Manual Mobilization of the Lumbar and Thoracic Spine

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Objectives

- Understand the osteo- and arthrokinematics of the spine within the context of the clinical application of joint mobilization.
- Identify physiologic implications leading to the classification and treatment of patients shown to benefit from high velocity low amplitude mobilizations.
- Instruct how to, and evaluate attendees’ ability to, perform high velocity low amplitude thrust mobilizations for the lumbar and thoracic spine, allowing them to develop a plan to integrate these techniques into their clinical practice.
Joint Mobilizations: Overview

- Patient explanation
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
  - Identify stable component
Joint Mobilizations: Overview

- **Patient explanation**
- **Identify anatomy of joint**
  - Identify stable component
  - Identify mobilization component
Roll

Glide
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
  - Identify stable component
  - Identify mobilization component
- Patient positioning
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
  - Identify stable component
  - Identify mobilization component
- Patient positioning
- Clinician positioning (hand placement)
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
  - Identify stable component
  - Identify mobilization component
- Patient positioning

- Clinician positioning (hand placement)
- Direction of force (restriction)
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
  - Identify stable component
  - Identify mobilization component
- Patient positioning
- Clinician positioning (hand placement)
- Direction of force (restriction)
  - Treatment plane
Concave on Convex¹

Treatment Plane

Glide
Roll
Convex on Concave

Treatment Plane
Convex/Concave Rule: Remix Edition

- Brandt et al.\(^2\)
  - Evidence based review revealing translational motion in GH joint did not always follow convex/concave rule

- My solution: Trust your physical exam
Joint Mobilizations: Overview

- Patient explanation
- Identify anatomy of joint
  - Identify stable component
  - Identify mobilization component
- Patient positioning
- Clinician positioning (hand placement)
- Direction of force (restriction)
  - Treatment plane
- Grade of mobilization
Contraindications

- Hypermobility
- Suspected fractures
- Instability
- Immediate Post-Op
- Infections
- Disk Herniations
- Open Wounds
- Malignancy
- Acute inflammation
- Vertebral Basilar Insufficiency
Defining Grades of Motion

- Mobilization as a continuum – Maitland$^3$
  - Velocity
  - Amplitude
  - Position in available motion
Grades^3

Normal Joint

Normal Tissue Resistance to Movement
Grades^3

Normal Joint

Normal Tissue Resistance to Movement
Grades

I

II

Normal Joint

Normal Tissue Resistance to Movement
Grades

I

II

III

Normal Joint

Normal Tissue Resistance to Movement
Grades$^3$

Normal Joint

Normal Tissue Resistance to Movement

I

II

III

IV
Grades

Pathologic Joint

I

II

III

Normal Tissue Resistance to Movement
Pathologic Joint

Grades

I
II
III

Normal Tissue Resistance to Movement
Pathologic Restriction
Grades³

Pathologic Joint

I

II

III

Pathologic Restriction

Normal Tissue Resistance to Movement
Grades

Pathologic Joint

I

II

III

IV

V

Normal Tissue Resistance to Movement

Pathologic Restriction
Normal Tissue
Resistance to Movement

Pathologic Restriction

I
II
III
IV
V
Normal Joint

Pathologic Joint

Normal Tissue Resistance to Movement

Pathologic Restriction
Lumbar – Arthrology

- Intralumbar apophyseal joints
Lumbar – Arthrokinematics

- Intralumbar apophyseal joints (L1-L5)
  - flexion-extension
  - rotation
  - lateral flexion
Lumbar – Arthrokinematics$^4$

- Flexion
Lumbar – Arthrokinematics

- Extension
Lumbar – Arthrokinematics

- Axial rotation
Lumbar – Arthrokinematics

- Lateral flexion
Lumbar – Clinical Application

- Imaging?
- Clinical prediction rule for mobilization\(^6,7\)
  - Duration < 16 days
  - No symptoms distal to knee
  - FABQ work subscale < 19
  - \(\geq 1\) hypomobile lumbar spinal segment
  - \(\geq 1\) hip with > 35° of internal rotation range of motion
- Patient positioning
Lumbar – Clinical Application

- **Glides:**
  - Central posterior – anterior
  - Unilateral posterior – anterior

- Anterior – posterior is not really an option. Solution?
Thoracic – Arthrology

- Intrathoracic apophyseal joints
- Costovertebral joints
Thoracic – Arthrokinematics

- Intrathoracic apophyseal joints (T1-T12)
  - flexion-extension
  - rotation
  - lateral flexion
Thoracic – Arthrokinematics

- Flexion
Thoracic – Arthrokinematics\(^4\)

- Extension
Thoracic – Arthrokinematics

- Axial rotation
Thoracic – Arthrokinematics

- Lateral flexion
Thoracic – Clinical Application

- Soft tissue vs facet joint dysfunction
- Rib mobilization
- Proper breathing technique
Thoracic – Clinical Application

- **Glides:**
  - Central posterior – anterior (PA glide)
  - Unilateral posterior – anterior (PA glide)
  - Anterior – posterior (AP glide) is not really an option. Solution?
References


References

