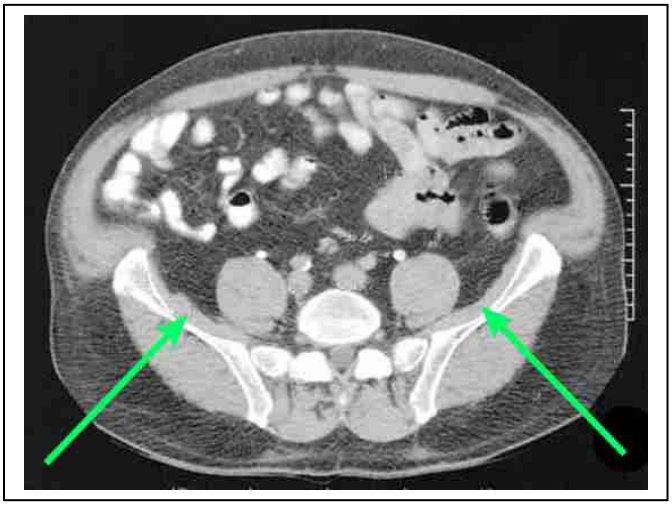
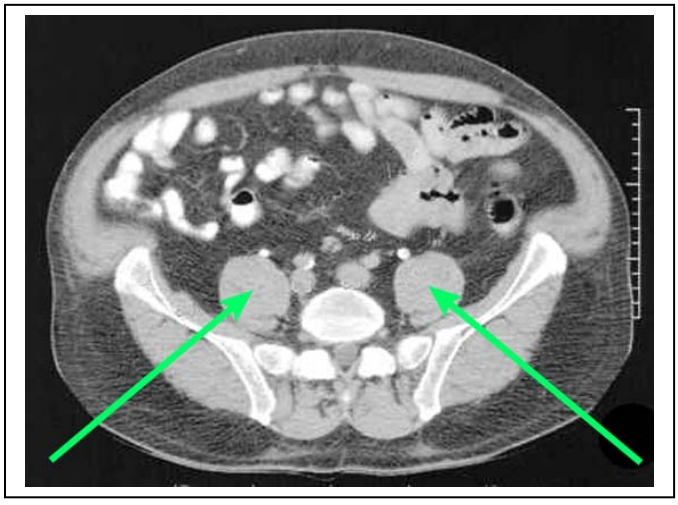
ILIO-PSOAS





The Iliacus and the Psoas muscles

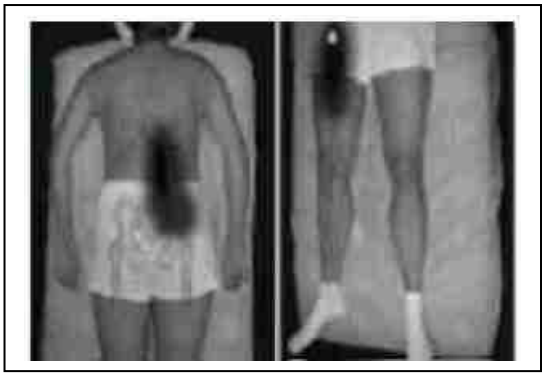
"Filet Mignon" -- tender loin

Sprain-strain of the ilio-psoas muscle group is the frequent cause for intense back and groin pain in vigorous adults.

The pain can become chronic or recurring. It is often accompanied by varying nerve pains and temporary leg numbness – weakness.

It cannot be diagnosed by x-ray, MRI, or nerve conduction studies. It does not improve with many of the standard conventional therapies.

It cannot be fixed by surgery or nerve blocks.



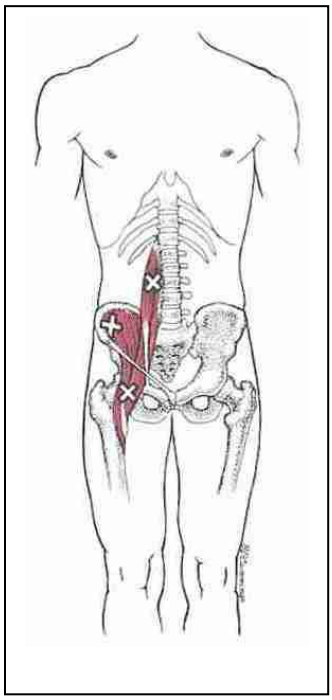
UCSD Healthcare, University of California, San Diego

UCSD Healthcare

John S. Gillick, MD, MPH, FACP
Clinical Professor of Medicine & Anesthesiology, non-salaried
Am Bd Cert: PreventMed/OccMed, IntMed, & Anesthesiology

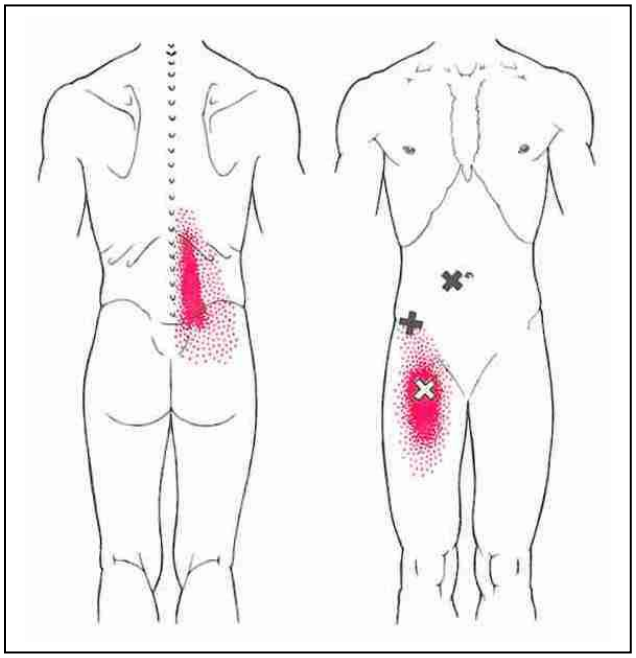
TEL: (619) 471-9210
FAX: (619) 471-9211
EMAIL: jgillick@ucsd.edu
MAIL CODE: 8799

Center for Occupational & Environmental Medicine
330 LEWIS STREET, SUITE 100
SAN DIEGO, CALIFORNIA 92103-2199



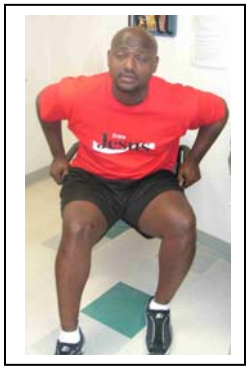
ILIO – PSOAS

MUSCLE STRAIN



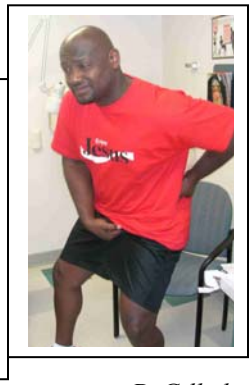
Low back pain -- Lifting pain -- Groin pain

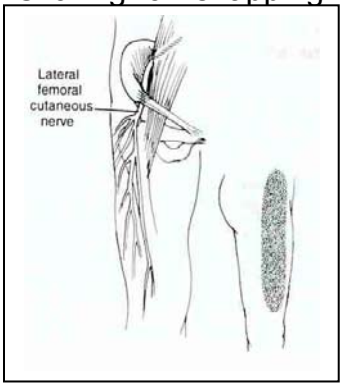
(Buttock, low back, hip, pseudo sciatic, anterior thigh, "paralyzed" leg)

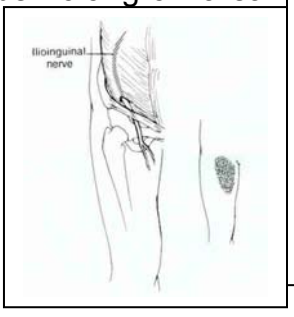


Symptoms: (one, some, all)

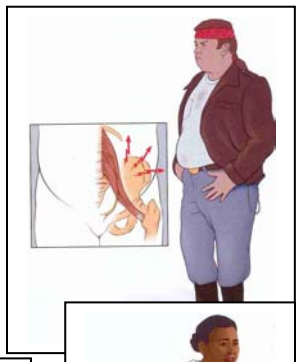
May be acute or cause recurring pain for decades
Deep low back pain: usually lower area, one side
Difficulty straightening up, painful to stand straight
especially after sitting or after sleeping
Pain into one groin
Pain or burning into labia or testicle
Pain down inside of leg
Numbness or burning on the side to the front of the thigh: "meralgia paresthetica"
Whole leg goes numb/ weak – may collapse (Non-radicular, non-physiological weakness/ "paralysis"): esp. with standing up after sleep or prolonged sitting – i.e., airplane ride
Doubled over posture, bent forward, twisted posture
Low back pain; hip pain; pelvic, groin, testicle pain
"Clicking" or "snapping" in the pelvic or groin area

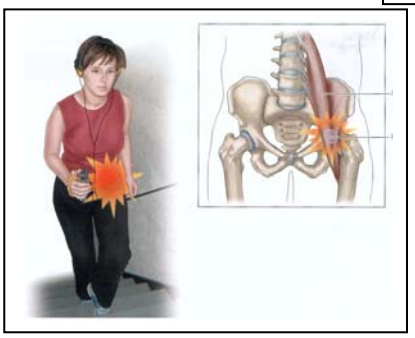


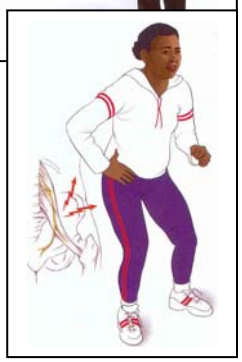




Onset and initial course:





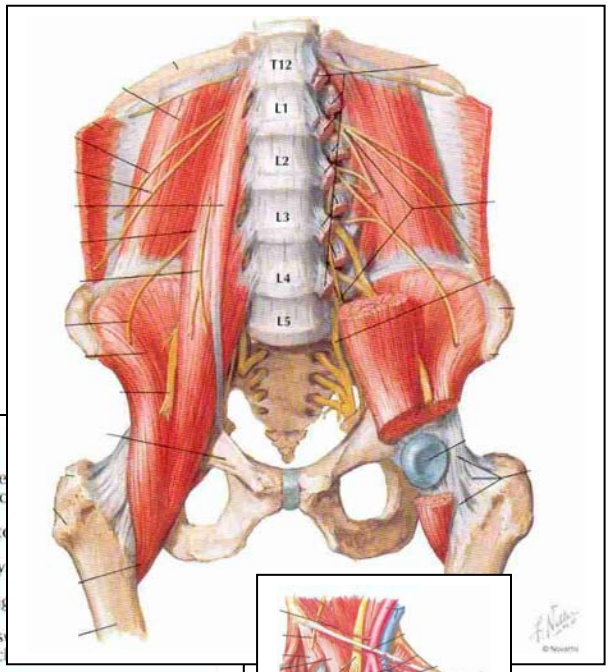


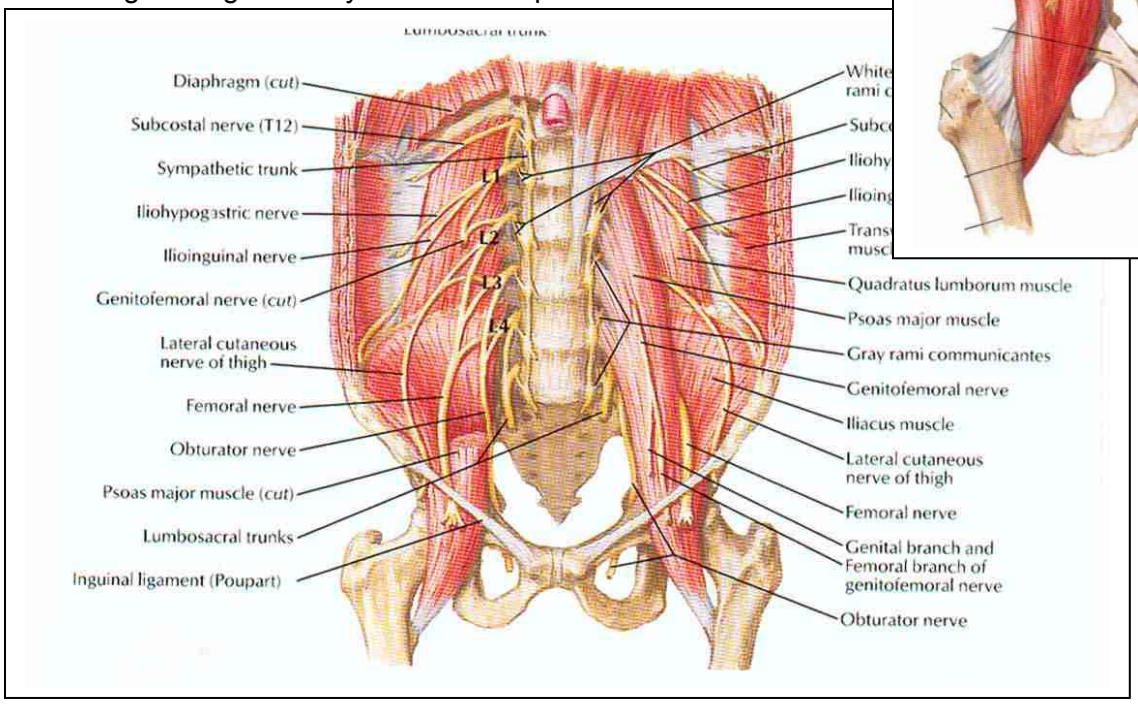
Usually has an identifiable sudden powerful "pull-catch," "jerking" onset.
Sudden, dramatic groin strain or back pull as with a "slip and fall".
Worse the next morning, worsen over 48-96 hours going up and down in pain intensity.
Initially it is relieved by sitting – it then usually worsens with straightening-up after sitting
Usually one sided, or one more than the other.

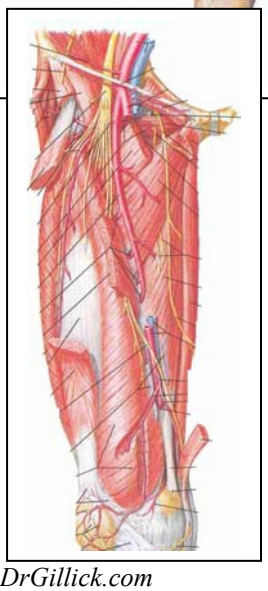
It may present as SI joint dysfunction.
It can "lock-down" the SI joint; whereas acute primary S-I joint dysfunction is immediately apparent with trauma.

What is the Mechanism?

Myofascial spasm in the Iliacus +/- Psoas muscles ("charlie horsing" or cramping with "knots").
Probably some edema (micro-tears) accompanied by ischemia related to ongoing muscle spasm with local sympathetic augmentation.
Muscle cramp-spasm areas cause pain and shortening.
Muscle "knots" pinch-off nerves – "cutting electricity"
--L1-L4 nerve roots run directly through the muscles
--the femoral nerve, ilio-inguinal nerve, and the lateral femoral cutaneous nerve are pinched under the ilio-inguinal ligament by muscle cramps.







Diagnosis:

PHYSICAL EXAMINATION:

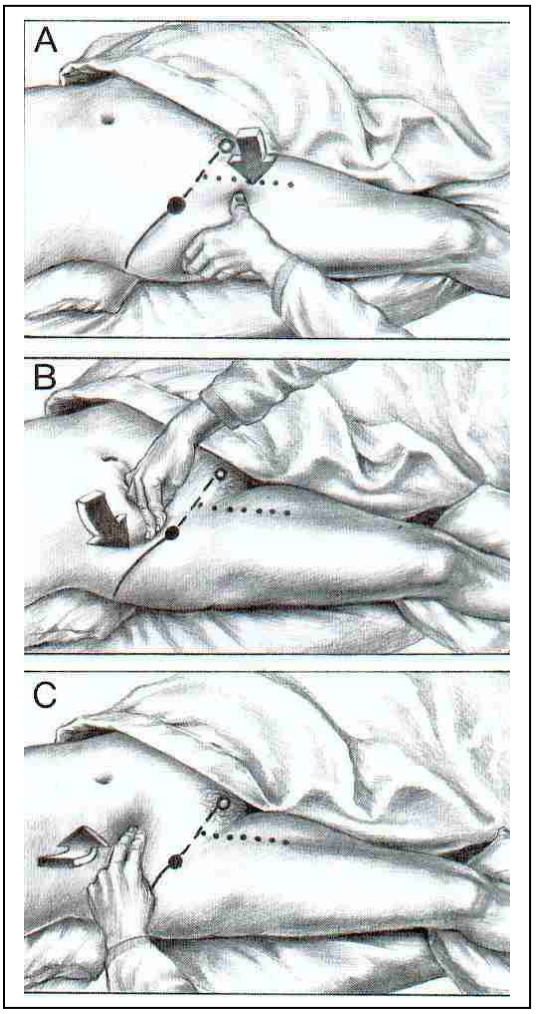
1. Painful Ilio-psoas tendon insertion high on the inside of the femur on the lesser tubercle, (A), always compare the right side with the left side.

2. Pain to deep point-pressure into the lower abdomen +/- 4 cm above the center of the Ilio-inguinal ligament (C).

3. Tenderness or pain reproduction with pressure on the ilio-inguinal ligament above the affected nerves -- femoral, I-I, &/or the LFC (B).

4. Weakness and pain with resisted elevation of the knee on the effected side when in a sitting position.

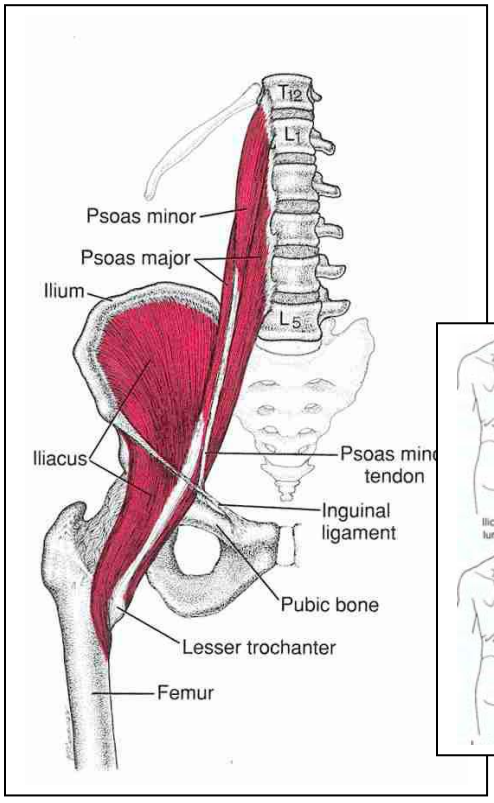
5. Low back range of motion: Backward extension is painful & <10º or less; Lateral flexion: away from injury is painful and <20º, >30º on injury side.

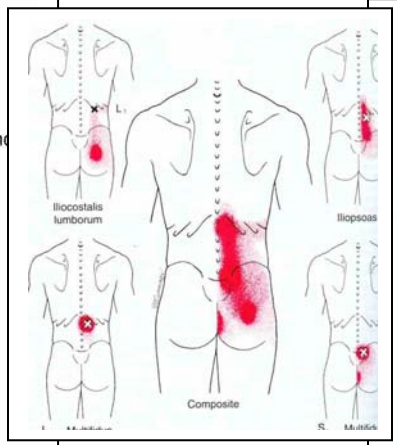


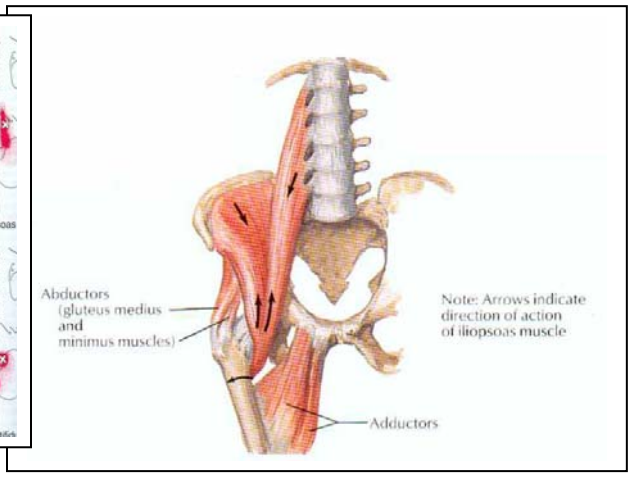
Always compare both sides & start on the good side; look for reproduction of the back/ groin pain and neuralgia

The physical examination is very reproducible among examiners

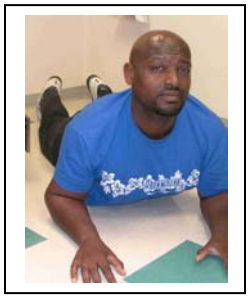
Radiographic findings: There are none, or they are misleading;
Electrodiagnostic findings: There are none.







Treatment:

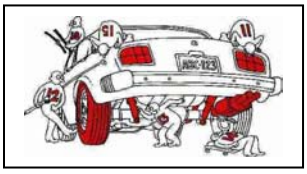


1. Education:
   Explain the causes and mechanisms

2. Identify the aggravators:
   Evaluate all behaviors, activities, and anatomical conditions that are repetitive through the entire 168 hours per week [48 (sleep time) + 120 (out of bed time)].

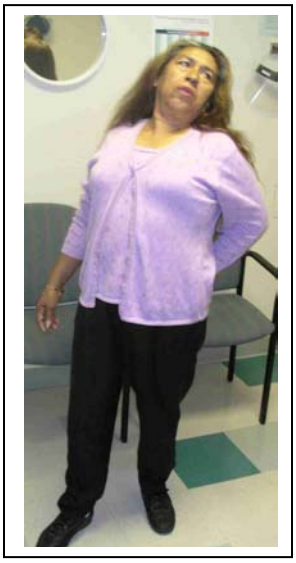
3. Teach:
   Owner-operator control, ID, & removal of the aggravators (48 + 120 / week).

"balance the chassis":

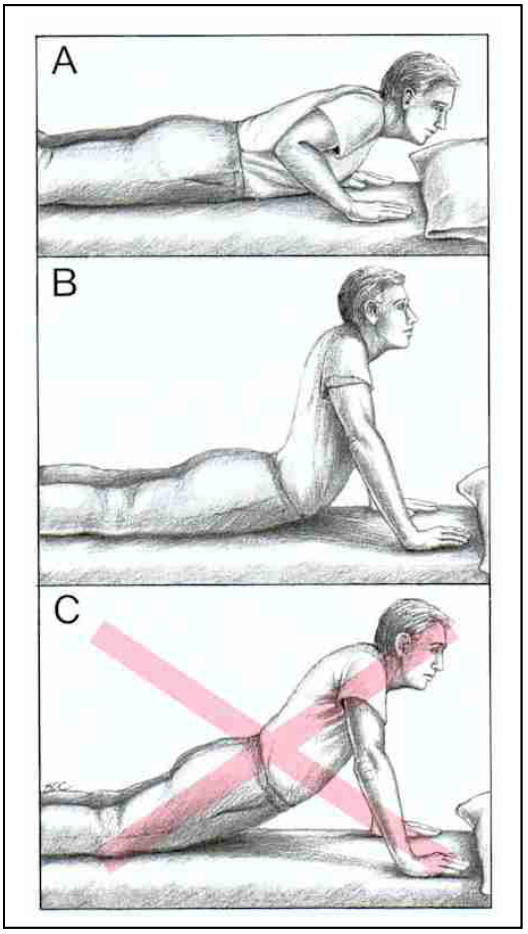


Feet; arches; leg-length; hemi-pelvis; arm / elbow length; sleep-position; transportation; vehicle; clothing / pockets; chair / arms.:

4. Release muscle spasm:
Home Exercise Program (<u>education</u>, supplies)
   Home / daytime stretching;
Night sleep position with knee immobilizer;
Physical medicine with a known knowledgeable health professional-teacher, i.e. physical therapist, chiropractor, manipulating osteopath using effective psoas-specific techniques:
   - extension stretching (Mackenzie);
   - active release techniques;
   - joint mobilization.



5. Prevent recurrence (<u>education</u>, supplies):
   sleep instructions, pillow; correct arch supports; leg-pelvis equalizers; knee immobilizer…



Activities to Avoid:

Prolonged sitting, squatting;

Prolonged driving with use of pedals-clutch;

Pulling knee to the chest – especially during sleep;

Repeated vibration while knees are bent.

Symptom relief with medications

The only benefits of medications toward recovery are: a) to remove or reduce pain-inhibition of activity; b) to allow or assist sleep (battery recharging); and c) to alleviate patient-doctor anxiety, because some magic medication is "expected".

1. Physical medicine to supplement muscle stretching and muscle cramping release along with behavioral and ergonomic modification and attention to static positions are the effective treatments.

2. Analgesics: Ice, NSAIDS, Cox inhibitors, Tylenol, codeine, tramadol, or "dealer's choice" for pain control. There is no physiological benefit, risks / dangers vary with agents and among patients.

3. Corticosteroids – temporary value if neuritis is a persistent symptom systemic, or epidural works as systemic; L1-L4 have major branches that travel through the I-P muscle bundles and the femoral nerve, genito-femoral nerve and lateral femoral cutaneous nerves can be compressed under the ilio-inguinal ligament.

4. Muscle relaxants: Cyclobenzaprine, diazepam, Robaxin, Skelaxin, etc. – if the patient requires being sedated.

5. Neuro-myo-spastic control agents: Neurontin (gabapentine), baclofen: (off-label) (for peripheral and spinal cord level SNS suppression) – use PRN in low, progressive dosage, especially for night time. Risk profile for Neurontin is very low.

Neurontin comments: Some pharmacological tools are appropriate on an as needed, variable dosage -- usually low dosage basis; the most useful I've found so far is gabapentine (Neurontin) in 10 (ten) mg to 800 mg only on an as needed basis several times per day up to four times per day with variable dosages. Use the drug as you would a tool or as a bridge: use it as you would a spice in cooking or the accelerator / brake on a new car. I find Neurontin to be safer and more useful than almost any drug that I have prescribed. Side effects are sedation and sometimes thought-fogging effects are patient-specific, dosage-related that may come on 15 to 30 minutes after a dose and is usually gone within three to four hours. An effective, non-sedating, day dosage is fully determined by the individual. Start dosage is usually 100 mg. The night-time dosage is usually about 20% higher than the day-time dosage. -- The patient's physician is the bottom line, though, for medications.

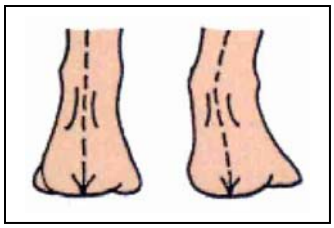
In my experience, the anti-inflammatories NSAID's and cox inhibitors, narcotics, etc. are generally ineffective for myofascial dysfunctions and fibromyalgia. They seem to have an awfully high side-effect/ therapeutic effect ratio. The NSAID's have value if there is an inflammatory-like ongoing trauma as a part of the multiple-cumulative causation (i.e., osteoarthritis, psoriatic arthritis, lupus arthritis -- perhaps disease-modifying drugs would better indicated though).

Stovitz SD & Johnson RJ. NSAIDs and musculoskeletal treatment. Physician and Sports Medicine. Jan 2003. 31:1, 35-53

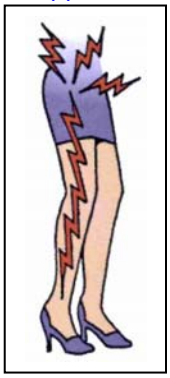
Illustrations from:
Simons, Travell & Simons: Myofascial Pain and Dysfunction: The Trigger Point Manual; Vol. I- Upper Half of Body; Second Edition – Williams&Wilkins: 1999
Travell & Simons: Myofascial Pain and Dysfunction: The Trigger Point Manual; Vol. II- Lower Extremities, First Edition – Williams&Wilkins: 1992
Netter: Atlas of Human Anatomy, Second Edition – Novartis: 1997
Waldman: Atlas of Common/ Uncommon Pain Syndromes; -- Saunders: 2002 / 2003

Aggravators:

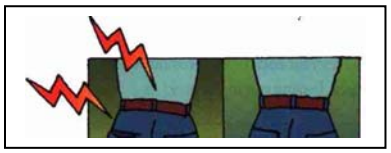
Pelvic and gluteal torque – back and hip pain from **uncorrected flexible pes planus** (80%)
(Rx: arch support 120 hr./week- such as Flexifly from www.feetrelief.com or www.HiTechsupports.com)





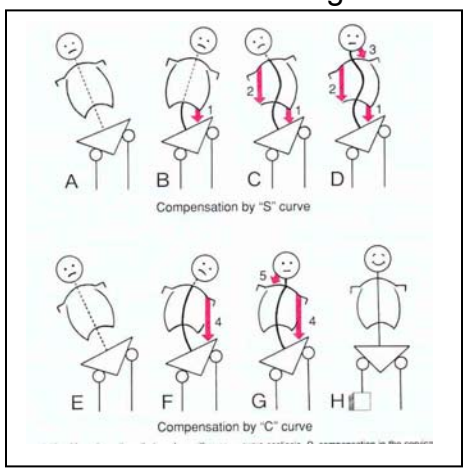


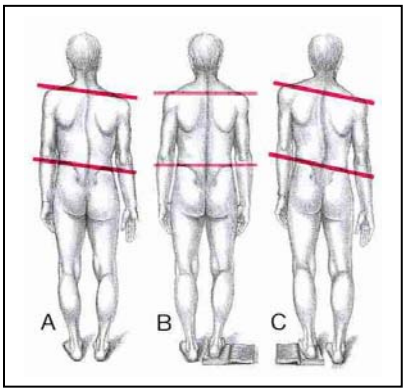
Back-pocket wallet / or other "stuff":
Always keep back pockets empty.

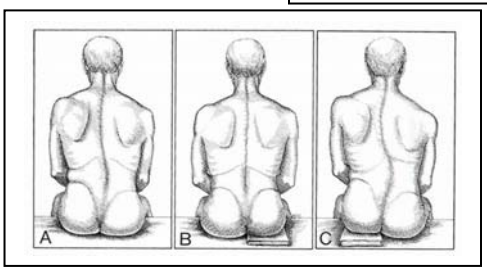



Stick-shift vehicle
(Rx: drive only automatic, use cruise-control)

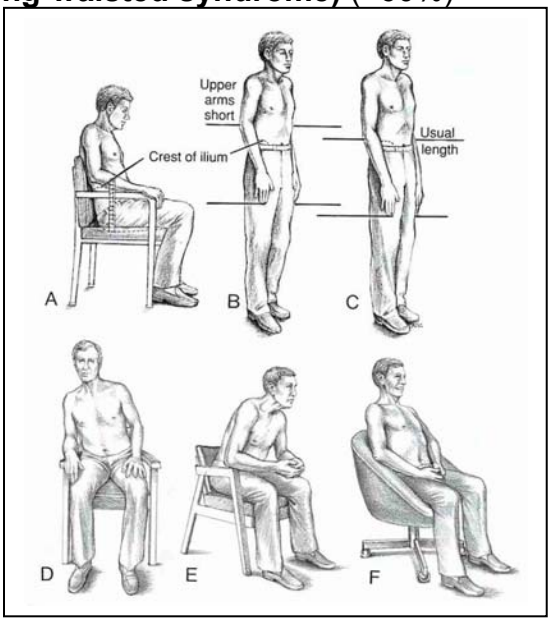
Uncorrected standing with **short leg-hemi-pelvis** (70%)
Uncorrected sitting with short hemi-pelvis (60%)



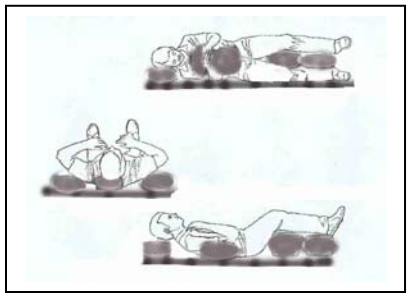




Unsupported or incorrectly supported arms /elbows with sitting / driving
(Short upper-arm, or Long-waisted syndrome) (>60%)



Sleeping position (knee bent, esp. pulled-up)



Absolutely control sleep position: see the sleep paper *www.Simple-ergonomics.com*; This will allow quick control.

With active Ilio-psoas muscle strain, the knee on the effected side is not to be bent up or drawn up toward the chest during sleep. The leg on the affected side must be kept extended (straightish), a knee immobilizer aids holding this position at night.

The Psoas

(*Published In the Triathlon Times, 2003)*

Link to Better Performance and Reduced Injuries

The psoas muscle, along with the iliacus muscle, makes up what is commonly known as the hip flexors. What you don't know about these muscles, and how they function can greatly affect your athletic performance.

Both the psoas and iliacus insert on the femur, and while the Iliacus finds its origin at the pelvis, the psoas inserts on the lumbar spine. The chronic shortening of the psoas can be a contributing factor in knee, back or shoulder pain. These ailments affect many triathletes at some point in their career. If an athlete has shoulder, back or knee pain, does this mean they have a tight psoas? Absolutely not. It does mean that you should look at the range of motion at the hip to see if it may be a contributing factor. Many Eastern European coaches of running athletes do not allow their athletes to train by cycling for fear of over-tight hip flexors.

Anterior knee pain is a common complaint among distance runners. Tightness of the hip flexors inhibits the strength of the glutes. This causes the knee to take on more of the load on both cycling and running. This, along with the probability of over striding (common with tight hip flexors) can be a causative factor to painful knees.

Low back pain (LBP) is the most common malady suffered by American adults. Eighty-five percent of adult Americans will suffer a LBP. Factors such as sitting and driving play a role in, along with faulty posture. For triathletes, add to the equation riding in an aero position on the bike, and you've got the perfect recipe for an injury. A tight psoas can inhibit the transverse abdominis, internal oblique (deep abdominal muscles) and glute max. This leads to torso instability, decreased hip mobility and reduced running economy. So even if you do not get injured, your performance will suffer.

Shoulder pain may be directly, or indirectly associated with a tight psoas. The area that the psoas attaches to the spine is also the point of attachment of the latissimus dorsi (lats). The lats then insert onto the scapula and humerus at the other end. This means any tightness in the hip flexors can have adverse effects on the triathletes' shoulders.

So now what do we do to avoid injury and enhance performance.

1. Include stretches in your daily ritual that include the hip flexors.
2. Add dynamic flexibility to your strength training warm up, such as walking lunges. A resisted exercise such as split squats puts the non-working leg into hyperextension and adds dynamic flexibility.
3. When doing bike workouts, stand on the pedals and stretch the hip flexors every 15 or 20 minutes of the ride.
4. Add 4-6 x100m strides at the end of you runs twice a week. The focus is not speed, but rather a relaxed stretching of the hip flexors.

Don't hesitate in implementing some or all of the above suggestions to become a stronger, faster and more injury resistant athlete. Written by Tim Crowley, a Certified Strength and Conditioning Specialist, coach for CTS, Carmichael Training Systems. www.Trainright.com

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Psoas Stretch: Kneel on one knee with the opposite knee forward and foot flat on floor for stability. Push your hips forward while reaching out in front of the forward foot to stretch the front of the thigh. Hold for 3-5 deep breaths. Switch to the opposite leg. Repeat.

Adductor Stretch: While seated, bend your knees drawing your ankles up as close to the buttocks as possible. Put the soles of your feet together while lowering your knees outward to stretch the inside of the thighs. Hold your ankles while applying downward pressure with the elbows to the inside of the knees will increase the stretch. Hold for 3-5 deep breaths. Repeat.

An alternative adductor stretch is to lay flat with your feet in the air against a wall. Let gravity pull your feet to the side making a "V" with your legs. Hold for 3-5 deep breaths. Repeat.

From: www.Kulpinski.net

Psoas & Iliacus

Anatomy

Psoas

O: Bodies of T12 to L4
I: Lesser trochanter of femur
A: Hip flexion, external rotation of femur

Iliacus

O: Inner surface of ilium
I: Lesser trochanter of femur
A: Hip flexion, external rotation of femur

Referred Pain Pattern

Active trigger points in the psoas or iliacus will cause referred pain to the low back and upper gluteal area, as well as the upper part of the anterior thigh.

Page 43

Trigger Point & Counterstrain

1. Find Trigger Point
2. Shorten muscle to position of no pain
3. Hold until release
4. Return to neutral position
5. Get feedback

Page 43

Reciprocal Inhibition

Have your client contract the opposing muscles (Glutes & Hamstrings) against your resistance.

Page 26

Soft Tissue Release

Press into the psoas at the inguinal ligament with your fingers and have your client use the opposing muscles (Glutes) to hyperextend the hip, stretching the psoas.

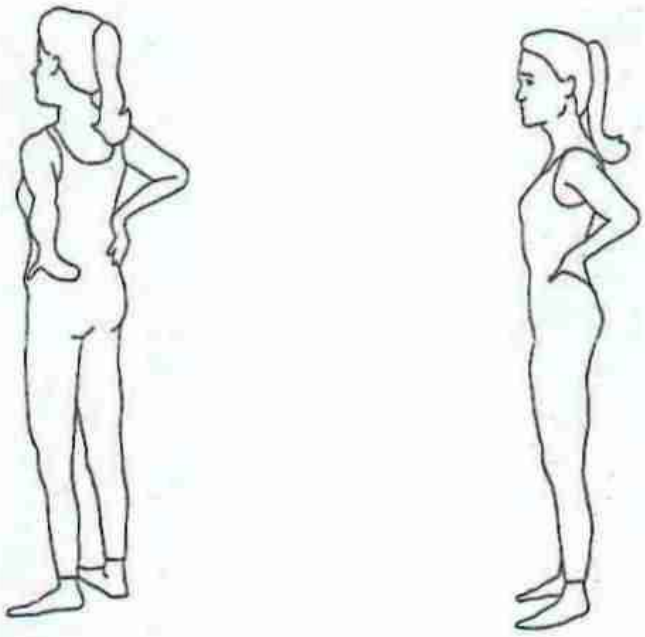
Page 90

PNF Stretch

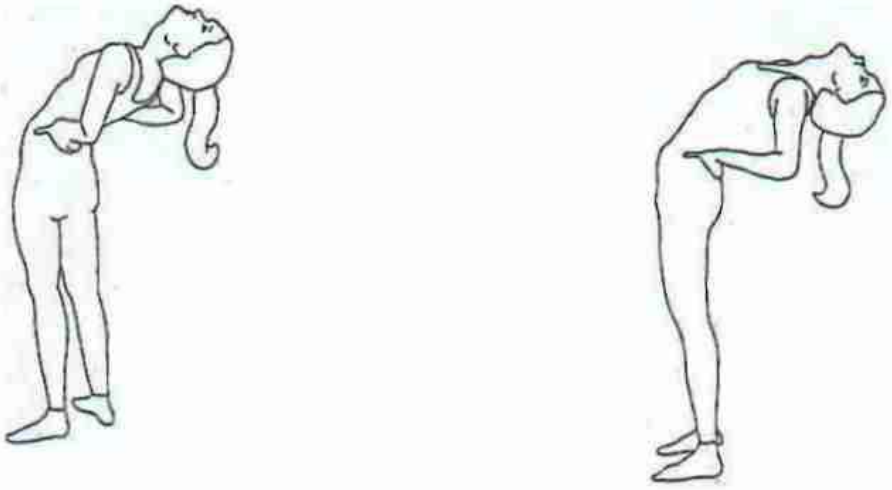
1. Stretch
2. Client does isometric contraction against your resistance
3. You bring their psoas and iliacus into passive contraction
4. Restretch

Page 16

Extension In Standing



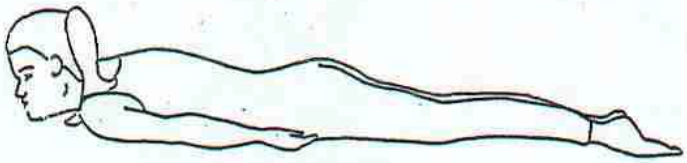
1. Stand in good posture with both hands supporting your lower back. Feet should be shoulder width apart



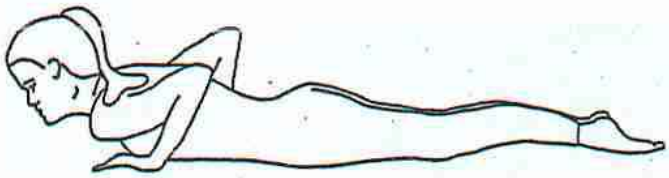
2 Keeping your knees straight, extend backwards at the waist, as far as you can go.

repetitions: sets: times a day.

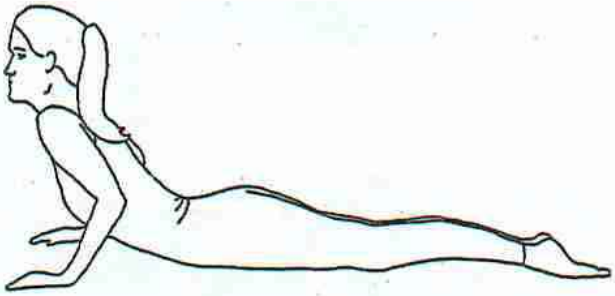
Extension In Lying



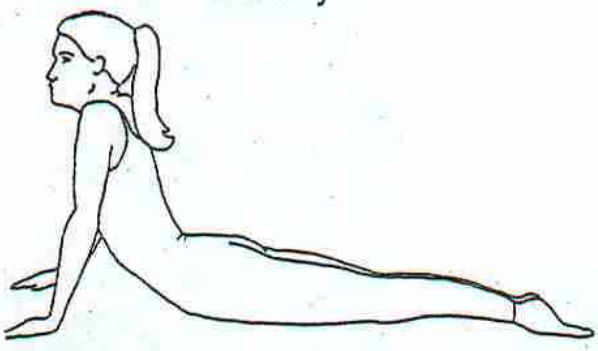
1. Lay face down with arms your side.



2. Place hands as if you were going to perform a push-up (under shoulders).

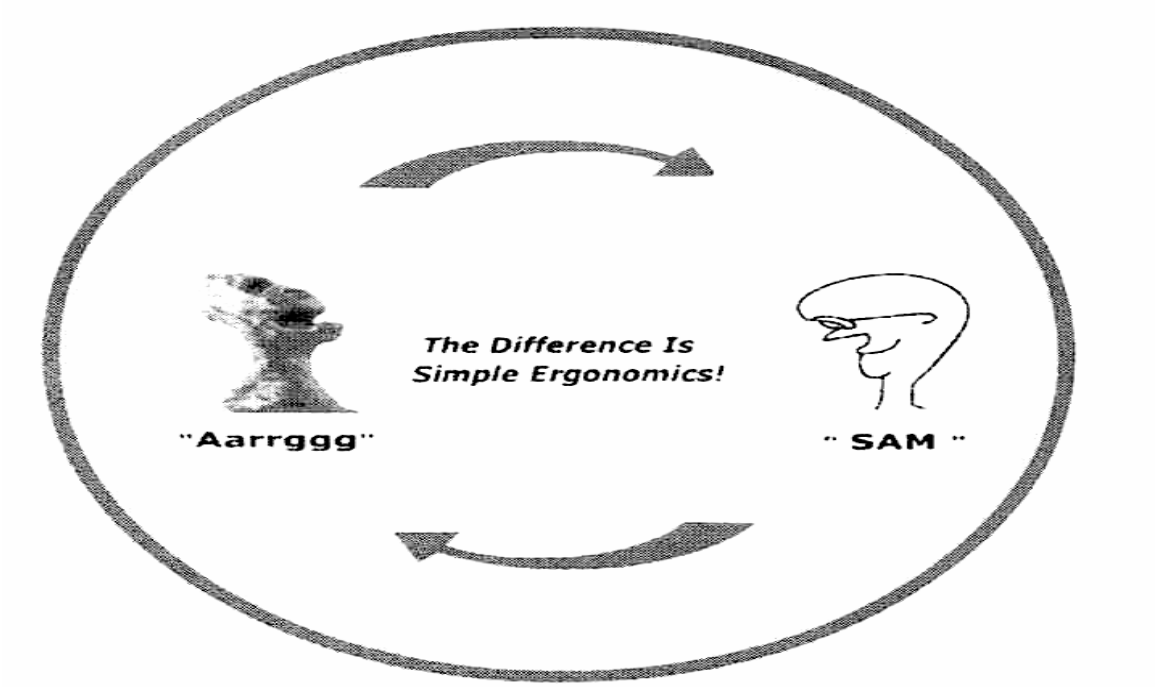


3. Push upper half of body up off of floor, keeping hips and lower body on the floor. Bend only at the waist.



4. Try to fully extend elbows without lifting hips off floor.
_____repetitions; _____sets; _____times a day.

ILIO-PSOAS



UCSD Healthcare, University of California, San Diego

UCSD Healthcare

John S. Gillick, MD, MPH, FACP
Clinical Professor of Medicine & Anesthesiology, non-salaried
Am Bd Cert: PreventMed/OccMed, IntMed, & Anesthesiology

TEL: (619) 471-9210
FAX: (619) 471-9211
EMAIL: jgillick@ucsd.edu
MAIL CODE: 8799

Center for Occupational & Environmental Medicine
330 LEWIS STREET, SUITE 100
SAN DIEGO, CALIFORNIA 92103-2199

--jsgillick