Manual Therapy for Post-Concussion Syndrome

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Objectives
- Discuss evidence for manual therapy in patients with symptoms of headache, dizziness, oculomotor impairments and neck pain
- Learn and practice manual techniques
- Discuss integration of manual therapy evaluation and treatment of patients following concussion

Evaluation

- Cervical ROM
- Cervical Joint Position Sense
- Oculomotor
  - Gaze Stability
  - Eye Follow
  - Saccades
  - Eye-Head Coordination
- Postural Stability
  - Balance

- Sensorimotor disturbances in neck disorders affecting postural stability, head and eye movement control

Cervical Spine ROM
- Inclinometer
- Interrater Reliability 0.88–0.96
- MDC 5–10°

Fletcher and Bandy, JOSPT 38(10), 2008.

Cervical Joint Position Sense
- 90 cm from wall
- Mark starting point
- Eyes Closed
- Active Motion and return to starting point
- ABNormal: >4–5 cm (1.5–2 inches)
Gaze Stability

- Eyes focus on target
- Active cervical motion

ABNormal:
- Sx reproduction
- Inability to focus
- Reduced or awkward motion

Eye Follow

- Eyes follow moving target
- No cervical motion
- Neutral and torsion

ABNormal:
- Sx reproduction
- Interrupted movement

Saccadic Motion

- Rapid Eye movement to a changed point of fixation

ABNormal:
- Difficulty following or fixating on the target
- Symptom reproduction

Eye/Head Coordination

- Patient moves eyes first to a target and then head

ABNormal:
- Difficulty with focus
- Sx reproduction

Evaluation

- Measurable Objective Findings
- Test–ReTest Model

Saccadic Eye Motion
Conclusions

- Cervical manipulation produces similar pain relief, functional improvements and patient satisfaction as mobilization
- Manipulation may provide short-term but not long-term pain relief
- Thoracic manipulation used alone or in combination may improve pain and function

Techniques

- Occipital–Atlantal Muscle Energy Technique
  - OA flexion, then sidebend
  - Pressure exerted by the therapist in a flexion–rotational direction
  - Patient instructed to look in the direction opposite of rotational force.

- C2 Lateral Flexion Muscle Energy Technique
  - Cervical spine in neutral
  - Patient is instructed to resist with matching force
  - Apply sidebending force to cranium and atlas

- Cervical Lateral Glide
  - MTP on articular process
  - Down glide with contact hand
  - Sidebending with stabilizing hand
Evidence

- Cervical lateral glide increases nociceptive flexion reflex threshold but not pressure or thermal pain thresholds in chronic whiplash associated disorders: A pilot randomised controlled trial
  Michele Sterling 1,2,*, Ashley Pedoe 3, Clifton Chau 9, Madorna Paglini 3, Viana Vosman 9, Bill Vickers 9

Technique

- Intraoral TMJ Distraction
  - Thumb along molars
  - Fingers grip jaw
  - Distraction applied in a scooping motion

- Sidelying TMJ Mobilization
  - Thumbs placed on mandibular condyle
  - Apply medial glide

Evidence

- Conclusion
  - SNAGs are a safe and effective technique
  - Clinically and statistically significant immediate and sustained effect in reducing dizziness, neck pain and disability

Techniques

- Mulligan SNAG (extension)
  - Discover offending motion
  - Patient is seated, PT applies glide
  - Patient moves in offending direction
  - Motion should be symptom free
Techniques

- Mulligan SNAG Rotation
  Rotary Glide applied to C1

**Note**
If no effect on symptoms, glide may be attempted at lower levels

Evidence

Effects of acupuncture, cervical manipulation and NSAID therapy on dizziness and impaired head repositioning of suspected cervical origin: a pilot study

- Outcomes
  - Manipulation and acupuncture resulted in the best change in relocation ability
  - Manipulation was the only intervention that significantly decreased frequency, intensity and duration of dizziness

Technique

- Epley Maneuver
  - Studies report 80–92% success rates in treating BPPV

Technique

- Cervicothoracic Distraction Manipulation

Technique

- Mid-Thoracic Manipulation

Integration

- What Technique?
  - Techniques are chosen based upon history
  - Pick 1 asterisk sign and measure objectively
  - Apply 1 manual therapy intervention
  - Re-assess