CERVICAL SPINE NECK PAIN NON-OPERATIVE GUIDELINES

The following Cervical Spine Neck Pain Non-operative guidelines developed by HSS Rehabilitation are categorized into levels of irritability as well as treatment sub-groups. These guidelines are intended to assist the clinician in structuring an individualized criteria-based treatment plan. They are based on the most current evidence and clinical pearls from experienced clinicians, however, are not meant to be a substitute for clinical reasoning and decision making. It is the clinician's responsibility to determine the most reasonable treatment model based on sound clinical judgement and assessment of objective clinical findings. For appropriate utilization of these guidelines, it is imperative that the clinician be familiar with the current clinical practice guidelines, treatment-based classifications systems and the influence of regional interdependence to make the most appropriate evidence-based decisions.

The clinician should use a patient-centered approach to promote function and general health. As the goals and plan of care are developed, the patient must take an active role in making informed decisions about their activities and behavior. The language used by the clinician during the evaluation and throughout all treatments has a substantial impact on outcomes. It is recommended that the clinician de-emphasize pathoanatomical explanations, and instead empower the patient by using language that promotes functional gains towards overall goals. It is recommended that the patient be provided with an appropriate home exercise program to promote active participation in the treatment plan throughout all phases of rehabilitation.

If any of these symptoms are present in conjunction with low back pain, refer for medical work up:

- New or recent trauma including:
  - Fall from elevation >3 feet or stairs
  - Axial load to head (e.g., diving, football)
  - Motor vehicle collision at high speed (>60 miles per hour), rollover, ejection
  - Bicycle accident
- New onset of bowel and bladder dysfunction (retention/incontinence)
- Recent change in neurological status including paresthesias/numbness, dermatomal or myotomal abnormalities, upper motor neuron signs
- Sudden changes in auditory system, visual system, vestibular system and/or speech
- Severe/loss of coordination, recent increase in falls, fainting, drop attacks, nausea/vomiting, dizziness
- Recent concussion

- Include Review of Systems/Red Flag Screening, for example:
    - Previous history of cancer
    - Age < 20 years or > 50 years (malignancy), > 70 years (fracture)
    - Failure to improve with conservative care

If any of these yellow flag risk factors (see reference #2) are present in conjunction with neck pain, consider the impact on patient progression and the possibility for psychological referral:

- Depression / anxiety
- Psychosocial issues (secondary gain issues, No-Fault cases)
- Work related conditions (i.e., job dissatisfaction, worker's compensation)
- Substance abuse or chronic opioid use

CERVICAL SPINE NECK PAIN NON-OPERATIVE CLINICAL GUIDELINES

Phase 1: Activity Modification (High to Moderate Irritability)

PRECAUTIONS

- Red, yellow, black flags
- Avoid exacerbating recurring symptoms

ASSESSMENT

- Neck Disability Index (NDI)
- Fear-Avoidance Belief Questionnaire Back (FABQ)
- Numeric Pain Rating Scale (NPRS)
- Static/Dynamic posture
- Bed posturing
- Range of motion (ROM) (Active/Accessory/Physiologic ROM)
- Function based assessment of impairments: lifting, carrying, reaching
- Neurologic and neurodynamic examinations (include cranial nerve screen)
- Specific strength testing: core, neck, scapulothoracic, upper quarter
- Flexibility
- Neck-specific special tests and cluster testing
    - Cranial cervical flexion test
    - Neck flexor endurance test
    - Cervical flexion-rotation test
    - Ligament testing

TREATMENT RECOMMENDATIONS FOR ALL CATEGORIES OF NECK PAIN

SYMPTOM MODULATION - PAIN CONTROL

- Utilize directional preferences
- Breathing techniques
- Encourage movement / activity vs. inactivity
    - Low impact aerobic activity
- Traction: manual/mechanical
- Proprioceptive taping/bracing
- Soft tissue mobilization
- Joint mobilization/manipulation[4]
- Provide education regarding proper posture and activity modification for work, home, and leisure activities
- Consider an ergonomic evaluation

TREATMENT RECOMMENDATIONS BY CATEGORY

Based on evaluative findings, patients are assigned to one or more of the following treatment categories:

NECK PAIN WITH MOBILITY DEFICITS

- Postural- re education
- Neuro-re education
    - Contract/relax techniques
- Selective tissue stretching/mobilization
- Cervical and/or thoracic mobilization/manipulation
- Cervical range of motion

NECK PAIN WITH MOVEMENT COORDINATION IMPAIRMENTS

- Education of the patient to return to normal, non-provocative pre-accident activities as soon as possible
- Reassure patient that gradual recovery is expected
- Minimize use of soft collar
- Perform postural and mid-range mobility exercises to decrease pain and increase ROM
- Cervical isometrics
- Pressure bio-feedback
- Proprioceptive training

NECK PAIN WITH HEADACHES

- Postural re-education
- Selective tissue stretching/mobilization
- Cervical and/or thoracic mobilization/manipulation
    - Upper cervical mobility (C1-2-3)
    - Scapular and rib cage mobility
- Proprioceptive training

NECK PAIN WITH RADIATING PAIN

- May consider short term use of cervical soft collar in acute stage
- Postural re-education
- Selective tissue stretching/mobilization
- Cervical mobilization to reduce nerve irritation
- Traction: manual/mechanical
- Neurodynamics

CRITERIA FOR ADVANCEMENT

- Independent symptom management
- Symptom improvement

EMPHASIZE

- Importance of being an active participant in recovery process
- Provide posture/activity modifications
- Function based language to describe symptoms

CERVICAL SPINE NECK PAIN NON-OPERATIVE CLINICAL GUIDELINES

Phase 2: Addressing Impairments (Moderate Progressing to Low Irritability)

PRECAUTIONS

- Avoid exacerbating recurrent symptoms
- Avoid loading spine if it results in symptomatic exacerbation/decline in neurological status

ASSESSMENT

- NDI
- FABQ
- NPRS
- Static/Dynamic posture
- Bed posturing
- Neurologic and neurodynamic examinations (include cranial nerve screen)
- Flexibility
- ROM (Active/Accessory/Physiologic ROM)
- Specific strength testing
    - Core, neck, scapulothoracic, upper quarter
- Neck-specific special tests and cluster testing
    - cranial cervical flexion test
    - neck flexor endurance test
    - cervical flexion-rotation test
    - ligament testing
- Function based assessment of impairments
    - Lifting, carrying, reaching

TREATMENT RECOMMENDATIONS

- Treat based on impairments and Treatment Based Classification
- Pain science education
- Proprioception training
- Laser
- Proprioceptive neuromuscular facilitation Patterns
- Neck and periscapular endurance exercises
- Cranio-cervical flexion endurance
- Chin tuck progression
- I, T, Y series exercises
- Strengthening and cardiovascular conditioning, as indicated

NECK PAIN WITH MOBILITY DEFICITS

- Selective tissue stretching and mobilization
- Cervical and/or thoracic mobilization/manipulation
    - Self mobilization techniques
- Cervical and thoracic range of motion
- Neck and periscapular endurance exercises as above
- Scapulothoracic and UE strengthening

NECK PAIN WITH MOVEMENT COORDINATION IMPAIRMENTS

- Cervical and/or thoracic mobilization/manipulation
- Proprioception training as above
- Scapulothoracic and UE strengthening
- Neck and periscapular endurance exercises as above
- Balance progressions

NECK PAIN WITH HEADACHES

- Selective tissue stretching/mobilization
- Suboccipital release
- Cervical and/or thoracic mobilization/manipulation
    - Upper cervical mobility (C1-2-3)
    - Scapular and rib cage mobility
    - Self-mobilization
- Proprioception training as above
- Neck and periscapular endurance exercises as above

NECK PAIN WITH RADIATING PAIN

- Selective tissue stretching and mobilization
- Cervical and/or thoracic mobilization/manipulation
- Mechanical Intermittent Traction
- Proprioception training as above
- Neck and periscapular endurance exercises as above
- Neurodynamics

CRITERIA FOR ADVANCEMENT

- Functional strength and range of motion
- Independent symptom modulation
- No increase in symptoms with progressive activities

EMPHASIZE

- Patient education regarding recurrence rates with acute cervical pain
- Normalize mobility and activities of daily living (ADL) function
- Quality and proper articulation of movement
- Symptom modulation through posture control and sequencing in multiple planes

CERVICAL SPINE NECK PAIN NON-OPERATIVE CLINICAL GUIDELINES

Phase 3: Restoration of Function (Low to No Irritability)

PRECAUTIONS

- Symptom provocation with high impact/loading activities (i.e., jumping, tumbling, throwing, rapid head movements)

ASSESSMENT

- NDI
- FABQ
- NPRS
- Static/Dynamic posture
- Neurologic and neurodynamic examinations (include cranial nerve screen)
- Flexibility
- ROM (Active/Accessory/Physiologic ROM)
- Specific strength testing
    - Core, neck, scapulothoracic, upper quarter
- Neck-specific special tests (e.g., cranial cervical flexion test, neck flexor endurance test, cervical flexion-rotation test)
- Function based assessment of impairments
    - Lifting, carrying, reaching

TREATMENT RECOMMENDATIONS

- Phase out manual therapy as appropriate
- Progress cervical and thoracic spine mobility exercises
- Progress proprioception training to incorporate full body coordination
- Neurodynamics
- Begin multi-planar active range of motion spine activities
    - Include overhead UE AROM
    - Thoracic spine
    - PNF patterns
        - Upper extremity neuromuscular control
- Postural strengthening and endurance activities
    - Head/neck/shoulder relationship
- Progress UE resistive activities
    - Closed chain UE strengthening, e.g.
        - Full planks, full yoga poses
    - Overhead scapular strengthening

    - Include LE resisted activities
        - Advanced neuromuscular control
    - PNF patterns with resistance or weight
- Dynamic balance activities
- Plyometric UE/LE training
- Impact training
    - Return to run (if applicable)

CRITERIA FOR DISCHARGE (OR ADVANCEMENT IF RETURNING TO SPORT)

- Independent with progressive home/community-based activity programs
- Adequate strength and neuromuscular control of UE and LE
- ROM within functional limits
- Minimal to no pain with functional activities
- Independent with ADL
- Independent symptom management
- **Discharge or move onto Phase 4 if the goal is to return to sport or advanced functional activities**

EMPHASIZE

- Advanced functional mobility
- Graded return to activity / work
- Maximize multi-planar and multi-joint function, neuromuscular control, and sequencing
- Self-monitor signs and symptoms during ADL and occupational activities

CERVICAL SPINE NECK PAIN NON-OPERATIVE CLINICAL GUIDELINES

Phase 4: Return to Sport (if applicable)

PRECAUTIONS

- Monitor exercise dosing
- Advance functional progression
- Incorporate rest and recovery

ASSESSMENT

- NDI
- FABQ
- NPRS
- Dynamic posture
- Flexibility
- Specific strength testing: core, neck, scapulothoracic, upper quarter
- Dynamic proprioception
- Advanced function-based assessment

TREATMENT RECOMMENDATIONS

- High resistance training
- Dynamic neuromuscular re-education
- Multi-planar and rotational movement patterns
- Gradual loading of the spine to meet sport-specific demands
- Abdominal strength to meet sport-specific demands
- Activity specific training
- Agility and coordination drills as necessary for sport
- Sport specific warm up and activities

CRITERIA FOR DISCHARGE

- Full activity participation
- **Independent symptom management**

EMPHASIZE

- Self-monitoring volume of exercise
- Self-monitoring of load progressions
- Speed and accuracy
- Communication with appropriate Sports Performance expert

CERVICAL SPINE NECK PAIN NON-OPERATIVE CLINICAL GUIDELINES

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