

**Cervical Spine Injury
Chiropractic Practice Parameters
and
Guidelines**

Proposed by the

**New York State
Chiropractic Association**

to the

**New York State
Workers' Compensation
Board**

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1 INTRODUCTION TO CERVICAL SPINE INJURY

2
3 Standard procedures that should be utilized when initially diagnosing a work related cervical
4 spine complaint are listed below. These chiropractic treatment guidelines for the cervical spine
5 have been developed through a panel consensus with adaption for the Cervical spine from the
6 following: **Cervical Spine Medical Treatment Guidelines** proposed by the **State of New York**
7 **Department of Insurance to the Workers' Compensation Board; State of Colorado**
8 **Cervical Spine Pain Medical Treatment Guidelines for Workers Compensation; State of**
9 **Wisconsin Cervical Spine Pain Medical Treatment Guidelines for Workers Compensation;**
10 **Lumbar Spine Medical Treatment Guidelines** proposed by the **State of New York**
11 **Department of Insurance to the Workers' Compensation Board; the Council on**
12 **Chiropractic Guidelines and Practice Parameters (CCGPP); the Guidelines for**
13 **Chiropractic Quality Assurance and Practice Parameters; State of Colorado Lumbar Spine**
14 **Pain Medical Treatment Guidelines for Workers Compensation.**

15 16 **Cervical Spine Injury Diagnostic Procedures for Treatment on Cervical Spine Injury**

17
18 A licensed doctor of chiropractic shall determine the nature of the cervical spine injury before
19 initiating treatment. The doctor of chiropractic shall perform and document an appropriate
20 history and physical examination. The licensed doctor of chiropractic shall also document the
21 diagnosis in the medical record. This section does not apply to fractures of the cervical spine or
22 cervical pain due to infectious, immunologic, metabolic, endocrine, neurological, visceral or
23 neoplastic disease process.

24
25 Regional cervical spine pain includes the diagnosis of cervical strain, sprain, myofascial
26 syndrome, musculoligamentous injury, soft tissue injury and any other diagnosis for pain
27 believed to originate in the discs, ligaments, muscles or other soft tissues of the cervical spine
28 and that affects the neck region. Radicular pain with or without regional neck pain, includes the
29 diagnosis of cervical radiculopathy, radiculitis or neuritis; displacement or herniation of
30 intervertebral disc with radiculopathy, radiculitis or neuritis; spinal stenosis with radiculopathy,
31 radiculitis or neuritis and any other diagnosis for pain believed to originate with irritation of a
32 nerve root in the cervical spine.

33
34 Cervical compressive myelopathy with or without radicular pain is a condition characterized by
35 weakness and spasticity in the upper extremities and associated with any of the following:
36 exaggerated reflexes, sensory ataxia or bilateral sensory changes.

- 37 • The initial assessment of patients with cervical spine problems focuses on detecting
38 indications of potentially serious disease, termed "red flags" (i.e., fever or major trauma).

39

- 1 • In the absence of red flags, cervical spine problems can be effectively managed
2 conservatively.
3
- 4 • As with most musculoskeletal injuries, patients should be encouraged to return to
5 work as soon as possible, as evidence suggests this leads to the best outcomes. This
6 process may be best facilitated with modified duty particularly when the job demands
7 exceed the patient's capabilities. Full-duty work is a reasonable option for those with
8 low physical job demands, and the ability to control their job demands and frequently
9 alternate their posture, as well as for those with less severe presentations.
10
- 11 • Manipulation for treatment of non-specific spinal injury does have efficacy.
12
- 13 • Many invasive and noninvasive therapies are intended to cure or manage spine injury,
14 but no strong evidence exists that they accomplish this as successfully as therapies
15 that focus on restoring functional ability without focusing on pain. Furthermore,
16 patients should be aware that returning to normal activities most often aids functional
17 recovery.
18
- 19 • Patients should be encouraged to accept responsibility for managing their
20 recovery rather than expecting the provider to provide an easy "cure." This
21 process will promote using activity rather than pain as a guide, and it will make
22 the treatment goal of return to occupational and non-occupational activities more
23 obvious.
24
- 25 • If symptoms persist without improvement, further evaluation is recommended.
26
- 27 • Within the first three months of cervical spine symptoms, only patients with
28 evidence of severe spinal disease or severe, debilitating symptoms, and
29 physiologic evidence of specific nerve root compromise confirmed by appropriate
30 imaging studies, can be expected to potentially benefit from surgery.
31
- 32 • The vast majority of patients with symptoms of spinal nerve root irritation due to
33 herniated discs (nucleus pulposus) eventually recover without surgery. Quality
34 evidence is present that those more severely affected and with sequestered disc
35 fragments also benefit from conservative management.
36
- 37 • Nonphysical factors (such as psychiatric, psychosocial, workplace or
38 socioeconomic problems) can be investigated and should be addressed in cases of
39 delayed recovery or delayed return to work.

1 **A. INITIAL DIAGNOSTIC PROCEDURES**

2
3 **1. History taking and physical examination**

4
5 History taking and physical examination establishes the foundation/basis for and dictates
6 subsequent stages of diagnostic and therapeutic procedures. When findings of clinical
7 evaluations and those of other diagnostic procedures are not complementing each other, the
8 objective clinical findings should have preference. The medical records should reasonably
9 document the following:

10
11 **a. History of Present Injury**

12
13 A detailed history, taken in temporal proximity to the time of injury, should primarily
14 guide evaluation and treatment. The history should include:

15
16 i. Mechanism of Injury

17
18 This includes details of symptom onset and progression. The mechanism of injury
19 should include a detailed description of the incident and the position of the body
20 before, during, and at the end of the incident.

21
22 ii. Location of pain, nature of symptoms, and alleviating/exacerbating factors (e.g.
23 sleep positions). Of particular importance is whether raising the arm over the head
24 alleviates radicular-type symptoms. The history should include both the primary and
25 secondary complaints (e.g., primary neck pain, secondary arm pain, headaches, and
26 shoulder girdle complaints). The use of a patient completed pain drawing, Visual
27 Analog Scale (VAS) and outcome assessment tools are recommended, during the
28 course of treatment to assure that all work related symptoms are being addressed.

29
30 iii. Presence and distribution of upper and/or lower extremity numbness, paresthesias,
31 or weakness, especially if precipitated by coughing or sneezing.

32
33 iv. Prior occupational and non-occupational injuries to the same area including
34 specific prior treatment, history of specific prior motor vehicle accidents, chronic or
35 recurrent symptoms, and any functional limitations.

36
37 v. Ability to perform job duties and activities of daily living.

38
39 **b. Past History**

40
41 i. Comprehensive past medical history.

42

1 ii. Review of systems includes symptoms of rheumatologic, neurologic, endocrine,
2 neoplastic, infectious, and other systemic diseases.

3
4 iii. Smoking history.

5
6 iv. Vocational and recreational pursuits.

7
8 v. History of depression, anxiety, or other psychiatric illness.

9
10 **c. Physical Examination**

11
12 Physical examination of the patient should include accepted tests and exam techniques
13 applicable to the area being examined, including:

14
15 i. Visual inspection, including posture

16
17 ii. Cervical range of motion, quality of motion, and presence of muscle spasm. Motion
18 evaluation of specific joints may be indicated. Range of motion should not be
19 checked in acute trauma cases until fracture and instability have been ruled out on
20 clinical examination, with or without radiographic evaluation.

21
22 iii. Examination of cervical spine.

23
24 iv. Palpation of spinous processes, facets, and muscles noting myofascial tightness,
25 tenderness, and trigger points.

26
27 v. Motor and sensory examination of the upper muscle groups with specific nerve root
28 focus, as well as sensation to light touch, pin prick, temperature, position and
29 vibration. More than 2 cm difference in the circumferential measurements of the two
30 upper extremities may indicate chronic muscle wasting.

31
32 vi. Deep tendon reflexes. Asymmetry may indicate pathology. Inverted reflexes (e.g. arm
33 flexion or triceps tap) may indicate nerve root or spinal cord pathology at the tested
34 level. Pathologic reflexes include wrist, clonus, grasp reflex, and Hoffman's sign.

35
36 **d. Relationship to Work**

37
38 Relationship to work includes a statement of the probability that the illness or injury is
39 work-related. If further information is necessary to determine work relatedness, the
40 physician should clearly state what additional diagnostic studies or job information is
41 required.
42

1 **e. Spinal Cord Evaluation**

2
3 In cases where the mechanism of injury, history, or clinical presentation suggests a
4 possible severe injury, additional spinal cord evaluation is indicated. A full neurological
5 examination for possible spinal cord injury may include:

- 6
7 i. Sharp and light touch, deep pressure, temperature, and proprioceptive sensory
8 function;
- 9
10 ii. Strength testing;
- 11
12 iii. Anal sphincter tone and/or perianal sensation;
- 13
14 iv. Presence of pathological reflexes of the upper and lower extremities; or
- 15
16 v. Evidence of an Incomplete Spinal Cord Injury Syndrome:
- 17
18 • *Anterior Cord Syndrome* is characterized by the loss of motor function and
19 perception of pain and temperature below the level of the lesion with preservation
20 of touch, vibration, and proprioception. This is typically seen after a significant
21 compressive or flexion injury. Emergent CT or MRI is necessary to look for a
22 possible reversible compressive lesion requiring immediate surgical intervention.
23 The prognosis for recovery is the worst of the incomplete syndromes.
- 24
25 • *Brown-Sequard Syndrome* is characterized by ipsilateral motor weakness and
26 proprioceptive disturbance with contralateral alteration in pain and temperature
27 perception below the level of the lesion. This is usually seen in cases of
28 penetrating trauma or lateral mass fracture. Surgery is not specifically required,
29 although debridement of the open wound may be.
- 30
31 • *Central Cord Syndrome* is characterized by sensory and motor disturbance of all
32 limbs, often upper extremity more than lower, and loss of bowel and bladder
33 function with preservation of perianal sensation. This is typically seen in elderly
34 patients with a rigid spine following hyperextension injuries. Surgery is not
35 usually required.
- 36
37 • *Posterior Cord Syndrome*, a rare condition, is characterized by loss of sensation
38 below the level of the injury, but intact motor function.
- 39
40 vi. Spinal cord lesions should be classified according to the **American Spine Injury**
41 **Association (ASIA)** impairment scale.
42 ASIA Impairment Scale

- 1
2 A – Complete: No motor or sensory function is preserved in the sacral
3 segments S4-S5
4
5 B – Incomplete: Sensory but not motor function is preserved below the
6 neurological level and includes the sacral segments S4-S5
7
8 C – Incomplete: Motor function is preserved below the neurological level, and
9 more than half of key muscles below the neurological level
10 have a muscle grade less than 3
11
12 D – Incomplete: Motor function is preserved below the neurological level, and
13 at least half of key muscles below the neurological level have a
14 grade of 3 or more
15
16 E – Normal: motor and sensory functions are normal
17

18 A worksheet which details dermatomes and muscle testing required is available from
19 ASIA.
20

21 **f. Soft Tissue Injury Evaluation**

22
23 Soft tissue injuries are traumatic injuries to the muscles, ligaments, tendons, and/or
24 connective tissue. The most common mechanism is sudden hyperextension and/or
25 hyperflexion of the neck. Acceleration/deceleration on the lateral plane may also result in
26 one of these syndromes. A true isolated cervical strain is not associated with focal
27 neurological symptoms. Soft tissue injuries may include cervical strain, myofascial
28 syndromes, and somatic dysfunction. The Quebec Classification is used to categorize soft
29 tissue and more severe cervical injuries:
30

31 **i. Grade I**

32
33 Neck complaints of pain, stiffness, or tenderness only, without physical signs.
34 Lesions are not serious enough to cause muscle spasm; includes whiplash injury,
35 minor cervical sprains, or strains.
36

37 **ii. Grade II**

38
39 Neck complaints with musculoskeletal signs, such as limited range-of-motion.
40 Includes muscle spasm related to soft tissue injury, whiplash, cervical sprain, and
41 cervicalgia with headaches, sprained cervical facet joints and ligaments.
42

1 **iii. Grade III**

2
3 Neck complaints, such as limited range-of-motion, combined with neurologic signs;
4 includes whiplash, cervicobrachialgia, herniated disc, cervicalgia with headaches.

5
6 **iv. Grade IV**

7
8 Neck complaints with fracture or dislocation.

9
10 The determination to perform or order any diagnostic test is predicated upon a reasonable
11 suspicion of the presence of a condition which requires further investigation that would
12 significantly alter the diagnostic impression and approach to patient care. It is incumbent
13 upon the treating doctor to select the most appropriate test (whether plain film radiography,
14 advanced imaging, electrodiagnostic testing, and/or laboratory analysis) to confirm or deny
15 the presence of that condition.

16
17 **2. Imaging Studies**

18
19 Radiographic Imaging of the cervical spine may be obtained as deemed clinically
20 appropriate. Basic views are the anteroposterior (AP), lateral, right, and left obliques,
21 swimmer's, and odontoid. CT scans may be necessary to visualize C7 and odontoid in some
22 patients. Lateral flexion and extension views are done to evaluate instability but may have a
23 limited role in the acute setting. MRI or CT is indicated when spinal cord injury or pathology
24 is suspected.

25
26 The mechanism of injury and specific indications for the imaging should be listed on the
27 request form to aid the radiologist and x-ray technician. Alert, non-intoxicated patients, who
28 have isolated cervical complaints without palpable midline cervical tenderness, neurologic
29 findings, or other acute or distracting injuries elsewhere in the body, may not require
30 imaging. The following suggested indications are:

- 31
32 a. History of significant trauma, especially high impact motor vehicle accident, rollover,
33 ejection, bicycle, or recreational vehicle collision or fall from height greater than one
34 meter.
- 35
36 b. Age over 65 years.
- 37
38 c. Suspicion of fracture, dislocation, instability, or neurologic deficit - Quebec
39 Classification Grade III and IV.
- 40
41 d. Unexplained or persistent cervical pain for at least 6 weeks or pain that is worse with rest.
- 42

- 1 e. Localized pain, fever, constitutional symptoms, suspected tumor, history of cancer, or
2 suspected systemic illness such as a rheumatic/rheumatoid disorder or endocrinopathy.
3

4 In the absence of red flags, the need for imaging and other tests should be based on history,
5 physical examination findings and the doctor's clinical determination.
6

7 Routine radiography as a screening tool is inappropriate. Based on history and physical
8 examination findings an additional subset of patients may require radiographic survey prior
9 to initiating a trial of manipulative therapy utilizing high velocity thrusts (e.g., suspicion of
10 osteoporosis or osteopenia). Potential diagnostic benefit must be weighed against the risk of
11 ionizing radiation and cost effectiveness.
12

13 **3. Laboratory Testing**

14
15 Laboratory tests are rarely indicated at the time of initial evaluation, unless there is suspicion
16 of systemic illness, infection, neoplasia, or underlying rheumatologic disorder, connective
17 tissue disorder, or based on history and/or physical examination. Laboratory tests can provide
18 useful diagnostic information. Tests include, but are not limited to:
19

- 20 a. Complete blood count (CBC) with differential can detect infection, blood dyscrasias, and
21 medication side effects.
22
23 b. Erythrocyte sedimentation rate (ESR), rheumatoid factor (RF), antinuclear antigen
24 (ANA), human leukocyte antigen (HLA), and C-reactive protein (CRP), can be used to
25 detect evidence of a rheumatologic, infection, or connective tissue disorder.
26
27 c. Serum calcium, phosphorous, uric acid, alkaline phosphatase, and acid phosphatase can
28 detect metabolic bone disease.
29
30 d. Liver and kidney function may be performed for prolonged anti-inflammatory use or
31 other medications requiring monitoring.

1 **B. FOLLOW-UP DIAGNOSTIC IMAGING AND TESTING PROCEDURES**

- 2
- 3 1. One diagnostic imaging procedure may provide the same or distinctive information as does
- 4 another procedure. Therefore, prudent choice of a single diagnostic procedure, a complement
- 5 of procedures, or a sequence of procedures will optimize diagnostic accuracy, and maximize
- 6 cost effectiveness (by avoiding redundancy), and minimize potential adverse effects to
- 7 patients. All imaging procedures have a degree of specificity and sensitivity for various
- 8 diagnoses. No isolated imaging test can assure a correct diagnosis. Clinical information
- 9 obtained by history taking and physical examination should form the basis for selecting an
- 10 imaging procedure and interpreting its results.

11

12 Magnetic resonance imaging (MRI), myelography, or computed axial tomography (CT)

13 scanning following myelography may provide useful information for many spinal disorders.

14 When a diagnostic procedure, in conjunction with clinical information, provides sufficient

15 information to establish an accurate diagnosis, the second diagnostic procedure will become

16 a redundant procedure. At the same time, a subsequent diagnostic procedure (that may be a

17 repeat of the same procedure, when the rehabilitation physician, radiologist or surgeon

18 documents that the study was of inadequate quality to make a diagnosis) can be a

19 complementary diagnostic procedure if the first or preceding procedures, in conjunction with

20 clinical information, cannot provide an accurate diagnosis. The preference of a procedure

21 over others should depend first upon clinical information obtained through history and

22 examination, followed by availability, and unique patient circumstances (e.g., obesity or

23 tolerance), rather than the treating practitioner's familiarity with the procedure.

24

25 When the findings of the diagnostic imaging and testing procedures are not consistent with

26 the clinical examination, clinical findings should have preference. There is good evidence

27 that in the over-40 asymptomatic population, the prevalence of disc degeneration is greater

28 than 50%. Disc degeneration, seen as loss of signal intensity on MRI, may be due to

29 accelerated changes causing biochemical changes and structural changes separate and distinct

30 from traumatic injury and may not have pathological significance. Disc bulging and posterior

31 disc protrusion, while not rare, is more commonly symptomatic in the cervical spine than in

32 the lumbar spine due to the smaller cervical spinal canal. Mild reduction in the cross-

33 sectional area of the spinal cord may be seen without myelopathy in patients older than 40,

34 therefore, clinical correlation is required.

35

36 The studies below are listed in frequency of use, not importance.

37

38 **a. Magnetic Resonance Imaging (MRI)**

39

40 MRI is useful in suspected nerve root compression, in myelopathy to evaluate the

41 spinal cord and/or differentiate or rule out masses, infections such as epidural abscesses

42 or disc space infection, bone marrow involvement by metastatic disease, and/or suspected

1 disc herniation or cord contusion following severe neck injury. MRI should be performed
2 immediately if there is a question of infection or metastatic disease with cord
3 compression. MRI is contraindicated in patients with certain implanted devices. In
4 general, the high field, conventional, MRI provides better resolution. An open MRI unit
5 may be indicated when a patient cannot fit into a closed high field scanner or is too
6 claustrophobic despite sedation. An open MRI unit with higher resolution should be
7 sought. Inadequate resolution on the first scan may require a second MRI using a
8 different technique. A subsequent diagnostic MRI may be a repeat of the same procedure
9 when the rehabilitation physician, radiologist or surgeon documents that the study was of
10 inadequate quality to make a diagnosis. All questions in this regard should be discussed
11 with the MRI center and/or radiologist. Ferrous material/metallic objects present in the
12 tissues are a contraindication for the performance of an MRI.

13 **Specialized MRI Scans:**

14 **i. MRI with 3-dimensional reconstruction**

15
16 On rare occasions, MRI with 3-dimensional reconstruction views may be used as
17 a pre-surgical diagnostic procedure to obtain accurate information of
18 characteristics, location, and spatial relationships among soft tissue and bony
19 structures.
20
21

22 **ii. Dynamic-kinetic MRI of the spine**

23
24 Dynamic-kinetic MRI of the spine uses an MRI unit configured with a top-front
25 open design which enables upright, weight-bearing patient positioning in a variety
26 of postures not obtainable with the recumbent images derived from conventional,
27 closed unit MRI systems. Imaging can be obtained in flexion, extension, and
28 rotation of the spine, as well as in erect positioning. There is a theoretical
29 advantage to imaging sequences obtained under more physiologic conditions than
30 in the supine position. There is currently ongoing research to establish whether
31 the theoretical advantages of positional and kinetic MRI result in improved
32 sensitivity and specificity in detecting spine pathology. Currently it remains
33 investigational, and is not recommended until the correlation with clinical
34 syndromes is firmly established.
35

36 **iii. Enhanced MRI with Gadolinium**

37
38 Enhanced MRI with Gadolinium may be useful in cases of Failed Surgery and the
39 need to distinguish scar tissue from other space-occupying lesions.
40
41
42

1 **b. Computed Axial Tomography (CT)**
2

3 Computed Axial Tomography (CT) provides excellent visualization of bone and is used
4 to further evaluate bony masses and suspected fractures not clearly identified on
5 radiographic evaluation. It may sometimes be done as a complement to MRI scanning to
6 better delineate bony osteophyte formation in the neural foramen. CT is usually utilized
7 for suspected cervical spine fracture in a patient with negative plain films, or to further
8 delineate a cervical fracture. CT scanning is also quite useful for congenital anomalies at
9 the skull base and at the C1-2 levels. Plain CT scanning is poor for the C6-7 or C7-T1
10 levels because of shoulder artifact. Instrument-scatter reduction software provides better
11 resolution when metallic artifact is of concern. When ferrous/ metallic materials are
12 present in the tissues, CT should be ordered rather than an MRI.
13

14 **c. Myelography**
15

16 Myelography is the injection of radiopaque material into the spinal subarachnoid space,
17 with x-rays then taken to define anatomy. It may be used as a pre-surgical diagnostic
18 procedure to obtain accurate information of characteristics, location, and spatial
19 relationships among soft tissue and bony structures. Myelography is an invasive
20 procedure with complications including nausea, vomiting, headache, convulsion,
21 arachnoiditis, CSF leakage, allergic reactions, bleeding, and infection. Therefore,
22 myelography should only be considered when CT and MRI are unavailable, for morbidly
23 obese patients or those who have undergone multiple operations, and when other tests
24 prove non-diagnostic in the surgical candidate. The use of small needles and a less toxic,
25 water-soluble, nonionic contrast is recommended.
26

27 **d. CT Myelogram**
28

29 CT Myelogram provides more detailed information about relationships between neural
30 elements and surrounding anatomy and is appropriate in patients with multiple prior
31 operations or tumorous conditions only for presurgical testing.
32

33 **e. Lineal Tomography**
34

35 Lineal Tomography is infrequently used, yet may be helpful in the evaluation of bone
36 surfaces, bony fusion, or pseudarthrosis.
37

38 **f. Bone Scan (Radioisotope Bone Scans)**
39

40 Bone scanning is more sensitive but less specific than MRI. Technetium diphosphonate
41 (^{99m}Tc) uptake reflects osteoblastic activity and may be useful in diagnosing
42 metastatic/primary bone tumors, stress and non-displaced fractures, osteomyelitis, and

1 inflammatory lesions, but cannot distinguish between these entities. In the cervical spine,
2 the usual indication is to evaluate for neoplastic conditions. Chief indications are
3 persistent symptoms with otherwise normal diagnostic tests or to differentiate old vs. new
4 lesions. Other indications include occult fracture or infection.

5
6 **g. Other Radioisotope Scans**

7
8 Indium and gallium scans are usually used to help diagnose lesions seen on other
9 diagnostic imaging studies. ⁶⁷Gallium citrate scans are used to localize tumor, infection,
10 and abscesses.

11
12 **h. Dynamic [Digital] Fluoroscopy**

13
14 Dynamic [Digital] Fluoroscopy of the cervical spine measures the motion of
15 intervertebral segments using a video fluoroscopy unit to capture images as the subject
16 performs cervical flexion and extension, storing the anatomic motion of the spine in a
17 computer. Dynamic Fluoroscopy may be used in designated trauma centers to evaluate
18 the cervical spine. Its superiority over MRI has not been established. If performed, full
19 visualization of the cervical spine (C1 - T1).is required.

20
21 **2. Other Tests**

22
23 The following diagnostic procedures are listed in alphabetical order, not by importance.

24
25 **a. Electrodiagnostic Testing**

26
27 i. Electrodiagnostic studies, when performed and interpreted by a trained physician or
28 chiropractic electrophysiologist, may be useful for patients with suspected neural
29 involvement whose symptoms are persistent or unresponsive to initial conservative
30 treatments. They are used to differentiate peripheral neural deficits from radicular and
31 spinal cord neural deficits and to rule out concomitant myopathy. However, F-Wave
32 Latencies are not diagnostic for radiculopathy.

33
34 In general, electrodiagnostic studies are complementary to imaging procedures such
35 as CT, MRI, and/or myelography. Whereas X-ray, CT and MRI reflect structural
36 changes, electrodiagnostic studies reflect neurologic functional status. If significant
37 radiating arm symptoms are present for greater than 4-6 weeks after the onset of
38 injury and no obvious level of nerve root dysfunction is evident on examination,
39 electrodiagnostic studies may be indicated.

40
41 Electrodiagnostic studies may also be useful to determine the extent of injury in
42 patients with an established level of injury.

1
2 ii. **Portable Automated Electrodiagnostic Device** (also known as **Surface EMG**). At
3 this time, Surface EMG is still being investigated to be considered appropriate for
4 diagnostic evaluation of neck pain or neck injuries

5
6 iii. **Somatosensory Evoked Potential (SSEP)** is useful for the evaluation of
7 myelopathy.

8
9 iv. **Current Perception Threshold Evaluation (CPT)** may be useful as a screening
10 tool, but its diagnostic efficacy in the evaluation of cervical spine pain has not been
11 determined.

12
13 **b. Thermography**

14
15 No recommendation- further investigation is necessary.

1 **C. CHIROPRACTIC TREATMENT PROCEDURES**

2 (Chiropractic treatment procedures, as per panel consensus adapted for cervical spine injury
3 from the following: **Cervical Spine Medical Treatment Guidelines** proposed by the **State**
4 **of New York Department of Insurance** to the **Workers' Compensation Board**; **State of**
5 **Colorado Cervical Spine Pain Medical Treatment Guidelines for Workers**
6 **Compensation**; **State of Wisconsin Cervical Spine Pain Medical Treatment Guidelines**
7 **for Workers Compensation**; the **Council on Chiropractic Guidelines and Practice**
8 **Parameters (CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice**
9 **Parameters**).

10
11 **1. Important issues in the care of the patient**

12
13 Before initiation of any therapeutic procedure, the authorized treating provider, employer,
14 and insurer must consider these important issues in the care of the patient.

- 15
16 a) Patients undergoing therapeutic procedure(s) should be released or returned to modified
17 or restricted duty during their rehabilitation at the earliest appropriate time.
18
19 b) Cessation and/or review of treatment modalities should be undertaken when no further
20 significant subjective or objective improvement in the patient's condition is noted. If
21 patients are not responding within the recommended duration periods, alternative
22 treatment interventions, further diagnostic studies or consultations should be pursued.
23
24 c) Providers should provide and document education to the patient. No treatment plan is
25 complete without addressing issues of individual and/or group patient education as a
26 means of facilitating self-management of symptoms.
27
28 d) For those patients who fail to make expected progress 6-12 weeks after an injury and
29 whose subjective symptoms do not correlate with objective signs and tests, reexamination
30 in order to confirm the accuracy of the diagnosis should be made. Formal psychological
31 or psychosocial evaluation may be considered.
32
33 e) Home therapy is an important component of therapy and may include active and passive
34 therapeutic procedures as well as other modalities to assist in alleviating pain, swelling,
35 and abnormal muscle tone.
36

37 **2. Chiropractic Manipulation and Mobilization**

38
39 Manipulation is recommended for treatment of acute, subacute and chronic cervical spine
40 conditions when tied to objective measures of improvement.
41
42

1 **Cautions and Contraindications**

2
3 Chiropractic care, including patient education, passive and active care therapy, is a safe and
4 effective form of healthcare for cervical spine disorders. There are certain clinical situations
5 where high velocity, low amplitude manipulation or other manual therapies may be
6 contraindicated. It is incumbent upon the treating doctor of chiropractic to evaluate the need
7 for care and the risks associated with any treatment to be applied.
8

9 Many contraindications are considered relative to the location and stage of severity of the
10 morbidity, whether there is co-management with one or more specialists, and the therapeutic
11 methods being employed by the chiropractic physician. Under certain procedures soft tissue
12 low velocity, low amplitude manipulation or mobilization procedures may still be clinically
13 reasonable and safe.
14

15 Contraindications for High-Velocity Manipulation Techniques on the Cervical Spine (red
16 flags)

- 17
- 18 • Region of local unstable fractures
- 19 • Severe osteoporosis
- 20 • Multiple myeloma
- 21 • Osteomyelitis
- 22 • Local primary bone tumors where osseous integrity is in question
- 23 • Local metastatic bone tumors
- 24 • Paget's disease
- 25 • Progressive or sudden (i.e. cauda equine syndrome) neurologic deficit
- 26 • Spinal cord tumors that clinically demonstrate neurological compromise or require
27 specialty referral. In cases where the neoplasm has been properly assessed and is
28 considered to be clinically quiescent and/or perhaps distant to therapeutic target site, then
29 chiropractic manipulative therapy may be utilized.
- 30 • Region of hypermobile joints
- 31 • Rheumatoid arthritis in the active systemic stage, or locally in the presence of
32 inflammation or atlantoaxial instability.
- 33 • Inflammatory phase of ankylosing spondylitis
- 34 • Inflammatory phase of psoriatic arthritis
- 35 • Reactive arthritis (Reiter's syndrome)
- 36 • Unstable congenital bleeding disorders, typically requiring specialty co-management
- 37 • Unstable acquired bleeding disorders, typically requiring specialty co-management
- 38 • Inadequate physical examination
- 39 • Clinicians with inadequately-trained manipulative skills
- 40

1 Conditions contraindicating certain chiropractic directed treatments such as spinal
2 manipulation and passive therapy. Generally the procedure or therapy is contraindicated
3 over the relevant anatomy and not necessarily contraindicated for other areas:
4

- 5 • Local open wound or burn.
- 6 • Prolonged bleeding time/hemophilia.
- 7 • Artificial joint implants.
- 8 • Pacemaker (contraindicated modality - Electrotherapy).
- 9 • Joint infection
- 10 • Tumors/cancer
- 11 • Recent/healing fracture
- 12 • Increasing neurological deficit

14 3. Chiropractic Management of Cervical Spine Disorders

15
16 Initial Course of Treatments for Cervical Spine Disorders

17
18 The treatment recommendations that follow, based on clinical experience combined with the
19 best available evidence, are posited for the 'typical' patient and do not include risk
20 stratification for complicating factors. Frequency and duration trial for the stages of care have
21 been developed by panel consensus with input from the **Cervical Spine Medical Treatment**
22 **Guidelines proposed** by the **State of New York Department of Insurance to the Workers'**
23 **Compensation Board**; the **Council on Chiropractic Guidelines and Practice Parameters**
24 **(CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice Parameters**;
25 and **State of Colorado Cervical Spine Medical Treatment Guidelines for Workers**
26 **Compensation**.

- 27 • Frequency and Duration for Initial (Trial) Course of Chiropractic Treatments:

28 Stage of Condition	29 Frequency/Duration of Treatment with Re-evaluation:
Acute:	typically 2-3x weekly 2-4 weeks (range: 1-14 visits over 4 weeks)*
Sub-Acute:	2-3x weekly for 2-4 weeks
Chronic:	2-3x weekly for 2-4 weeks
Recurrent/Flare-up	1-3x weekly for 1-4 weeks

1 * Treatment frequency and duration are predicated upon individual patient need, as
2 determined by the treating provider. Severity factors (both admitting and during the
3 course of care) may dictate higher or lower frequencies and duration of care, resulting in
4 a range of 1 to 14 visits during the initial acute stage of care).

5
6 An initial course of chiropractic treatment typically includes one or more “passive” (i.e. non-
7 exercise) manual therapeutic procedures (i.e. spinal manipulation or mobilization) and
8 physiotherapeutic modalities for pain reduction, in addition to patient education designed to
9 reassure and instill optimal concepts for independent management. The initial visits allow the
10 doctor to explain that the clinician and the patient must work as a pro-active team and to
11 outline the patient’s responsibilities. While passive care methods for pain or discomfort may
12 be initially emphasized, “Active” (i.e. exercise) care should be increasingly integrated to
13 increase function and return the patient to regular activities.

14
15 ● Re-evaluation and Re-examination

16
17 A detailed or focused re-evaluation designed to determine the patient’s progress and response
18 to treatment should be conducted at the end of each trial of treatment, or earlier if there is an
19 unexpected, significant change in the patient’s course of recovery. Additionally, a brief
20 assessment of the patients response to treatment should be noted after each treatment is
21 completed, and recorded in progress notes (e.g., SOAP notes). A patient’s condition should
22 be monitored for progress with each visit. Near the midway point of a trial of care (i.e., end
23 of the second week of a 4 week trial), the practitioner should reassess whether the current
24 course of care is continuing to produce satisfactory clinical gains utilizing commonly
25 accepted outcomes assessment methods. When a patient begins to demonstrate a delay in
26 expected progress (i.e., stalled functional gains), the doctor of chiropractic should reassess
27 and consider other clinically appropriate options, i.e., other chiropractic methods /
28 therapeutic approach, diagnostic testing, specialist referral for evaluation and/or treatment,
29 and co-management.

30
31 After an initial course of treatment has been concluded, a detailed or focused re-evaluation
32 should be performed to determine whether the patient has made clinically meaningful
33 improvement (e.g., enhanced ability of the patient to perform their usual daily activities at
34 work and/or home). A determination of the necessity for additional treatment should be based
35 upon the response to the initial trial of care and the likelihood that additional gains can be
36 achieved. As patients begin to plateau in their response to treatment, further care should be
37 tapered or discontinued depending on the presentation. A final re-evaluation is recommended
38 to confirm that the condition has resolved or a clinical plateau has occurred and for the
39 practitioner to provide final patient education and instructions in effective self-management.
40 Such evaluation also serves to document the patients status, whether complete resolution,
41 pre-injury, or permanent and stationary with associated disability.

42

1 When a patient reaches complete or partial resolution of their condition and all reasonable
2 treatment and diagnostic studies have been provided then this should be considered a final
3 plateau (maximal therapeutic benefit). The doctor of chiropractic should perform a final
4 examination to verify that maximum therapeutic benefit (MTB) has been achieved, and
5 provide any necessary patient education and instructions in effective future self-management.
6

7 If the criteria to support continuing chiropractic care (as described in the under additional
8 care) have been achieved, a follow-up course of treatment may be indicated. However, one of
9 the goals of any treatment plan should be to reduce the frequency of treatments to the point
10 where maximum therapeutic benefit continues to be achieved while encouraging more active
11 self-therapy, such as independent strengthening and range of motion exercises, and
12 rehabilitative exercises. Expectations of compliance with self-care activities are emphasized
13 and typically continued when such activities can be easily incorporated into the patient's
14 daily routine. Patients also need to be encouraged to return to usual activity levels despite
15 residual pain, as well as to avoid overdependence on physicians, including doctors of
16 chiropractic.
17

18 The frequency of continued treatment generally depends upon the severity and duration of
19 the condition. Upon completion of the initial trial of care, if the appropriate criteria have been
20 met, the following parameters of continued treatment are recommended, based on clinical
21 experience combined with the best available evidence.
22

- 23 ● Frequency and Duration for Continuing Courses of Treatments:

24 Stage of Condition	Frequency/Duration of Treatment with Re-evaluation:
Acute:	2-3x weekly for 2-4 weeks, 1-12 treatments
Sub-Acute:	2-3x weekly for 2-4 weeks, 1-12 treatments
Chronic:	1-3x weekly for 2-4 weeks, 1-12 treatments
Recurrent/Flare-up	1-3x weekly for 1-2 weeks, 1-6 treatments

25
26 When the patient's condition reaches a plateau, or no longer shows ongoing improvement
27 from the therapy, a decision must be made on whether the patient will need to continue
28 treatment. Generally, progressively longer trials of therapeutic withdrawal may be useful in
29 ascertaining whether therapeutic gains can be maintained absent treatment.
30

- 31 ● Additional Care
- 32

1 In a case where a patient reaches a clinical plateau in their recovery (also sometimes
2 referred to as “maximal therapeutic benefit”) and has been provided reasonable trials of
3 interdisciplinary treatments when indicated, additional chiropractic care may be indicated
4 in cases of exacerbation or flare-up, or when withdrawal of care results in substantial,
5 measurable decline in functional or work status.

6
7 Goals and criteria to support such care (e.g., substantive, measurable prior functional
8 gains with recurrence of functional deficits) must be established with the patient, again
9 encouraging compliance with self-care activities to keep the number and intensity of
10 exacerbations to a minimum.

11
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4. Passive Therapy

(Developed by panel consensus with input from the **Cervical Spine Medical Treatment Guidelines** proposed by the **State of New York Department of Insurance** to the **Workers' Compensation Board**; the **Council on Chiropractic Guidelines and Practice Parameters (CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice Parameters**; and **State of Colorado Cervical Spine Medical Treatment Guidelines for Workers Compensation**).

Passive therapies include those treatment modalities that do not require energy expenditure on the part of the patient. They are principally effective during the early phases of treatment and are directed at controlling symptoms such as pain, inflammation and swelling. If employed, they should be used adjunctively with active therapies such as postural stabilization and exercise programs to help control swelling, pain, and inflammation during the active rehabilitation process. Passive therapies may be used intermittently as a treating provider deems appropriate or regularly if there are specific goals with objectively measured functional improvements during treatment.

On occasion, specific diagnoses and post-surgical conditions may warrant durations of treatment beyond those listed below. Factors such as exacerbation of symptoms, re-injury, interrupted continuity of care and co-morbidities may also extend durations of care. Specific goals with objectively measured functional improvement during treatment must be cited to justify extended durations of care. It is recommended that, if no functional gain is observed after the number of treatments under "time to produce effect" has been completed, alternative treatment interventions,

a. Mobilization (Joint)

Joint mobilization consists of passive movement involving oscillatory motions to the vertebral segment(s). The passive mobility is performed in a graded manner (I, II, III, IV, or V), which depicts the speed and depth of joint motion during the maneuver. It may include skilled manual joint tissue stretching. Indications include the need to improve joint play, segmental alignment, improve intracapsular arthrokinematics, or reduce pain

1 associated with tissue impingement. Mobilization should be accompanied by active
2 therapy. For Level V mobilization, contraindications include joint instability, fractures,
3 severe osteoporosis, infection, metastatic cancer, active inflammatory arthritides, and
4 signs of progressive neurologic deficits, myelopathy, vertebrobasilar insufficiency, or
5 carotid artery disease. Relative contraindications include stenosis, spondylosis, and disc
6 herniation.

- 7 • Time to Produce Effect: 6 to 9 treatments.
- 8 • Frequency: Up to 3 times per week.
- 9 • Optimum Duration: 4 to 6 weeks.

10
11 **b. Mobilization (Soft Tissue)**

12
13 Mobilization of soft tissue is the skilled application of muscle energy, strain/counter
14 strain, myofascial release, manual trigger point release, and other manual therapy
15 techniques designed to improve or normalize movement patterns through the reduction of
16 soft tissue pain and restrictions. These can be interactive with the patient participating or
17 can be with the patient relaxing and letting the practitioner move the body tissues.
18 Indications include muscle spasm around a joint, trigger points, adhesions, and neural
19 compression. Mobilization should be accompanied by active therapy.

- 20 • Time to Produce Effect: 4 to 9 treatments.
- 21 • Frequency: Up to 3 times per week.
- 22 • Optimum Duration: 4 to 6 weeks.

23
24 **c. Massage (Manual or Mechanical)**

25
26 Massage consists of manipulation of soft tissue with broad-ranging relaxation and
27 circulatory benefits. This may include stimulation of acupuncture points and acupuncture
28 channels (acupressure), application of suction cups and techniques that include pressing,
29 lifting, rubbing, pinching of soft tissues by or with the practitioner's hands. Indications
30 include edema (peripheral or hard and non-pliable edema), muscle spasm, adhesions, the
31 need to improve peripheral circulation and range of motion, or to increase muscle
32 relaxation and flexibility prior to exercise. As with all passive therapies, massage must be
33 accompanied by manipulation/mobilization and/or exercise and patient education.

- 34 • Massage is recommended for select use in subacute and chronic cervical spine pain as
35 an adjunct to more efficacious treatments consisting primarily of joint manipulation /
36 mobilization and/or a graded aerobic and strengthening exercise program.

37
38 **Indication:** Consideration for time-limited use in subacute and chronic cervical spine
39 pain patients without underlying serious pathology is as an adjunct to a conditioning
40 program that has both graded aerobic exercise and strengthening exercises. The
41 intervention is only recommended to assist in increasing functional activity levels
42 more rapidly and the primary attention should remain on the conditioning program. In

1 those not involved in a conditioning program, or who are non-compliant with graded
2 increases in activity levels, this intervention is not recommended.

3
4 **Frequency/Duration:** The two highest quality studies of massage as a treatment for
5 cervical spine pain showed benefit from participants undergoing massage therapy 1 or
6 2 times a week for 4 to 10 weeks for a total of between 6 and 10 sessions. Each
7 session lasted 30 to 35 minutes. Objective improvements should be shown
8 approximately halfway through the treatment regimen to continue this course of
9 treatment.

10
11 **Indications for Discontinuation:** Resolution, intolerance, lack of benefit, or
12 noncompliance with aerobic and strengthening exercises.

- 13
14 • Massage is recommended as a treatment for acute cervical spine pain and chronic
15 radicular syndromes in which cervical spine pain is a substantial symptom
16 component.

17
18 **Indications:** Patients with sub-acute and chronic cervical spine pain without
19 underlying serious pathology, such as fracture, tumor, or infection.

20
21 **Frequency/Duration:** It is suggested that objective benefit (functional improvement
22 along with symptom reduction) be demonstrated after a trial of 2 sessions in order for
23 further treatment to continue, for up to 10 visits during which a transition to a
24 conditioning program is accomplished.

- 25 • Time to Produce Effect: Immediate.
26 • Frequency: 1 to 2 times per week.
27 • Optimum Duration: 6 weeks.

28
29 **Indications for Discontinuation:** Resolution, intolerance or lack of benefit.

- 30
31 • Mechanical Devices for Massage

32
33 The therapeutic effectiveness of this procedure for cervical spine pain needs to be
34 investigated further at this time

35
36 **d. Superficial Heat and Cold Therapy**

37
38 Superficial heat and cold are thermal agents applied in various manners that lower or
39 raise the body tissue temperature for the reduction of pain, inflammation, and/or effusion
40 resulting from injury or induced by exercise. It includes application of heat just above the
41 surface of the skin at acupuncture points. Indications include acute pain, edema and
42 hemorrhage, need to increase pain threshold, reduce muscle spasm, and promote

1 stretching/flexibility. May be used in conjunction with other active therapy and may be
2 self-administered by the patient.

- 3 • Time to Produce Effect: Immediate.
- 4 • Frequency: 2 to 5 times per week.
- 5 • Optimum Duration: 3 weeks as primary or intermittently as an adjunct to other
6 therapeutic procedures up to 2 months.

7
8 **e. Traction – Manual**

9
10 Manual traction is an integral part of manual manipulation or joint mobilization.
11 Indications include decreased joint space, muscle spasm around joints, and the need for
12 increased synovial nutrition and response. Manual traction is contraindicated in patients
13 with tumor, infection, fracture, or fracture dislocation.

- 14 • Time to Produce Effect: 1 to 3 sessions.
- 15 • Frequency: 2 to 3 times per week.
- 16 • Optimum Duration: 30 days.

17
18 **f. Traction - Mechanical**

19
20 Mechanical traction is most commonly used for patients with radicular findings.
21 Mechanical traction includes spinal decompression devices such as vertebral-axial
22 decompression (VAX-D and DRX 2000). It is used to treat symptoms from decreased
23 joint space and muscle spasm around the joints. If successful it should be shifted to home
24 traction. Traction modalities are contraindicated in patients with tumor, infections,
25 fracture, or fracture dislocation. Non-oscillating inversion traction methods are
26 contraindicated in patients with glaucoma or hypertension. A home lumbar spine traction
27 unit may be purchased if therapy proves effective.

- 28 • Time to Produce Effect: 1 to 3 sessions up to 30 minutes. If response is negative after
29 3 treatments, discontinue this modality.
- 30 • Frequency: 2 to 3 times per week. A home lumbar spine traction unit may be
31 purchased if therapy proves effective.
- 32 • Optimum Duration: 4-8 weeks.

33
34 **g. Transcutaneous Electrical Nerve Stimulation (TENS)**

35
36 TENS is recommended for select use in chronic cervical spine pain or chronic radicular
37 pain syndrome as an adjunct for more efficacious treatments.

38
39 **Indications:** TENS (single or dual channel) may be recommended as treatment for
40 chronic cervical spine pain when clear objective and functional goals are being achieved,
41 which includes reductions in medication use. TENS is used as adjunctive treatment in
42 chronic pain conditions to support or facilitate manipulation/mobilization, graded aerobic

1 exercise and strengthening exercises. In those not involved in a conditioning program, or
2 who are non-compliant with graded increases in activity levels, this intervention is not
3 recommended. There is no quality evidence that more complex TENS units beyond the
4 single or dual channel models are more efficacious, thus those models are not
5 recommended.

6
7 TENS treatment should include at least one instructional session for proper application
8 and use. Indications include muscle spasm and control of concomitant pain in the office
9 setting. Minimal TENS unit parameters should include pulse rate, pulse width and
10 amplitude modulation. Consistent, measurable, functional improvement must be
11 documented and determination of the likelihood of chronicity prior to the provision of a
12 home unit. TENS treatment should be used in conjunction with active physical therapy.

- 13 • Time to Produce Effect: Immediate.
- 14 • Frequency: Variable.
- 15 • Optimum Duration: 3 sessions.

16
17 TENS units should be tried prior to purchase to demonstrate efficacy and increase
18 function. Two or three visits with a therapist may be necessary to instruct the patient in
19 the application and use of the unit and to determine the most effective electrode
20 placement and current parameters. When a patient has a TENS unit, electrical stimulation
21 for pain management should not be performed as part of any ongoing rehabilitative
22 program.

23
24 **Indications for Discontinuation:** Resolution, intolerance or non-compliance, including
25 non-compliance with aerobic and strengthening exercises.

26 27 **h. Neuromuscular Electrical Stimulation**

28
29 For purposes of this section, neuromuscular electrical muscle stimulation includes
30 galvanic stimulation, transcutaneous electrical nerve stimulation, interferential and
31 microcurrent therapies.

32
33 **Electrical Stimulation:** Unattended means that the physician, chiropractor or therapist is
34 not physically present with the patient on a 1:1 basis when treatment is being
35 administered, while attended requires the presence of that provider. Nerve and muscle
36 stimulation can be useful in any disorder in which the patient has lost or never had
37 adequate voluntary control over skeletal muscle. This type of stimulation may strengthen
38 and retrain muscle following surgery, soft tissue injury or after weakness occurs. The
39 application of electrical muscle stimulation, in and of itself, has not been found to have
40 any significant long term therapeutic benefit; however, by providing a temporary pain
41 modulating effect, it may facilitate more efficacious treatment such as
42 manipulation/mobilization and therapeutic exercise/activities.

1
2 **i. Ultrasound (Including Phonophoresis)**
3

4 In situations where deeper heating is desirable, a limited trial of ultrasound for the
5 treatment of cervical spine pain is reasonable. Ultrasound uses sonic generators to deliver
6 acoustic energy for therapeutic thermal and/or non-thermal soft tissue effects. Indications
7 include scar tissue, adhesions, collagen fiber and muscle spasm, and the need to extend
8 muscle tissue or accelerate the soft tissue healing. Ultrasound with electrical stimulation
9 is concurrent delivery of electrical energy that involves dispersive electrode placement.
10 Indications include muscle spasm, scar tissue, pain modulation, and muscle facilitation.
11

12 Phonophoresis is the transfer of medication through the use of sonic generators to the
13 target tissue to control inflammation and pain. These topical medications include, but are
14 not limited to, steroidal anti-inflammatory and anesthetics.

- 15 • Time to Produce Effect: 6 to 15 treatments.
- 16 • Frequency: 3 times per week.
- 17 • Optimum Duration: 4 to 8 weeks.
- 18

19 **j. Biofeedback**
20

21 Biofeedback is recommended for select patients with chronic cervical spine pain, as a
22 component of an interdisciplinary approach.
23

24 **Indications:** Moderate to severe chronic cervical spine pain with sufficient symptoms
25 that multiple treatment options have failed, particularly including NSAIDs, progressive
26 aerobic exercise program, other exercises, and potentially manipulation or acupuncture.
27 These select patients must also be willing to learn about biofeedback and motivated to
28 comply with the treatment regimen which requires self discipline.
29

30 **k. Reflexology**
31

32 The therapeutic effectiveness of this procedure for cervical spine pain needs to be
33 investigated further at this time
34

35 **l. Myofascial Release**
36

37 Myofascial release is a form of soft tissue therapy intended for pain relief, increasing
38 range of motion and balancing the body. Techniques include manual massage for
39 stretching the fascia and releasing bonds between fascia, integument, muscles, and bones
40 are applied. The fascia is manipulated, directly or indirectly, supposedly to allow the
41 connective tissue fibers to reorganize themselves in a more flexible, functional fashion.
42

1 **m. Diathermy**

2
3 Electrically induced heat is commonly used for muscle relaxation. It is also a method of
4 heating tissue electromagnetically or ultrasonically for therapeutic purposes in medicine.

5
6 **Indications:** In situations where deeper heating is desirable, a limited trial of diathermy
7 for the treatment of cervical spine pain is reasonable, but only if performed as an adjunct
8 with joint mobilization, manipulation and/or exercise.

9
10 **n. Infrared Therapy**

11
12 **Indications:** In situations where deeper heating is desirable, a limited trial of heat therapy
13 for the treatment of cervical spine pain is reasonable, but only if performed as an adjunct
14 with joint mobilization, manipulation and/or exercise.

15
16 **o. Low Level Laser Therapy**

17
18 The therapeutic effectiveness of this procedure for cervical spine pain needs to be
19 investigated further at this time.

20
21 **p. Manipulation of the Spine under General Anaesthesia (MUA) and Medication-**
22 **Assisted Spinal Manipulation (MASM)**

23
24 There is sufficient evidence to warrant limited trials of care for a defined subset of
25 patients with significant joint fixation which is non-responsive to joint manipulation and
26 mobilization techniques.

27
28 As per the resolution statement from the American Chiropractic Association, it is
29 recognized and supported that Manipulation Under Anaesthesia has a well established
30 clinical history within the chiropractic profession, accredited chiropractic academic
31 institutions, chiropractic clinical research, and chiropractic private practice sector in both
32 hospital and ambulatory surgical center settings, and moreover MUA procedures are
33 appropriate in a selected patient population pursuant to established clinical guidelines
34 promulgated by established chiropractic authoritative sources including accredited
35 academic institutions' MUA training programs, state regulatory agencies rules and
36 regulations, and qualified instructors of MUA procedures who teach the MUA courses
37 under the auspices of accredited academic institutions.

38
39 There is growing evidence that Medication-Assisted spinal manipulation produces
40 measurable reduction in pain and disability, which remained apparent at 1 year. MUA
41 should only be contemplated for qualified candidates as the final conservative treatment
42 prior to consideration of more invasive procedures such as surgery. MUA should only be

1 performed once conservative care (ie. physical therapy and manipulative therapy
2 accompanied by an aggressive active care program), has been exhausted. The goal is to
3 improve function and to decrease pain. MUA should be restricted to those patients who
4 fit strict utilization review criteria. MUA should be followed by appropriate re-
5 conditioning stabilization program.

6
7 Risks associated with MUA and MASM performed by an adequately trained medical or
8 osteopathic physician or doctor of chiropractic are the same as those associated with
9 manipulative therapy and those specific to the accompanying agents.

10
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5. Acupuncture

(Adopted from the **New York State Workers Compensation Cervical Spine Pain Guidelines**).

Acupuncture is recommended for select use in chronic cervical spine pain as an adjunct.

1 **Indications:** Acupuncture may be recommended as treatment of chronic cervical spine
2 pain as a limited course during which time there are clear objective and functional goals
3 that are to be achieved. Consideration for time-limited use in chronic cervical spine pain
4 patients without underlying serious pathology is as an adjunct to a conditioning program
5 that has both graded aerobic exercise and strengthening exercises. Acupuncture is only
6 recommended to assist in increasing functional activity levels more rapidly and the
7 primary attention should remain on the conditioning program. This intervention is not
8 recommended for patients not involved in a conditioning program, or who are
9 noncompliant with graded increases in activity levels.

10
11 **Frequency/Duration:** There are different patterns which are used in quality studies.
12 These range from weekly for a month to 20 appointments over 6 months; however the
13 norm is generally no more than 8 to 12 sessions. An initial trial of 5 to 6 appointments
14 would appear reasonable in combination with a conditioning program of aerobic and
15 strengthening exercises. Future appointments should be tied to improvements in objective
16 measures and would justify an additional 6 sessions, for a total of 12 sessions.

17
18 **Indications for Discontinuation:** Resolution, intolerance, or non-compliance, including
19 non-compliance with aerobic and strengthening exercises.

20 21 **6. Therapy, Active**

22
23 The following active therapies are based on the philosophy that therapeutic exercise and/or
24 activity are beneficial for restoring function by enhancing flexibility, strength, endurance,
25 range of motion, and can alleviate discomfort. Active therapy requires an internal effort by
26 the individual to complete a specific exercise or task. This form of therapy requires
27 supervision from a therapist or medical provider such as verbal, visual, and/or tactile
28 instruction(s). At times, the provider may help stabilize the patient or guide the movement
29 pattern but the energy required to complete the task is predominately executed by the patient.

30
31 Patients should be instructed to continue active therapies at home as an extension of the
32 treatment process in order to maintain improvement levels. Follow-up visits to reinforce and
33 monitor progress and proper technique are recommended. Home exercise can include
34 exercise with or without mechanical assistance or resistance and functional activities with
35 assistive devices. The following active therapies are listed in alphabetical order:

36 37 **a. Activities of Daily Living (ADL)**

38
39 ADL involve instruction, active-assisted training, and/or adaptation of activities or
40 equipment to improve a person's capacity in normal daily activities such as self-care,
41 work re-integration training, homemaking, and driving.

- 42 • Time to Produce Effect: 4 to 5 treatments.

- Frequency: 3 to 5 times per week.
- Optimum Duration: 4 to 6 weeks.

b. Functional Activities

Functional Activities are interventions which involve the use of therapeutic activities to enhance mobility, body mechanics, employability, coordination, balance, and sensory motor integration.

- Time to Produce Effect: 4 to 5 treatments.
- Frequency: 3 to 5 times per week.
- Optimum Duration: 4 to 6 weeks.

c. Functional Electrical Stimulation (FES)

Functional Electrical Stimulation is the application of electrical current to elicit involuntary or assisted contractions of atrophied and/or impaired muscles. Indications include muscle atrophy, weakness, and sluggish muscle contraction secondary to pain, injury, neuromuscular dysfunction or where the potential for atrophy exists. May be an appropriate treatment in conjunction with an active exercise program.

- Time to Produce Effect: 2 to 6 treatments.
- Frequency: 3 times per week.
- Optimum Duration: 8 weeks.

d. Neuromuscular Re-education

Neuromuscular Re-education is the skilled application of exercise with manual, mechanical, or electrical facilitation to enhance, movement patterns, neuromuscular response, proprioception, kinesthetic sense and coordination, education of movement, balance, and posture. Indications include the need to promote neuromuscular responses through carefully timed proprioceptive stimuli, to elicit and improve motor activity in patterns similar to normal neurologically developed sequences, and improve neuromotor response with independent control.

- Time to Produce Effect: 2 to 6 treatments.
- Frequency: 3 times per week.
- Optimum Duration: 4 to 8 weeks.

e. Spinal Stabilization

The goal of Spinal Stabilization is to strengthen the spine in its neural and anatomic position. The stabilization is dynamic which allows whole body movements while maintaining a stabilized spine. It is the ability to move and function normally through postures and activities without creating undue vertebral stress.

- Time to Produce Effect: 4 to 8 treatments.
- Frequency: 3 to 5 times per week.
- Optimum Duration: 4 to 8 weeks.
- Maximum Duration: 8 weeks.

References

1. (McGill, S. Cervical spine Disorders: Evidence-Based Prevention and Rehabilitation. Champlain, IL: Human Kinetics Year??. Stabilization Protocols p. 137-147; Developing Protocols p. 239-259
2. Jull G, et al. Therapeutics for Cervical Disorders in Whiplash, Headache, and Neck Pain. Philadelphia, PA: Churchill Livingstone, Elsevier 2008; p. 207-230)

f. Therapeutic Exercise

Therapeutic exercise, with or without mechanical assistance or resistance, may include isoinertial, isotonic, isometric and isokinetic types of exercises. Indications include the need for cardiovascular fitness, reduced edema, improved muscle strength, endurance, improved connective tissue strength and integrity, increased bone density, promotion of circulation to enhance soft tissue healing, improvement of muscle recruitment, improved proprioception and coordination, increased range of motion and are used to promote normal movement patterns and flexibility. Therapeutic exercise can also include complementary/ alternative exercise movement therapy (with oversight of a physician or appropriate healthcare professional).

- Time to Produce Effect: 2 to 6 treatments.
- Frequency: 3 to 5 times per week.
- Optimum Duration: 4 to 8 weeks.

g. Neuroreflexotherapy

Neuroreflexotherapy is recommended for treatment of moderate to severe chronic cervical spine pain in patients who have failed management with NSAIDs, progressive aerobic exercise program or other exercises, and manipulation.

7. Orthosis

(Developed by panel consensus with input from the **Council on Chiropractic Guidelines and Practice Parameters (CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice Parameters**; and the **State of Colorado Cervical Spine Medical Treatment Guidelines for Workers Compensation**)

a. Orthotics

Primary principles and objectives of the application of cervical orthosis include:

- control of the position through the use of control forces;

- application of corrective forces to abnormal curvatures;
- aid in spinal stability when soft tissues or osteoligamentous structures cannot sufficiently perform their role as spinal stabilizers; and
- restrict spinal segment movement after acute trauma or surgical procedure. In cases of traumatic cervical injury, the most important objective is the protection of the spinal cord and nerve root.

i. Cervical Collars

- a. Soft Collars are well-tolerated by most patients but may not significantly restrict motion in any plane and are associated with delayed recovery. There is no evidence that their use promotes recovery from cervical sprain. In acute strain/sprain type injuries, prolonged use of cervical collars may prolong disability, limit early mobilization, promote psychological dependence, and limit self-activity. The intermittent use of a soft collar during the early acute phase of a cervical injury may be a cost-effective way to provide palliative relief during short periods of excessive postural demands. There is some evidence that patients encouraged to continue usual activity have less neck stiffness and headache than patients placed in cervical collars following motor vehicle crashes.
- b. Rigid Collars, such as a Philadelphia Orthosis, are useful post-operative or in emergency situations. These collars restrict flexion and extension motion, and to a lesser degree, lateral bending and rotation. Duration of wear post-surgery is dependent upon the physician and degree of cervical healing but is generally not used beyond 8 weeks.

Poster Appliances such as the Miami brace restrict flexion and extension motion to about the same degree as a Philadelphia collar, and to a greater degree, lateral bending and rotation. Not recommended in sprain or strain injuries.

ii. Cervicothoracic Orthosis

Includes Yale and sternal occipital mandibular immobilization (SOMI) type braces, restrict flexion and extension motion to a fuller degree than the Philadelphia collar and to a better degree lateral bending and rotation. Not recommended in sprain or strain type injuries.

iii. Halo Devices

Halo devices are used in the treatment of cervical fracture, dislocation, and instability at the discretion of the treating surgeon. Refer to Halo Immobilization in the Operative Therapeutic Procedures Section.

iv. Other Orthoses, Devices and Equipment

1 Special orthoses or equipment may have a role in the rehabilitation of a cervical
2 injury such as those injuries to a cervical nerve root resulting in upper extremity
3 weakness or a spinal cord injury with some degree of paraparesis or tetraparesis. Use
4 of such devices would be in a structured rehabilitation setting as part of a
5 comprehensive rehabilitation program.
6

7 **8. Patient Education**

8 (Developed by panel consensus with input from the **Cervical Spine Medical Treatment**
9 **Guidelines** proposed by the **State of New York Department of Insurance to the Workers'**
10 **Compensation Board**; the **Council on Chiropractic Guidelines and Practice Parameters**
11 **(CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice Parameters**;
12 and **State of Colorado Cervical Spine Medical Treatment Guidelines for Workers**
13 **Compensation**).

14
15 No treatment plan is complete without addressing issues of individual and/or group patient
16 education as a means of prolonging the beneficial effects of treatment, as well as facilitating
17 self-management of symptoms and injury prevention. The patient should be encouraged to
18 take an active role in the establishment of functional outcome goals. They should be educated
19 on their specific injury, assessment findings, and plan of treatment. Instruction on proper
20 body mechanics and posture, positions to avoid, self-care for exacerbation of symptoms, and
21 home exercise should also be addressed.
22

23 **9. Restriction of Activities**

24 (Developed by panel consensus with input from the **Cervical Spine Medical Treatment**
25 **Guidelines** proposed by the **State of New York Department of Insurance to the Workers'**
26 **Compensation Board**; the **Council on Chiropractic Guidelines and Practice Parameters**
27 **(CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice Parameters**;
28 and **State of Colorado Cervical Spine Medical Treatment Guidelines for Workers**
29 **Compensation**).

30
31 There is some evidence to support the continuation of normal daily activities as the
32 recommended treatment for acute and chronic neck injuries without neurologic symptoms.
33 Complete work cessation should be avoided, if possible, since it often further aggravates the
34 pain presentation. Modified return-to-work is almost always more efficacious and rarely
35 contraindicated in the vast majority of patients with cervical spine injuries.
36

37 **10. Return-to-work**

1 (Developed by panel consensus with input from the **Cervical Spine Medical Treatment**
2 **Guidelines** proposed by the **State of New York Department of Insurance to the Workers'**
3 **Compensation Board**; the **Council on Chiropractic Guidelines and Practice Parameters**
4 **(CCGPP)**; the **Guidelines for Chiropractic Quality Assurance and Practice Parameters**;
5 and **State of Colorado Cervical Spine Medical Treatment Guidelines for Workers**
6 **Compensation**).

7
8 Communication is essential between the patient, employer, and provider to determine
9 appropriate restrictions and return-to work dates. It is the responsibility of the physician to
10 provide clear concise restrictions, and it is the employer's responsibility to determine if
11 temporary duties can be provided within the restrictions.

- 12
13 a. Establishment of Activity Level Restrictions: For cervical spine injuries, the following
14 should be addressed when describing the patient's activity level:
- 15
16 i. Total body position including upper trunk, especially rotation and flexion. Duration
17 and frequency should be included.
 - 18
19 ii. Upper extremity requirements including reaching above the shoulder, repetitive
20 motions, pushing, pulling, and lifting or carrying requirements. Duration and
21 frequency should be included.
 - 22
23 iii. Sitting duration and frequency with regard to posture, work height(s), and movements
24 of the head and neck.
 - 25
26 iv. Visual field requirements in respect to limitations in head and neck movements and
27 tolerance to looking upward and downward.
 - 28
29 v. Use of adaptive devices or equipment for proper office ergonomics or to enhance
30 capacities can be included.
- 31
32 b. Compliance with Activity Restrictions: In some cases, compliance with restriction of
33 activity levels may require a complete jobsite evaluation, a functional capacity evaluation
34 (FCE), or other special testing.
35

1 **11. Therapeutic Procedures, Operative (a description of options)**
2

3 All operative interventions should be based on a positive correlation with clinical findings,
4 the natural history of the disease, the clinical course, and diagnostic tests. A comprehensive
5 assimilation of these factors should have led to a specific diagnosis with positive
6 identification of the pathologic condition(s). It is imperative for the clinician to rule out non-
7 physiologic modifiers of pain presentation, or non-operative conditions mimicking
8 radiculopathy or instability (peripheral compressive neuropathy, chronic soft tissue injuries,
9 and psychological conditions), prior to consideration of elective surgical intervention. Early
10 intervention may be required in acute incapacitating pain or in the presence of progressive
11 neurological deficits. Patients who are not candidates for or refuse surgical treatment should
12 be treated with non-operative therapy as indicated.

13
14 Operative treatment is indicated when the natural history of surgically treated lesions is better
15 than the natural history for non-operatively treated lesions. All patients being considered for
16 surgical intervention should first undergo a comprehensive neuromusculoskeletal
17 examination to identify mechanical pain generators that may respond to non-surgical
18 techniques, or may be refractory to surgical intervention. In situations requiring the possible
19 need for re-surgery, a second opinion may be necessary. Psychological evaluation is strongly
20 encouraged when surgery is being performed for isolated axial pain to determine if the
21 patient will likely benefit from the treatment.

22
23 Interdisciplinary interventions should be strongly considered post-operatively in patients not
24 making functional progress within expected time frames. Return to work activity restrictions
25 should be specific. Most cervical non-fusion surgical patients can return to a limited level of
26 duty between 3 to 6 weeks. Full activity is generally achieved between 6 weeks to 6 months,
27 depending on the procedure and healing of the individual. In many instances, post-surgical
28 spinal manipulation & mobilization may be useful in both preventing post-surgical adhesions
29 and hastening functional recovery.

1 APPENDIX

2
3 **Sources:**

4
5 This Cervical Spine Chiropractic Treatment Parameters Guideline is adapted, with modification,
6 from the following documents:

- 7
8 1. The proposed Cervical Spine Injury Medical Treatment Guidelines from the State of New
9 York Insurance Department to the New York State Workers' Compensation Board.
10
11 2. The proposed Low Back Injury Medical Treatment Guidelines from the State of New York
12 Insurance Department to the New York State Workers' Compensation Board.
13
14 3. State of Colorado's Lumbar Spine Injury Medical Treatment Guideline.
15
16 4. Council on Chiropractic Guidelines and Practice Parameters (CCGPP).
17
18 5. Guidelines for Chiropractic Quality Assurance and Practice Parameters.
19
20 6. American College of Occupational and Environmental Medicine (ACOEM) Occupational
21 Medicine Treatment Guidelines.
22
23 7. State of Wisconsin Department of Workforce Development Worker's Compensation
24 Division Medical Treatment Guidelines.
25
26 8. State of Minnesota Medical Treatment Guidelines for Workers Compensation.