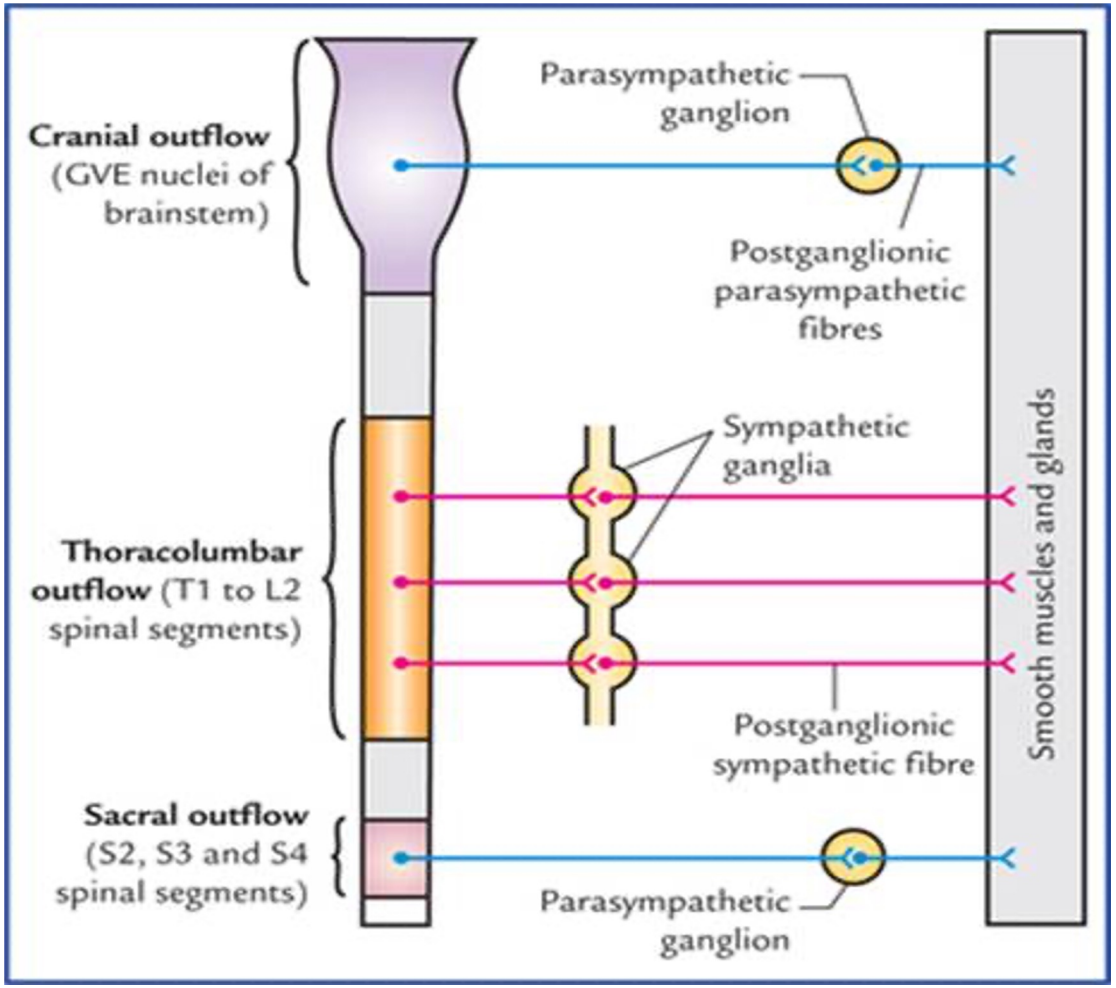
Sacral Plexus



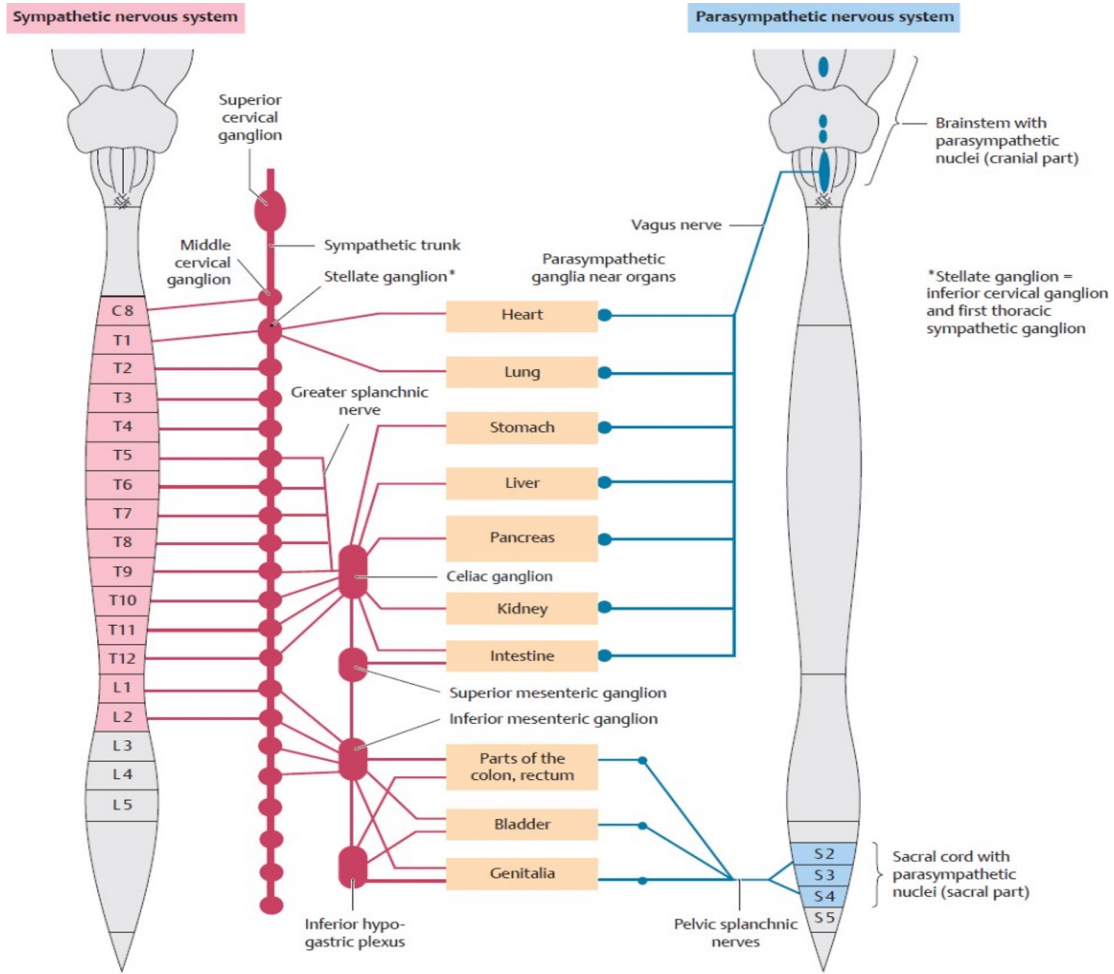

Genitofemoral nerve
Iliohypogastric nerve; Iliopubic nerve
Ilioinguinal nerve
Nerve to quadratus femoris
Nerve to obturator internus
Superior gluteal nerve
Nerve to piriformis
Inferior gluteal nerve
Lateral cutaneous nerve of thigh; Lateral femoral cutaneous nerve
Femoral nerve
Sciatic nerve
Posterior cutaneous nerve of thigh; Posterior femoral cutaneous nerve
L1
L2
L3
L4
L5
S1
S2
S3
S4
S5
Lumbosacral trunk
Sacral plexus
Pudendal nerve
Coccygeal plexus
Anococcygeal nerve
Coccygeal nerve
Obturator nerve
Illustration : A. Micheau, MD
anatomy

S2,3,4

S2,3,4 keep the 💩 off the floor!



Sympathetic and Para-Sympathetic



LARGE Posterior* muscles we treat in Pelvic floor

Glute Max* (innervation is the **inferior** gluteal nerve, sacral plexus, L5,S1,S2)

Glute Med* (innervation is the **superior** gluteal nerve, L5, S1)

Glute Min* (innervation is the **superior** gluteal nerve, L5, S1)

OI*, OE* and Gemelli*(O nerve, sacral plexus L5, S1, S2)

LARGE Posterior* muscles we treat in Pelvic floor

Piriformis* (S1,S2)

QF* (sciatic nerve, L4,L5,S1)

QL* (T12, L1, L2, L3)

- Indicates active involvement

LARGE Anterior Muscles we in Pelvic Floor

ADductor Brevis* (O nerve, lumbar plexus L2, L3, L4)

ADductor Longus* (O nerve, lumbar plexus L2, L3, L4)

ADductor Magnus*(O nerve, lumbar plexus L2, L3, L4, L5)

Tensor Fasciae Latae* (superior gluteal nerve, sacral plexus L4, L5, S1)

LARGE Anterior Muscles we in Pelvic Floor

Pectineus* (femoral nerve, lumbar plexus L2, L3, L4)

Rectus Femoris* (femoral nerve, lumbar plexus L2, L3, L4)

Vastus Intermedius (femoral nerve, lumbar plexus L2, L3, L4)

Vastus Lateralis (femoral nerve, lumbar plexus L2, L3, L4)

The “PRANKSTER”

Psoas* (L1, L2, L3)

Iliiacus* (L1, L2, L3, L4)

These muscles are almost always indicated in HERNIA/HERNIAL surgeries

Rectus Abs and Pyramidalis

Rectus Abdominis* (T8-T12)

Pyramidalis* (T12) = tenses the linea alba and is implicated in BLADDER issues

External Oblique* (subcostal nerve, T8-T12)

These are of the UTMOST importance as there are sensory, motor and autonomic nerve fibers.

And for this class, we will NOT be covering TA, IO or Diaphragm

Clinical Pearls

Some things to consider once you begin treating the pelvic floor:

1. Everyone of you has different clinical approaches and there is no one right or wrong approach, as long as your patient is seeing results.
2. Being an acupuncturist is not a one size fits all : I take time to explain to patients that there are MANY different forms/styles of acupuncture, and that the type of acupuncture we will be learning and employing this weekend is a very hands on approach to soft tissue/ligament/nerve/joint/deep needling that can be used in MOST cases.

Clinical Pearls

- Being a trained acupuncturist is a subtle art form that allows MUCH MORE FINESSE than what they will find outside in with other modalities.

Practical tidbits

In this section we will go through the nuts and bolts of what one needs in clinic for this deep and satisfying work.

1. Needles. This is NOT a one size fits all. Ex. You must NEVER use thicker gauged needles in sensitive tissues like vaginal forchette/vestibule/body of penis

2. Needles recommended:

   .18X25mm, .20X25mm, .22X25mm, .25X25mm for PERINEAL body needling (transverse perineum, perineum, external anal sphincter etc)

Practical tidbits continued….

.20-.25X25-40mm+ for OBTURATOR needling ALONG ISCHIAL RAMI as well as fascial needling, and LABIA, REN 1 and DU1

.20-.35X40-75mm for LARGE muscle groups and deep needling (obturator internus,externus, obturator tendons, pectineus, adductors, G Max/Med/Min, TFL, hamstrings, psoas, illiacus)

.16-.18X25mm for forchette/vestibule/ ISCHIOCAVERNOSUS/BULBOSPONGIOSUS

Practical Tidbits…..

In addition to your usual supplies you will need:

- Some type of hygiene wipes (I use Cottonelle, but if you are treating Vulvodynia and the patient has irritated soft tissue/membrane make sure that it is gentle and fragrance free)
- Towels or disposable under pads for patients that may be mentruating or incontinent.
- Proper fitting exam gloves

Mas tidbits

- Gauze or cotton squares (patients often times will assist you by holding open labia majoris or holding glutes etc.
- Needle tray
- Some drape or sheet or another (I use white king sized cotton PILLOW CASES from Amazon so as they may all be bleached and disinfected).
- Pointer Plus (or other hand held electrical device if you are doing trigger point and motor point work (which is what I do)
- Disinfecting wipes for SKIN (I use these to clean my gloves as I maneuver around delicate tissues).

And even more tidbits…

- May or may not want a surgical pen

- Exam room paper
- Also a portable space heater as MOST patients are atleast half disrobed .
- Table warming pad.
- Portable small high watt light (think like a Spelunkers Light, I use a very bright reading light)
- Misc.

Techniques

The techniques that I use and have found most effective are

1.TrPts (trigger points); “DRY” Needling

2. Motorpoint needling

3. E-stim

4. Fascial needling (subcutaneous, osteo, scar etc.)

We will briefly discuss the mechanisms and why they are advantageous in clinic.

Myofascial Trigger Point Acupuncture (Dry Needling)

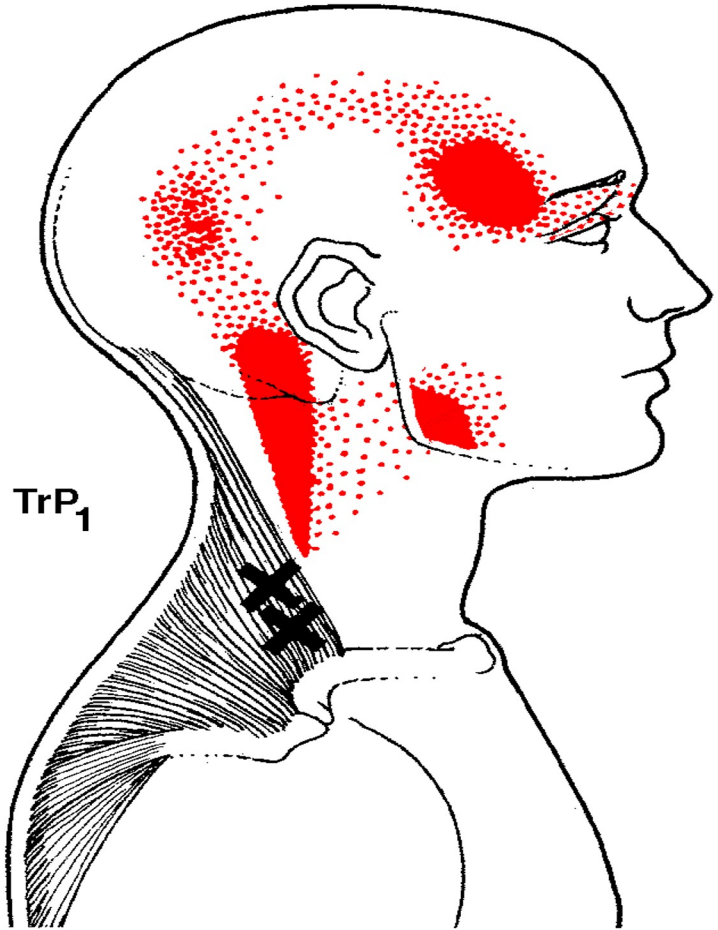
The most common and current definition of TrPts is:

“A hyperirritable spot in a taut band of skeletal muscle this is painful on compression, stretch, overload, or contraction of the tissue, which usually responds with a referred pain that is perceived also distant from the spot”.

Simons et al. 1999

Trigger Pt Examples

Common referral pattern



TrPts Continued

There are 2 types of Trigger Points

1. **Active**: Spontaneously reproducible and “their usual/familiar pain”.
2. **Latent**: DO NOT reproduce spontaneous symptoms OTHER than the referred pain.

BOTH Active and Latent: cause allodynia, and although LATENT are NOT spontaneously painful, they STILL proved “NOCICEPTIVE input into the DORSAL HORN”- Ge at al. 2008

TrPts

Why is this important to know? FOR SO MANY REASONS:

1. ALL TrPts provoke motor dysfunctions such as weakness, inhibition, increased motor irritability, spasms, muscle imbalance and altered motor recruitment- Lucas et al. 2010
2. Pain elicited by TrPts constitute a separate and independent cause of acute and CHRONIC pain that can compound symptoms of OTHER conditions…comorbidity is very high in these populations.
3. TrPts affect VISCERA and we often see this in : IBS, Prostatitis, Endometriosis, Interstitial Cystitis

Example

The presence of Myofascial Trigger Points in the abdomen was 90% predictive of ENDOMETRIOSIS.

We CANNOT ignore them. To ignore trigger points will be a hurdle in our treatment, but they need to be deactivated to have better clinical outcomes.

Motorpoint Acupuncture

At its simplest: The outlet in which the nerve root innervates the muscle.

(neuromuscular junction)

There is ongoing debate about whether or not these locations are fixed within our community. I would happen to believe that they are indeed fixed and reproducible.

Motorpoint Acupuncture

There is some anatomical anomalies amongst patients, but for the most part, direct stimulation into the motorpoint will create muscle homeostasis. If there is hypotonicity, it will stimulate to bring to neutral reset, if there is hypertonocity it will aslo bring the muscle spindle fibers to reset.

After a motorpoint has been used, clinically you could palpate for further reluctant triggerpoints and resolve those.

TCM POINTS

HTJJ
GB 215,26,27,28,29,30,31
UB 24,25,26,27,28,29,30,31,32,33,34,35 and 36
DU 1,2,3,4
LIV10,11,12,13
REN 1-15
ST 19-31
SP 12,13,14,15,16
KID 11,12,13,14,15,16,17,18,19,20,21

SAFELY Needling Trigger Points & Motorpoint

BASICS:

IF your patient has a chronic and systemic issue such as Immune/CA/FIBRO/MS/LUPUS etc they will require LESS stimulation and you must proceed with caution and use your best judgement.

PREGNANCY

Examples of treatment: Employ one to two motorpoints and/or trigger ppoints with gentler techniques, shallower insertion, thinner gauge needle, with our without e-stim.

Safety continued

Visibly scanning the skin to see for integumentary changes:

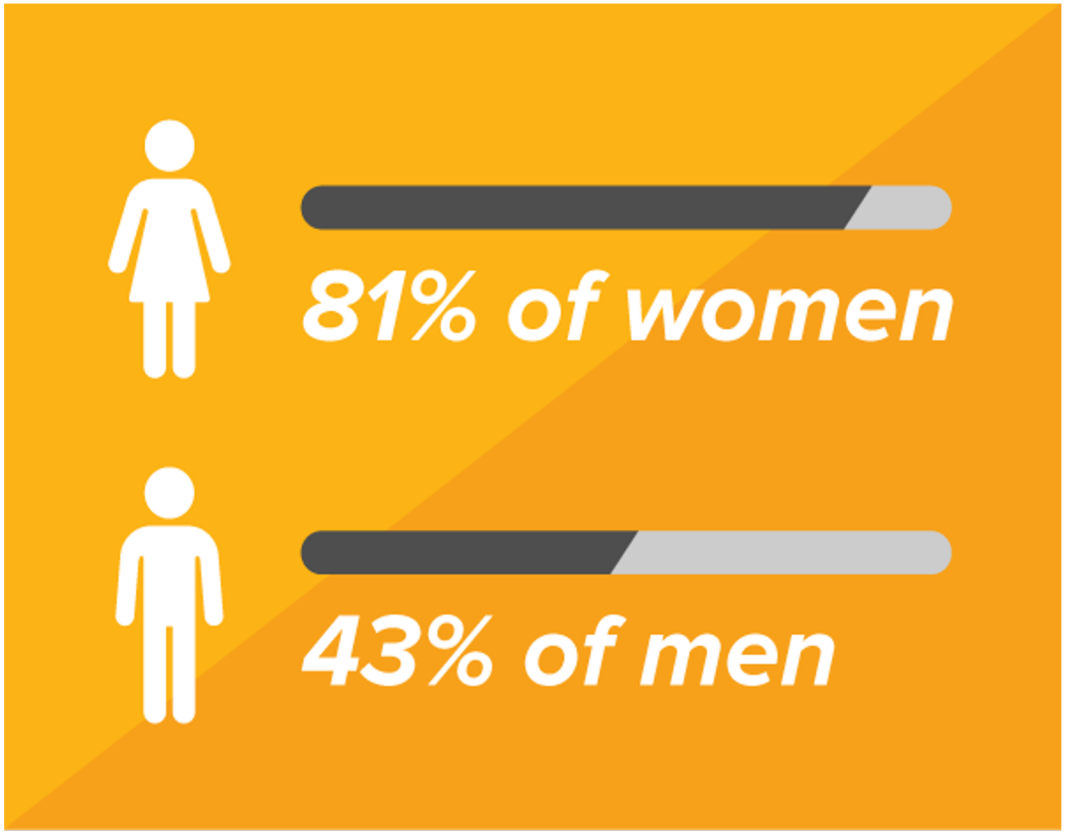
- Peau d’orange
- Alopecia
- Active lesions
- Adhesions
- Thermal
- Color

Safety continued

- Patients with electrical stimulators/hardware/pumps (near the region)
- Victims of sexual abuse

INFORMED CONSENT

Sexual assault/harassment



1 in 5


24.8%


734,630

Informed Consent

I want to take a little bit of time here because this is an important topic.

PROVIDED: My clinic consent form.

When your patient enters the room and you meet them for the first time, always go in with neutral language, calm demeanor, and with the mindset of TRUST.

Over the years of working with PF patients they speak to you little by little and over the course of treatments. I NEVER force any conversation or ask uncomfortable questions.

Once you establish TRUST, your patients progress will speed up.

CONSENT

There are many levels of consent here:

1. PRE-treatment consent: this consists of thoroughly going over your consent form and the PELVIC floor consent.

- WHEN you are finished with your intake, this PRE-TREATMENT consent you begin to IMPLEMENT by providing a VISUAL road map of your thoughts around their treatment, and engaging them in the conversation. An example would be this:

Consent - Example of Visual Road Map

CC: PERI-ANAL PAIN: provide actual medical charts/visual aides of THAT PART of their body, using neutral language and explaining your reasoning for their pain and why you will be PALPATING (do not use the word touch/touching here). Explain that the word palpate means to EXAM BY TOUCH FOR MEDICAL PURPOSES. When you have finished give them an opportunity to say “ That sounds good”, or “ I’m nervous, will it hurt etc.” YOUR PATIENT IS ALWAYS IN CONTROL .

ALSO tell them that if they are uncomfortable in ANYWAY, you will stop treatment IMMEDIATELY.

Consent Continued

Once you have WRITTEN consent, and intitial PRE-TREATMENT verbal consent

DEMONSTRATE how you would like to POSITION them on your exam table, and provide a drape for them.

I'll show you here.

Ask them if they have any questions, tell them: "I am going to step out of the room so you may get ready (please remove: pants, undergarments and lie face up to begin, with the drape covered like this" and demonstrate here)

"I will knock loudly before I come back in." this is important: NO SURPRISES

Consent continued

You would be surprised how many people have a hard time with this simple instruction because they are nervous.

You may chart these positions accordingly: lithotomy, lateral supine, prone, supine

Consent Continued

DURING TREATMENT CONSENT:

Is it ok that we can begin? I am going to put my LEFT hand on your LEFT hip, is that ok? If the answer is YES, then proceed, if NO then ask “is it ok if I put my LEFT HAND on your lower LEFT BACK?” this is just an example. If the patient is very nervous, you can start off by saying “ I am here for you, and we are going to get you feeling better, how about we start off with a very gentle treatment “X” so we can ease into this deeply therapeutic work.

Consent Continued

MOST important:

Tell them that you are following their lead

Draping

We will discuss Clinical ethics and safety tomorrow more at length.

DRAPING DEMO:

Who wants to volunteer?

GETTING FAMILIAR WITH NEEDLING

This is what we have all been waiting for!

Jumping in and practicing to fine tune PELVIC FLOOR needling.

1. Sacral Ligaments
2. HIP, LOW BACK and PUBIS
3. TENDONS
4. MUSCLES

Before we start one last point to touch on:

PALPATING

Palpation is the technique of using your hands/fingers to assess the client based on your sensation of touch.

It provides the opportunity to use your sense of touch to assess the body and further examine cues that were identified during inspection.

Palpation cont

As you prepare to touch the client, it is important that you:

- Ask permission to touch. Touch can sometimes be misinterpreted, so it is essential to be purposeful with each movement and explain what you are doing.

Palpation cont

- Consider the warmth of your hands. Cold hands can be uncomfortable for the client. Do not blow on your hands to warm them up as this will transfer germs from your mouth to your hands. Instead, rub your hands together to create heat.

Palpation cont

- Avoid **staccato touch** unless indicated. The jerk-like movement can be difficult to anticipate for the client. When touching the client, use firm pressure unless otherwise indicated. Light pressure can be ticklish. In this case, sometimes incorporating the client's hands, where possible, into your palpation technique to reduce tickling.

Palpation continued

Palpation provides useful information to assess and evaluate findings related to temperature, texture, moisture, thickness, swelling, elasticity, contour, lumps/masses/deformities, consistency/density, organ location and size, vibration and presence of pain

NEVER EVER NEEDLE THROUGH CLOTHING

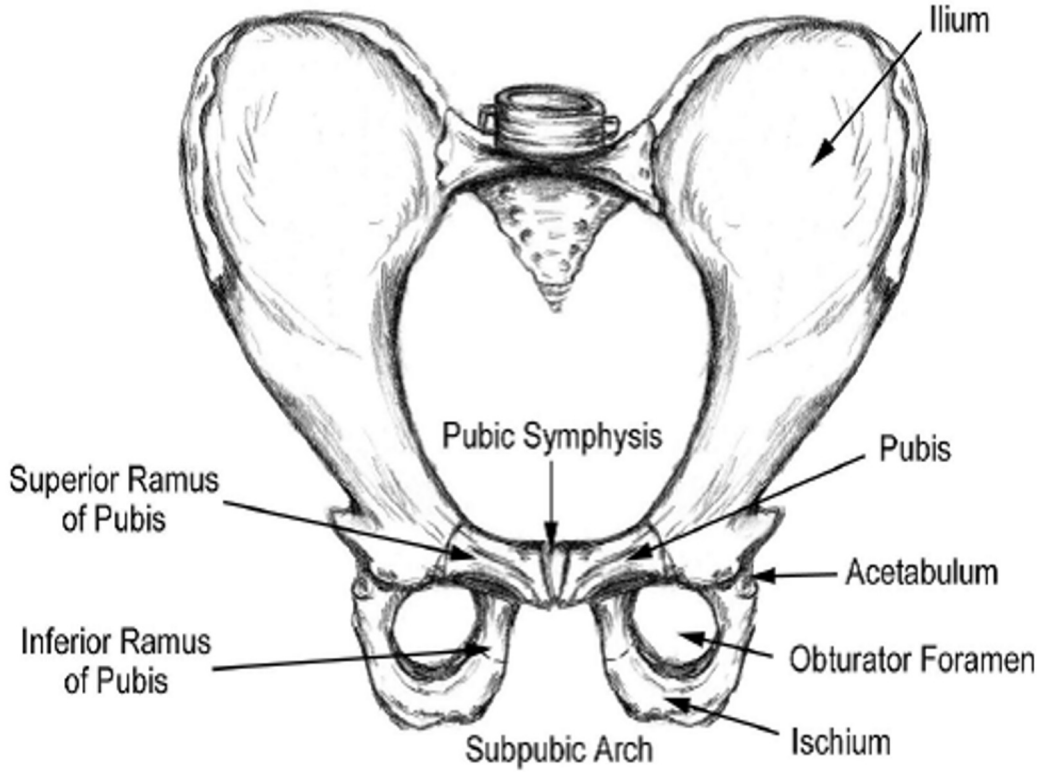
Sacral/Pelvic LIGAMENTS

The FOUR main ligaments of utmost importance :

1. Sacrotuberous Ligament
2. Sacropsinous Ligament (both the STL and SSL are major contributors to PN)
3. Posterior Sacroiliac Ligament
4. Pubic Symphysis (cartilagenous joint)

Pubic Symphysis

Our one anterior joint



Allen K.L. et al., Physical Medicine and Rehabilitation for Osteitis Pubis, http://emedicine.medscape.com/article/308384-overview, (accessed 22 June 2010).

Pubis Symphysis

The pubic symphysis is found on the anterior side of the pelvis and is the anterior boundary of the perineum.

The pubic bones form a cartilaginous joint in the median plane, the symphysis pubis.

The joint keeps the two bones of the pelvis together and steady during activity.

In cooperation with the sacroiliac joints, the symphysis forms a stable pelvic ring. This ring allows only some small mobility.

Pubis Symphysis

The pubic symphysis is a cartilaginous joint which consists of a fibrocartilaginous interpubic disc.

The pubic bones are connected by four ligaments. The superior pubic ligaments start on the superior part of the pubis and go as far as the pubic tubercles.

The arcuate pubic ligaments form the lower border of the pubic symphysis and blends with the fibrocartilaginous disc. The joint stability is mostly given by the arcuate ligament and is also the strongest one. The four ligaments together neutralise shear and tensile stresses.

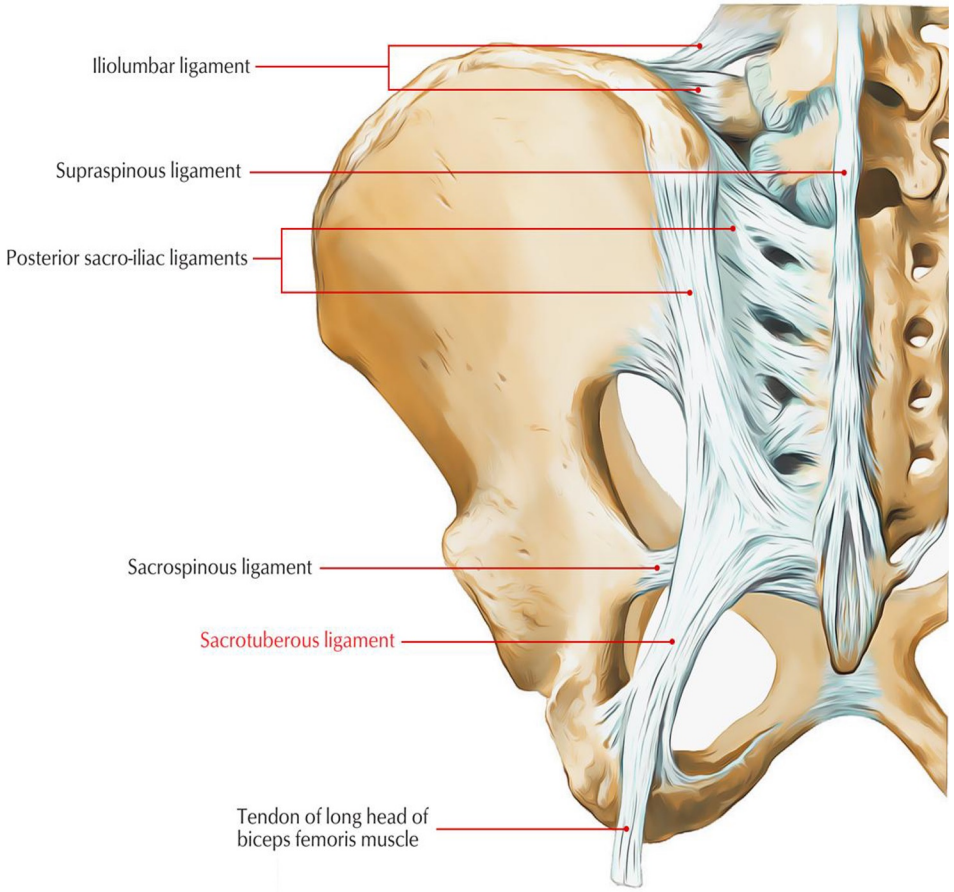
Sacrotuberous ligament

Assists in pelvic stability.

Prevents rotation of the illium

past the sacrum preventing excessive

twisting of the pelvis, LB and SIjoint



Sacrotuberus ligament

The sacrotuberous ligament (STL) is a stabiliser of the sacroiliac joint and connects the bony pelvis to the vertebral column

- Is in the shape of a fan located in the posterior pelvis, on both sides and connects the sacrum to the iliac tuberosities.
- Is composed mainly of collagen fibers, it is strong enough to support the sacrum and prevent adverse changes under body weight

Sacrotuberus ligament

The STL has a broad fan-like origin from the sacrum, coccyx, ilium and sacroiliac joint capsule. Its fibers converge to course caudally to insert into the medial ischial tuberosity and additional fibers (known as the falciform ligament) extend to the ischial ramus

Sacrotuberus ligament

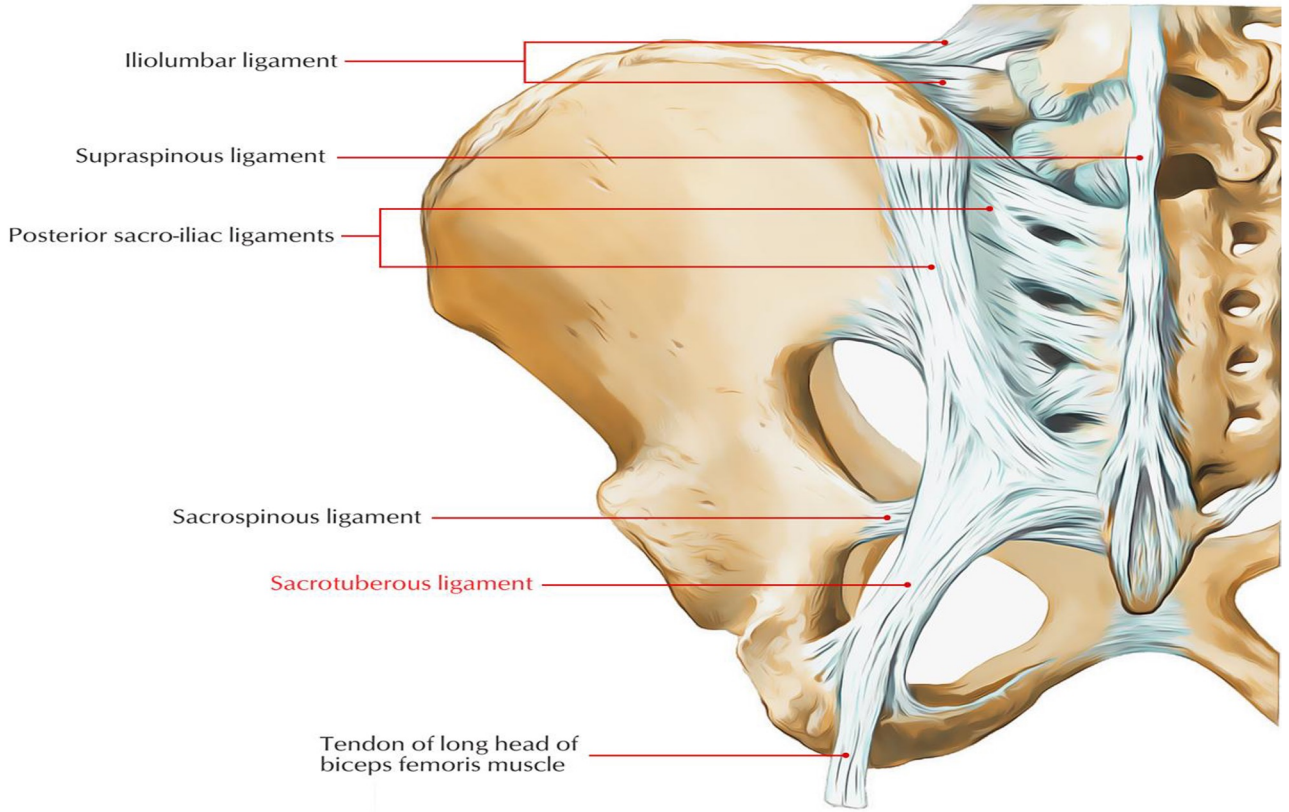
It forms a boundary of the greater and lesser sciatic foramen. Many of its fibres blend with other musculotendinous structures:

- Provides extensive insertion for the gluteus maximus muscle
- Distal fibres partially blend with the proximal tendon of the long head of biceps femoris
- Sacrospinous ligament
- Dorsal sacroiliac ligament

Sacrotuberus ligament

- The sacrotuberous ligament is pierced by coccygeal branches of the inferior gluteal artery, the perforating cutaneous nerve, and branches of the coccygeal plexus.

Sacrospinous Ligament



SSL

ATTACHMENTS:

The upper end is attached from above:

- Downwards to the posterior superior iliac spine,
- Posterior inferior iliac spine,
- Lower section of the posterior surface, Lateral border of the sacrum,
- Adjoining upper section of the coccyx.

SSL

Its lower end is attached:

- To the medial margin of the ischial tuberosity.
- A few of the fibres from the lower end are continued on to the ramus of the ischium to form falciform process.

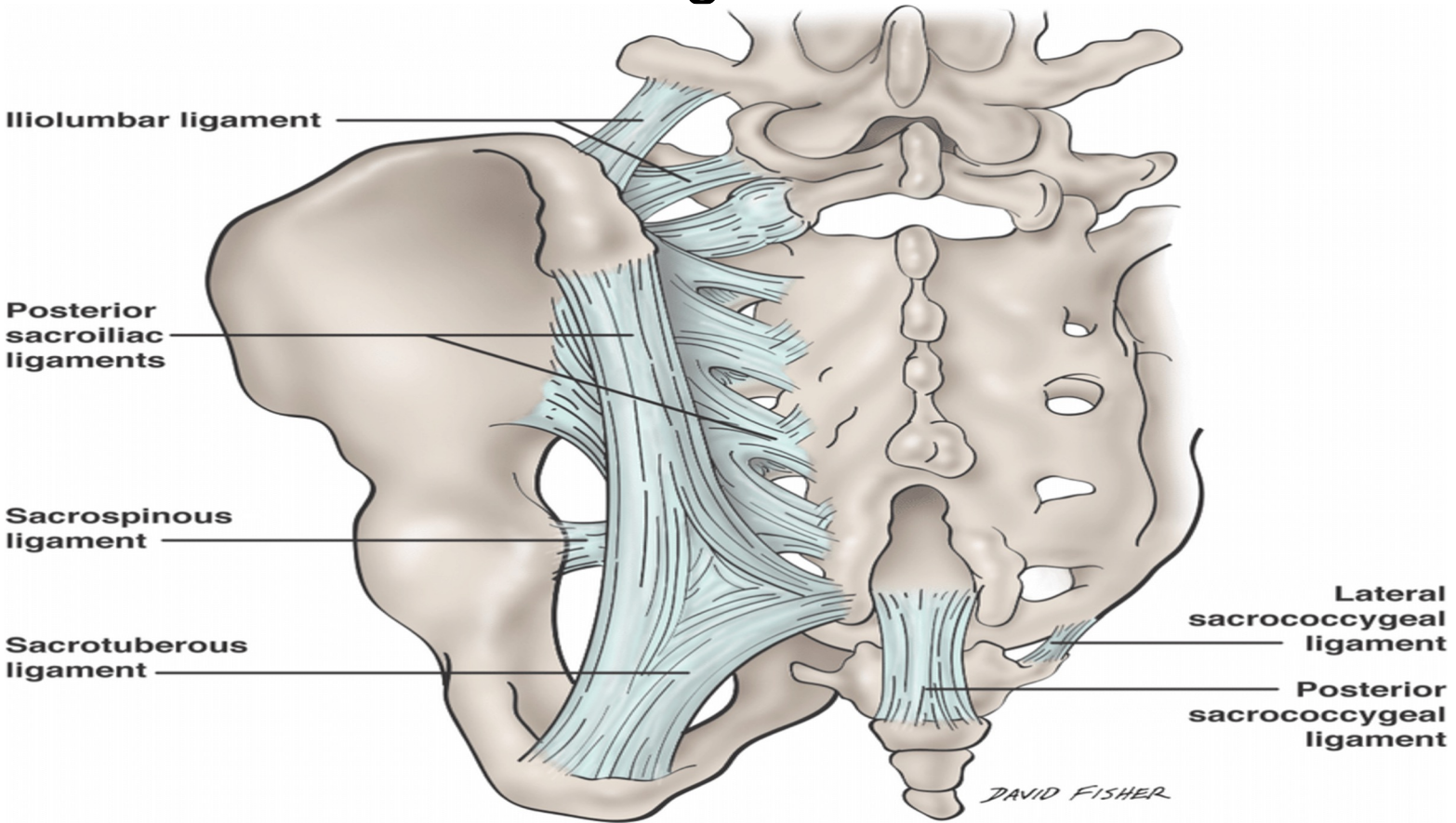
SSL

1. The sacrospinous along with sacrotuberous ligaments are major constituents of the lateral pelvic walls.
2. Sacrotuberous ligament together with the sacrospinous ligament help define the apertures between the **pelvic cavity** and adjacent regions through which structures pass.
3. They also transform the greater and lesser sciatic notches of the pelvic bone into foramina.

SSL

1. The **greater sciatic foramen** lies superior to the sacrospinous ligament and the ischial spine.
2. These ligaments stabilize the **sacrum** on the pelvic bones by inhibiting the upward tilting of the inferior part of the sacrum
3. Prevention of the lower end of the sacrum and the coccyx from getting rotated at the sacroiliac joint due to the weight of the body is done by sacrotuberous and the sacrospinous ligaments.

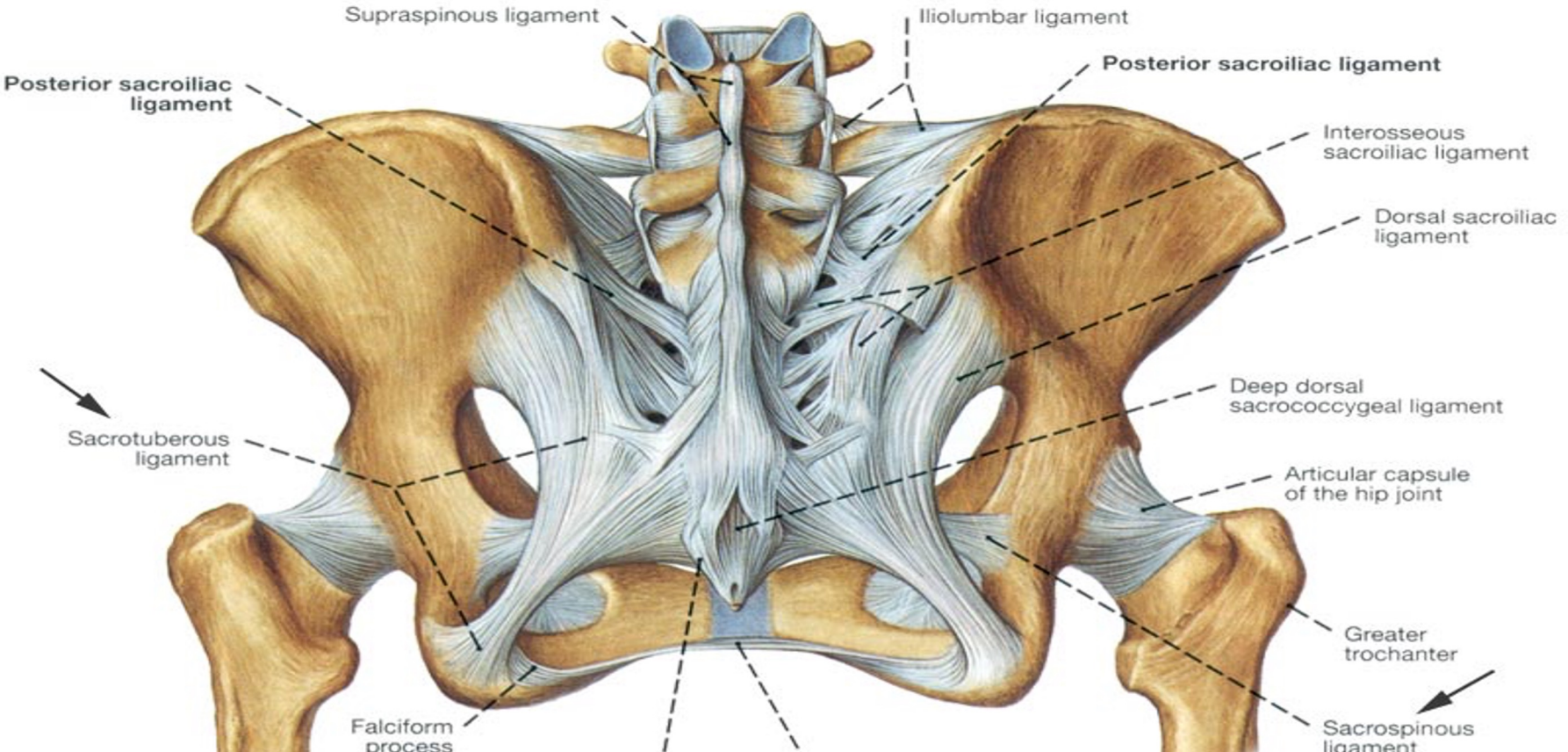
Posterior Sacroiliac Ligament



PSIL

The posterior SI ligament runs **along the back of the sacroiliac joint** and provides considerable stability. The ligament connects the back of the hip bones (posterior-superior iliac spine and iliac crest) to the sacrum. There are two components of the posterior SI ligament: Long posterior sacroiliac ligament.

Pelvis and Ligaments, Rear View, Female



SacroCoccygeal Ligament

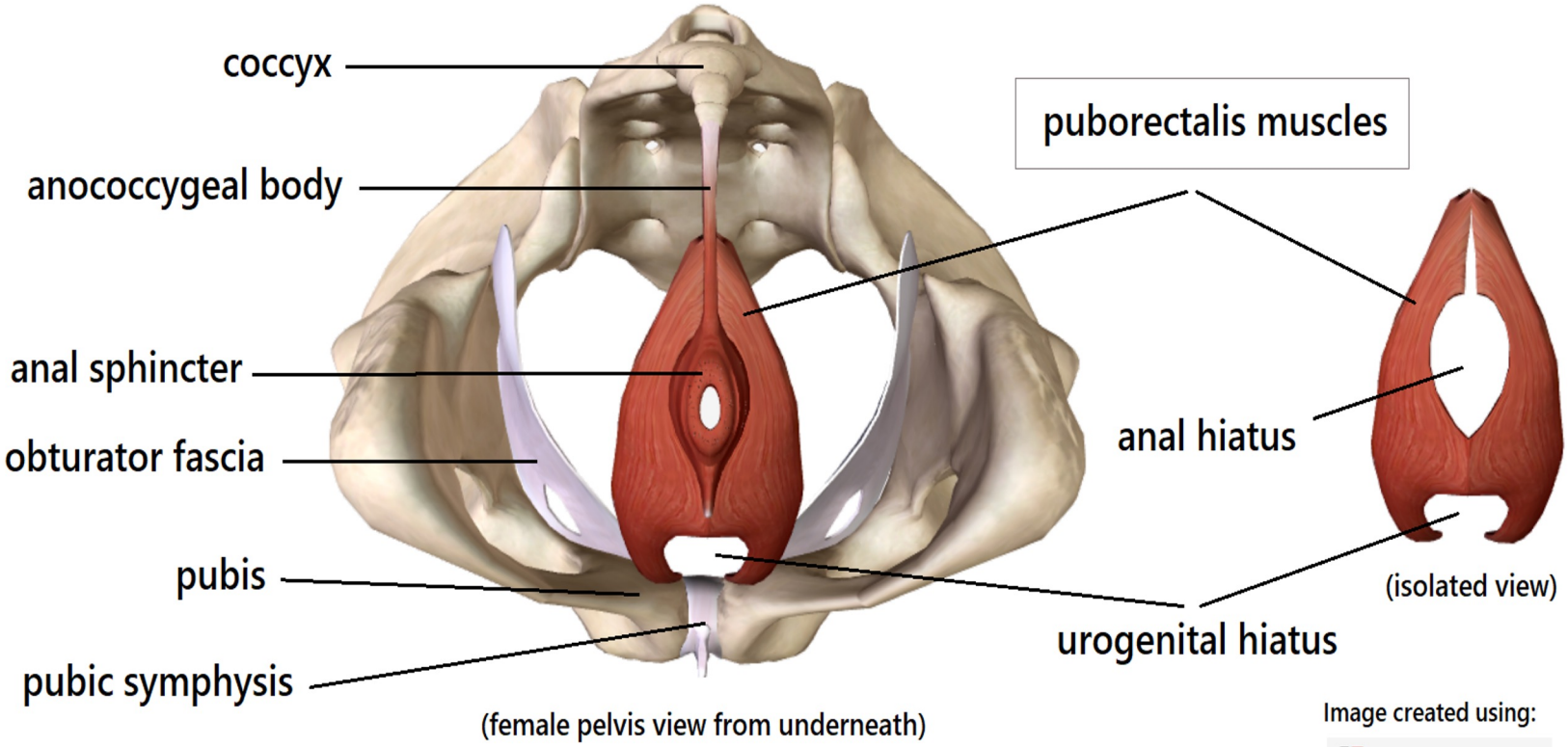
Dorsal sacrococcygeal ligament

- Deep portion - from the inside sacral canal at the 5th sacral segment to the dorsal surface of the coccyx; continuation of the posterior longitudinal ligament of the spine

SacroCoccygeal Ligament

- Superficial portion - from free margin of sacral hiatus to dorsal surface of the coccyx; corresponds with the ligamentum flavum of the spine
- Lateral sacrococcygeal ligament - from the inferior lateral angle of the sacrum to the transverse process of the 1st coccygeal vertebra

Anococcygeal ligament



ACL

The anococcygeal body (a.k.a. anococcygeal ligament a.k.a anococcygeal raphe) is a midline musculo-tendinous structure between the coccyx and the anus.

ACL

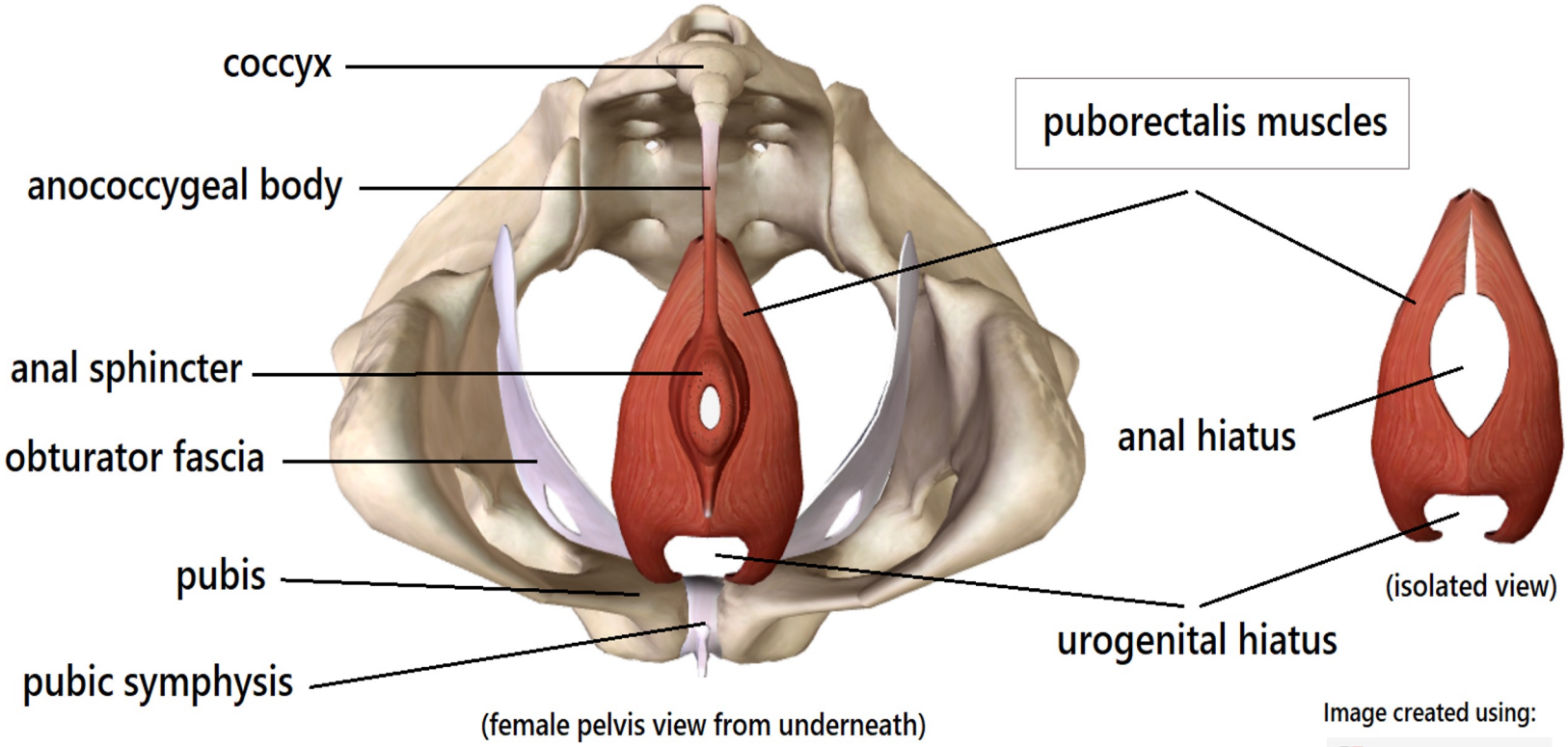
It consists of three layers:

- The superior layer formed for the presacral fascia.
- The middle layer formed by:
  - The median tendinous raphe of the pubococcygeus.
  - The muscular raphe of the iliococcygeus.
  - The posterior muscular attachments of the puborectalis.
- The inferior layer formed from the deep fibres of the external anal sphincter.

ACL continued

along with the posterior fibres of the pubococcygeus. This raphe between the anus and the coccyx also known as the levator plate and is the shelf on which the pelvic organs rest. When the body is in a standing position, the levator plate should be horizontal.

Anococcygeal ligament

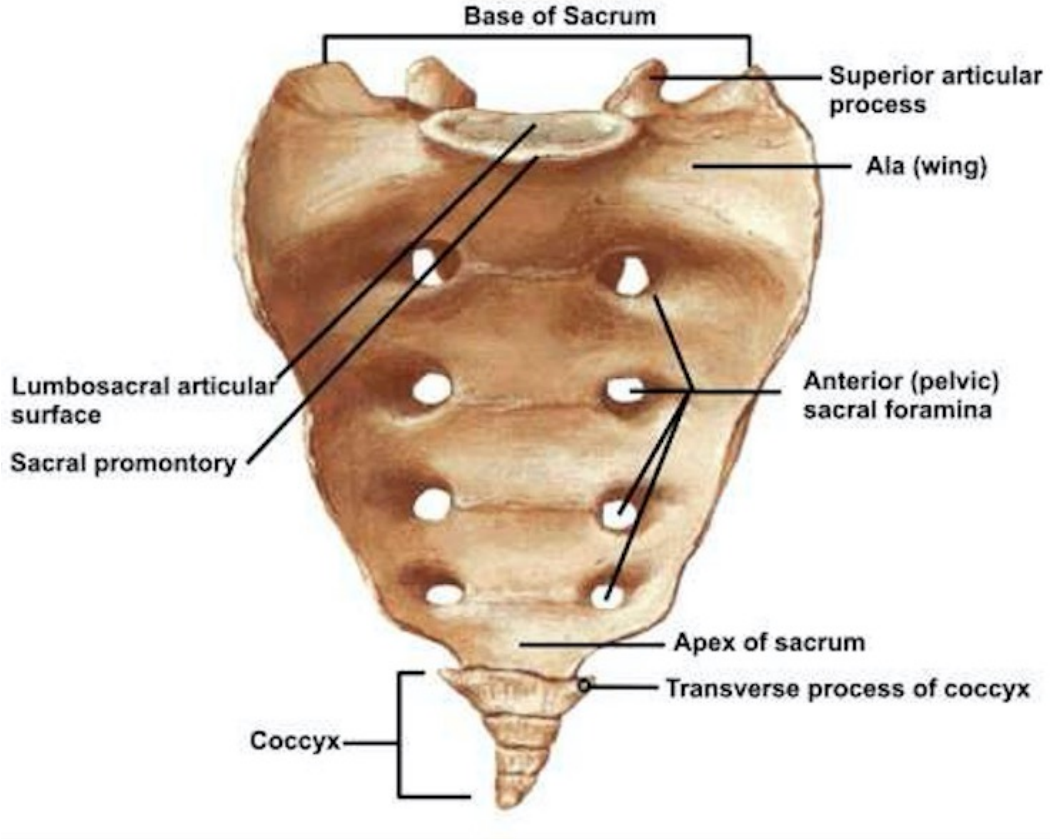


Levator plate

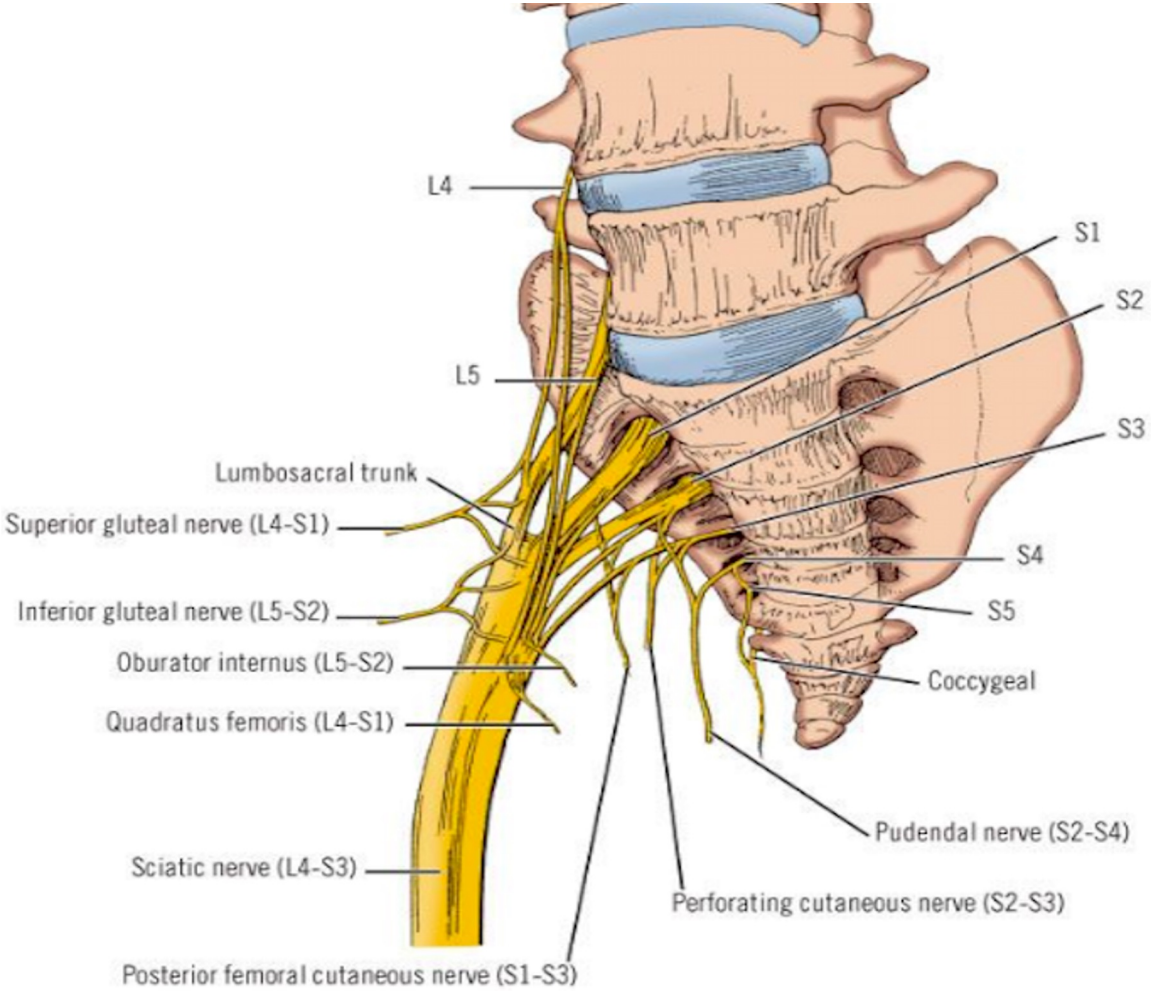
The inner border of the pubococcygeus muscles forms the margin of the levator (urogenital) hiatus, the hole through which passes the urethra, anorectum and in females the vagina.

The levator plate is formed by an overlap of the puborectalis, iliococcygeus, and pubococcygeus muscle fibres

Sacral Foramen



Sacral Foramen



Muscles of the Pelvis

There are 36!!! muscles that attach to the sacrum or hip bone (innominates)

We are going to practice with LARGER muscles before moving to the deeper smaller ones.

GLUTES: MAX, MED, MIN etc.

Gluteus Maximus

K

Gluteus Maximus

Gluteus Maximus the largest and heaviest muscle in the body. It is the most superficial of all gluteal muscles that are located at the posterior aspect of the hip joint. It is the largest muscle at the hip representing 16% of the total cross-sectional area.

G Max

Gluteus Maximus's size allows it to generate a large amount of force.

The development of the muscle's function is associated with the erect posture and changes to the pelvis, now functioning to maintain the erect posture, as a hip extensor.

G Max

- Outer slope of the dorsal segment of the iliac crest
- Gluteal surface of ilium
- Dorsal surface of lower part of the sacrum
- Side of coccyx
- Sacrotuberous ligament

G Max

- Attaches to thoracolumbar fascia and its associated raphe. By this attachment Glutes maximus is coupled to the ipsilateral multifidus and contralateral Latissimus dorsi forming posterior oblique and deep longitudinal myofascial slings you can read more in details of these in the Anatomy Slings and Their Relationship to Low Back Pain.

GMAX

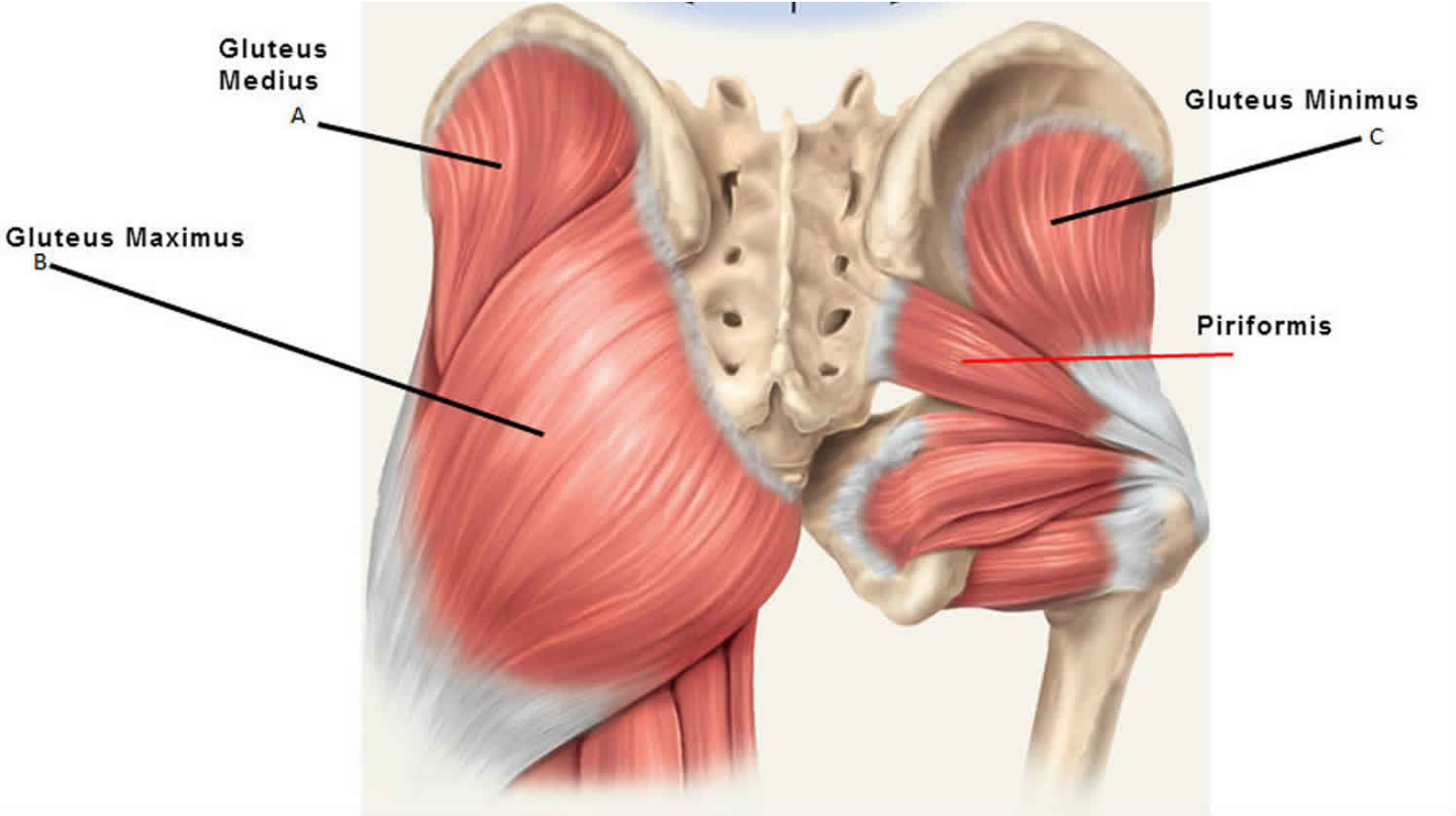
Needling:

SIDE LYING (preferred) with strong depression or prone

Pistoning

PRECAUTION: SCIATIC NERVE

Gluteus Medius



G Med

Gluteus medius is located on the lateral aspect of the upper buttock, below the iliac crest. The superior muscle is broad with the muscle narrowing towards its insertional tendon giving it a fan-shape. Gluteus maximus covers all of the gluteal muscles except for the antero-superior third of the Gluteus medius.

Glute Med

Gluteal, or lateral surface of the ilium between the posterior and anterior gluteal lines and gluteal aponorosis . This is a large area, reaching from the iliac crest above to the almost the sciatic notch below.

Glute Med

Insertion:

1. Fibers of the posterior portion pass forwards and downwards.
2. Fibers of the middle portion pass downwards.
3. Fibers of the anterior portion pass backwards and downward. **All** Fibers **combine** to form a flattened tendon which attaches to the **posterior and lateral part of the superior portion of the greater trochanter of the femur.**

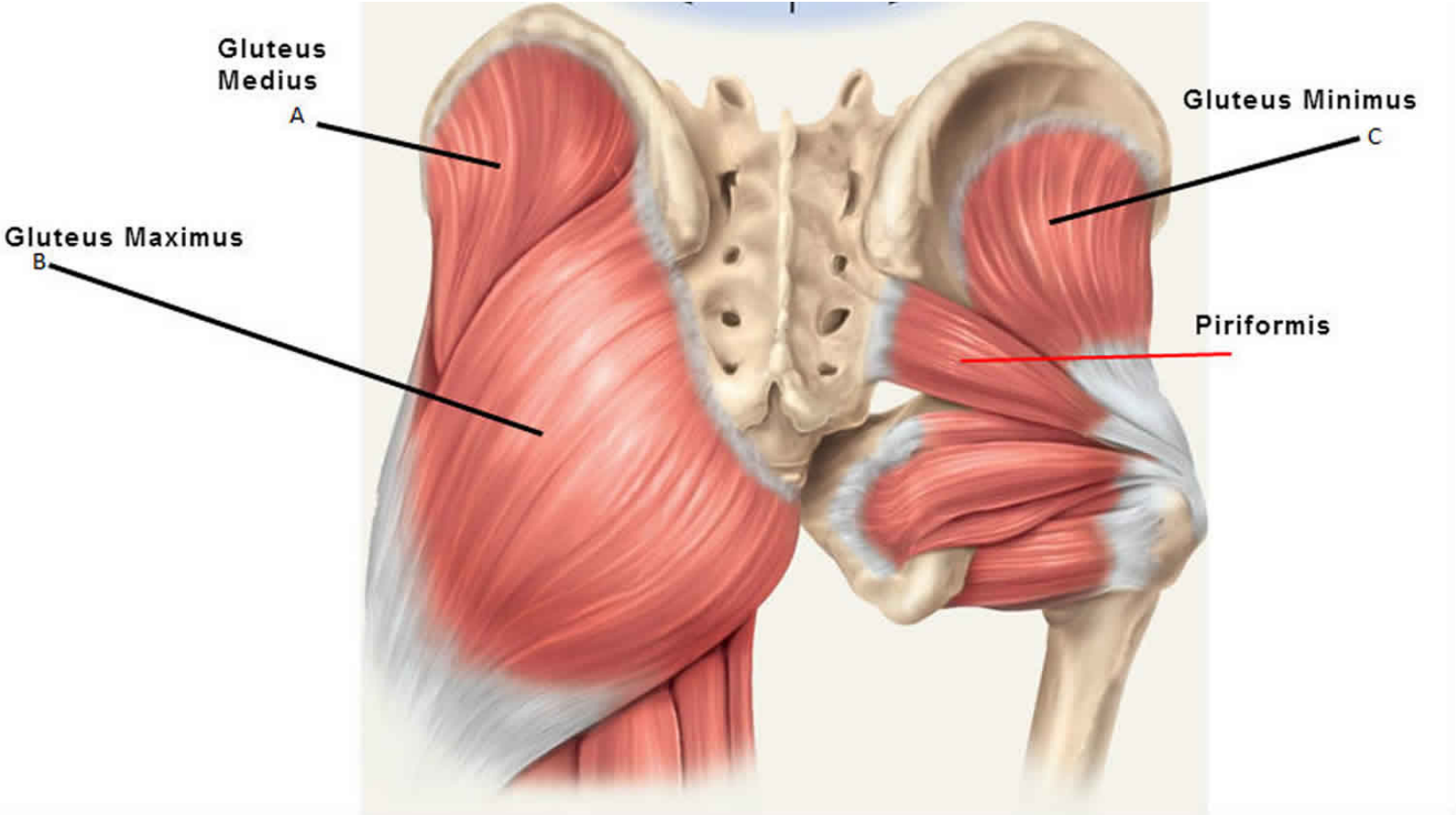
Glute Med Needling

Side lying.

Locate the iliac crest needling into PERIOSTEUM

Precautions: Deep Superior Gluteal Nerve (not to worry)

Gluteus Minimus



Glute Min

Gluteus minimus muscle is the smallest one of the three gluteal muscles, it lies deep to the gluteus medius muscle. The gluteus minimus is similiar to the gluteus medius in function, structure, nerve and blood supply.

- The gluteus minimus acts in synergy with the gluteus medius to abduct and internally rotate the thigh, and contributes to the stabilization of the hip and pelvis

Glute Min

Origin and Insertion

1. External surface of the ilium, between the anterior and inferior gluteal lines.[3]
2. Gluteus minimus muscle is fan-shaped, it attaches at the anterolateral aspect of the greater trochanter of the femur.

Glute Min

Needling:

Patient in side lying strong depression here.

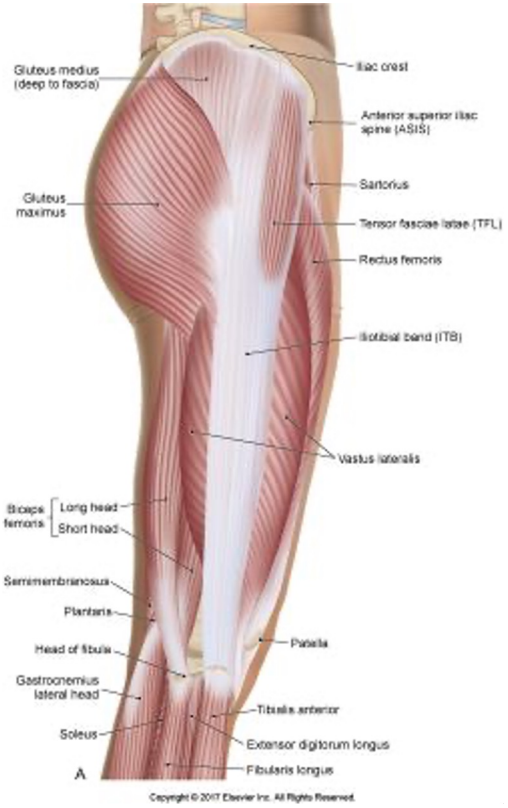
Locate the trochanteric head and the superior iliac crest. Needle to periosteum

Precautions:

Superior Gluteal Nerve (Deep)

Now one of my ALL TIME FAVORITES

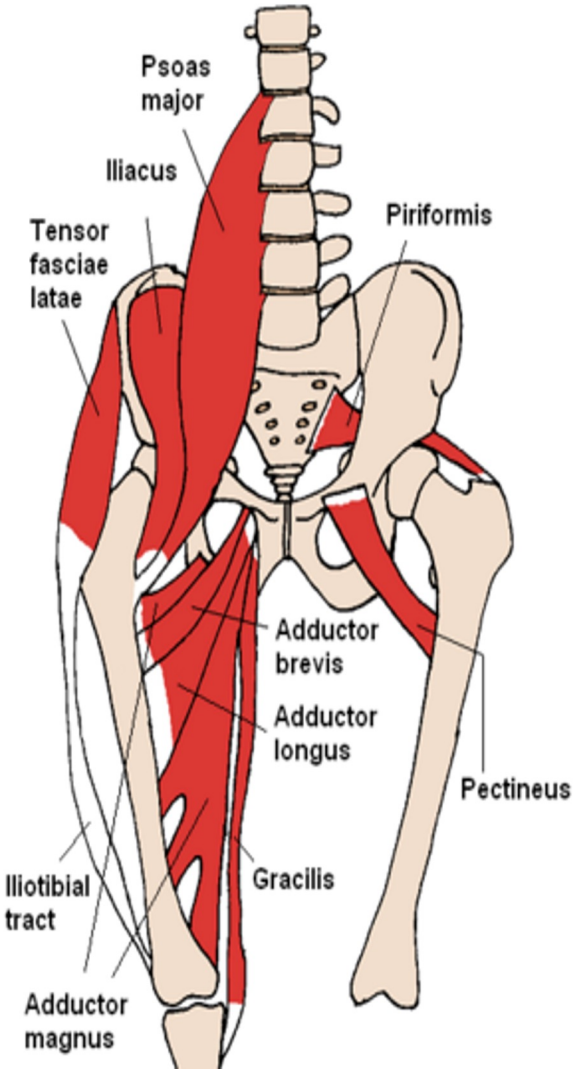
Tensor Fasciae Latae



TFL

Look at the tension

Created here



TFL

- The TFL works in conjunction with the gluteus maximus, gluteus medius, and gluteus minimus in a wide variety of hip movements, including flexion, abduction, and internal rotation.
- It acts, via the iliotibial (IT) band's attachment to the tibia, to assist with knee flexion and lateral rotation.
- The TFL is most important clinically for assisting in pelvis stability while standing and walking.

TFL

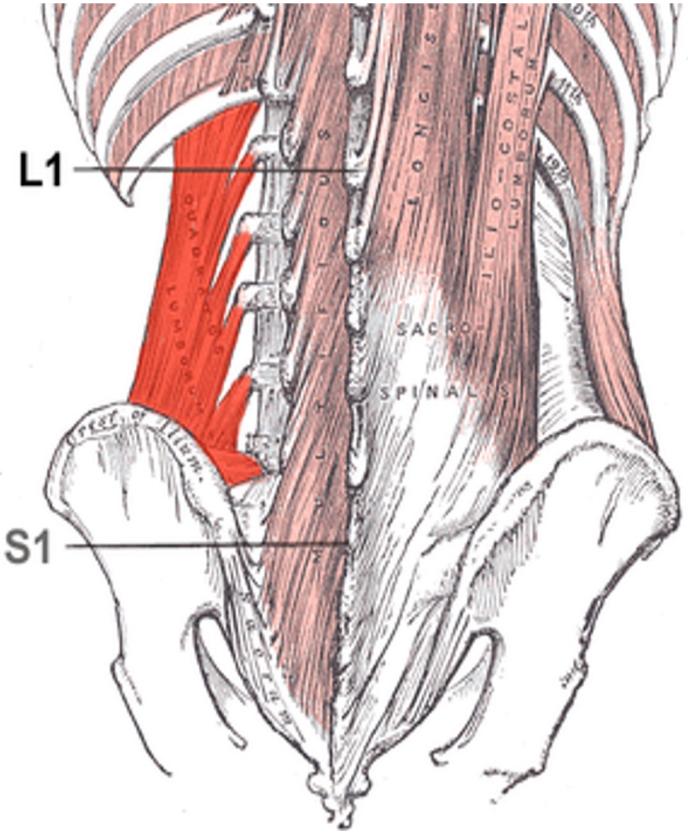
Needling:

Side lying OR supine

Precautions : NONE

Quadratus Lumborum

My SECOND favorite



QL

Origin: Iliolumbar ligament and internal lip of Posterior iliac Crest

Insertion: Medial half of lower border of 12th rib and tips of transverse processes of lumbar vertebrae.

QL

- Quadratus Lumborum fixes the 12th rib to stabilize diaphragm attachments during inspiration[3]
- Lateral flexes the vertebral column[3]
- Extends lumbar vertebrae[3]
- It forms with the contralateral Tensor fascia lata and Gluteus medius a **lateral myofascial sling** which aims to maintain **frontal** plane stability of the pelvis

QL

Needling:

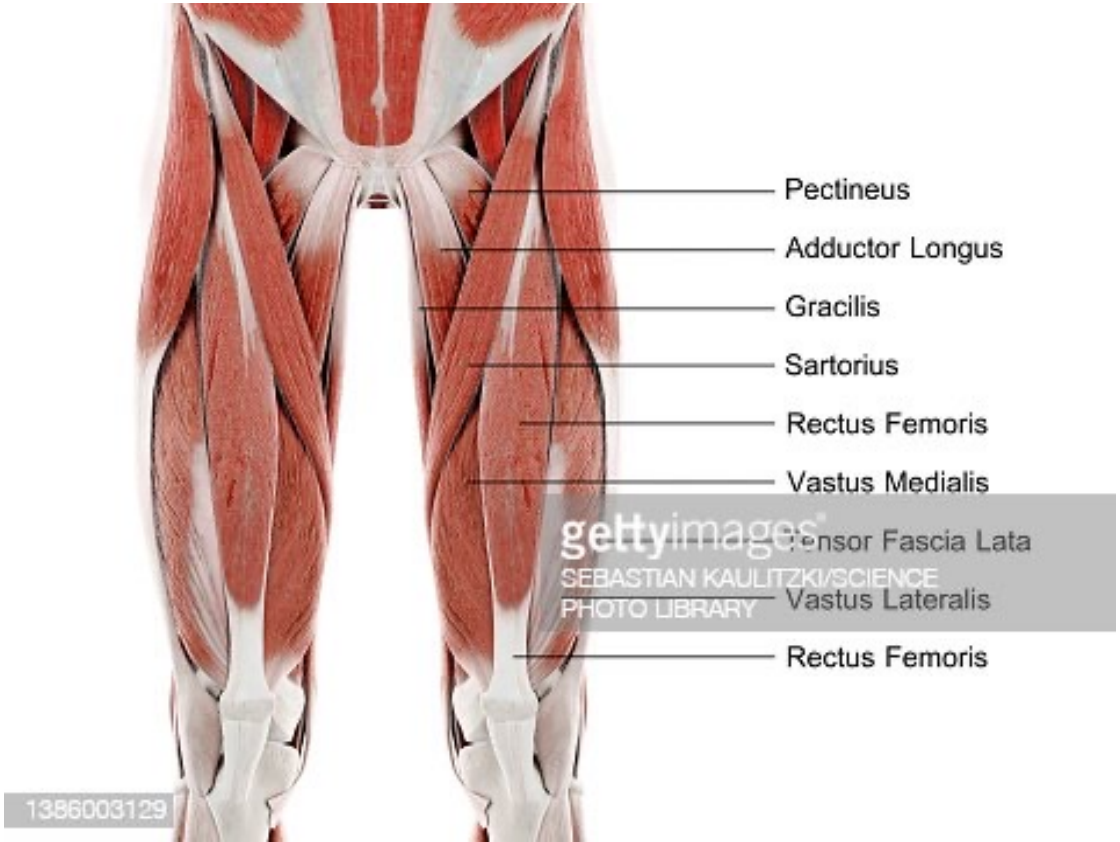
Patient in side lying with effected side up

ONLY directly palpable at L4 and below (without LAT involvement)

Deep depression is used here.

Precautions: AVOID the kidney. DO NOT direct needle in a cephalic direction

Quads/Upper Leg Muscles



Quadriceps Femoris

It consists of four individual muscles;

Three vastus muscles and the rectus femoris.

They form the main bulk of the thigh, and collectively are one of the most powerful muscles in the body.

Vastus Lateralis

The vastus lateralis muscle is located on the lateral side of the thigh.

This muscle is the largest of the quadriceps which includes: rectus femoris, vastus intermedius, and vastus medialis.

Together, the quadriceps act on the knee and hip to promote movement as well as strength and stability.

They provide power for and absorb the impact of daily activities such as walking, running, and jumping.

Vastus Lateralis

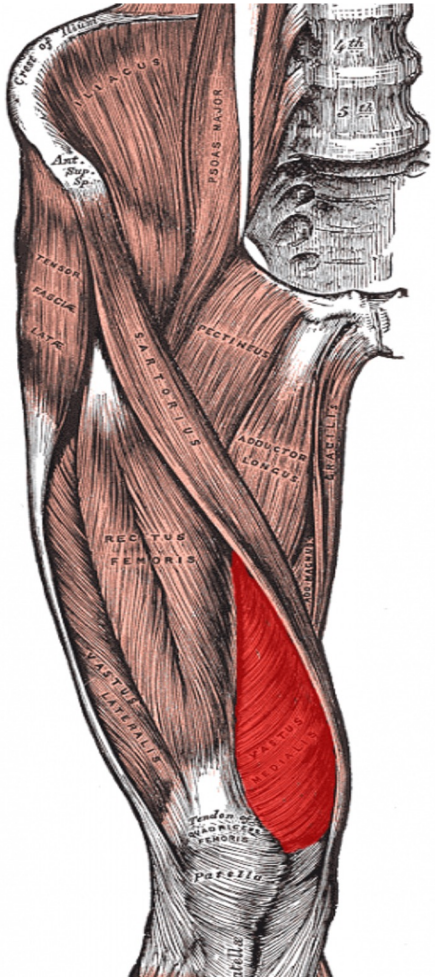
Needling technique:

Supine (I’ve needled in prone as well)

Sidelying if TrPts are POSTERIOR to Iliotibial tract

Precaution: None

Vastus Medialis



Vastus Medialis

Vastus medialis is one of the four muscles that make up the quadriceps group of muscles. It originates from the upper part of the femoral shaft and inserts as a flattened tendon into the quadriceps femoris tendon, which inserts into the upper border of the patella.

Vastus Medialis

Needling:

Supine needling perpendicular to the trpt

Precaution:

Saphenous Nerve

Vastus Intermedius

Vastus Intermedius is located centrally, underneath Rectus femoris in the anterior compartment of the thigh and on each side of it: Vastus medialis and Vastus Lateralis respectively

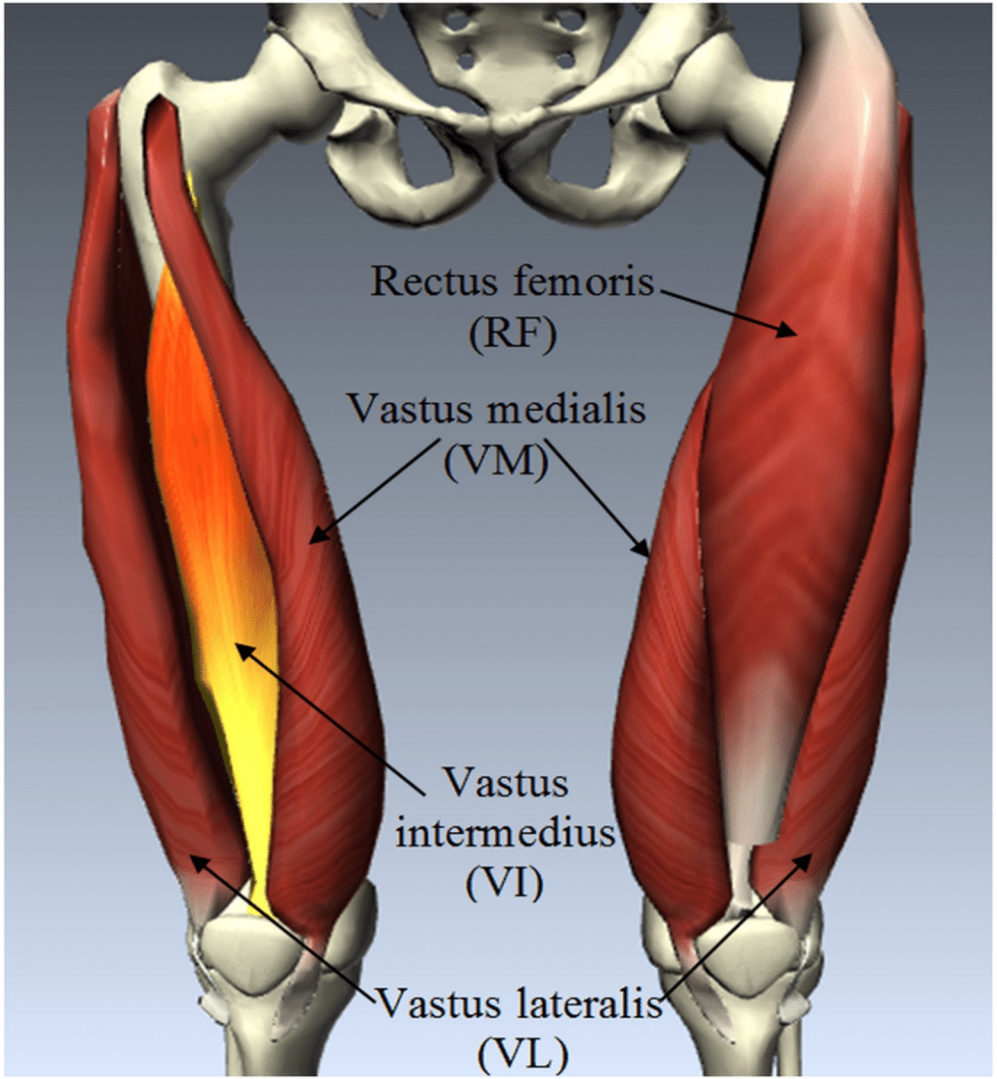
It is one of the four muscles that form the quadriceps femoris muscle.

VI

Under the Rectus Femoris

Needling: Supine

Precautions: None



Rectus Femoris

Rectus femoris is part of the quadriceps group. It is a bulk of muscle located in the superior, anterior middle compartment of the thigh and is the only muscle in the quadriceps group that crosses the hip

RF

Needling:

Supine, locate trigger point

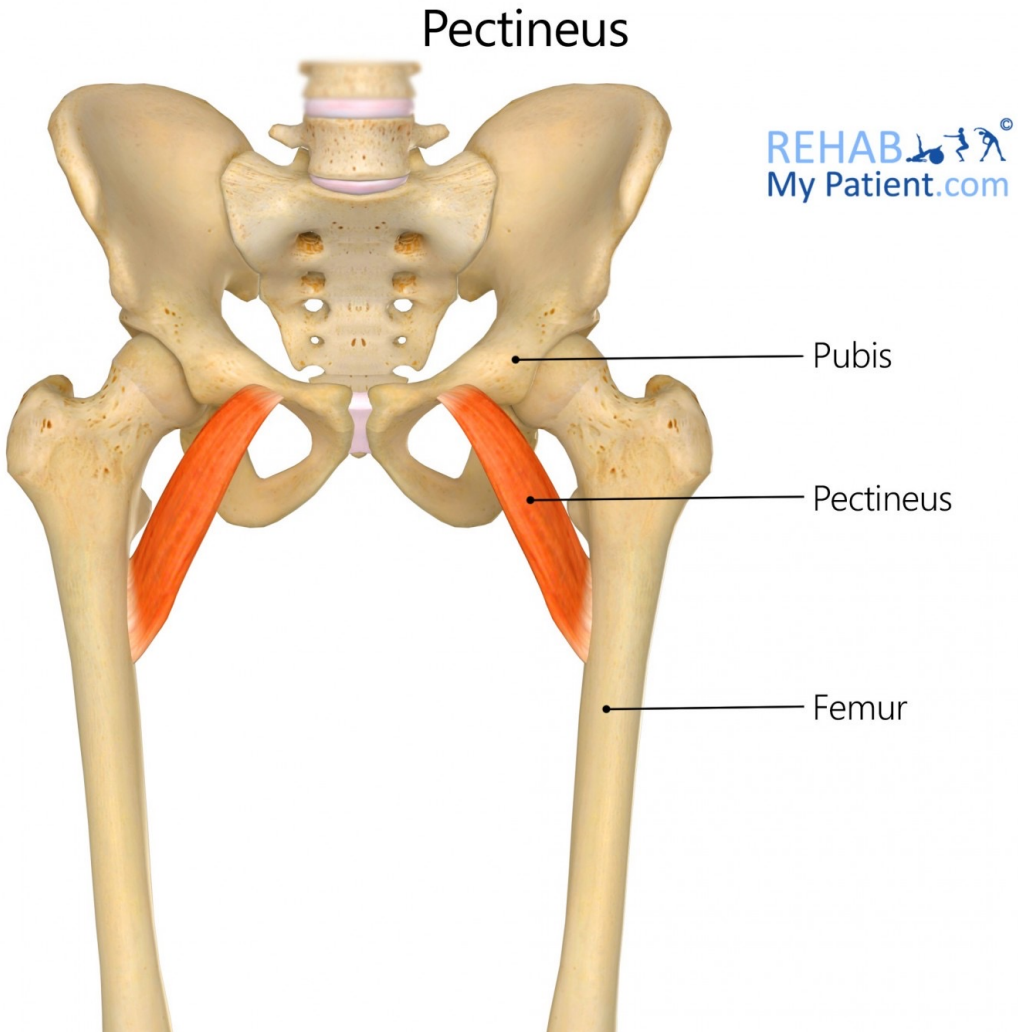
Precaution:

Lateral Circumflex Femoral artery (very deep to bone)

Pectineus

Major adductor

aDductor



Pectineus

The pectineus muscle is a hip adductor, one of a group of five large muscles on the medial thigh. The other hip adductors include the adductor longus, adductor brevis, adductor magnus, and gracilis muscles.

Pectineus

- Medial to adductor longus.
- Laterally, it is related to the psoas major muscle and the medial circumflex femoral artery and vein.
- The anterior surface of pectineus forms the medial part of the floor of femoral traingle together with adductor longus.

Pectineus

- This surface of pectineus is covered with the deep layer of fascia lata that separates it from the femoral artery, femoral vein and great saphenous vein that course through the femoral triangle.
- Posterior to pectineus are the adductor magnus, adductor brevis and obturator externus muscles, and the anterior branch of obturator nerve.

Pectineus

Needling:

Supine in slight EXTERNAL hip rotation LOCATE FEMORAL ARTERY

Needle medial to femoral neurovascular bundle

Precaution: LATERAL aspect is is where to femoral Nerve, Artery and Vein

ADductors

Adductor Magnus

Adductor Magnus

The Adductor Magnus muscle is one of hip adductors. The adductor magnus is the largest, most powerful and the most complex, of the adductor group. This muscle is complex in that part derived from the fact that it divides into an adductor (pubofemoral) portion and a hamstring (ischiocondylar) portion. It lies deep to the adductor brevis and the adductor longus.

Adductor Magnus

- The adductor magnus muscle has a dual role being a dynamic stabilizer of the pelvis and femur as well as a prime mover of the femur into adduction.
- Origin

    1. The part of the muscle that is considered the adductor portion has its proximal attachment on the inferior ramus of the pubis and the ramus of the ischium.
    2. The part of the muscle considered the hamstring portion has its proximal attachment on the ischial tuberosity.

Ad Mag

Needling:

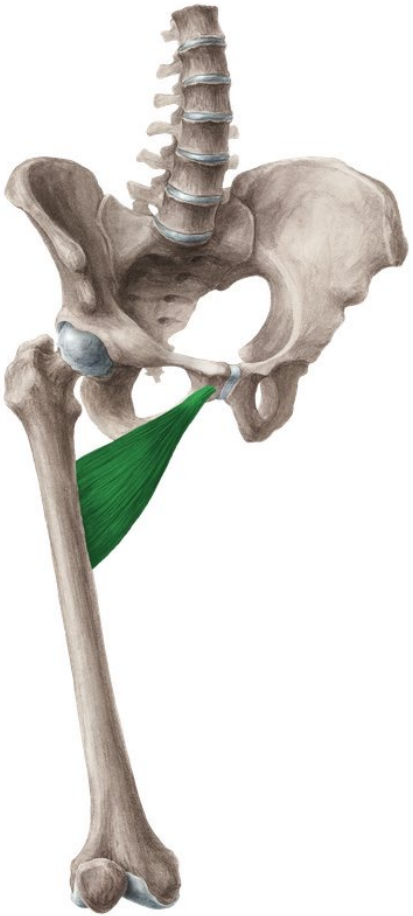
Supine with knee in flexion hip external rotation or side lying

Precaution:

Avoid the femoral nerve, vein and artery and sciatic nerve if deep needling

In the most distal portion avoid saphaneous nerve.

Adductor Brevis



AdBrevis

1. Immediately deep to the pectineus and adductor longus.

    1. In between the anterior and posterior divisions of the obturator nerve.

AdBrevis

Originates from the body of pubis and inferior pubic rami.

It attaches to the linea aspera on the posterior surface of the femur, proximal to the adductor longus.

AdBrevis

Needling:

Supine knee in flexion and hip external rotation and knee supported by pillow

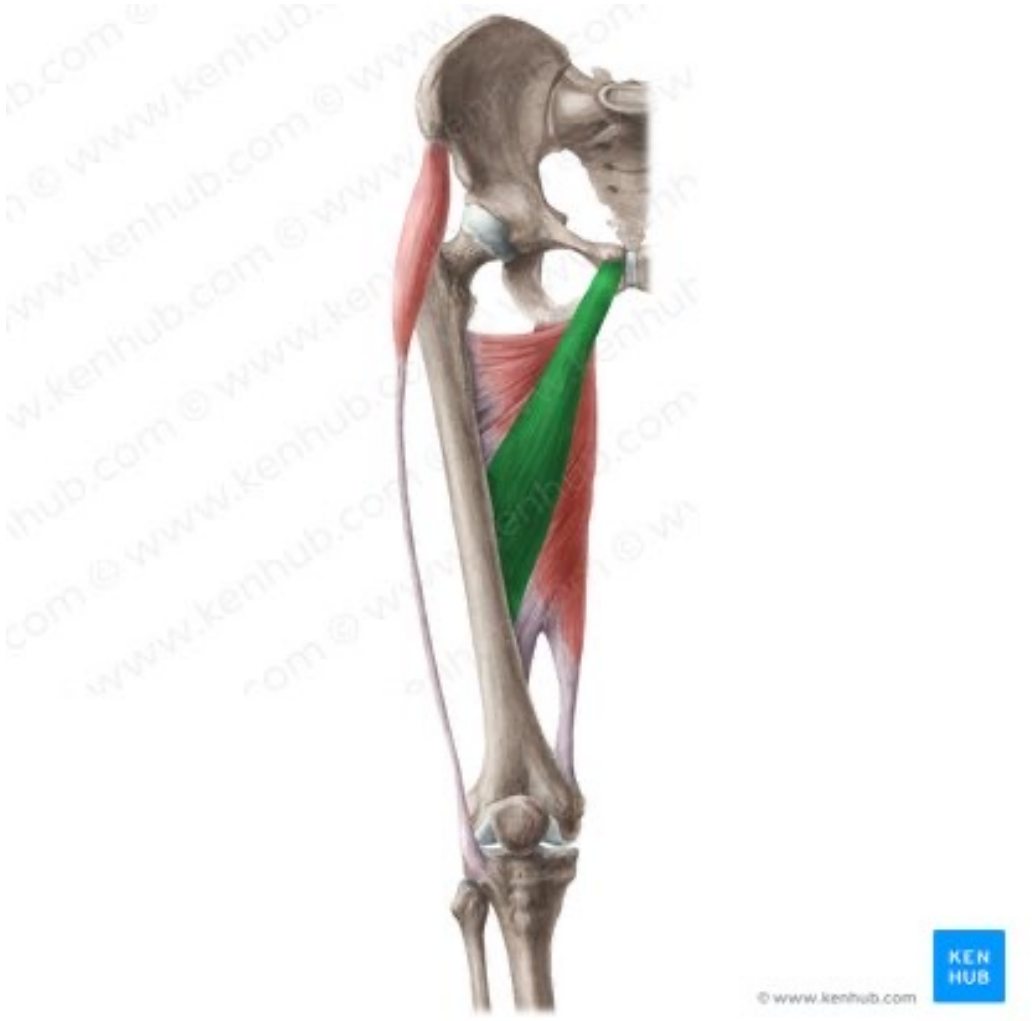
Between longus and pectineus MEDIAL to femoral neurovascular bundle

Precaution: Femoral VAN deep needling sciatic

ADductor Longus

This is an important

Tendonis attachment



AdLongus

- Adductor longus is one of the adductor muscles of the medial thigh.
- Together with adductor brevis, adductor magnus, gracilis and obturator externus, it makes up the hip adductors.
- This large fan-shaped muscle is situated most anteriorly of this group and covers the middle part of adductor magnus and the anterior part of adductor brevis.
- The muscle forms the medial border of the femoral triangle.

ADLong

Strong tendon from anterior aspect of pubic body inferior to pubic crest.

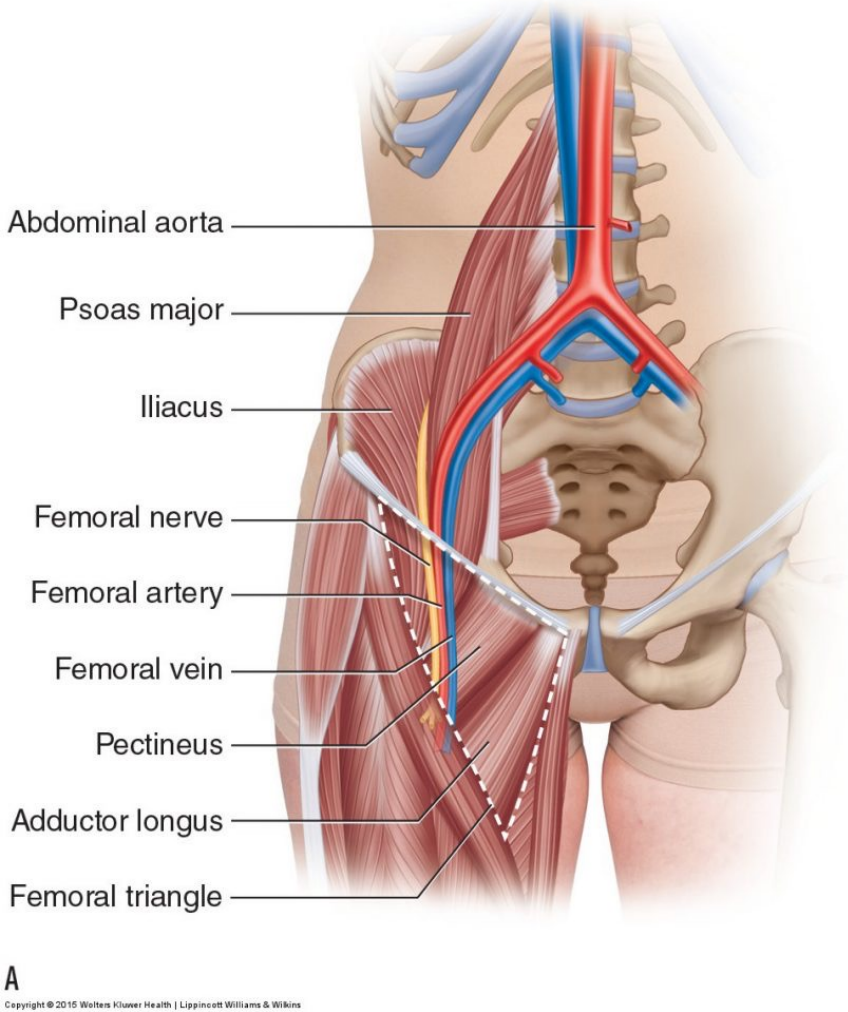
Needling:

Supine with slight knee flexion hip in external rotation. Knee supported by pillow Secure band with pincer grip

Precaution: femoral VAN and deep needling sciatic

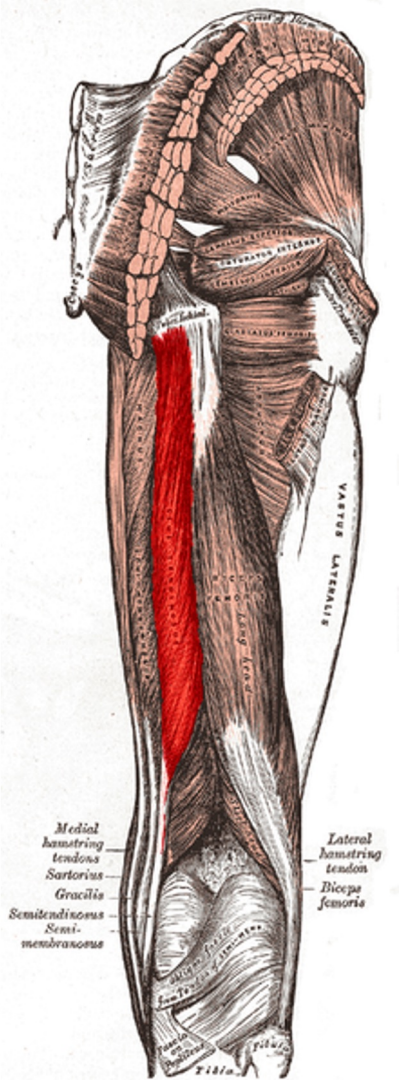
Femoral Triangle

Important structures



Hamstrings

Semitendinosis

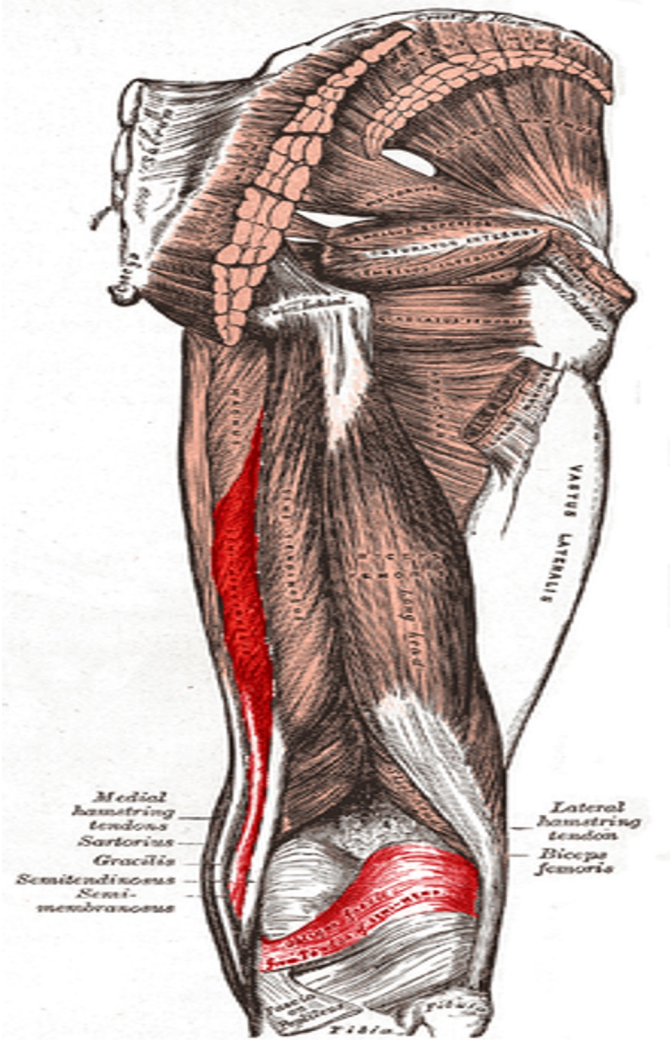


Semitendinosis

It arises, by a common tendon origin with the long head of the biceps femoris, from from the lower medial facet of the lateral section of the ischial tuberosity.

The semitendinosus muscle mainly originates from the medial surface of the tendon of the long head of the biceps femoris, and also originates from the ischial tuberosity with a thin tendon and a muscular part

SMB


Medial hamstring tendons
Sartorius
Gracilis
Semitendinosus
Semi-membranosus
Lateral hamstring tendon
Biceps femoris
VASTUS LATERALIS
Tibia

Semimembranosus

Semimembranosis is one of a group of muscles called the Hamstrings.

It is located on the posteromedial side of the thigh deep to Semitendinosus and medial to the Biceps Femoris. Its origin is the ischial tuberosity on the inferior pelvis and it has a complex distal insertion connected to Popliteus Muscle, to the Medial meniscus, to the Medial Collateral Ligament and to the Tibia . In the lower part of the thigh, semitendinosus and semimembranosus together form the upper medial boundary of the popliteal fossa.

Semitendinosis AND Membranosus

A strong membranous tendon attaches to the **upper lateral facet** on the rough part of the **ischial tuberosity**

Needling:

Prone with bolster/pillow under ankles

Precaution: None

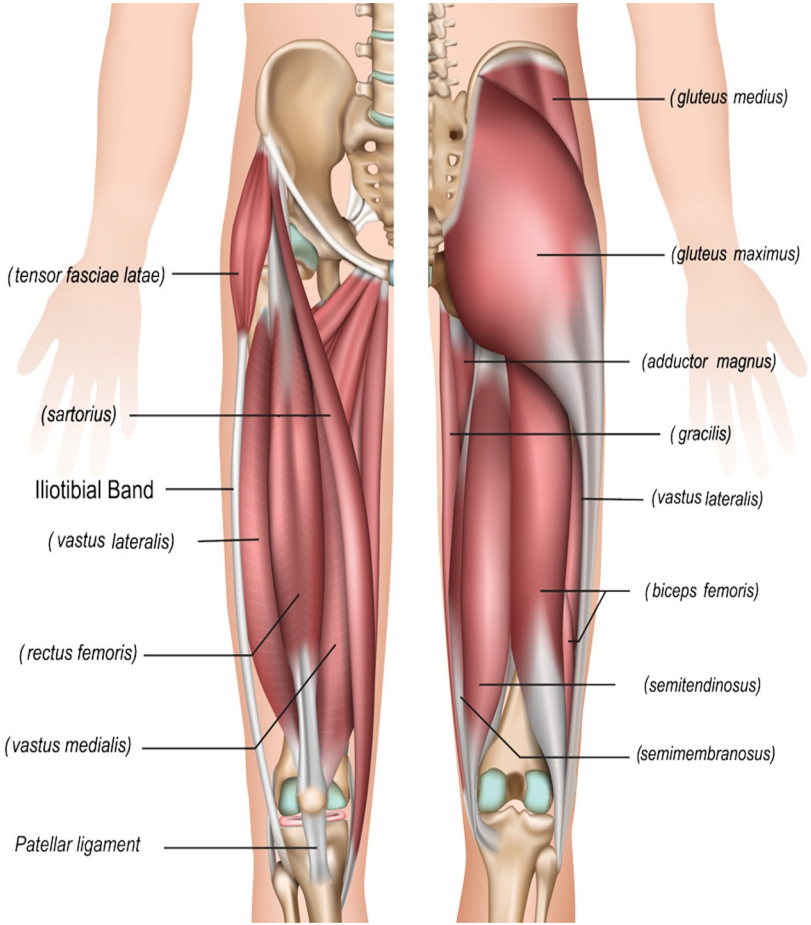
I also like to needle these at the ischial tuberosities

Biceps Femoris

- Long head: ischial tuberosity

- Short head: linea aspera and lateral supracondylar line of the femur

Biceps Femoris



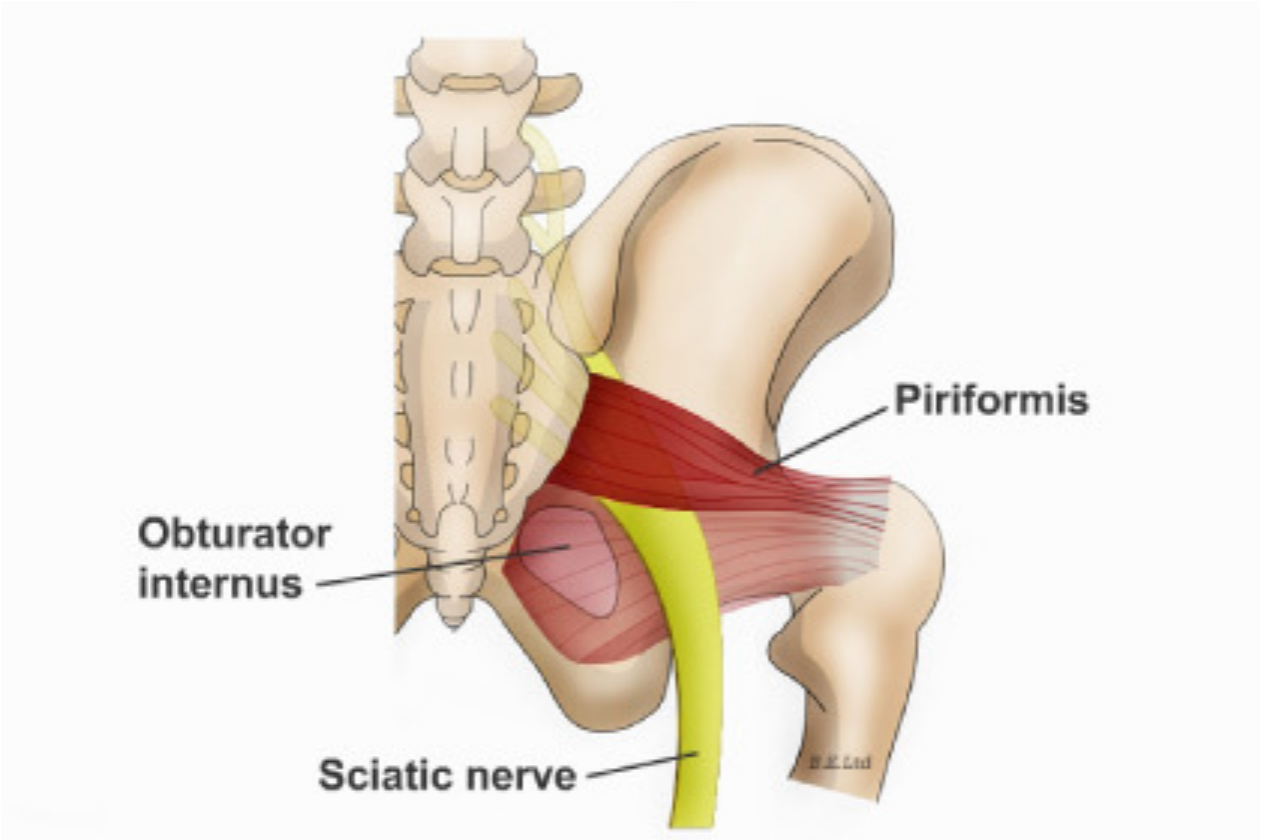
Biceps Femoris

Needling: prone with bolster under ankle

Precaution: Sciatic nerve (slow insertion here) PROXIMAL region needle medial

DISTAL region needle more laterally

Piriformis



Piriformis

Piriformis is a flat muscle and the most superficial muscle of the deep gluteal muscles. It is part of the lateral rotators of the hip (obturator internus, superior and inferior gemelli, quadratus femoris, obturator externus, and gluteus maximus).

Piriformis

It leaves the pelvis through the greater sciatic notch, until its fixation reaches the superior margin of the greater trochanter.

It has a pyramidal shape that lies almost parallel with the posterior margin of the gluteus medius.

Piriformis

- Anterior aspect of the sacrum at the level of about S2 through S4
- Sacrotuberous ligament
- Periphery of the greater sciatic notch

Insertion: Superior and medial aspects of the greater trochanter.

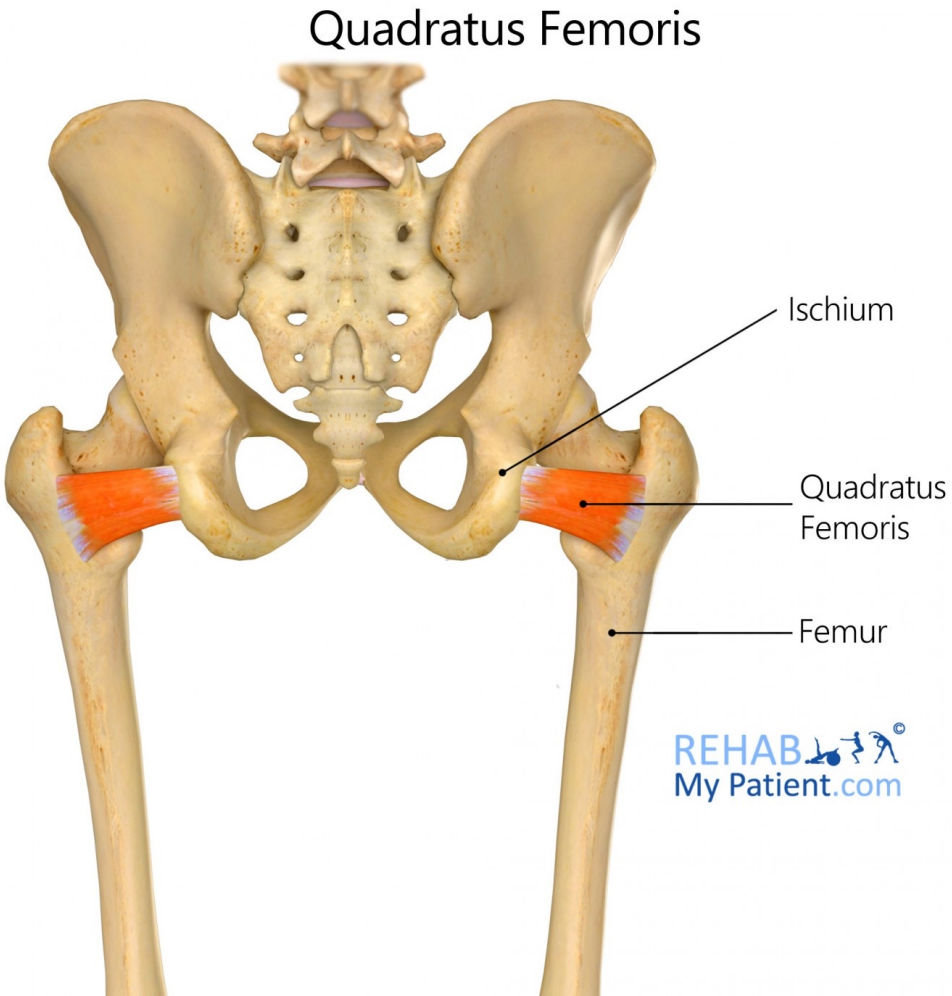
Piriformis

Needling:

Prone or sidelying locate bony landmark of the trochanter and sacrum advance SLOWLY to avoid hitting the sciatic nerve

Precaution: Sciatic Nerve

Quadratus Femoris



QF

Quadratus femoris is a short, flat and rectangular muscle. It is situated inferior to the obturator internus and gemelli

Origin:

Lateral border of the ischial tuberosity

SCIATIC NERVE HERE

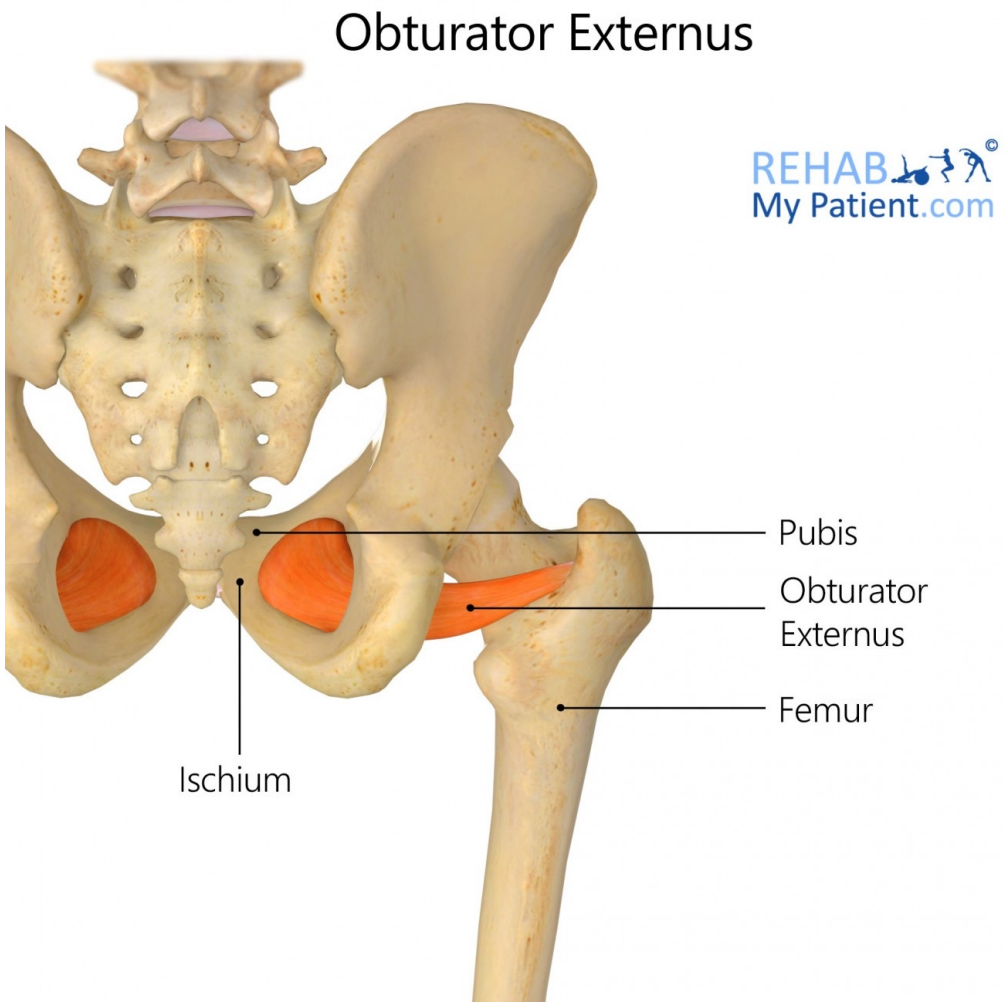
QF

Needling:

Prone or sidelying palapte greater trochanter and ischial tube

Precaution: Sciatic Nerve

Obturator Externus



OE

Obturator externus (OE) muscle is the conical shaped short external rotator located in the outer side of obturator membrane in lateral wall of pelvis.

Origin:

The Obturator externus (OE) muscle originates from the rami of pubis

and ischium, the external bony margin of the obturator foramen

OE

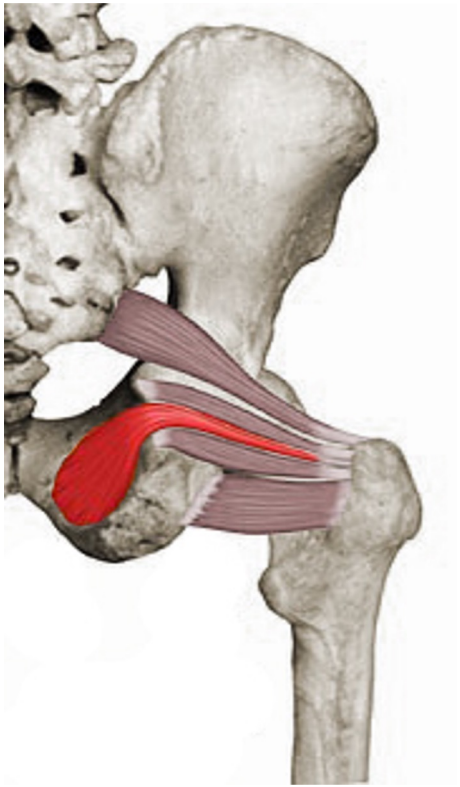
You will most likely get the GEMELII as well here.

Needling: side lying DEEP AND POSTERIOR to trochanter (needle medially)

Precaution:

Sciatic Nerve

Obturator Internus



OI

The obturator internus is the deep muscle of hip joint which is part of lateral wall of pelvis. It is found in the superior inner side of the obturator membrane.

Origin: The obturator internus muscle originates from the inferior margin of the superior pubic ramus and from the pelvic surface of the obturator membrane

OI

Insertion:

Its tendon exits the pelvis through the lesser sciatic foramen to insert onto the greater trochanter of the femur

OI

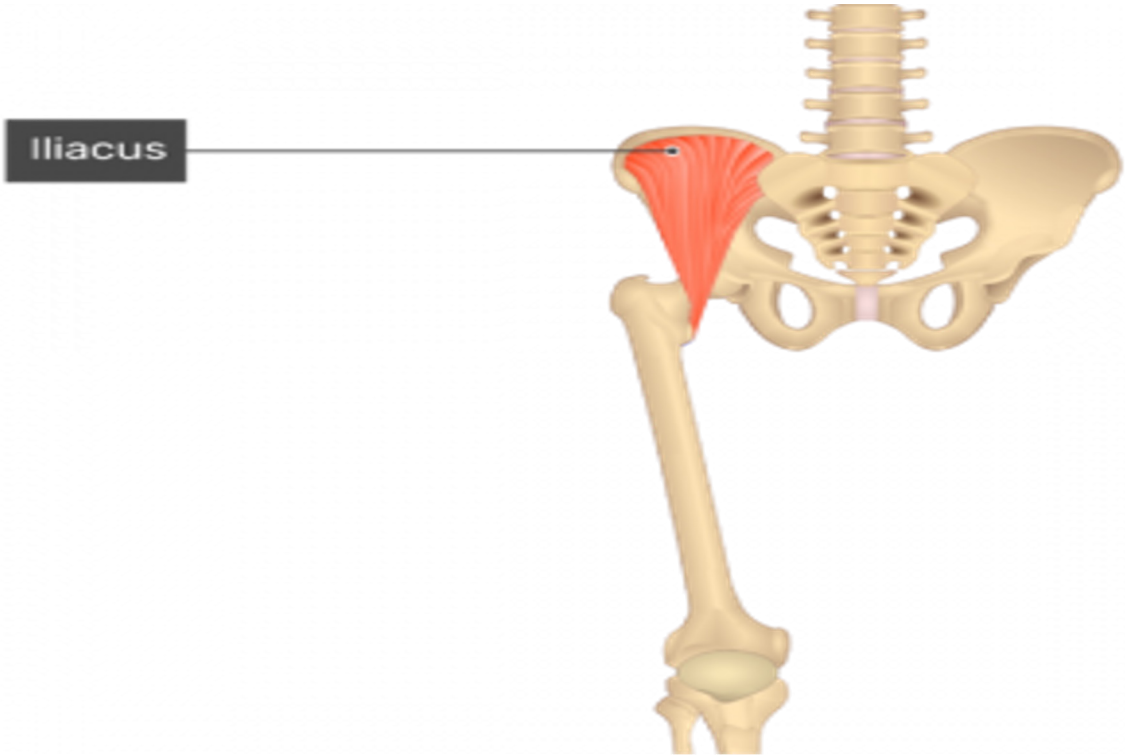
Needling:

Side lying with effected side on table PALPATE along ischial tuberosity place fingers along bony prominence needle perpendicular

Precaution: Alcocks canal and pundendal nerve

ADVANCE slowly

Iliacus



Iliacus

The iliacus muscle is shaped like a triangle, flat and an exact fit of the iliac fossa — the curved surface of the largest pelvic bone. Together with the psoas major muscle, it is also called the **iliopsoas muscle.**

Iliacus

- A portion of this muscle is attached to the iliac fossa, two-thirds from its top. Another portion is attached to the inside portion of the iliac crest, the top, outer portion of the pelvic bone.Other fibers of this muscle are attached to the iliolumbar and anterior sacroiliac ligaments (located at the base portion of the sacrum) and up to the anterior iliac spines (bony projections that lie toward the edges of the iliac). These muscle fibers then converge and insert on the tendon at the lateral (outer) side of the psoas major muscle, which stretches from the lumbar spine in the lower back to the lower pelvis. Some of these fibers extend to the femur bone, or thighbone.

Iliacus

Origin:

Upper 2/3 of iliac fossa of ilium, internal lip of iliac crest, lateral aspect of sacrum, ventral sacroiliac ligament, and lower portion of iliolumbar ligament

Iliacus

Insertion:

Lesser trochanter of femur. Its fibers are often inserted in front of those of the psoas major and extend distally over the lesser trochanter.

Iliacus

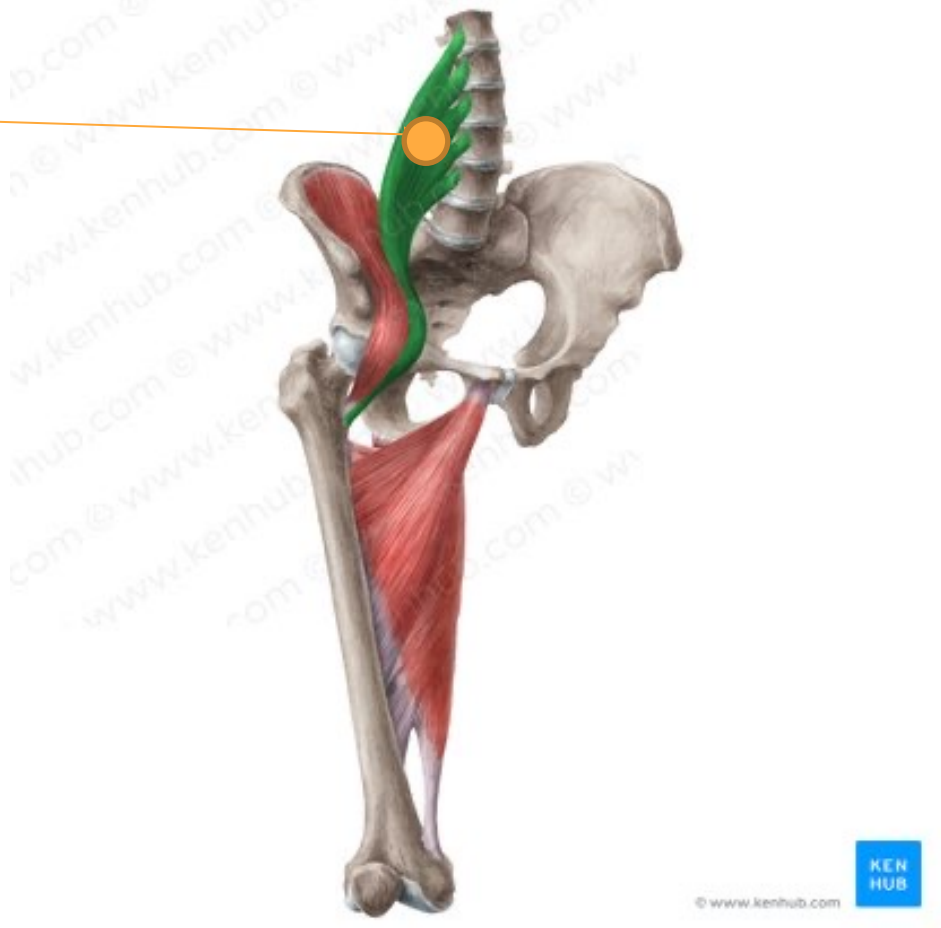
Needling:

Sidelying involved side up HOOK non needling hand around crest and needle into Ilium

Precautions: avoid penetration of peritoneum (side note here)

Psoas Major

Here’s the prankster



Psoas

Origin:

The psoas muscle is anatomically considered to have superficial and deep parts owing to the presence of branches of the lumbar plexus running through it. Superficial part - overlies the lumbar plexus and takes origin from the sides of the T12 and L1 to L4 vertebrae including the intervening intervertebral discs. The deep part which lies mainly deep to the branches of the lumbar plexus takes origin from the transverse processes of lumbar vertebrae L1 to L5.

Psoas

Insertion:

The fiberss of the muscle converge from its wide origin as they descend on the posterior abdominal wall, They cross the pelvic inlet/brim to form a long tendon, which is joined within the pelvic region by multitudinous fibres from the iliacus muscle, finally inserting into the lesser trochanter of the femur.

Psoas

Needling:

Patient in supine position, locate the umbilicus and come 1inch later and 2 inches inferior, deep depression.

Patient supine, perform straightleg test and palpate Psoas “Popping up”, pin and perpendicular insertion

Patient supine, palpate with deep depression SUPERIOR to inguinal ligament

Precautions: KIDNEYS, peritoneum, etc

Clinical Ethics

Clinical ethics is based on a set of core values, which we as practitioners must uphold in our relationships with our patients, members of our profession, other health care providers, and the public.

Your patients come to you because they trust you.

When you are helping patients with PFD there are many more layers of trust that must be achieved.

Ethics continued

We are professionals who act in a manner that enhances the reputation of, and inspires public confidence in our chosen profession. We have a responsibility to follow this code of ethics, and to keep informed about the laws and developments in professional standards that affect ethical health care practice.

Ethics Continued

Health and Well being is always paramount

- Hold the health and well-being of our clients as a primary responsibility.
- Provide care within our scope of practice to assist patients to achieve optimum level of health at all stages in life.

Ethics Continued

- Seek additional information or knowledge and refer the client to another health care provider in accordance with the requirements of the regulation, or when aspects of the care required are beyond their level of competence.

Ethics continued

Responsibility to the Public

- Address institutional, social and political factors influencing health and health care in ways that are consistent with our professional role and responsibilities
- Provide the best care circumstances permit
- Participate, to the best of our abilities in research and other activities that contribute to the ongoing development of acupuncture and TCM.

Ethics Continued

Responsibility to other health care providers

- Respect and value the knowledge and skills of other health care providers and cooperate with others so that maximum health benefits to their clients can be realized.

Ethics continued

Responsibility to patients

- Inform patients about the effects and risks of treatment, and of the scope and limitations in which they are entitled to practice.
- Ensure that care is authorized by informed consent and practice within relevant law governing consent and choice.

Ethics Continued

- Find out patient needs and values and help them to obtain appropriate information about their care and the services available to them.
- Involve patients in health planning and health care decision making, in order to promote their clients' self-determination and ability to act on their own behalf in meeting their health care needs.

Ethics Continued

RESPECT

- You are sensitive to, and respectful of the patients individual needs, values, dignity and choices.
- DO NOT exploit patients vulnerabilities for their own interests or gain, whether sexual, emotional, social, political, financial, or any other way.
- Respect the privacy of clients when care is given.
- Protect the patients confidentiality, and the confidentiality of their health care information.

Ethics

- We are not a one stop shop, so be respectful of other practitioners on the healthcare team

- Promote principles of equity and fairness to assist patients in receiving unbiased treatment and a share of health services and resources proportionate to their needs.

Ethics

Accountability

- Practice only while their ability to do so is unimpaired
- Strive to ensure that your patients receive and understand complete and accurate information about their treatment.

Ethics

- NEVER create client vulnerability or dependence through misleading a patient by claiming ability to “cure”
- MAINTAIN complete and accurate patient records.
- Always strive to acquire new skills and education in order to further our profession and help our patients.

Ethics

- ALWAYS ask for consent every step of the way when working in the Pelvic Floor.
- Carefully go over the consent form and always pause to ask if your patients have any questions or hesitations.

Language around consent

NEVER use slang terms when discussing body parts:

For example: tushy, butt, vaj, etc.

Use terms like: Glutes, pelvic girdle, perineal body, vaginal orifice etc

ALWAYS ask permission to touch ALWAYS

Language around consent

NEVER comment on undergarments. I once caught myself saying “ These are cute!” Do not do that. My patient and I have a very good relationship (and I was treating for IT band syndrome) so was working in TFL. She happens to be an MD, so I apologized immediately and we laughed about it.

Touch

Explain in the VERY beginning that the word PALPATE/PALPATION will be used often and it means to medically touch and access.

ALWAYS say : I am going to Palpate your left glutes, etc. with my left hand, is that ok?

Touch continued

- You may run in to some resistance in the beginning

- For example, I have a patient who was seriously injured in a consensual aggressive sexual act and we established VERY early on I may not touch the mons pubis at this time (I have been working with this person for months now, and we are working toward that specific agreed upon goal)

Touch continued

I am going to take my left hand and palpate your anococcygeal ligament, is that ok?

I am going to take my left hand and palpate your vagina forchette, is that ok?

I ask these questions everyday all day. Make it an important part of your dialogue.

Touch continued

ALSO, muscles are capable of neuromuscular memory and habit.

You WILL encounter areas that you will work in that will TRIGGER your patient.

WHEN this happens, immediately withdrawal the needle, ask the patient if they are alright, tell them that they may take all the time they need, and sit quietly with them until they have calmed down. NEVER make sudden moves or touches here (think if they jerk on the table and you quickly put your hand on them)

Touch continued

- **REASSESS.** “ do you feel comfortable continuing in this region, or should we save it for another time?” OFTEN times they will allow you to continue. AT THE END of the treatment, you can tell them that they did a very good an important job in their healing, and that they are always in charge of their treatment.

Touch and consent continued

REASSESS. “ do you feel comfortable continuing in this region, or should we save it for another time?” OFTEN times they will allow you to continue.

AT THE END of the treatment, you can tell them that they did a very good an important job in their healing, and that they are always in charge of their treatment.

Touch and consent

Also, ask them if they would like additional support around their triggers.

Have a referral list ready for them with colleagues that you KNOW who can help with:

Touch and consent

PAIN (acute trauma/chronic/neurogenic/psychogenic)

ASSAULT (sexual/incest/violence/verbal)

Gender identity (trauma around surgical, and acceptance, isolation, fear etc)

LGBTQ support

Urologists/GenitoUrologists

Touch, consent and support

OBGYN/GYN

PostPartum Support GROUPS

Pilates/YOGA/Meditation

Touch and consent

Pelvic Floor PTs

Osteopaths

Chiros

Functional Medicine/ND’s for (testing and labs and GI support if you don’t provide this in clinic)*

Consent etc.

One thing you must add in your intake form is DETAILED sex history.

This is a very senstivie topic, but can answer a lot of your questions without bringing it up awkwardly.

1. Sexual Orientation (appropriate pronouns as well) and whether or not these are known to partner/family/friends
2. Frequency of masturbation, sesxual intercourse (penetrative and otherwise) masturbation by partner etc

Consent etc.

1. Sex outside of primary relationship
2. Ease of erection, ejaculation, orgasm, clitoral stimulation (impotence, failure to ejaculate, failure for clitoral/vaginal orgasm
3. How pain is related to sex (with individual partners, assisted, masturbation etc)

Consent etc

6. Pain on vaginal/rectal insertion (props, fingers, penis, tampon etc)

7. Time involved with pain (immediately during, after or long after the above acts)

8. STI’s

Consent etc.

9. Sexual abuse/assault/rape/incest/torture

Make sure to ask on your consent form if the patient is WILLING to discuss ANY/ALL of these with you (have a little check here box if you are ok discussing the above 1-9 or if there is ANYTHING you WILL not discuss write number(s) here)

Questions here around Ethics and Consent

Lets take a few minutes to answer any questions here before we move on…..

REVIEW Pelvic Anatomy

RECAP:

Pelvic floor is a sling that consists of:

The pelvic floor is a funnel-shaped structure covering the base of the pelvis from the pubic symphysis anteriorly to the coccyx posteriorly and stretches from one ischial tuberosity to the other. It consists of two main muscles, the levator ani, and the coccygeus

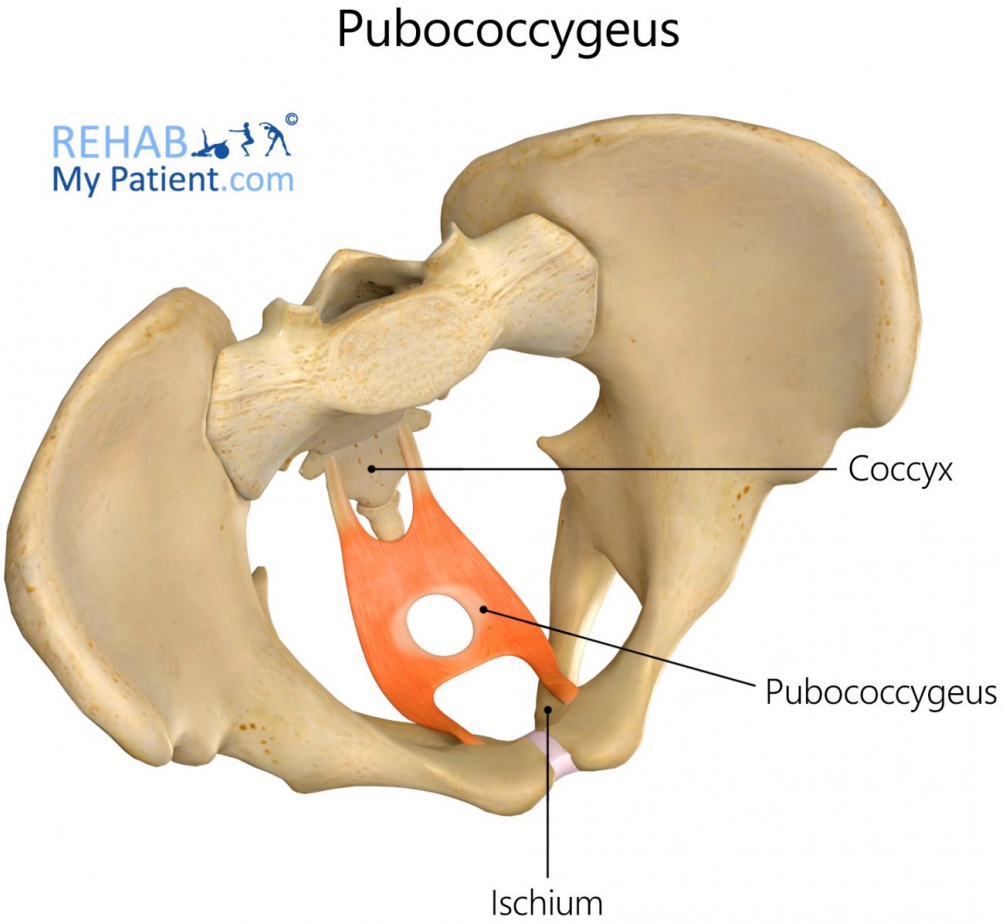
Recap

The levator ani muscle is a broad thin muscle that is made up of a group of 3 muscles, pubococcygeus, puborectalis and iliococcygeus. The muscles join in the middle of the pelvis except at the prostrate in males and vagina and urethra in females.

Recap

Pubococcygeus originates from both sides of the body of the pubis lateral to the puborectalis muscle and anterior to the obturator canal at the tendinous arch. It travels posterior and medial to insert onto the perineum, coccyx and anococcygeal ligament.

Pubococcygeus



Pubococcygeus

Pubococygeus, also known as pubovisceral is the wider but thinner intermediate part of the levator ani. Within the pubovisceral muscle are parts that attach to the perineal body (puboperineal), a part that inserts into the anal canal (puboanal), and pubovaginal which inserts into the vaginal wall.

Pubococcygeus

Needling:

Patient in side-lying position deep depression palpate between anus and perineal body

Precautions: rectum

Puborectalis

Puborectalis is a U-shaped muscle that originates on both sides on the pubic body just lateral to the pubic symphysis. The muscle runs posterior and encircles the rectum so both side join together. Some fibers join the EXTERNAL ANAL sphincter.

Puborectalis

The contraction of this muscle causes the anorectal junction to bend 90 degrees. This maintains fecal continence during contraction and enables defecation on relaxation. Some fibers may extend towards the urethra in both male sand females and to the vagina in females, aiding with urinary continence.

Needling: See Pubococcygeus

Precautions : rectum

Iliococcygeus

Iliococcygeus originates from the ishial spines and posterior portion of the obturator internus. It travels posterior and medially and inserts onto the anococcygeal ligament and coccyx.

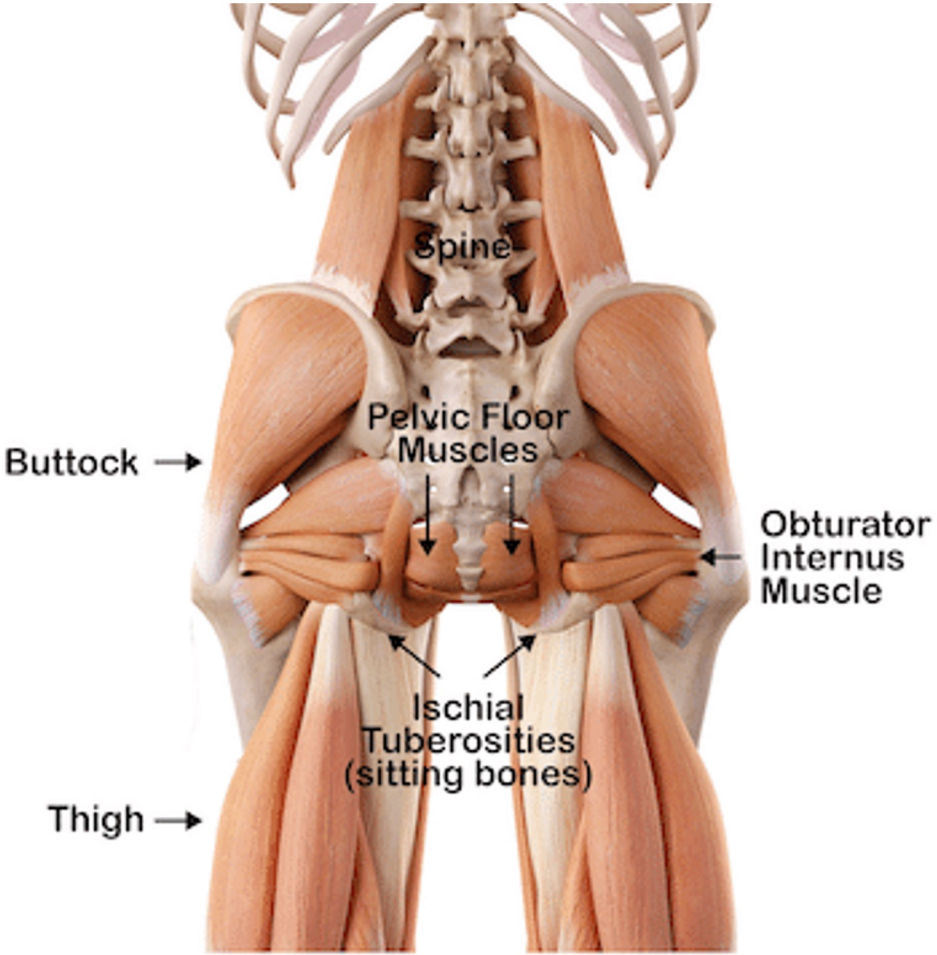
Needling: see the above LEVATOR ANI

Coccygeus

Coccygeus is also the TAIL WAGGER.

It is a small muscle that makes up the posterior portion of the pelvic floor. It originates from the sacrospinous ligament and ischial spine and inserts on to the lateral borders of inferior sacrum and superior coccyx.

Ccgs


Spine
Pelvic Floor Muscles
Buttock
Obturator Internus Muscle
Ischial Tuberosities (sitting bones)
Thigh
© Hip Pain Professionals 2018

Coccygeus

Needling:

Locate Coccyx, deep palpation lateral to coccyx

Precautions: rectum

Coccydynia

The Coccyx = Greek for “Beak of a Cuckoo Bird”

The coccyx is the terminal region of the vertebral column

It consists of 3 to 5 vertebral bodies that articulate at the sacrococcygeal joint

When you gain access to the coccyx, you gain access to the Levator Ani group, and can treat MANY issues regarding Pelvic Floor.

Coccydynia

Coccygodynia, also called coccydynia and coccalgia, coccygeal neuralgia or tailbone pain, is the term used to describe the symptoms of pain that occur in the region of the coccyx.

The pain is most commonly triggered in a sitting position, but may also occur when the individual changes from a sitting to standing position.

Coccydynia

Most cases will resolve within a few weeks to months, however for some patients the pain can become chronic, having negative impacts on quality of life.

For these individuals, management can be difficult due to the complex nature of coccygeal pain

Coccydynia

Anytime the patient develops pain, there are TWO primary groups that can present in your clinic:

1. Direct trauma to the coccyx: This includes everything from vaginal childbirth, vertical impact (I treat A LOT of equestrians), repetitive micro-trauma (ill-fitted bike seats, slip and falls on ice for figure skaters), surgical interventions such as episiotomies (trophic changes and adhesions along the pelvic floor diaphragm) etc.

Coccyx cont

Systemic illness: Gastrointestinal disorders, urogenital disorders (these can both be MSK in nature as well, but we are talking about malignancies, Crohns, interstitial cystitis etc) infections, lumbar disc prolapse (which also can be grouped with MSK)

Coccyx

We work DIRECTLY with osteo-needling (osteopecking, periosteum), ligamentous needling, perineal needling (NOT just Ren and Du!), as well as MSK (Levator Ani, erector spinae, glutes, etc.)

Coccyx DEMONSTRATION

PRACTICE and OBJECTIVES

1. Practice draping here in your groups
2. Side lying position
3. ASK PERMISSION
4. Locate Coccyx and needle into coccyx (shallow here)
5. Locate anococcygeal ligament
6. Clean area
7. Locate needle target
8. Insert needle to target and target depth

OBJECTIVES: Practice OSTEOpecking, LIGAMENT (ACL), Coccygeus

And navigating

Common BLADDER Issues in Clinic

We will be covering topically URGENCY/FREQUENCY and Interstitial Cystitis

ALSO known as PAINFUL BLADDER SYNDROME (lack of cytoscopic and histological findings)

PBS

In the United States, approximately 1 million individuals are affected. The prevalence of interstitial cystitis is higher in the USA than in United Kingdom and Europe

PBS

- female:male ratio is approximately 9:1
- rhe average age is between 30-50
- it appears to be more common in Jewish women
- 90% Caucasian
- low prevalence in the black population
- may occur in pediatric and geriatric populations

PBS

Common Symptoms:

- urinary frequency (includes multiple nighttime voids)
- urinary urgency
- suprapubic pelvic pain related to bladder filling

PBS

Additional symptoms

- dyspareunia (pain with intercourse)
- chronic constipation
- slow urinary stream
- food sensitivities that worsen symptoms (citrus, coffee, chocolate etc)
- radiating pain in the groin, vagina, rectum, or sacrum

PBS

Comorbidity

- anxiety
- Depression

CHRONIC FATIGUE SYNDROME

- dysmennorrhea

PBS

- vulvodynia
- fibromyalgia
- irritable bowel syndrome (IBS)
- urethral burning
- pelvic floor dysfunction

TREATMENT Protocol

1. Assess Pubic region, Pyramidalis, Rectus abs
2. Deep palpation to trigger pain/urgency
3. Treat what you see

Pyramidalis

Small triangular muscles that lie just above the pubic bone on BOTH sides of the midliine withing the aponeurosis UNDER the rectus abdomenus.

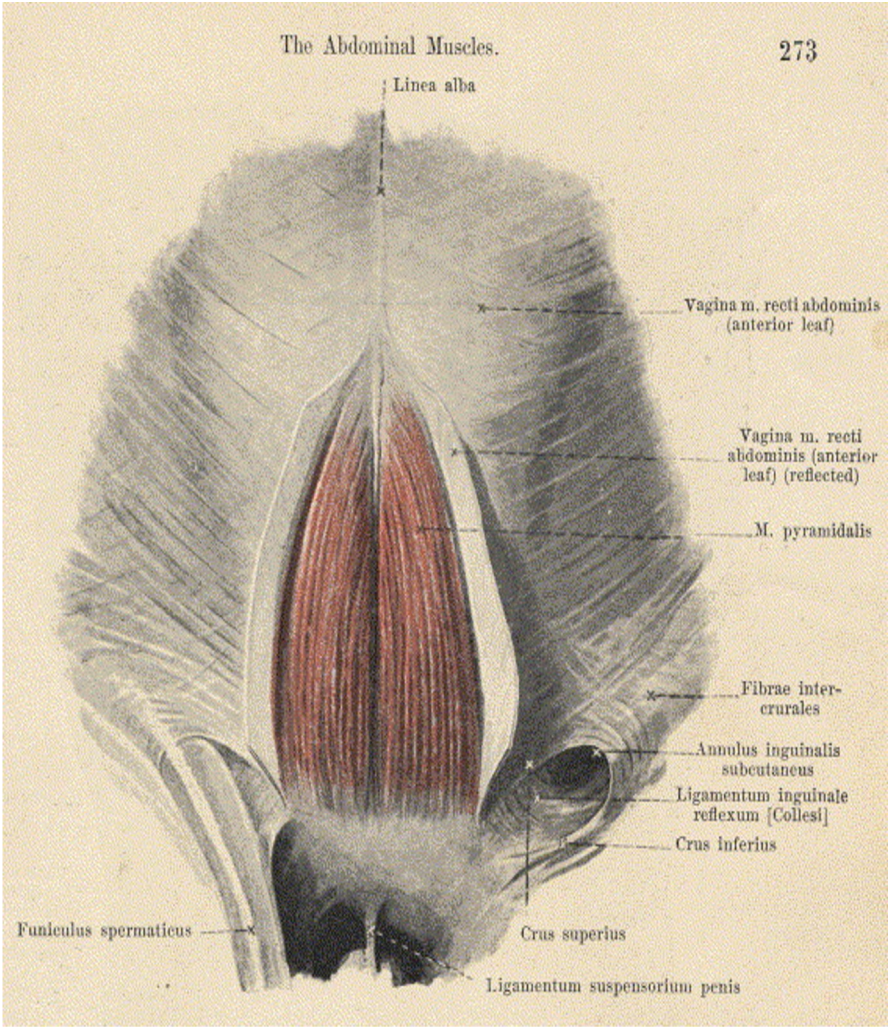
It has tendinous attachments to the SUSPENSORY ligament of the PENIS.

This muscle blends into the Linea Alba halfway between the pubic symphysis and umbilicus.

Interesting thought

There is a strong direct connection between the pyramidalis muscle and adductor longus tendon via the anterior pubic ligament, which introduces the new anatomical concept of the pyramidalis–anterior pubic ligament–adductor longus complex

Pyramidalis



Pyramidalis

Needling:

Patient in Supine

Locate the muscle, and you may needle contralaterally OR ipsilaterally

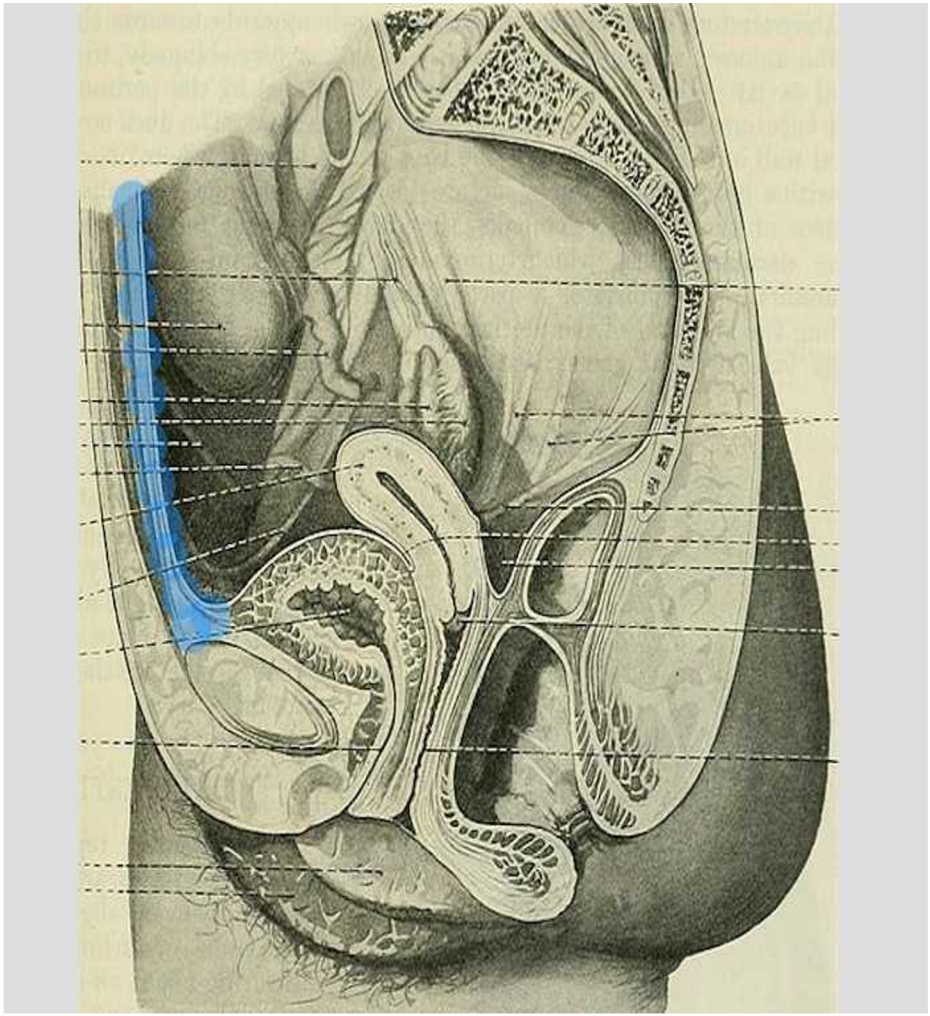
Pistoning motion

Precaution: Peritoneum

Urachus Ligament

Urachus ligament - attaches bladder to the umbilicus (formed from the remnants of the umbilical vein)

Urachus



Urachus

Needling:

Locate DIRECTLY INFERIOR to umbilicus with DEEP pressure a cord.

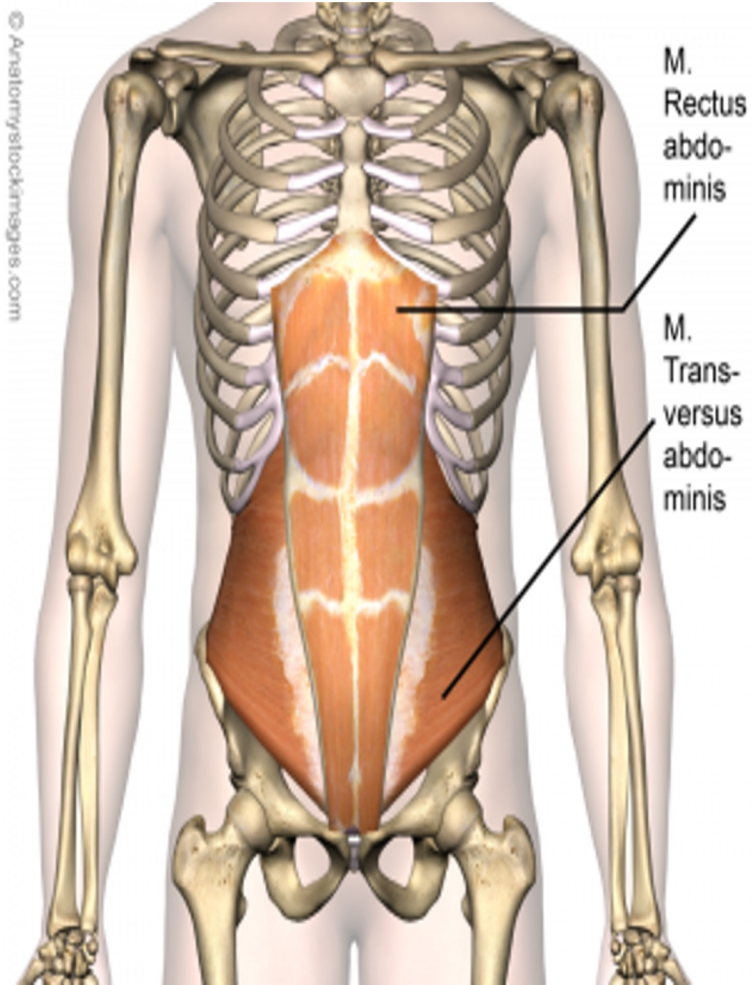
Pin down where you feel the cord, and needle perpendicularly into cord

Rectus Abs

These are unavoidable when dealing with PBS/Urgency and Frequency

Not the first place I look to treat, but nonetheless you MUST needle these.

Rectus Abs


© Anatomystockimages.com
M.
Rectus
abdo-
minis
M.
Trans-
versus
abdo-
minis

Rectus Abdominis

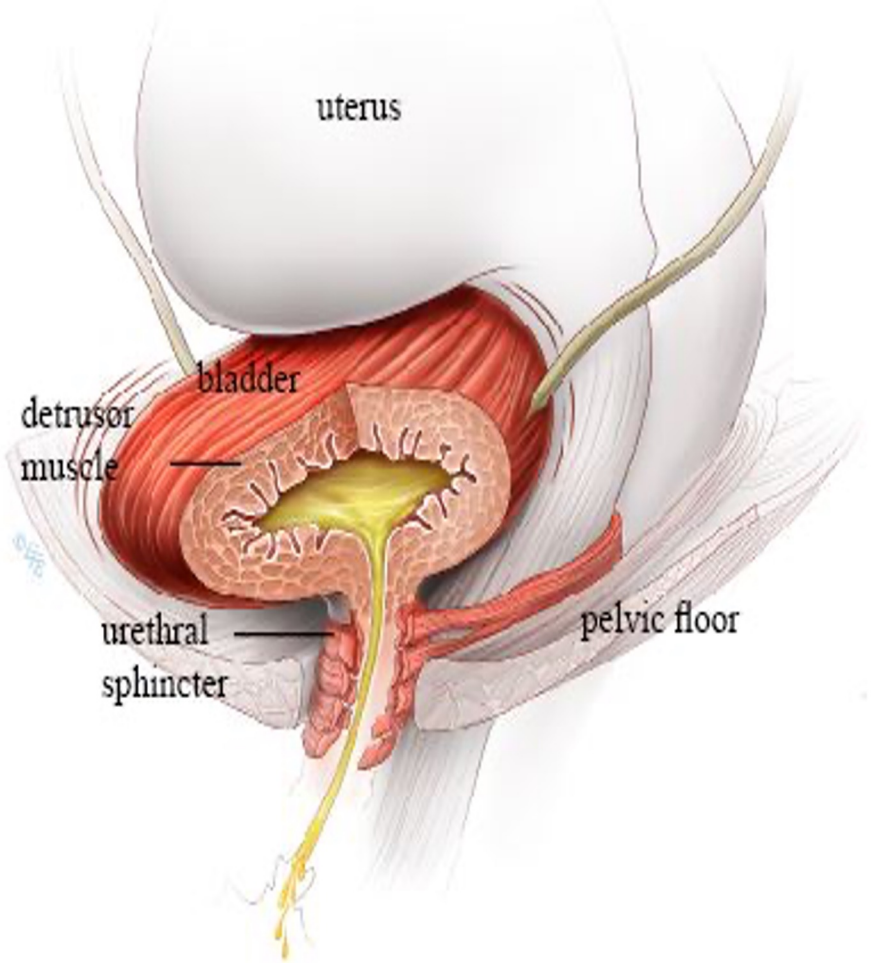
The Rectus Abdominis makes up the top layer of your abdominal muscles, commonly referred to as your "six-pack." It is two flat and parallel muscles separated by linea alba (a connective tissue). It acts to flex the spinal column, tense the anterior wall of the abdomen and assist in compressing the contents of the abdomen.

RAbs

The Rectus Sheath is a multilayered aponeurosis, being a durable, resilient, fibrous compartment that contains both the rectus abdominis muscle and the pyramidalis muscle

Interesting tidbit: Spasms of the DETRUSOR and URINARY SPHINCTER muscles diarhea and dysmenorrhea

Detrusor


uterus
bladder
detrusor
muscle
urethral
sphincter
pelvic floor

Rectus Abdominis

Needling:

Supine position, contralaterally or ipsilateral needling

DEMO

Then OBJECTIVES:

1. Draping practice
2. Locate Pubic Symphysis
3. Palpate PS and PRACTICE NEEDLING INTO IT
4. Locate URACHUS
5. NEEDLE
6. Locate Pyramidalis and NEEDLE
7. Locate trigger points in ABS

Levator Ani Syndrome

Sporadic long term episodes of the pain and spasms in the rectum and anus.

Pain associated WITHOUT Bowel Movement

In men : pain may spread to the prostate, testicles, and tip of the penis and urethra.

Additional symptoms

- irregular and spontaneous
- less than 20 minutes in duration
- specific or general
- a dull ache
- a sense of pressure in the rectum
- felt when sitting
- relieved when standing or lying down
- unrelated to bowel movements
- severe enough to interrupt sleep

LAni Syndrome

- bloating
- needing to urinate often, urgently, or without being able to start the flow
- bladder pain or pain with urination
- urinary incontinence

LAni Syndrome

- Levator ani syndrome can also cause pain before, during, or after intercourse in women. In men, the condition can cause painful ejaculation, premature ejaculation, or erectile dysfunction.

DEMO

LA Syndrome

Needling

Locate and PALPATE

ACL

Coccyx

Coccygeus

Perineal Body (REN 1)

EAS

Supervised Practice and Q&A

Vulvodynia

Vulvar discomfort occurring in the absence of relevant visible findings or a specific, clinically-identifiable, neurological disorder.

VULVA

vulva, plural **vulvae**, the external female genitalia that surround the opening to the vagina; collectively these consist of the labia majora, the labia minora, clitoris, vestibule of the vagina, bulb of the vestibule, and the glands of Bartholin. All of these organs are located in front of the anus and below the mons pubis (the pad of fatty tissue at the forward junction of the pelvic bones).

Common symptoms

- Burning
- Stabbing
- Stinging
- Itching
- Allodynia (light touch perceived as pain)
- Hyperalgesia (mildly noxious stimulus perceived as severely noxious)
- Functional limitation (e.g. pain during intercourse, using tampons, sitting)

continued

- Almost constant, typically burning pain
- Affects the entire vulva
- Provoked (sexual, non-sexual or both)
- Unprovoked
- Mixed (provoked and unprovoked)

Localized vulvodynia/ vestibulodynia

- Localized to vulvar vestibule
- Burning / cutting pain at entrance of vagina
- Provoked (sexual, non-sexual or both)
- Unprovoked
- Mixed (provoked and unprovoked)

Rule out

Dermatological conditions

Infections (bac/trichomoniasis/viral vaginal etc)

Neuropathic viruses/HPV

Lichens

Discogenic issues and nerve roots (PN)

Neurological Disease

malignancies

continued

Most of your patients that come to you with Vulvodynia have been seen by at least 4 medical professionals and will have had a work up to rule out the above.

Things to consider

Here with tolerance we will explore superficial external labial needling IN ADDITION to sacral needling S2-S3, ischail rami etc

Patient will most likely have an extreme sensitivity to even the lightest touch, including using wipes to clean area.

Get an idea of the “pathway in which they feel the sensation”. And this usually is pretty telling if a nerve is activated.

Labial needling

In the years I have been treating PF (since 2009) I have never encountered any information on this, so this is based on MY CLINICAL experience.

We will discuss and demonstrate techniques that I have used including:

Parallel Fascial Needling and skin rolling.

Patient very rarely tolerates thicker gauge needles here.

ADductor indirect involvement as well as fascia along ischial ramii.

Among other things

DEMO

Supervised PRACTICE

Vulva and external labial needling

ADhesions (aka SCARS)

Any scar that can be contributing to patients pain.

Episiotomy scars

Surgical scars (cesarean, radical prostatectomies, fissures, hemorrhoids etc)

Elective surgeries (labial revisions, gender reassignment surgeries etc)

scars

I actually love treating scars. Over the years we are taught SO MANY different approaches:

Surround the dragon, subcutaneous needling, moxa etc.

I have found (make sure the patient is NOT PRONE TO KELOIDS) that the best plan for scar therapy is direct and agressive to loosen the fibrous attachments to their underlying structures.

scars

Scars are the normal and unavoidable outcomes of tissue healing where the fibrous tissue replaces normal tissue as a part of the remodeling phase of wound healing. The collagen synthesized initially is random and constituting bulky fibers, which eventually remodels along the lines of tension. As this normal process occurs there is a risk of adhesions in the adjacent tissues. Eventually, these collagen fibers are replaced with stronger and more organized collagen, representing a smoother and flat scar which is paler in appearance.

scars

Hypertrophic:

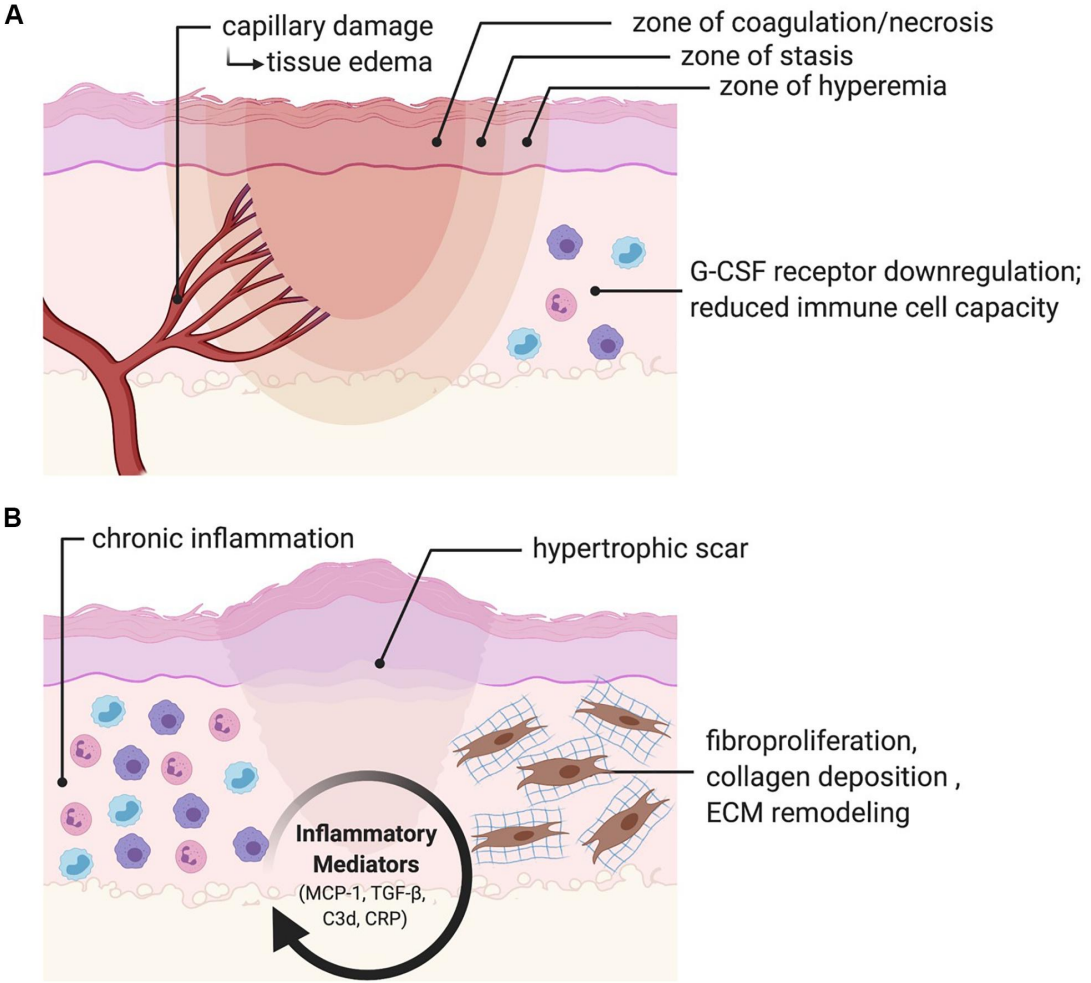
Prolonged inflammation causes excessive collagen deposition with an increased adhesiveness and contractility of the scar. The resulting scare is red, vascular, immobile and raised. This can adversely affect range of motion and cause functional limitations when present around a joint.

scars

Direct stressor to the Autonomic Nervous System

About 80% of the fibers of the sympathetic nervous system go to the layers of the skin. There is a coordinated flow of electrical nerve energy along the surface of the body via the peripheral sympathetic fibers of the skin. Scars are considered to be a major stressor to the body because of their effect upon the energy flow through these peripheral nerve fibers and upon acupuncture meridians

Scars


A
capillary damage
tissue edema
zone of coagulation/necrosis
zone of stasis
zone of hyperemia
G-CSF receptor downregulation;
reduced immune cell capacity
B
chronic inflammation
hypertrophic scar
Inflammatory
Mediators
(MCP-1, TGF-β,
C3d, CRP)
fibroproliferation,
collagen deposition ,
ECM remodeling

Scars

When a cutaneous injury occurs, the wound heals via a dynamic series of physiological events, including coagulation, granulation tissue formation, re-epithelialization, and extracellular matrix (ECM) remodeling. The final stage can take many months, yet the new ECM forms a scar that never achieves the flexibility or strength of the original tissue. In certain circumstances, the normal scar is replaced by pathological fibrotic tissue, which results in hypertrophic or keloid scars. These scars cause significant morbidity through physical dysfunction and psychological stress.

Scars

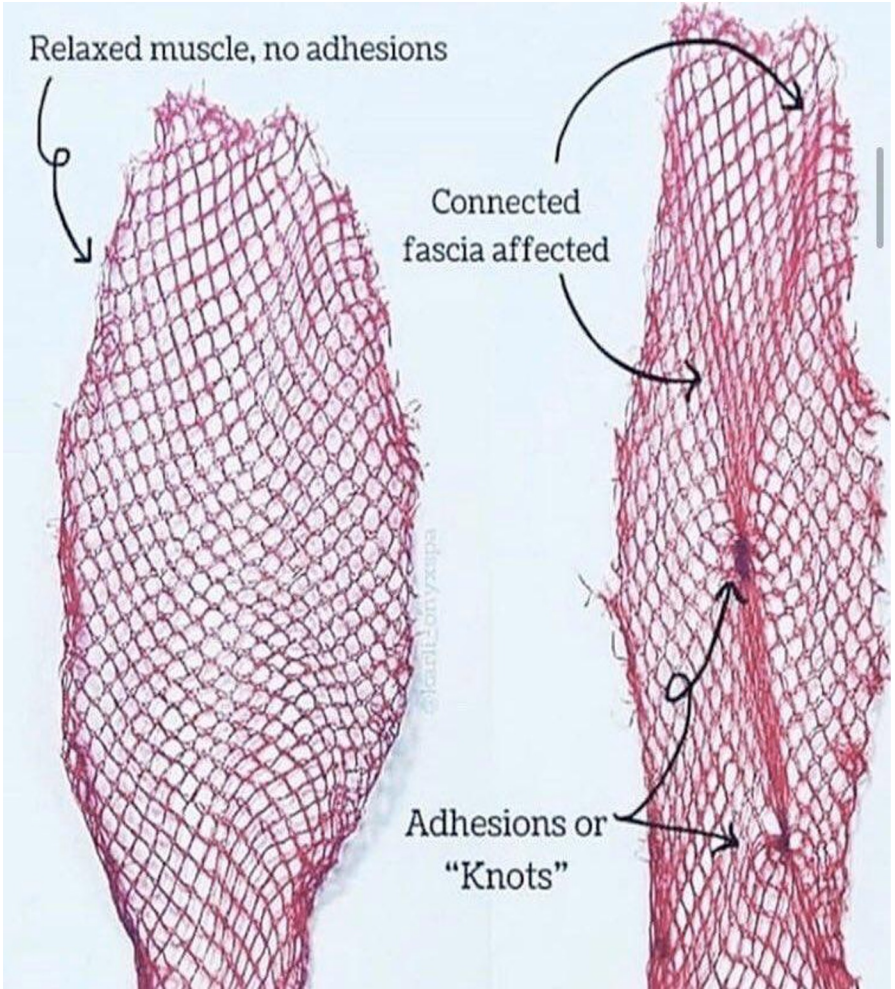
Recent Advances and Critical Issues: The cutaneous ECM comprises a complex assortment of proteins that was traditionally thought to simply provide structural integrity and scaffolding characteristics. However, recent findings show that the ECM has multiple functions, including, storage and delivery of growth factors and cytokines, tissue repair and various physiological functions. Abnormal ECM reconstruction during wound healing contributes to the formation of hypertrophic and keloid scars.”

fascia

healthy

Fascia/Scar

Excellent visual



Scars

The scar tissue must be palpated on all planes. Feeling with your sensitive palpating hand, find the area of LEAST movement and with pressure feel depth of the scar tissue.

You most likely will needle a thicker needle gauger here as well, so be aware of the area in which you will be needling.

i.e. Episiotomy scars

DEMO

SCARS/ADHESIONS

Needling:

Assess the location of the scar to be needled, and how it interacts with the surrounding tissue. Ask your patient if they feel better or worse when you are moving it around.

Needle gauge dependent on location.

Needle directly under (threading) directly in to “stuck” and “tacked down” regions

Needle surrounding tissue as well to provide perfusion of intercellular fluids to help lubricate and move out cytokines and bring oxygenation to the tissue in order to aide in healing and movement

scars

Needling continued…

Sometimes when using a thicker gauge needle you will hear and feel popping and cracking sensation on the needle. This is you physically changes the scar.

Inform the patient they will be tender in the area, and if they are comfortable with you needling the scar.

You do need to be a bit more aggressive with your needling technique here.

DEMO

PRACTICE

OBJECTIVE:

Locate scar tissue, and sit with it for a moment or two while asking your patients questions about the injury. You can feel the diffierent planes here and depths

Clean the area (if this is an episotomy scar use gentle sensitive skin wipes)

Needle the POLES (entry and exits of the scar if it is linear) if it is a Laparoscopy scar work the perimeter as well as the nucleus. Pick the scar up and roll it between your fingers. Does it change colors? Does it cause pain? How does it respond to the surrounding tissue/movement/restrictions?

Q&A

Thank you ALL SO MUCH!

Bibliography

Barral, J.P. Crobier, A. New manual articular approach: lower extremity.

Dommerholt, J., Fernandez-de-las-Penas. 2018 Trigger point dry needling an evidence and clinical based approach. Elsevier

Gunn, C.C., 1996. The Gunn Approach to the Treatment of Chronic pain: Intramuscular Stimulation for Myofascial Pain and Radiculopathic Origin. Churchill Livingstone

Bilbio continues

Janda, V. 1983. Muscle Function Testing. Buttersworth

Janda, V. 1996 Evaluation of muscular imbalances

Lewit, K. 2009 Manipulative Therapy musculoskeletal medicine. Churchill Livingston

Bibliography continued

Travel, J. Simons, D. 1983 Myofascial Pain and dysfunction, the trigger point manual

Travel, J. Simons, D. 2019 Myofascial Pain and dysfunction, the trigger point manual third edition. Wolter Kluwer

AND SO MANY MORE!