APA Ignite 2023: How-To session for Upper Cervical Instability .

Explain and describe (or demonstrate) each test / movement and ask patient about "apprehension" to a particular movement or test before testing or performing the movement. Stop if symptom provocation is unexpected or "not the norm" and note the quality / smoothness of movement – not just the range of movement.

1. POSTURAL ASSESSMENT

- Upper cervical spine
  - retracted with protective bracing and guarding ('lost' lordosis
  - chin poke with poor control and recruitment
- Low cervical spine - head forward cervico-thoracic flexion
- Thoracic spine
  - flexed / slumped
- Scapular
  - 'dropped' into downward rotation or forward tilt

2. ACTIVE CERVICAL RANGE OF MOTION

Ask patient about "apprehension" to a particular movement before getting them to perform the movement. Stop if symptom provocation is unexpected or "not the norm" and note the quality / smoothness of movement – not just the range of movement

- Neck / Cervical Rotation
  - observe for compensatory chin poke or sidebending
  - assess scapula influence on head rotation ROM
    - with scapula in natural resting alignment
    - with scapula supported in maximum upward rotation / elevation (myofascial unloading)
    - with scapula held in maximum downward rotation / depression (myofascial loading)

- Neck / Cervical Flexion
  - increased upper cervical flexion (hyper mobile)
  - increased low cervical flexion (stiff and flexed CT 'bump')
  - decreased cervical flexion (locked lordosis – prominent fascia nuchae)

- Neck / Cervical Extension
  - observe movement initiated with upper cervical extension
  - observe increased upper cervical extension ROM (hyper mobile)
  - observe decreased low cervical extension (stiff- flexed C-T 'bump')
    - sitting supported forward lean (arms on table)
    - +/- sitting upright (head supported by hands)

- Neck / Cervical Lateral Flexion (Sidebend)
  - observe for compensatory chin poke or rotation
  - assess scapula influence on head sidebend ROM
    - with scapula in natural resting alignment
    - with scapula supported in maximum upward rotation / elevation (myofascial unloading)
    - with scapula held in maximum downward rotation / depression (myofascial loading)

- Thoracic ROM
  - rotation
  - extension

- Shoulder ROM
  - arms overhead
    - bilateral / unilateral
    - letter 'Y' shrugs
  - hands behind back
    - scapula shrugs
    - scapula retraction
  - push up off chair arm rest

3. SENSORIMOTOR TESTING

- Trunk- head coordination
- Movement / position sense
    - ? Gaze stability
    - ? Smooth pursuit

4. MANUAL JOINT / ARTICULAR ASSESSMENT (head supported neutral alignment)

- Supine head supported manual distraction and axial compression

- C 0-1-2-3 P-A unilateral glide (↓ ↴) (?supine if patient apprehensive lying prone)
  - pain / protective spasm
  - hypermobile translation movement

- C 0-1-2-3 uni-lateral transverse glide (← →)
  - observe pain / protective spasm
  - observe hypermobile translation movement
    - +/-small range lateral flexion

- C0-1-2-3 rotation- opening Ax (supine ?capsular mobility)
- C0-1-2-3 rotation- closing Ax (sitting ?supine)

  - ? Sharp purser relocation test
  - ? Upper cervical flexion test

  ❖ **Caution with potentially provocative ligamentous instability testing:**
  ? Alar ligament tests
  ? Transverse ligament test
  ? Lateral shear (displacement) test
  ? Tectorial membrane test

5. COGNITIVE MOTOR CONTROL MOVEMENT EFFICIENCY EVALUATION

Cognitive Motor Control Testing: (patient self-palpation for feedback &support)
- control / prevent / limit upper cervical movement and move an adjacent region:

- Upper Cervical Flexion Control
  - control / prevent upper cervical flexion (maintain isometric upper cervical neutral) + move independent low cervical flexion ('challenge' to upper cervical control)
  - control / prevent upper cervical flexion (maintain isometric upper cervical neutral) + move independent bilateral shoulder extension 15 to 20° ('challenge' to upper cervical control)

- Upper Cervical Extension Control
  - control / prevent upper cervical extension (maintain isometric upper cervical neutral) + move independent low cervical extension ('challenge' to upper cervical control)
  - control / prevent upper cervical extension (maintain isometric upper cervical neutral) + move independent bilateral shoulder horizontal abduction / extension / retraction 15 to 20° ('challenge' to upper cervical control)

- Cervical Rotation/Sidebend Control
  - control / prevent head rotation (maintain head neutral looking forwards) + move independent thoracic rotation.
    - (+/- cervical counter-rotation)
  - control/prevent upper cervical lateral flexion (head tilt) and extension (chin poke) + move independent head rotation (eyes horizontal)
    - +/- deep neck flexor activation (upper cervical nodding)

6. COGNITIVE MOTOR CONTROL MOVEMENT EFFICIENCY EVALUATION

Deep Local Stabiliser Isometric Activation (cervical neutral alignment)

- Upper Cervical Deep Neck Flexor Activation
  - isometric efficiency (supine)
  - ? Caution if provoke symptoms
    - +/- PBU objective assessment

- Upper Cervical Deep Extensor Activation
  - isometric efficiency (supine 'pillow push')
    - +/- ½ rotation

- Upper Cervical Segmental Sidebend
  - active range efficiency + light isometric (sitting)

- ?? Upper Trapezius Local Stabiliser Recruitment

7. MUSCLE SYNERGISTS RECRUITMENT CO-ORDINATION & EFFICIENCY

Global Stabiliser - Global Mobiliser Through Range Recruitment Efficiency

- **Cervico-thoracic-scapular global stabiliser recruitment:**
  - inner range hold efficiency testing
  - longus colli (flexor stabilisers)
  - semispinalis / multifidus (extensor stabilisers)
  - serratus anterior- open and closed chain
  - lower trapezius

- **Cervico-thoracic-scapular global mobiliser recruitment:**
  - extensibility / 'substitution' inhibition testing
  - sterno-cleido-mastoid
  - scalenes
  - levator scapula
  - splenius / longissimus
  - pectoralis minor
  - latissimus dorsi
  - ? hyoids

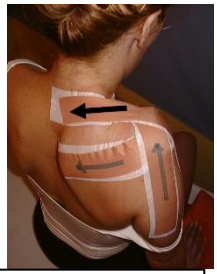
8. AUGMENTED CERVICAL SPINE SUPPORT OPTIONS

- Taping unload the upper quadrant from the neck and head
  - rigid tape
  - dynamic tape

Scapula supported in upward rotation.

Coracoid to T4 along spine of scapula

Posterior deltoid to lateral clavicle



Anterior deltoid to C-T junction

Soft anchor tapes

- Soft collar options and advice (mediprotect)
- Rigid collar options and advice (aspen vista)

- ? Surgical stabilisation options

9. GRADED MOVEMENT CONTROL TRAINING FLOWCHART

Principles & Strategies of Graded Movement Control Training (for UCI/CCI)

All cognitive recruitment and active movements are initially performed with low / minimal contraction force (non-fatiguing) and with isometric recruitment or slowly through very small ranges of motion. Progression into larger ranges of motion is only considered after careful evaluation of tolerance.