

Manual/Assisted Stretching Techniques

It's Important to Understand How
to Stretch Clients/Athletes to
Enhance Flexibility

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Value to Trainer/Athletic Trainer

- Enhance flexibility beyond clients'/athletes' capability
 - incorporate **PNF** stretching techniques
- Identify restrictions
- Isolate individual muscles
- Increase quality of service provided
 - improve interaction with client/athlete
- **make sure client/athlete is comfortable with this

Focus Areas

- **Cervical region**

- flexion, extension, lateral flexion, rotation, combination motions

- **Hip region**

- internal/external rotation, IT band, hamstrings, adductors, hip flexors/quadriceps

- **Lower Leg**

- Gastrocnemius/soleus

- ***Shoulder region**

- flexion, external/internal rotation

Causes of Muscle Imbalances (tightness)

■ Phasic Muscles

- type 2 muscle fibers
- tendency to become weak when not properly strength trained
- gluteus maximus, rectus abdominus, deltoids

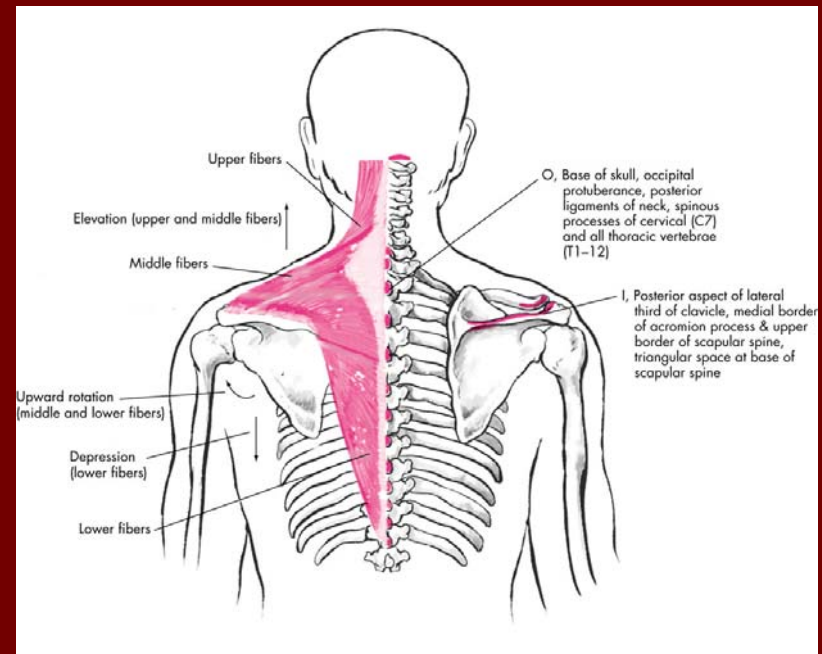
■ **Tonic (postural) Muscles

- type 1 muscle fibers
- tendency to be overused due to prolonged improper posture (**hypertonic**)
 - become shortened or tight and weakened
- (**cervical region**) **upper trapezius, levator scapulae, sternocleidomastoid**

Cervical Region

■ Upper Trapezius

- **Origin** – base of occipital lobe; posterior ligaments of cervical spine
- **Insertion** – spine of scapula; lateral border of clavicle
- **Function** – elevation of scapula, extension of head, can function unilaterally
- **Contributing Factors** – shrugging of shoulders (stress, driving, computer work) cause hypertonicity; contribute to headaches at base of skull
- **Stretch**
 - Cervical Lateral Flexion with Flexion Stretch



Cervical Lateral Flexion with Flexion Stretch

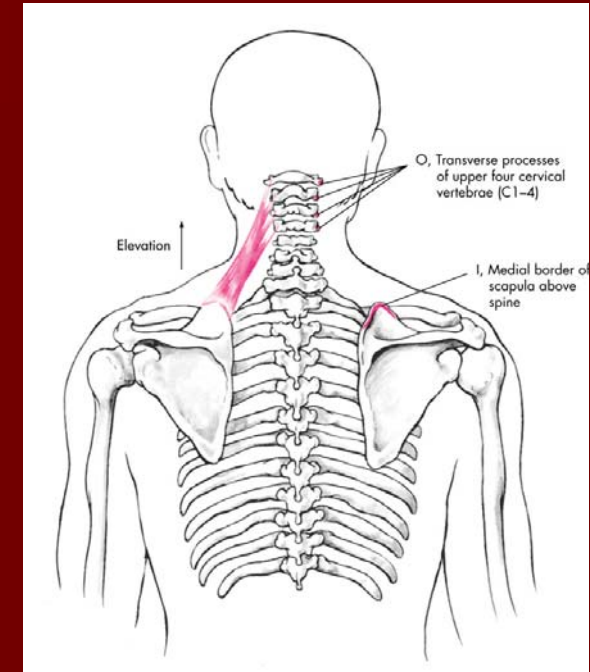
- Seated position
- 1 hand on contralateral upper trapezius
- 1 hand on temporal/occipital lobe
- Gently apply pressure to laterally flex head & then move into slight flexion
- **Contraindication** - cervical disc problems, osteoporosis of cervical spine



Cervical Region

■ Levator Scapula

- **Origin** – transverse process of spine
- **Insertion** – superior angle of scapula
- **Function** – elevation of scapula can function unilaterally
- **Contributing Factors** – Shrugging of shoulders (stress, driving, computer) cause hypertonicity; contribute to headaches at base of skull & neck pain!!
- **Stretch**
 - Cervical Lateral Flexion with Flexion Stretch
 - position scapula in upper rotation



Cervical Lateral Flexion with Flexion Stretch

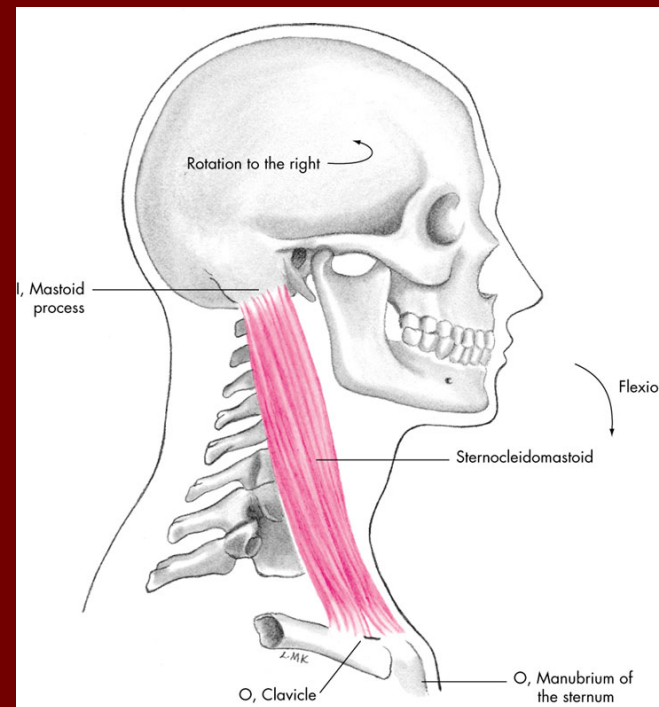
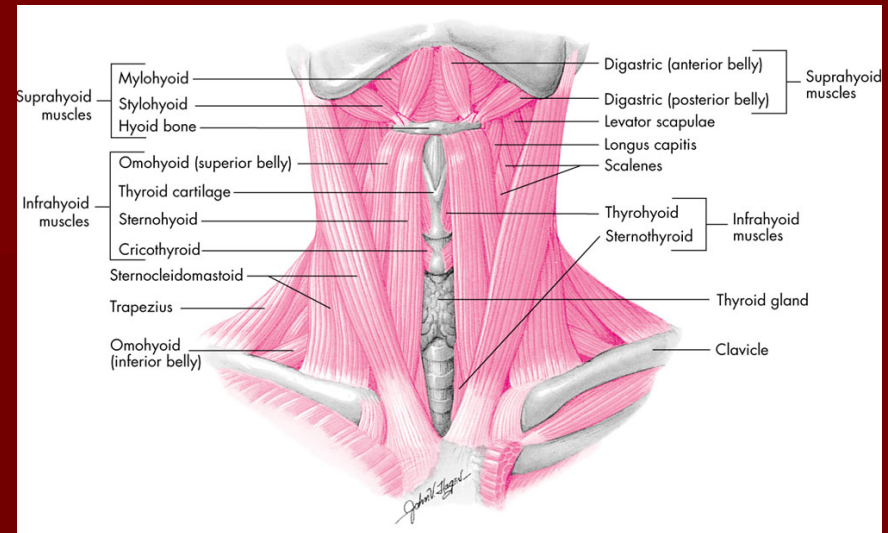
- Seated position
- 1 hand on contralateral upper trapezius
- 1 hand on temporal/occipital lobe
- Gently apply pressure to laterally flex & flexion
- **Contraindication** - cervical disc problems, osteoporosis of cervical spine



Cervical Region

■ Sternocleidomastoid

- **Origin** – sternum
- **Insertion** – mastoid process of temporal lobe
- **Function** – bilaterally cause flexion of neck; unilaterally rotation to opposite side
- **Contributing Factors** – cervical protrusion/flexion cause hypertonicity
- **Stretch**
 - **Cervical Rotation Stretch**



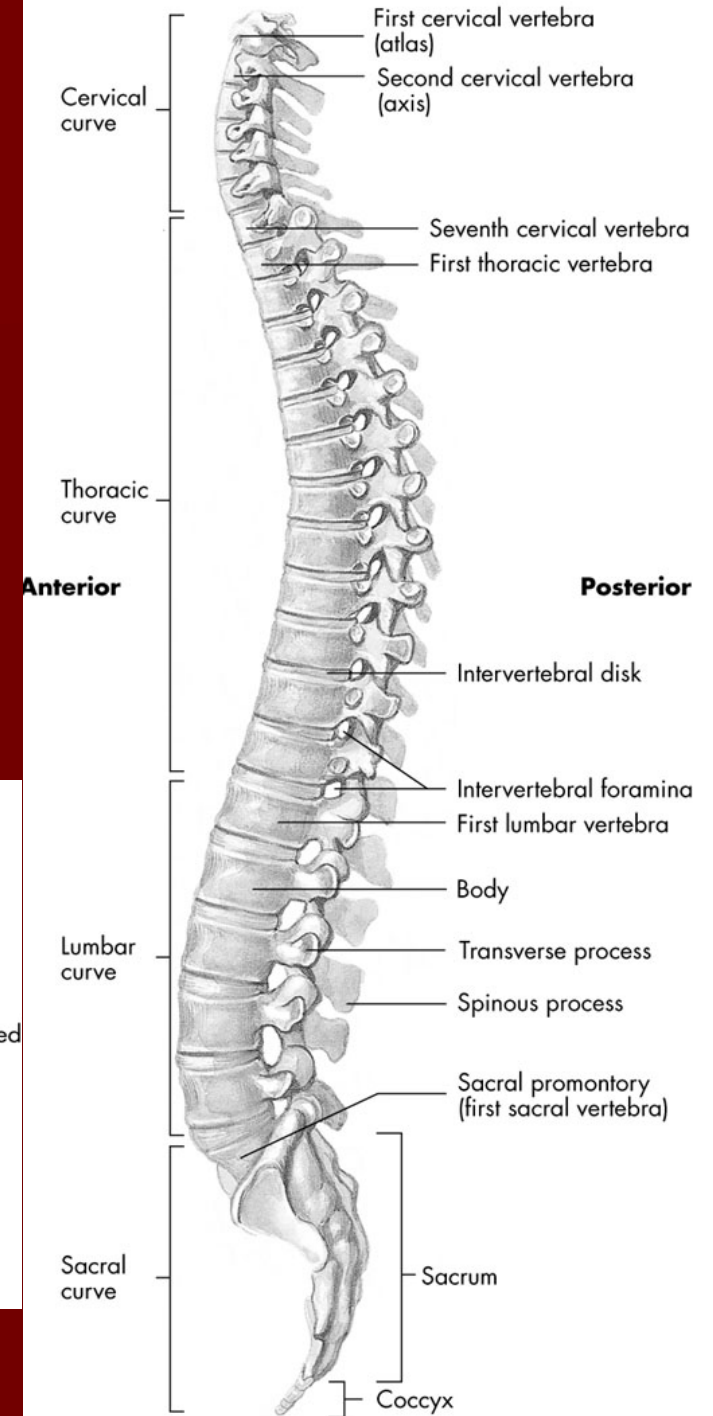
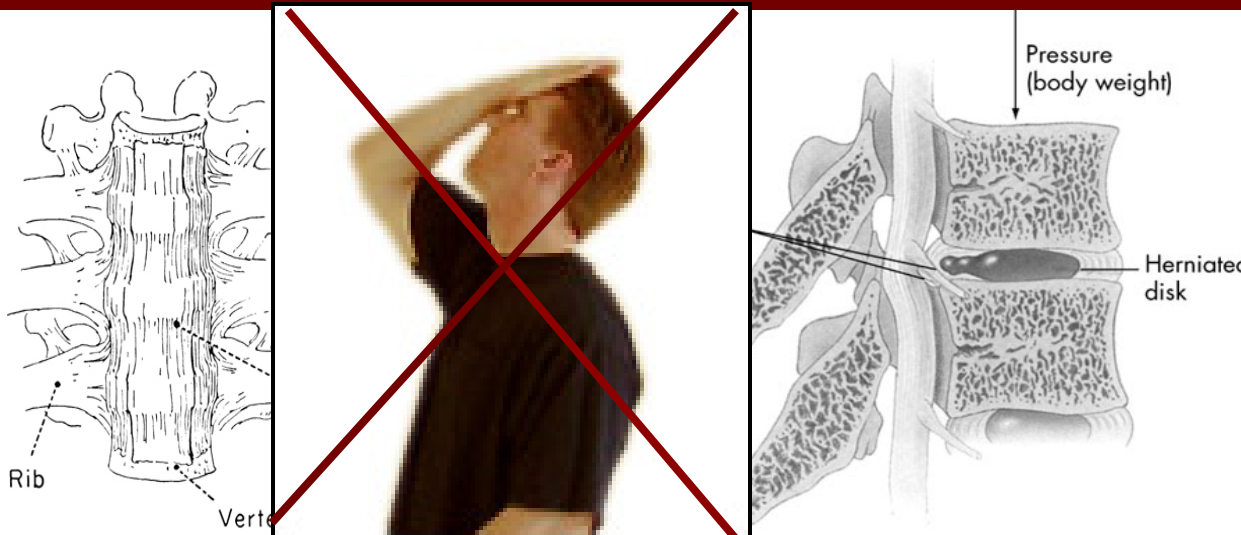
Cervical Rotation Stretch

- Seated position
- 1 hand on contralateral upper trapezius
- 1 hand on mandible
- Gently apply pressure to rotate head



Cervical Hyperextension Stretch

- Stretches **anterior longitudinal ligament**, ↓ pressure on disc (distraction), may help to move nucleus pulposus anteriorly



PNF Stretching

■ Contract Relax

1. Move into agonist pattern passively
2. Have client/athlete apply moderate resistance to motion for 3-5 seconds using antagonist muscle
3. Relax antagonist
4. Stretch antagonist

■ Hold Relax

1. Isometric contraction of antagonist against resistance
2. followed by concentric contraction of agonist combined with slight overpressure

■ **Reciprocal Inhibition** – antagonistic muscle will relax when agonist contracts

■ **Golgi Tendon Organs** – prevent overcontraction & are activated upon muscle contraction. Allow muscle to relax immediately after contraction

■ **Muscle Spindles** – prevent stretching & are activated on initiation of stretch. Usually become inactive after 10 seconds (purpose for holding stretches for 15-20 seconds)

Lower Extremity Assisted Stretching

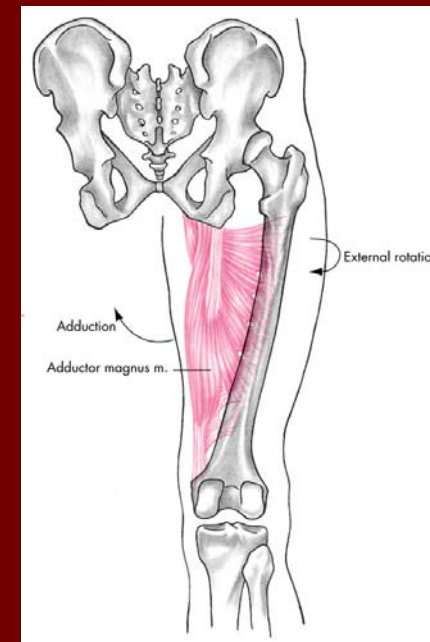
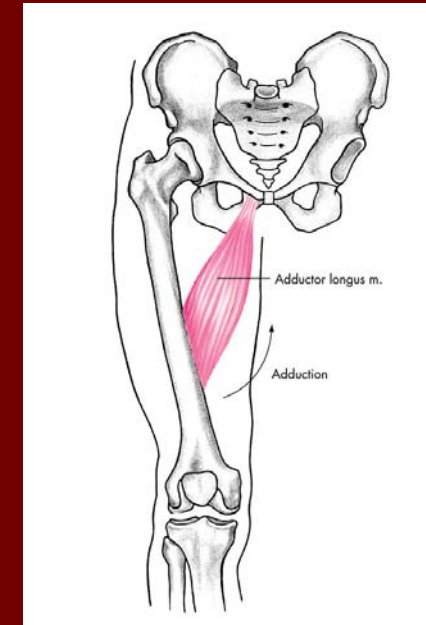
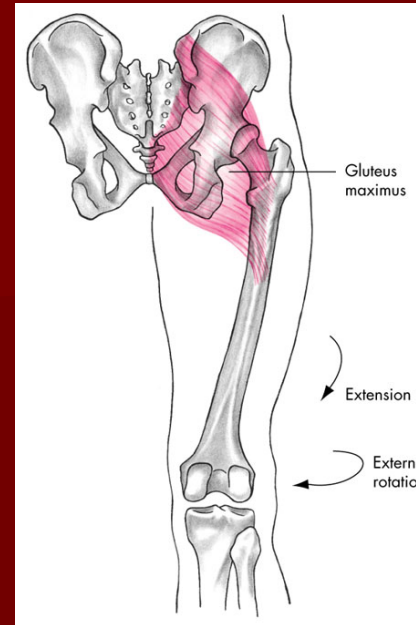
- Make sure client is warmed up, not wearing restrictive clothing, you are aware of any medical contraindications to stretches, have subject lie prone
- Make sure client feels comfortable with hands on stretching

Sequence of Lower Extremity Stretching

1. Single Knee to Chest
2. Straight Leg Raise
 - a. knee slightly flexed
 - b. knee extended
3. Gastrocnemius Stretch
– knee extended
4. Soleus Stretch – knee
slightly flexed
5. Adductor Stretch
6. IT Band Stretch
7. External Rotation
8. Internal Rotation
9. Low Back Stretch
10. Hip Flexor Stretch
11. Quadriceps Stretch

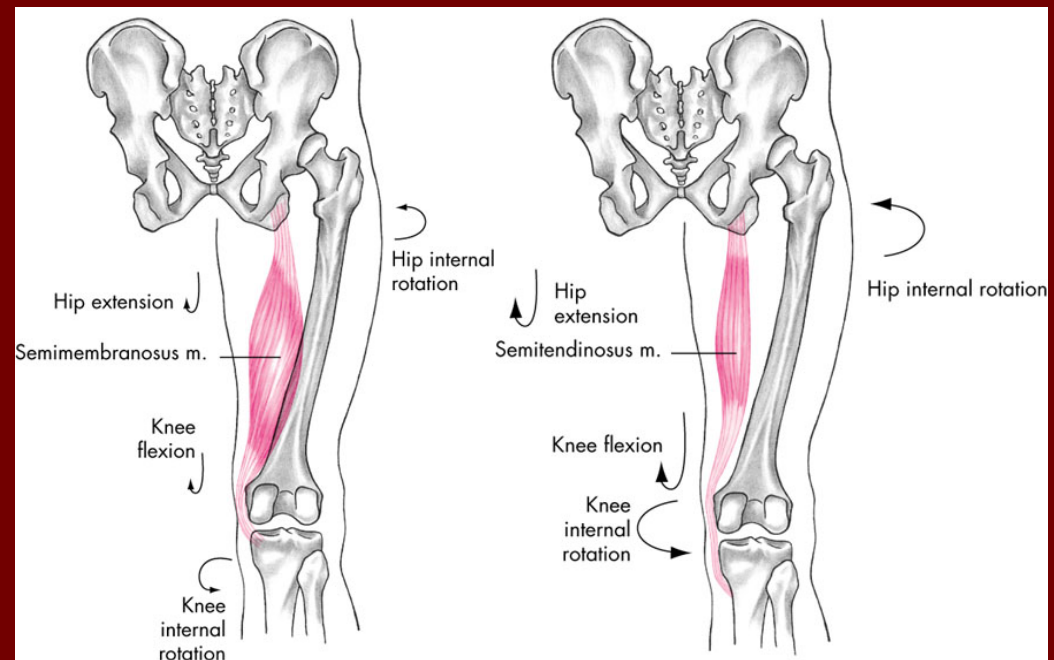
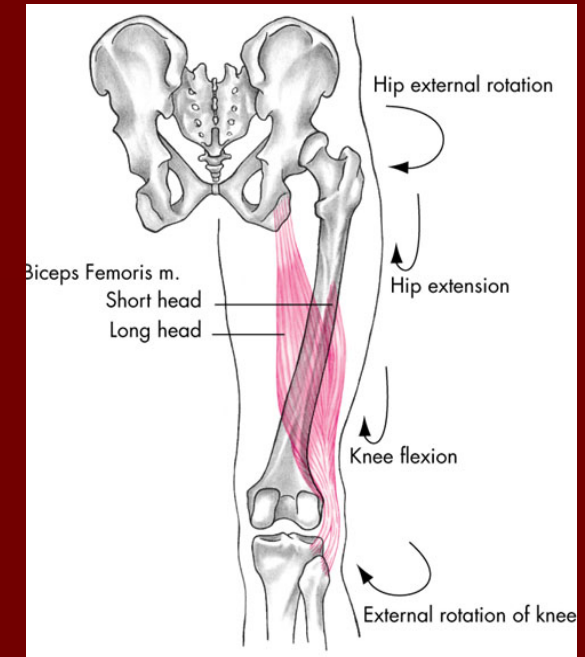
■ Single Knee to Chest

- stretches adductor, gluteus maximus, lumbar spine



■ Straight Leg Raise

- stretches hamstrings
- tight hamstrings posteriorly rotate pelvis causing straightening of lumbar spine
- this ↑ stress on discs contributing to low back pain
- tight hamstrings

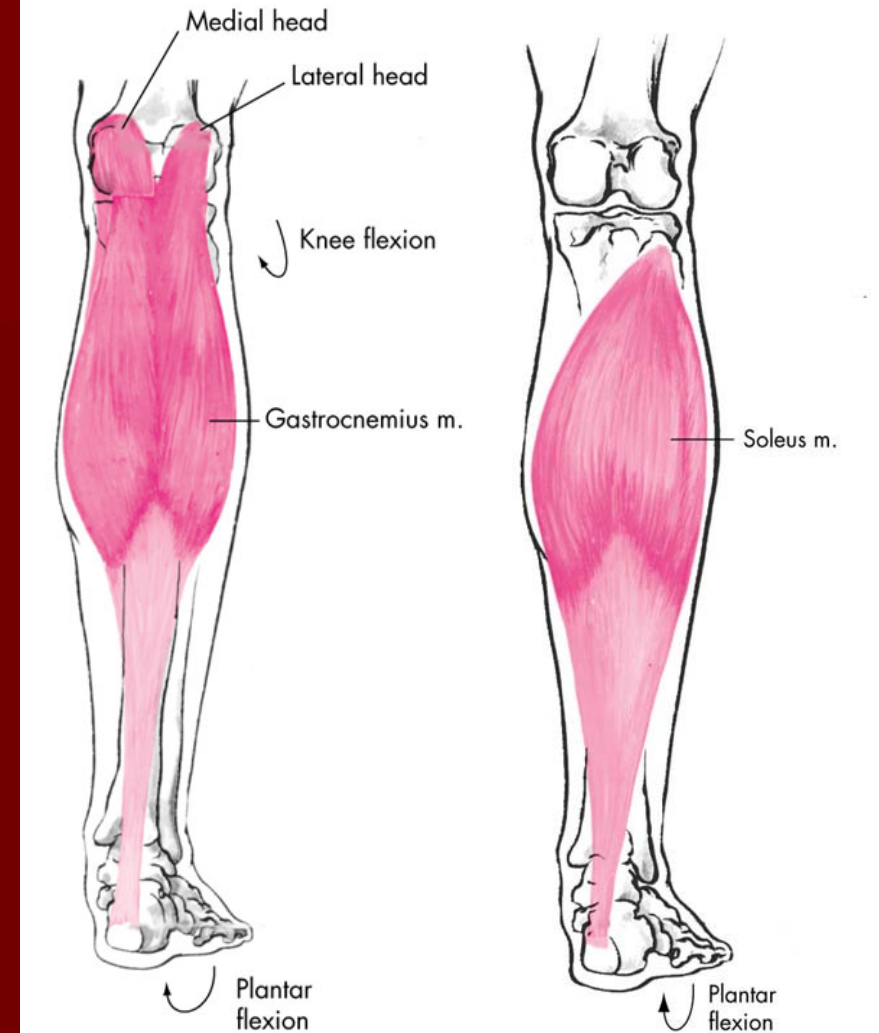


■ Gastrocnemius Stretch

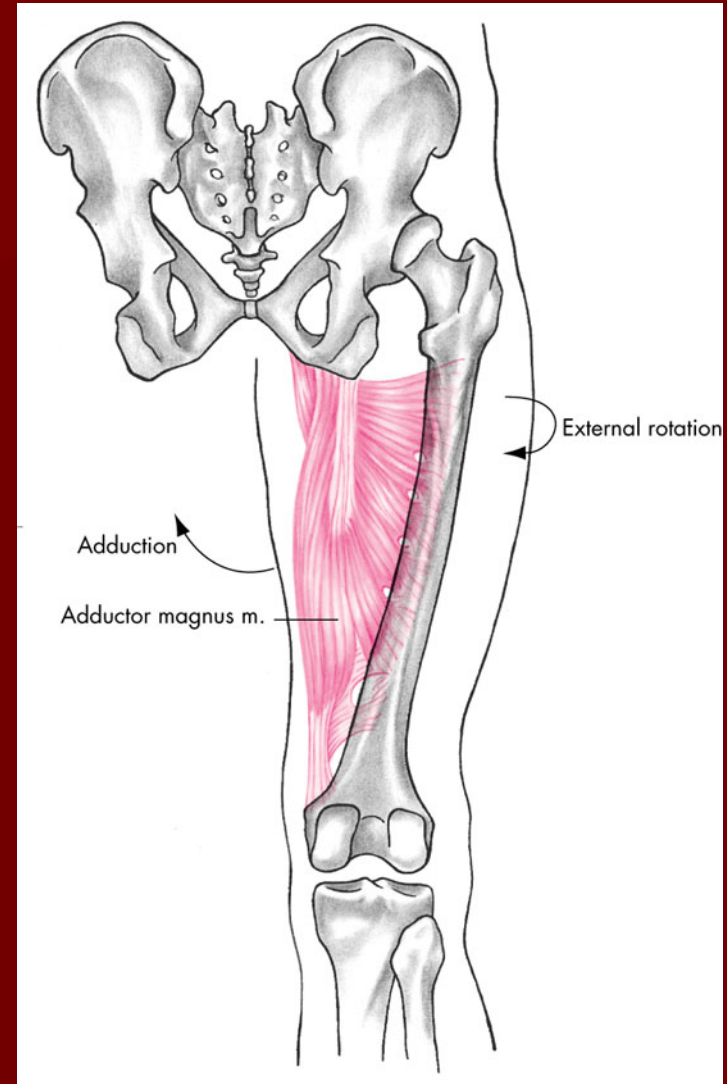
– knees in extension

■ Soleus Stretch

– knees slightly flexed

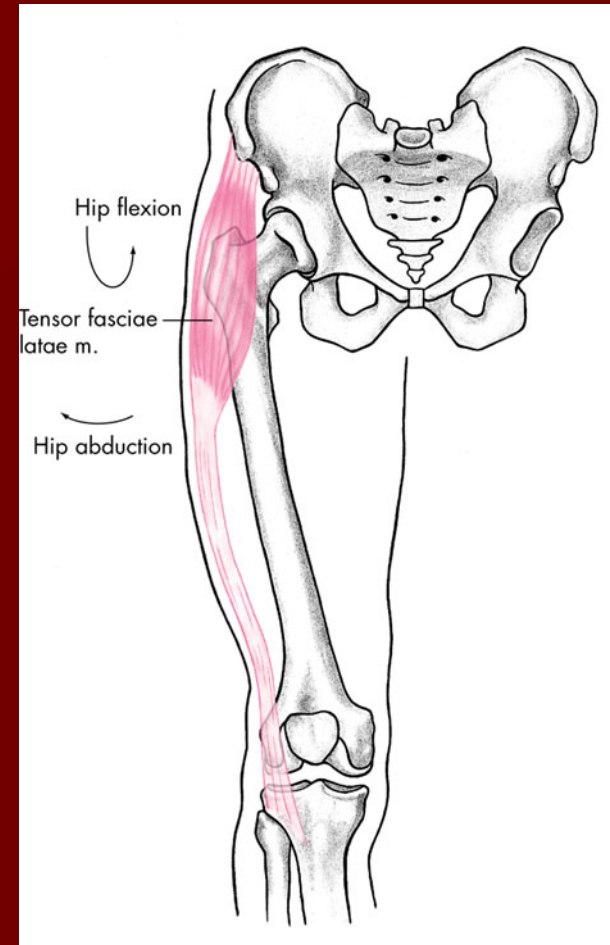


- Adductor Stretch
 - ↓ risk of groin pulls



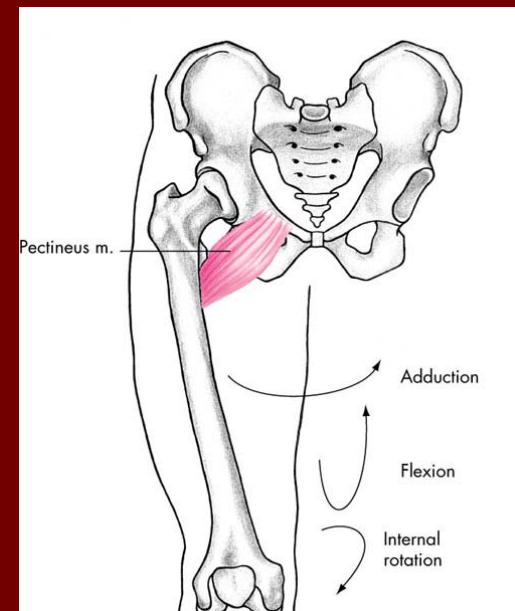
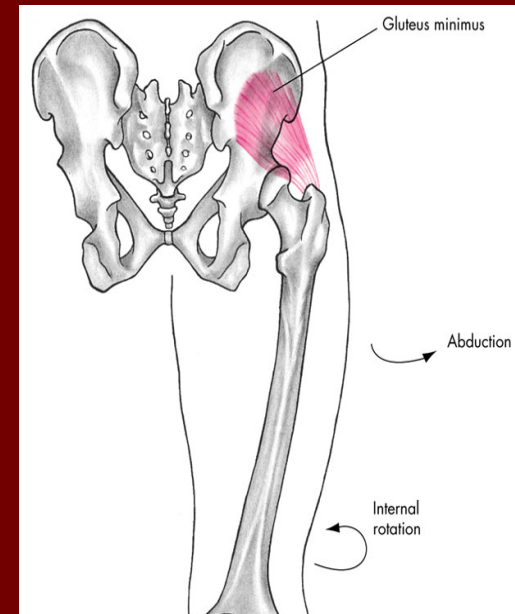
■ IT Band Stretch

- ↓ risk IT Band syndrome, common in cyclists & runners moving only on sagittal plane
- IT Band rubs over lateral condyle of femur creating inflammation



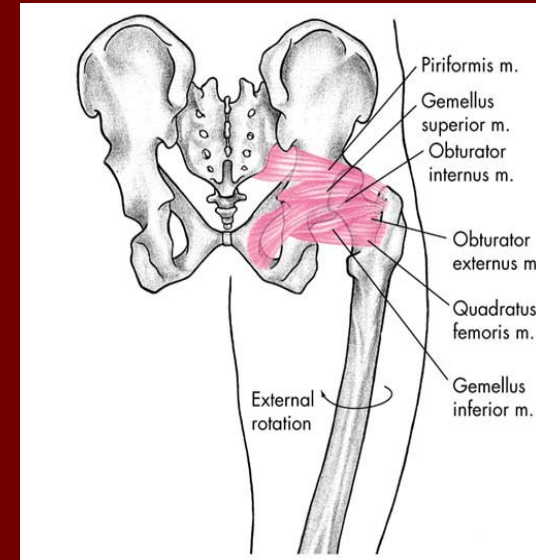
■ External Rotation Stretch

– to stretch the internal rotators

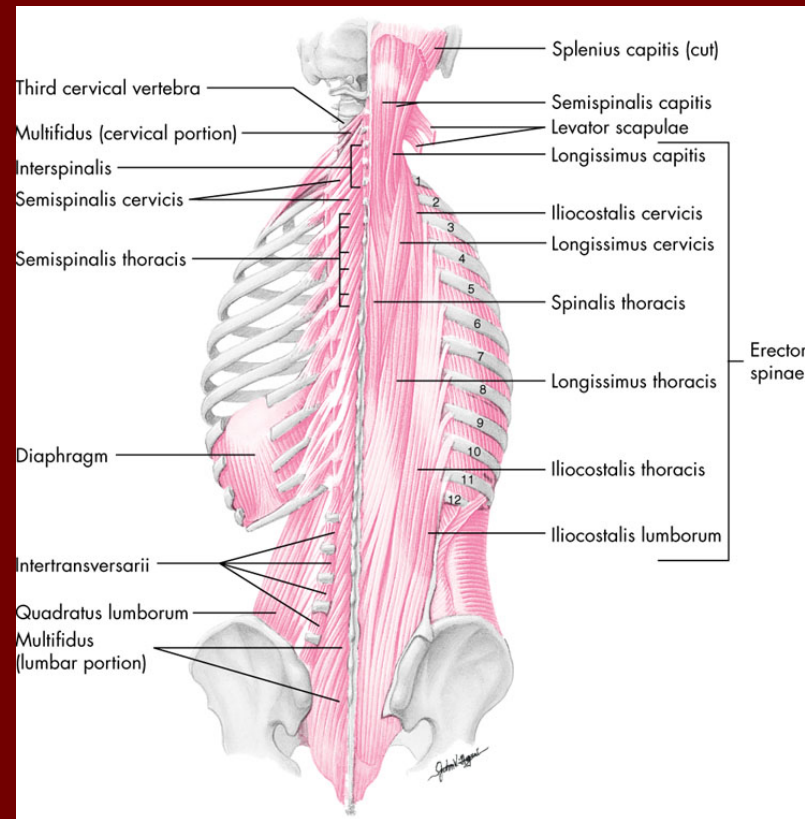


■ Internal Rotation Stretch

- to stretch the external rotators
- **piriformis**
 - sciatic nerve runs very close to this muscle
 - tightness in piriformis may contribute to sciatic pain

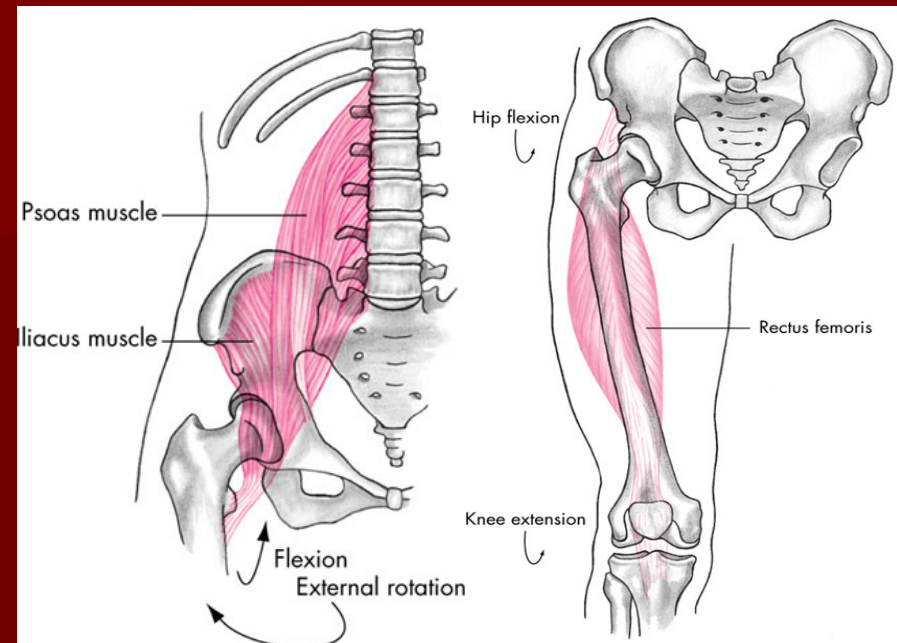


- Lumbar Rotation Stretch
- Lumbar Hyperextension Stretch



■ Hip Flexor Stretch

- Stretches **Iliopsoas**
- tight hip flexors cause an anterior rotated pelvis
- this causes hyperextension of the lumbar spine and can contribute to low back pain
 - pressure on facet joints



■ Quadriceps Stretch

- keep pelvis posteriorly rotated
- ↓ risk of quadriceps pull

