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Occupational Therapy's Role in the Management of Neck Pain

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Objectives

- Review cervical region anatomy and common conditions involving the neck
- Determine how occupational performance can be affected due to cervical region dysfunction in patients with neck pain
- Identify screening tools and special tests appropriate for assessing neck pain and measuring outcomes
- List various intervention options for effective management of neck pain.
  - Basic ergonomic modifications, therapeutic exercise, soft tissue mobilization, manual techniques

ANATOMY and CONDITIONS

What is the neck?

- Termed the “craniocervical” region
- Three joint regions
  - Atlanto-occipital
  - Atlanto-axial
  - Apophyseal joints (facet joints of C2-C7)
- Total motion
  - Flexion: 45-50 degrees
  - Extension: 85 degrees
  - Rotation: 90 degrees
  - Lateral flexion: 40 degrees

Cervical spine

- Cervical vertebrae are the smallest in the body; most mobile
- Seven cervical vertebrae
  - Eight cervical nerve roots
- Atlas = C1
- Axis = C2
- Palpable landmark = C7

Cervical spine: Key landmarks

- Vertebral body
  - Bulk of the vertebrae
- Spinous process
  - Most palpable at C7; serves at attachment point for several muscles
- Transverse process
  - Lateral portions lead to anterior and posterior tubercles, also serving as attachment points for muscles and ligaments
- Vertebral canal
  - Opening that allows space for the spinal cord

Cervical spine: Key landmarks

- Transverse foramen
  - Located at the transverse process; allows for the vertebral artery to ascend towards the foramen magnum
- Articular processes (superior and inferior)
  - Contain articular facets which create apophyseal joints
  - The orientation of each facet guides motion within the C-spine
- Intervertebral disc
  - Helps absorb shock and buffer compression
    - Nucleus pulposus and annulus fibrosus

Musculature

Can be divided into anterior and posterior musculature

ANTERIOR	POSTERIOR
- Sternocleidomastoid (SCM)	- Splenius cervicis
- Scalenes (anterior, middle, posterior)	- Splenius capitis
- Deep flexors (longus colli & longus capitis)	- Suboccipital muscles
	- Levator scapulae*

Anterior Musculature

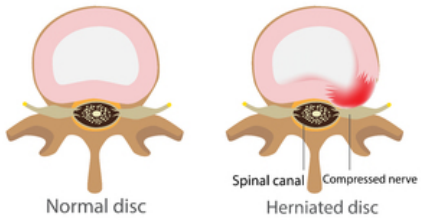
- Sternocleidomastoid
  - Unilaterally: contralateral rotation; lateral flexion
  - Bilaterally: neck flexion
- Scalenes
  - Unilaterally: lateral flexion
  - Bilaterally: assist with flexion
- Longus colli & capitis
  - Assist with upper region flexion and lateral flexion

Posterior Musculature

- Splenius muscles
  - Bilaterally: main neck extensors
  - Unilateral: ipsilateral rotation; assist with lateral flexion
- Suboccipital muscles
  - Extension, lateral flexion, and rotation of the atlanto-occipital and atlanto-axial joints; small movements of the craniocervical region
- Levator scapulae*
  - Unilateral: ipsilateral rotation
  - Bilateral: assists with extension

Common Conditions

- Non-specific neck pain
- Cervical stenosis
  - Cervical radiculopathy
  - Cervical myelopathy
- Cervicogenic headaches



THE ROLE OF OCCUPATIONAL THERAPY

- Neck pain impacts the following:
  - Work performance
  - Driving
  - IADL performance
  - Leisure participation
  - Sleep quality
- Clinicians treating the upper quadrant should have an understanding of how to address neck pain
- Rule out the cervical spine in upper extremity pathologies

ASSESSMENT OF THE NECK

What to assess…

- Patient history/occupational profile
- Onset of symptoms
- Pain type
  - Localized or radiating*
  - Description of pain
  - Headaches
- Upper extremity function
- Activity limitations
- Posture
- Sleeping position

Types of pain

- Headaches
- Localized and/or radiating
  - Trigger points
- Tenderness
- Sharp, burning pain
- “Pins and needles” sensation
- Dizziness, syncope, blurred vision
  - May be indicative of vertebral artery insufficiency

UE function

- Look at scapular function
  - How is the scapula oriented?
- Perform the scapular retraction/depression test*
  - In prone
  - Place scapulae in retraction and depression against the chest wall
  - Have patient hold the position
  - Look for compensatory movements

Activity limitations

What daily activities/routines are impaired?

Consider the Neck Disability Index (NDI):

- Self-report measure
  - 10 items (ADLs, pain, process skills)
- Scored from 0 to 5
  - Reported as a percentage
  - Higher percentage = greater disability

Posture

- Assess standing and seated posture
- Forward head = shortened suboccipital muscles and weak deep neck flexors
- Rounded shoulders = pectoralis tightness; rhomboid, SA, and LT weakness
  - May also present with overuse of levator scapulae and upper trapezius
- Slouched sitting = flat lumbar spine and forward head
- Perform the craniocervical flexion test*

Sleep

- Sleeping surface
- Pillows
  - Goal is to keep spine in alignment
  - Avoid exaggerated lateral flexion from pillow use
  - Review types of pillows
- Side, back, or stomach sleeper

Cervical radiculopathy

- Associated with pain and paresthesias radiating into the arm (in dermatome distribution)
- May also result in motor dysfunction
- Clinical assessment of CR = The cervical test cluster
  - Upper limb tension test A
  - Cervical rotation (60 degrees)
  - Cervical distraction
  - Spurling A

ULTTA (six steps)






Cervical rotation

Cervical distraction

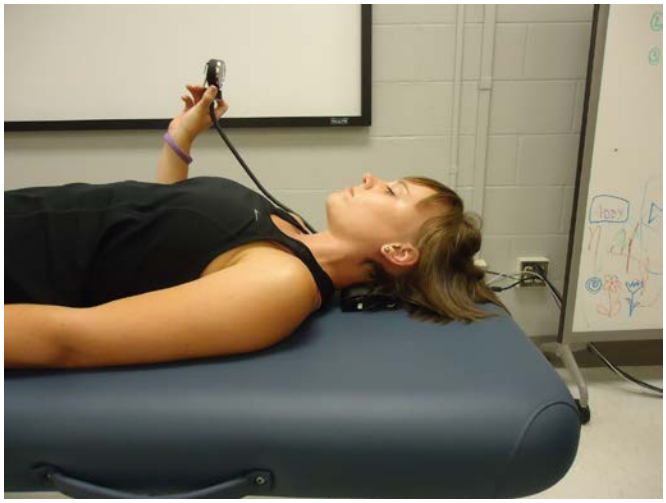
Spurling A

INTERVENTIONS

Craniocervical flexion

- Targets function of the deep neck flexors
- Position patient in supine
  - Practice craniocervical flexion (small nodding motion)
- Use pressure sensor to quantify desired movement
- Inflate pressure sensor to 22mmHG
- Have patient hold “nods” for 10 seconds, completing up to 10 repetitions
  - Progress to 24, 26, 28, and 30 mmHG as appropriate

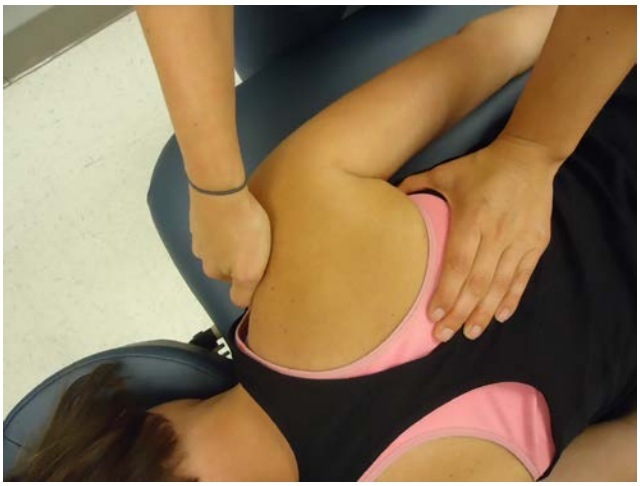
Craniocervical flexion with pressure sensor



Scapular stabilization

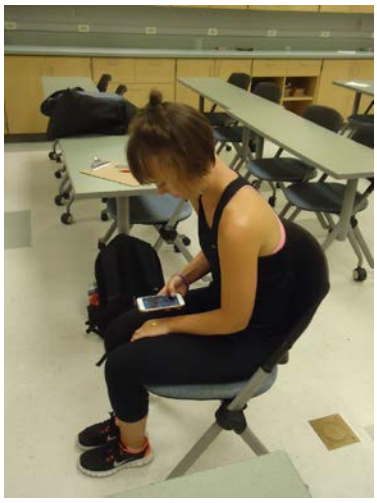
- Neck pain has been linked with imbalance of the scapular stabilizing muscles
- Retrain scapular position
  - Scapular retraction/depression
- Other therapeutic exercises
  - Lower trapezius
  - Middle trapezius
  - Serratus anterior

Scapular retraction/depression



Postural education

- Workstation modifications
- Lumbar rolls
- Driving posture
- Sleeping posture
  - Pillow support
- Awareness of posture with mobile devices

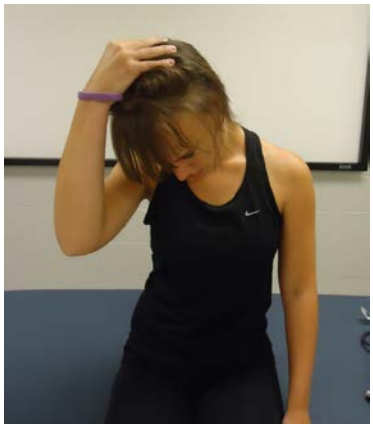


Taping

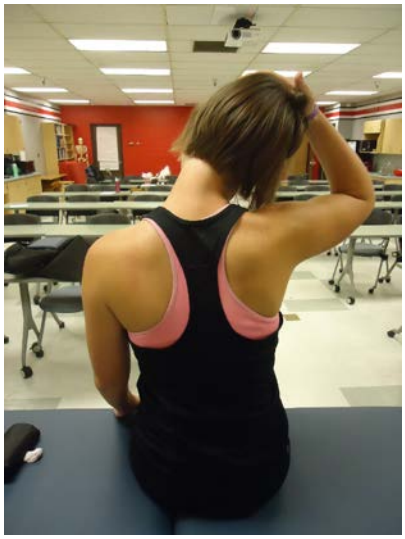
- Example: Upper trapezius
- Patients may complain of pain at mid-point between C7 and acromion
- Patients may present with shoulder hiking movements
- Overactivity of the upper trap may be inhibited through taping
  - Taping may also be used to facilitate lower trapezius activation

Stretch—Levator scapula

- Can be incorporated into a patient's home program



Stretch—Upper trapezius



Summary

- As clinicians treating the upper quadrant, we must consider the importance of the cervical region
- Implementing interventions for the neck is well within our scope of practice
  - *OTPF* terms: joint mobility/stability, muscle endurance, muscle power, control of voluntary movement, involuntary movement reactions
- Consult with other disciplines as necessary to develop the best client-centered approach for managing neck pain.

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