MOBILIZATION FOR THE ATHLETIC TRAINER

Lynn Matthews, ATC, PT, DPT, COMT
Daemen College
Athletic Training Program Director

DAEMEN COLLEGE
A World of Opportunity
Objectives

- The participant will be to explain the grades of mobilization.
- The participant will be able to explain when to use each grade of mobilization.
- The participant will be able to perform selected mobilizations for pain and increasing range of motion.
Athletic Trainers Performing Manual Therapies/Mobilization

5th ed. Education Competency TI-13
Describe the relationship between the application of therapeutic modalities and the incorporation of active and passive exercise and/or **manual therapies**, including therapeutic massage, myofascial techniques, and muscle energy techniques.

5th ed. Education Competency TI-14
Describe the use of **joint mobilization** in pain reduction and restoration of joint mobility.
Perform joint mobilization techniques as indicated by examination findings.

“Grade I and 2 joint mobilizations reduced subjects pain and increased force production in the short-term stages of mechanical low back pain.
Joint Mobilization

- Defined: a type of passive movement of a skeletal joint. It is usually aimed at a 'target' synovial joint
- Activates mechanoreceptors
Brief History

- Hippocrates 5th century BC..manipulation

- England bone setters 17th century
Modern Advances in Evaluation and Treatment Systems

- Dr. James Cyriax: “Father of Orthopedic Medicine”
- Dr. Stanley Paris
- Robin McKenzie
- Brian Mulligan
- Geoffrey Maitland: my training

- Other coursework: International Academy of Orthopedic Medicine-US info@iaom-us.com
ATCs (who are not PTs) can take 2 courses but cannot become Certified.

2 courses that certified ATs can take:


This policy has been set in accordance with APTA and AAOMPT Policies.
MAP credentials COMT

Certified Orthopedic Manual Therapist

Adapted from Google Images
Mulligan

- Mulligan- NAGS and SNAGS, MWM
- The Mulligan Concept courses are intended for only licensed physical therapists and other clinicians whose scope of practice includes mobilization/manipulative therapy. (PT, MD, DO, DC, OT) In order for PTA's or ATC's to attend, your state must allow you to perform mobilization/manipulative therapy.

Adapted from Google Images
McKenzie: Minimal Criteria to complete Full Program of Certification (Parts A-D and Credentialing Examination):

- Healthcare practitioner with at least a Bachelors Degree in the field of study AND current licensure in the state of practice, or registration by the appropriate state or national regulatory organization.

- In addition to having completed the four part course series, eligible practitioners must have had at least two years of postgraduate clinical experience to take the Credentialing Exam.

- (Approved healthcare providers: PT, DC, MD, DO, NP, and PA; and in some cases ATC, OT, RCEP (by ACSM), and RN). Depends on the state. Regardless, still able to complete Parts A-C.
McKenzie Institute credentials
cert. MDT

- Mechanical Diagnosis and Therapy
- David Ruiz, MS, ATC Cert. MDT
- Practical Applications in Sports Medicine
  June 1-3, 2012

Adapted from Google Images
Many hypothesis by researchers, chiropractors, PTs, osteopathic and massage based fields

Include-
- Movement of nucleus pulposus
- Activation of gate-control mechanism
- Neuromechanical and biomechanical responses
- Reduction in muscle hypertonicity
Biomechanical Changes

- Hypomobility- leads to decreased synovial fluid and decreased ground substance which leads to joint stiffness.

- Additional causes of hypomobility:
  - derangement
**Effects of Mobilization**

- **Increase ROM**
- **Decrease Pain:** Stimulates Mechanoreceptors. Mechanoreceptors are believed to alter the pain-spasm cycle through the pre-synaptic inhibition of nociceptive fibers in associated structures and the inhibition of hypertonic muscles, which ultimately improves functional abilities. (Colloca, CJ, Keller, TS 2001)
- **Audible “pop”** Not necessary for pain reduction. Thought to be the result of “cavitation” in a synovial joint.
Principles
adapted from MT-1 MAPS

- Know precautions and contraindications
- Know your limitations
- Know the patients limitations
- Be sure to estimate and respect irritability
- Move inflamed tissue gently
- Use your trunk—avoid white knuckles, blanched fingernails, tense muscles, remote control, and awkward positions
Principles
adapted from MT-1 MAPS

- Assess (examine) -- assess the effects of the examination -- treat -- assess the effects of the treatment.
- Focus on the comparable (reproduction of symptoms) sign
- Assess the Uninvolved side first
- Let every patient help you refine your skills. Get their response first! Listen!
Principles adapted from MT-1 MAPS

- Progress treatment by increasing grade, time of each bout, number of bouts and/or position in range
- Let the features of the examination fit a pattern of presentation, do not force a bias fit
- Add a second technique or procedure when you know the effect of the first..KISS
- Assess over 24 hours
Principles adapted from MT-1 MAPS

- Do not hold too long at end range
- Do not be greedy- brief treatments early, over treat later if you must to increase range
- Start active exercises once have passive movements under control
Preset outcomes not grades of movement, if treating pain then preset outcome is reduction and elimination of pain; if treating stiffness, the outcome is increase in range.

- If you make a pt. worse own up and do opposite.
Principles adapted from MT-1 MAPS

- Need normal Accessory (Arthrokinematic) movement for normal physiological (osteokinematic) movement
- Most Arthrokinematic movements are beyond voluntary control
- Use least amount of force
- Avoid paralysis by analysis
3 Primary Assessment Approaches in Manual Therapy

1. Biomechanical analysis approach - coupling motions of the spine, convex-concave rules
2. Patient response approach - movements and treatments based on pt’s reports of symptoms provocation and resolution
3. Combination of both
Limitations in our Present Biomechanical Knowledge

- Mac Conaill (1969) used mechanical models in describing Roll, Spin and Glide in G/H joint

- Adapted from MT 1
Assessment of pain provocation during an accessory motion test (PAIVMS) tends to be more reliable than assessments of motion or type of end feel”

“PAIVMS demonstrate that an OMT’s manual examination when accompanied by verbal subject response is highly accurate in detecting the lumbar segment level responsible for a subject’s complaint”

We are going to use the pt. response approach
Grade I - Small amplitude, short of Resistance
Activates Type I mechanoreceptors.
Indications: Pain
Grade II

- Grade II – Large amplitude, short of Resistance
- By virtue of the large amplitude movement it will affect Type II mechanoreceptors to a greater extent
Grade III

- Grade III – Large Amplitude to 50% of R1-R2.
- Selectively activates more of the muscle and joint mechanoreceptors as it goes into resistance, and less of the cutaneous ones as the slack of the subcutaneous tissues is taken up.
Grade IV

- Grade IV – Small amplitude to 50% of R-R2
- With its more sustained movement at the end of range will activate the static, slow adapting, Type I mechanoreceptors, whose resting discharge rises in proportion to the degree of change in joint capsule tension.
Grade V - This is the same as **manipulation**. Small Amplitude, High Velocity thrust at end of available range.
- R1- when first feel resistance
- R2- limit of the resistance
- In general 30 second bouts x 3 times per second= 90 exercises
Irritable Disorder

- Constant pain or severe intermittent pain
- Easily provoked
- Long time to settle
- Examples:
  - Acute RA
  - Severe trauma
  - Inflamed chemical pain
Rest important

Appropriate movement can lessen the chance for post inflammatory excessive scar formation
Treatment for Irritability

- Grade I and II
- Brief bouts
- Few Bouts
- Short of the barriers
  - Position in comfort
  - Preferred direction
Treatment for Non-Irritable

- Grade III, IV, and V
- Longer bouts
- Numerous bouts
- Into barriers
- End of range
Arthrokinematic Convex concave Rules

- Standard of biomechanical assessment methods
- Concave surface rotates about a convex surface rolling and gliding occur in same direction
- Convex surface rotates about a concave surface rolling and gliding occur in opposite direction
Fingers should not blanch like this. Painful to patient and you.
Passive Mobilization for Headaches

Step 1: Find OA (C0-C1) joints
Passive Mobilization for Headaches
Step 2: Unilateral Posterior to Anterior (UPA) at OA joint
Passive Mobilization for Headaches

Step 3: UPA at C2–3 segment
Passive Mobilization for Headaches

Step 4: UPA at C2–3 segment with 30 degrees rotation
Cervical Distraction
Increase ROM
Shoulder Distraction Increases ROM—decreases pain
Inferior Glide Shoulder
Increase Abduction (ABD)
Posterior Shoulder Glide (AP Glide) Increase Internal Rotation and ABD
Anterior Shoulder Glide (PA Glide)  
Increase External Rotation and Extension
Scapular Mobilization Distraction—Increases movement
Scapular Mobilization
Inferior glide– Increases downward rotation
Thoracic Spine CPA and UPA
Decrease pain, Increase extension
Humeroulnar Distraction
General Increase of Motion
Lateral Elbow Stretches Lateral Epicondyle Structures
Humeroradial Distraction
Decrease Pain, Increase Elbow extension and Radial motion
AP Humeroradial Joint Increase Flexion
PA Humeroradial Glide
Increase extension
Proximal Radioulnar Joint
Posterior Glide (AP) – Increase Pronation
Mobilizing had grasps the radius
Stabilizing hand grasps the ulna
Proximal Radioulnar Joint
Anterior Glide (PA) - Increase Supination
Mobilizing had grasps the radius
Stabilizing hand grasps the ulna
Hand Position for Mobilizing Lumbar Spine
Lumbar spine CPA and UPA
Decrease pain, Increase extension
Hip Distraction
Decrease pain, Increase ROM
Hip Lateral Glide
Increase ABD & General Mobility, Decrease Pain
Hip Anterior Glide (PA)
Increase hip extension & ER
Knee Posterior Glide
Increase flexion
Knee Anterior Glides
Increase Extension
Medial Patellar Glide
Subtalar Distraction
Increase General Mobility
Anterior Glide of Tibia on Talus
Increase Plantarflexion
Posterior Glide Talocrural Joint
Increase DF
Subtalar Joint Lateral Glide
Increase Subtalar Inversion
Subtalar Joint Medial Glide
Increase Eversion
Questions?