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 scull
  - **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 sagital 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