

**Thoracic spine Injury
Chiropractic Treatment 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 THORACIC SPINE INJURY

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

16
17 A licensed doctor of chiropractic shall determine the nature of the thoracic back condition before
18 initiating treatment. A doctor of chiropractic shall perform and document an appropriate history
19 and physical examination. A doctor of chiropractic shall also document the diagnosis in the
20 medical record. "Radicular pain" means pain radiating in a dermatomal distribution around the
21 chest or abdomen. This section does not apply to fractures of the thoracic spine or thoracic back
22 pain due to infectious, immunologic, metabolic, endocrine, neurological, visceral or neoplastic
23 disease process.

24
25 Regional thoracic back pain includes the diagnosis of thoracic 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 thoracic spine
28 and that affects the thoracic region. Radicular pain with or without regional thoracic back pain,
29 includes the diagnosis of thoracic radiculopathy, radiculitis or neuritis; displacement or
30 herniation of intervertebral disc with radiculopathy, radiculitis or neuritis; spinal stenosis with
31 radiculopathy, radiculitis or neuritis and any other diagnosis for pain believed to originate with
32 irritation of a nerve root in the thoracic spine.

33
34 Thoracic compressive myelopathy with or without radicular pain is a condition characterized by
35 weakness and spasticity in one or both legs and associated with any of the following:

1 exaggerated reflexes an extensor plantar response bowel or bladder dysfunction sensory ataxia or
2 bilateral sensory changes.

- 3
- 4 • The initial assessment of patients with thoracic spine problems focuses on detecting
5 indications of potentially serious disease, termed “red flags” (i.e., fever or major trauma).
6
- 7 • In the absence of red flags, thoracic spine problems can be effectively managed
8 conservatively.
9
- 10 • As with most musculoskeletal injuries, patients should be encouraged to return to work as
11 soon as possible, as evidence suggests this leads to the best outcomes. This process may be
12 best facilitated with modified duty particularly when the job demands exceed the patient’s
13 capabilities. Full-duty work is a reasonable option for those with low physical job demands,
14 and the ability to control their job demands and frequently alternate their posture, as well as
15 for those with less severe presentations.
16
- 17 • Aerobic exercise has the best evidence of efficacy among the exercise regimens, whether for
18 acute, subacute, or chronic spinal injury patients.
19
- 20 • Specific types of stretching appear helpful while non-specific stretching is not recommended
21 as it is not helpful. Strengthening exercises including thoracic stabilization exercises are
22 recommended, but not until the acute period of spinal injury has subsided.
23
- 24 • Manipulation for treatment of non-specific spinal injury does have efficacy.
25
- 26 • Many invasive and noninvasive therapies are intended to cure or manage spine injury, but no
27 strong evidence exists that they accomplish this as successfully as therapies that focus on
28 restoring functional ability without focusing on pain. Furthermore, patients should be aware
29 that returning to normal activities most often aids functional recovery.
30
- 31 • Patients should be encouraged to accept responsibility for managing their recovery rather
32 than expecting the provider to provide an easy “cure.” This process will promote using
33 activity rather than pain as a guide, and it will make the treatment goal of return to
34 occupational and non-occupational activities more obvious.
35
- 36 • If symptoms persist without improvement, further evaluation is recommended.

- 1
- 2 • Within the first three months of thoracic spine symptoms, only patients with evidence of
- 3 severe spinal disease or severe, debilitating symptoms, and physiologic evidence of specific
- 4 nerve root compromise confirmed by appropriate imaging studies, can be expected to
- 5 potentially benefit from surgery.
- 6
- 7 • The vast majority of patients with symptoms of spinal nerve root irritation due to herniated
- 8 discs (nucleus pulposus) eventually recover without surgery. Quality evidence is present that
- 9 those more severely affected and with sequestered disc fragments also benefit from
- 10 conservative management.
- 11
- 12 • Nonphysical factors (such as psychiatric, psychosocial, workplace or socioeconomic
- 13 problems) can be investigated and should be addressed in cases of delayed recovery or
- 14 delayed return to work.
- 15
- 16 • Chiropractors can greatly improve patient response to back symptoms by providing
- 17 assurance, encouraging activity. While patients may be looking for a clear-cut diagnosis for
- 18 their spinal injury, the risk to them of a suggested “cure” for this assumed diagnosis,
- 19 resulting in failed expectations, may be worse than their symptoms.
- 20
- 21 • Chiropractors should be aware that “abnormal” findings on x-rays, magnetic resonance
- 22 images, and other diagnostic tests are frequently seen by age 40 even in asymptomatic
- 23 individuals. Bulging discs continue to increase after that point and by approximately age 60,
- 24 will be encountered in a majority of patients. This requires that a careful history and physical
- 25 examination be conducted by a chiropractor in order to correlate historical, clinical, and
- 26 imaging findings prior to diagnosing and assigning the finding on imaging to a patient’s
- 27 complaints. The focus of treatment should be improving symptoms and function, and not the
- 28 correction of abnormalities on imaging studies.

1 **A. Initial Diagnostic Procedures**

2
3 **1. History Taking and Physical Examination**

4
5 History Taking and Physical Examination establishes the foundational basis for and
6 dictates the subsequent stages of diagnostic and therapeutic procedures. Patients are
7 unique and present with variation in both manifestation of their condition and response to
8 care. When the findings of clinical evaluations and other diagnostic procedures are not
9 complementing one another, and may be contradictory, the objective clinical findings
10 should have preference.

11
12 The medical record should reasonably document the following:

13
14 **a. History of Present Injury**

15
16 A detailed history, taken in temporal proximity to the time of injury, should guide
17 evaluation and treatment. The history should include:

- 18
19 i. Mechanism of Injury. The “Mechanism of Injury” includes details concerning the
20 onset and progression of injury symptoms. The mechanism of injury should
21 include a reasonably detailed description of the incident, the position of the body
22 before, during, and at the post-incident, and any other factor(s) that will assist in
23 ascribing both causation and potential extent of the injury.
- 24
25 ii. Injury Gradation. Injury Gradation refers to the onset of the injury and triggering
26 factors. The location of pain (including patterns of pain distribution, radiation and
27 referral), nature of symptoms (e.g., provocation – exacerbations and remissions –
28 what makes it feel better or what makes it feel worse, what has the patient done or
29 taken to alleviate the pain of injury (e.g., sleep positions); the quality of the injury
30 symptoms and pain – constant, intermittent, on movement, dull, sharp, aching,
31 burning, boring pain, severity – on a scale of 10, 10 being the worst, and timing –
32 how long), and any other factors.

33
34 The history should include both the primary and secondary complaints (e.g.,
35 primary thoracic pain). The history should include the use of a patient completed
36 pain drawing, Visual Analog Scale (VAS) or other outcome assessment tools as

1 are recommended, both during initial evaluation and during the course of
2 treatment to assure that all work related symptoms are being addressed.

3
4 iii. Presence and distribution of upper and/or lower extremity numbness, paresthesias,
5 or weakness, especially if precipitated by coughing or sneezing.

6
7 iv. Prior occupational and non-occupational injuries to the same area, including
8 specific prior treatment, history of prior motor vehicle accidents, chronic or
9 recurring symptoms, and the patient's final status (including subjective and
10 functional limitations) which may have resulted from prior injury or complaint.

- 11
12 • A key component is documenting the patient's ability to perform their usual
13 and customary daily work and home activities immediately preceding the new
14 incident which caused them to seek your evaluation.

15
16 v. Ability to perform job duties and activities of daily living.

17
18 **b. Past History**

19
20 i. Comprehensive past medical and familial history.

21
22 ii. Review of systems includes symptoms of rheumatologic, neurologic, endocrine,
23 neoplastic, infectious, and other systemic diseases.

24
25 iii. Smoking history.

26
27 iv. Vocational and recreational pursuits. Note activity levels (pre and post injury),
28 and potential aggravating factors (e.g., strenuous activities, prolonged sustained
29 postures, exposure to vibration, and deconditioning).

30
31 v. History of depression, anxiety, or other psychiatric illness.

32
33 vi. Assess for other predictors of recurrence, absenteeism and chronicity not
34 referenced above (e.g., time off work, psychosocial issues, symptom
35 magnification).

36

1 **c. Physical Examination**

2
3 A physical exam should include accepted tests and exam techniques applicable to the
4 area being examined, including:

- 5
6 i. Visual inspection, including posture (noting integumentary and structural
7 deformities and indicators of potential underlying pathology, e.g., skin lesions,
8 step deformity, faun's beard, etc.).
- 9
10 ii. Trunk range of motion, quality of motion, and presence of muscle spasm. Motion
11 evaluation of specific joints may be indicated. Range of motion should not be
12 checked in acute trauma cases until fracture and instability have been ruled out on
13 clinical examination, with or without radiographic evaluation.
- 14
15 iii. Examination of related areas (e.g., lumbar spine, cervical spine, upper and lower
16 extremities).
- 17
18 iv. Palpation of spinous processes, and muscles noting myofascial tightness,
19 tenderness, and trigger points.
- 20
21 v. Motor and sensory examination of the upper and lower muscle groups with
22 specific nerve root focus, as well as sensation to light touch, pin prick,
23 temperature, position and vibration. More than 2 centimeter (cm) difference in the
24 circumferential measurements of the two lower extremities may indicate chronic
25 muscle wasting.
- 26
27 vi. Deep tendon reflexes. Asymmetry or other abnormality of reflexia may indicate
28 pathology. Pathologic reflexes include Babinski, ankle clonus, grasp reflex, and
29 Hoffman's sign.
- 30
31 vii. Special tests, such as root tension tests, Valsalva maneuver, or other tests as
32 indicated by the nature of the presenting condition.
- 33
34 viii. Gait and ability to maneuver during examination (e.g. difficulty raising from a
35 seated position, twisting motions).
- 36

1 **d. Relationship to Work**
2

3 Relationship to work includes a statement of the probability that the illness or injury
4 is work-related. If further information is necessary to determine work relatedness, the
5 physician should clearly state what additional diagnostic studies or job information is
6 required.
7

8 **e. Spinal Cord Evaluation**
9

10 In cases where the mechanism of injury, history, or clinical presentation suggests a
11 possible severe injury, a spinal cord evaluation may be indicated. A full neurological
12 examination for possible spinal cord injury may include:
13

14 i. Sharp and light touch, deep pressure, temperature, and proprioceptive sensory
15 function;

16 ii. Strength testing;

17 iii. Anal sphincter tone and/or perianal sensation;

18 iv. Presence of pathological reflexes of the upper and lower extremities; or
19 v. Evidence of an Incomplete Spinal Cord Injury Syndrome:

- 20 • *Spinal Cord Injury Syndrome* is characterized by the loss of motor function
21 and perception of pain and temperature below the level of the lesion with
22 preservation of touch, vibration, and proprioception. This is typically seen
23 after a significant compressive or flexion injury. Emergent CT or MRI is
24 necessary to look for a possible reversible compressive lesion requiring
25 immediate surgical intervention. The prognosis for recovery is the worst of the
26 incomplete syndromes.
27 • *Brown-Sequard Syndrome* is characterized by ipsilateral motor weakness and
28 proprioceptive disturbance with contralateral alteration in pain and
29 temperature perception below the level of the lesion. This is usually seen in
30 incomplete syndromes.
31

- 32 • *Brown-Sequard Syndrome* is characterized by ipsilateral motor weakness and
33 proprioceptive disturbance with contralateral alteration in pain and
34 temperature perception below the level of the lesion. This is usually seen in
35 incomplete syndromes.

1 cases of penetrating trauma or lateral mass fracture. Surgery is not specifically
2 required, although debridement of the open wound may be.

- 3
- 4 • *Central Cord Syndrome* is characterized by sensory and motor disturbance of
5 all limbs, often upper extremity more than lower, and loss of bowel and
6 bladder function with preservation of perianal sensation. This is typically seen
7 in elderly patients with a rigid spine following hyperextension injuries.
8 Surgery is not usually required.
 - 9
 - 10 • *Posterior Cord Syndrome* is a rare condition characterized by loss of sensation
11 below the level of the injury, but intact motor function.
 - 12

13 vi. Spinal cord lesions should be classified according to the **American Spine Injury**
14 **Association (ASIA)** impairment scale.

15 ASIA Impairment Scale

16

17 A – Complete: No motor or sensory function is preserved in the sacral
18 segments S4-S5

19

20 B – Incomplete: Sensory but not motor function is preserved below the
21 neurological level and includes the sacral segments S4-S5

22

23 C – Incomplete: Motor function is preserved below the neurological level, and
24 more than half of key muscles below the neurological level
25 have a muscle grade less than 3

26

27 D – Incomplete: Motor function is preserved below the neurological level, and
28 at least half of key muscles below the neurological level have a
29 grade of 3 or more

30

31 E – Normal: Motor and sensory function are normal

32

33 A worksheet which details dermatomes and muscle testing required is available
34 from ASIA.

35

36 References:

1 **Lumbar Spine Medical Treatment Guidelines** from the proposed by the **State**
2 **of New York Department of Insurance to the Workers' Compensation Board;**
3 **Cervical Spine Medical Treatment Guidelines** from the proposed by the **State**
4 **of New York Department of Insurance to the Workers' Compensation Board;**
5 **State of Wisconsin Thoracic Spine Pain Medical Treatment Guidelines for**
6 **Workers Compensation; the Council on Chiropractic Guidelines and Practice**
7 **Parameters (CCGPP); the Guidelines for Chiropractic Quality Assurance**
8 **and Practice Parameters; State of Colorado Lumbar Spine Pain Medical**
9 **Treatment Guidelines for Workers Compensation; State of Colorado**
10 **Cervical Spine Pain Medical Treatment Guidelines for Workers**
11 **Compensation).**

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

19
20 **B. Follow-Up Diagnostic Imaging and Testing Procedures**

- 21
22 1. **Imaging Studies.** In the absence of red flags, the need for imaging and other tests should
23 be based on history, physical examination findings and the doctor's clinical
24 determination. Potential diagnostic benefit must be weighed against the risk of ionizing
25 radiation and cost effectiveness. Routine radiography of the patient as a screening is
26 inappropriate. Basic views are the anteroposterior (AP), lateral. Special views are done to
27 evaluate instability but may have a limited role in the acute setting. MRI or CT is
28 indicated when spinal cord injury is suspected.

29
30 In the absence of red flags, the need for imaging and other tests should be based on
31 history, physical examination findings and the doctor's clinical determination.

32
33 Routine radiography as a screening tool is inappropriate. Based on history and physical
34 examination findings an additional subset of patients may require radiographic survey
35 prior to initiating a trial of manipulative therapy utilizing high velocity thrusts (e.g.,

1 suspicion of osteoporosis or osteopenia). Potential diagnostic benefit must be weighed
2 against the risk of ionizing radiation and cost effectiveness.

3
4 2. The mechanism of injury and specific indications for the imaging should be listed on the
5 request form to aid the radiologist and x-ray technician. Alert, non-intoxicated patients,
6 who have isolated complaints without palpable midline tenderness, neurologic findings,
7 or other acute or distracting injuries elsewhere in the body, may not require imaging. The
8 following suggested indications are:

- 9
10 a. History of significant trauma, especially high impact motor vehicle accident, rollover,
11 ejection, bicycle, or recreational vehicle collision or fall from height greater than one
12 meter.
- 13
14 b. Age over 65 years.
- 15
16 c. Suspicion of fracture, dislocation, instability, or neurologic deficit
- 17
18 d. Unexplained or persistent pain for at least 6 weeks or pain that is worse with rest.
- 19
20 e. Localized pain, fever, constitutional symptoms, suspected tumor, history of cancer, or
21 suspected systemic illness such as a rheumatic/rheumatoid disorder or
22 endocrinopathy.

23
24 When the findings of the diagnostic imaging and testing procedures are not consistent
25 with the clinical examination, clinical findings should have preference. There is good
26 evidence that in the asymptomatic population more than 40 years in age, the prevalence
27 of disc degeneration is greater than fifty percent (50%). Disc degeneration, seen as loss of
28 signal intensity on MRI, may be due to accelerated changes causing biochemical and
29 structural changes separate and distinct from traumatic injury and may not have
30 pathological significance. Disc bulging and posterior disc protrusion, while not rare, may
31 be symptomatic in the spine

32
33 The studies below are listed in frequency of use, not importance. Like any diagnostic
34 test, the selection of the most appropriate imaging test is predicated upon the suspected
35 pathology which is best visualized by the mode of imaging selected by the injured
36 workers' doctor of chiropractic.

1 **a. Magnetic Resonance Imaging**

2
3 Magnetic Resonance Imaging (MRI) is useful in cases of suspected nerve root
4 compression, in myelopathy to evaluate the spinal cord and/or differentiate or rule out
5 masses or infections such as epidural abscesses or disc space infection, bone marrow
6 involvement by metastatic disease, and/or suspected disc herniation or cord contusion
7 following severe spinal injury

8
9 MRI should be performed immediately if there is a question of infection, tumor or
10 metastatic disease with cord compression. MRI is contraindicated in patients with
11 certain implanted devices. [Ferrous material/metallic objects present in the tissues are
12 a contraindication for the performance of an MRI.]

13
14 In general, the high field, conventional, MRI provides better resolution. A lower field
15 scan with lower magnetic intensity may be indicated when a patient cannot fit into a
16 high field scanner or is too claustrophobic despite sedation and an open high field unit
17 is not available. The preference of a procedure over others should depend first upon
18 clinical information obtained through history and examination, followed by
19 availability, and unique patient circumstances (e.g., obesity or tolerance), rather than
20 the treating practitioner's familiarity with the procedure. An open MRI unit may be
21 indicated when a patient cannot fit into a closed high field scanner or is too
22 claustrophobic despite sedation. An open MRI unit with higher resolution should be
23 sought.

24
25 Inadequate resolution on the first scan may require a second MRI using a different
26 technique. A subsequent diagnostic MRI may be a repeat of the same procedure when
27 the rehabilitation physician, radiologist or surgeon documents that the study was of
28 inadequate quality to make a diagnosis. All questions in this regard should be
29 discussed with the MRI center and/or radiologist.

30
31 Specialized MRI Scans:

32
33 **i. MRI with 3-dimensional reconstruction**

34
35 On rare occasions, an MRI with 3-dimensional reconstruction views may be used
36 as a pre-surgical diagnostic procedure to obtain accurate information of

1 characteristics, location, and spatial relationships among soft tissue and bony
2 structures.

3
4 **ii. Dynamic-kinetic MRI of the spine**

5
6 Dynamic-kinetic MRI of the spine uses an MRI unit configured with a top-front
7 open design which enables upright, weight-bearing patient positioning in a variety
8 of postures not obtainable with the recumbent images derived from conventional,
9 closed unit MRI systems.

10
11 Imaging can be obtained in flexion, extension, and rotation of the spine, as well as
12 in erect positioning. There is a theoretical advantage to imaging sequences
13 obtained under more physiologic conditions than in the supine position. There is
14 currently ongoing research to establish whether the theoretical advantages of
15 positional and kinetic MRI result in improved sensitivity and specificity in
16 detecting spine pathology. Currently it remains investigational, and is not
17 recommended until the correlation with clinical syndromes is firmly established.

18
19 **iii. Enhanced MRI with Gadolinium**

20
21 Enhanced MRI with Gadolinium may be useful in cases of neoplasia, Failed Back
22 Surgery Syndrome and the need to distinguish scar tissue from other space-
23 occupying lesions.

24
25 **b. Computed Axial Tomography (CT)**

26
27 Computed Axial Tomography provides excellent visualization of bone and is used to
28 further evaluate bony masses and suspected fractures not clearly identified on
29 radiographic evaluation. It may sometimes be done as a complement to MRI scanning
30 to better delineate bony osteophyte formation in the neural foramen. CT is usually
31 utilized for suspected thoracic spine fracture in a patient with negative plain films,
32 during acute, emergent situations where MRI may be potentially contraindicated, or
33 to further delineate a thoracic fracture. Instrument-scatter reduction software provides
34 better resolution when metallic artifact is of concern. When ferrous/ metallic
35 materials are present in the tissues, CT should be ordered rather than an MRI.
36

1 **c. Myelography**

2
3 Myelography is the injection of radiopaque material into the spinal subarachnoid
4 space, with x-rays then taken to define anatomy. It may be used as a pre-surgical
5 diagnostic procedure to obtain accurate information of characteristics, location, and
6 spatial relationships among soft tissue and bony structures. Myelography is an
7 invasive procedure with complications including nausea, vomiting, headache,
8 convulsion, arachnoiditis, CSF leakage, allergic reactions, bleeding, and infection.
9 Therefore, myelography should only be considered when CT and MRI are
10 unavailable, for morbidly obese patients or those who have undergone multiple
11 operations, and when other tests prove non-diagnostic in the surgical candidate. The
12 use of small needles and a less toxic, water-soluble, nonionic contrast is
13 recommended.

14
15 **d. CT Myelogram**

16
17 CT Myelogram provides more detailed information about relationships between
18 neural elements and surrounding anatomy and is appropriate in patients with multiple
19 prior operations or tumorous conditions only for presurgical testing.

20
21 **e. Lineal Tomography**

22
23 Lineal Tomography is infrequently used, yet may be helpful in the evaluation of bone
24 surfaces, bony fusion, or pseudarthrosis.

25
26 **f. Bone Scan (Radioisotope Bone Scanning)**

27
28 Bone scanning is more sensitive but less specific than MRI. Technetium
29 diphosphonate (^{99m}Tc) uptake reflects osteoblastic activity and may be useful in
30 diagnosing metastatic/primary bone tumors, stress and non-displaced fractures,
31 osteomyelitis, and inflammatory lesions, but cannot distinguish between these
32 entities.

33
34 The usual indication is to evaluate for neoplastic conditions. It is indicated with
35 persistent symptoms with otherwise normal diagnostic tests or to differentiate old vs.
36 new lesions. Other indications include occult fracture or infection.

1 **g. Other Radioisotope Scanning**

2
3 Indium and gallium scans are usually used to help diagnose lesions seen on other
4 diagnostic imaging studies. Gallium citrate (Ga 67) scans are used to localize tumor,
5 infection, and abscesses.

6
7 **h. Dynamic [Digital] Fluoroscopy**

8
9 Dynamic [Digital] Fluoroscopy of the spine measures the motion of intervertebral
10 segments using a videofluoroscopy unit to capture images as the subject performs
11 thoracic flexion and extension, storing the anatomic motion of the spine in a
12 computer. Dynamic Fluoroscopy may be used in designated trauma centers to
13 evaluate the thoracic spine. Its superiority over MRI has not been established.

14
15 **2. Other Tests**

16
17 **a. Electrodiagnostic Testing**

18
19 **i. Needle EMG**

20
21 Needle EMG for thoracic spine pain is recommended where a CT or MRI is
22 equivocal and there are ongoing pain complaints that raise questions about
23 whether there may be a neurological compromise that may be identifiable. This
24 means leg symptoms consistent with radiculopathy, spinal stenosis, peripheral
25 neuropathy, etc. EMG is not recommended for patients with acute, subacute, or
26 chronic back pain who do not have significant leg pain or numbness. Nerve
27 conduction studies are done in addition to the needle EMG both to rule out other
28 potential causes for the symptoms (co-morbidity or alternate diagnosis involving
29 peripheral nerves) and to confirm radiculopathy, but the testing must include
30 needle EMG. (Preston 05)

31
32 **Indications:** Failure of suspected radicular pain to resolve or plateau after waiting
33 4 to 6 weeks (to provide for sufficient time to develop EMG abnormalities as well
34 as time for conservative treatment to resolve the problems), equivocal imaging
35 findings such as CT or MRI, and suspicion by history and physical examination

1 that a neurologic condition other than radiculopathy may be present instead of or
2 in addition to radiculopathy.

3
4 **ii. Surface Electromyography**

5
6 The diagnostic effectiveness of this procedure for spine pain needs to be
7 investigated further at this time.

8
9 **iii. Ultrasound (Diagnostic)**

10
11 The diagnostic effectiveness of this procedure for spine pain needs to be
12 investigated further at this time.

13
14 **b. Provocation Discography**

15
16 **i. Thoracic Discography**

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

20
21 **ii. MRI Discography**

22
23 The diagnostic effectiveness of this procedure for spine pain needs to be
24 investigated further at this time.

25
26 **iii. Myeloscopy**

27
28 The diagnostic effectiveness of this procedure for spine pain needs to be
29 investigated further at this time.

30
31 **c. Thermography**

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

35
36

1 **C. Chiropractic Therapeutic Procedures**

2
3 **1. Overview of Chiropractic Care**

4 (Developed by panel consensus and adapted for thoracic spine injury from the following
5 sources: **Lumbar Spine Medical Treatment Guidelines** from the proposed by the **State**
6 **of New York Department of Insurance to the Workers' Compensation Board;**
7 **Cervical Spine Medical Treatment Guidelines** from the proposed by the **State of New**
8 **York Department of Insurance to the Workers' Compensation Board; State of**
9 **Wisconsin Thoracic Spine Pain Medical Treatment Guidelines for Workers**
10 **Compensation; the Council on Chiropractic Guidelines and Practice Parameters**
11 **(CCGPP); the Guidelines for Chiropractic Quality Assurance and Practice**
12 **Parameters; State of Colorado Lumbar Spine Pain Medical Treatment Guidelines**
13 **for Workers Compensation; State of Colorado Cervical Spine Pain Medical**
14 **Treatment Guidelines for Workers Compensation)**

15
16 **Important issues in the care of the patient**

17
18 All medical care for back pain is determined by the diagnosis. A doctor of chiropractic
19 shall at each visit reassess the appropriateness of the treatment of the patient's condition.
20 All patients with thoracic back problems except those with myelopathy shall be given
21 initial non-operative care that may include active and passive treatment modalities,
22 injections durable medical equipment and medications. A treating doctor of chiropractic
23 may do the evaluation or may refer the patient to another health care provider as
24 necessary. Patients with myelopathy may require immediate surgical therapy.

25
26 Any patient who has had surgery may require postoperative therapy with active and
27 passive treatment modalities. This therapy may be in addition to any received during the
28 period of initial nonsurgical care.

29
30 A decision against surgery at any particular time does not preclude a decision for surgery
31 at a later date or in light of new clinical information.

32
33 For those patients who are not candidates for or refuse surgical therapy, or who do not
34 have complete resolution of their symptoms with surgery, a period of chronic
35 management may be necessary.
36

1 A treating doctor of chiropractic may refer the patient for a consultation at any time
2 during the course of treatment consistent with acceptable medical practice.

3
4 Before initiation of any therapeutic procedure, the authorized treating provider, employer,
5 and insurer must consider these important issues in the care of the patient:

- 6
7 1) Patients undergoing therapeutic procedure(s) who were not able to perform their
8 usual and customary work duties should be released or returned to modified or
9 restricted duty during their rehabilitation at the earliest appropriate time.
10
11 2) Cessation and/or review of treatment modalities should be undertaken when no
12 further significant subjective or objective improvement in the patient's condition is
13 noted. If patients are not responding within the recommended duration periods,
14 alternative treatment interventions, further diagnostic studies or consultations should
15 be pursued.
16
17 3) Providers should provide and document education to the patient. No treatment plan is
18 complete without addressing issues of individual and/or group patient education as a
19 means of facilitating self-management of symptoms.
20
21 4) For those patients who fail to make expected progress 6-12 weeks after initiation of
22 care and/or those patient's whose subjective symptoms do not correlate with objective
23 signs and tests, reexamination in order to confirm the accuracy of the diagnosis
24 should be made. Formal psychological or psychosocial evaluation may be considered.
25

26 Home therapy is an important component of therapy and may include active and passive
27 therapeutic procedures as well as other modalities to assist in alleviating pain, swelling,
28 abnormal muscle tone, and restoring functional activities.
29

30 **2. Chiropractic Spinal Adjustment / Manipulation**

31
32 Chiropractic Spinal Adjustment / Manipulation is recommended for treatment of acute,
33 subacute and chronic thoracic spine injury when tied to objective measures of
34 improvement. Chiropractic Spinal Adjustment / Manipulation is indicated for acute,
35 subacute, chronic thoracic spine injury and radicular pain syndromes.
36

1 **Cautions and Contraindications**

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

9
10 Many contraindications are considered relative to the location and stage of severity of the
11 morbidity, whether there is co-management with one or more specialists, and the
12 therapeutic methods being employed by the chiropractic physician.

- 13
14 • Contraindications for High-Velocity Manipulation Techniques on the Thoracic Spine
15 (red flags):

16
17 A spinal manipulation or chiropractic adjustment is a therapeutic force or maneuver
18 delivered by the physician during manipulation in the anatomic region of involvement. A
19 relative contraindication is a condition that adds significant risk of injury to the patient
20 from manipulation, but does not rule out its use. The doctor should discuss this risk with
21 the patient and record this in the chart.

- 22 • Region of local unstable fractures
- 23 • Severe osteoporosis
- 24 • Multiple myeloma
- 25 • Osteomyelitis
- 26 • Local primary bone tumors where osseous integrity is in question
- 27 • Local metastatic bone tumors
- 28 • Paget's disease
- 29 • Progressive or sudden (i.e. cauda equine syndrome) neurologic deficit
- 30 • Spinal cord tumors that clinically demonstrate neurological compromise or require
31 specialty referral. In cases where the neoplasm has been properly assessed and is
32 considered to be clinically quiescent and/or perhaps distant to therapeutic target site,
33 then chiropractic manipulative therapy may be utilized.
- 34 • Region of hypermobile joints
- 35 • Rheumatoid arthritis in the active systemic stage, or locally in the presence of
36 inflammation or instability.

- 1 • Inflammatory phase of ankylosing spondylitis
- 2 • Inflammatory phase of psoriatic arthritis
- 3 • Reactive arthritis (Reiter's syndrome)
- 4 • Unstable congenital bleeding disorders, typically requiring specialty co-management
- 5 • Unstable acquired bleeding disorders, typically requiring specialty co-management
- 6 • Inadequate physical examination
- 7 • Clinicians poorly trained and with inadequate manipulative skills
- 8 • Under certain conditions, procedures such as soft tissue, low velocity, low amplitude
- 9 manipulation or mobilization procedures may still be clinically reasonable and safe.
- 10 • Conditions contraindicating certain chiropractic directed treatments such as spinal
- 11 manipulation and passive therapy.

12
13 Generally the procedure or therapy is contraindicated over the relevant anatomy and not
14 necessarily contraindicated for other areas:

- 15 • Local open wound or burn.
- 16 • Prolonged bleeding time/hemophilia.
- 17 • Artificial joint implants.
- 18 • Pacemaker (contraindicated modality - Electrotherapy).
- 19 • Joint infection
- 20 • Tumors/cancer
- 21 • Recent/healing fracture

22
23 ● **Chiropractic Management of Thoracic spine Disorders**

24
25 ● **Initial Course of Treatments for Thoracic spine Disorders**

26
27 The treatment recommendations that follow, based on clinical experience combined
28 with the best available evidence, are posited for the 'typical' patient and do not
29 include risk stratification for complicating factors. The frequency and duration course
30 of trial for the various stages of care have been developed by panel consensus as
31 adopted for thoracic spine injury from the following: **Lumbar Spine Medical**
32 **Treatment Guidelines** proposed by the **State of New York Department of**
33 **Insurance to the Workers' Compensation Board; Cervical Spine Medical**
34 **Treatment Guidelines** from the proposed by the **State of New York Department of**
35 **Insurance to the Workers' Compensation Board; State of Wisconsin Thoracic**
36 **Spine Pain Medical Treatment Guidelines for Workers Compensation; the**

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Council on Chiropractic Guidelines and Practice Parameters (CCGPP); the Guidelines for Chiropractic Quality Assurance and Practice Parameters; State of Colorado Lumbar Spine Pain Medical Treatment Guidelines for Workers Compensation; State of Colorado Cervical Spine Pain Medical Treatment Guidelines for Workers Compensation).

- **Frequency and Duration for Initial (Trial) Course of Chiropractic Treatments**

Stage of Condition	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

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

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

1 • **Re-evaluation and Re-examination**

2
3 A detailed or focused re-evaluation designed to determine the patient's progress and
4 response to treatment should be conducted at the end of each trial of treatment, or
5 earlier if there is an unexpected, significant change in the patient's course of
6 recovery. Additionally, a brief assessment of the patients response to treatment
7 should be noted after each treatment is completed, and recorded in progress notes
8 (e.g., SOAP notes). A patient's condition should be monitored for progress with each
9 visit. Near the midway point of a trial of care (i.e., end of the second week of a 4
10 week trial), the practitioner should reassess whether the current course of care is
11 continuing to produce satisfactory clinical gains utilizing commonly accepted
12 outcomes assessment methods. When a patient begins to evince a delay in expected
13 progress (i.e., stalled functional gains), the doctor of chiropractic should reassess and
14 consider other clinically appropriate options, i.e., other chiropractic methods and
15 therapeutic approaches, diagnostic testing, specialist referrals for evaluation and/or
16 treatment, and co-management.

17
18 After an initial course of treatment has been concluded, a detailed or focused re-
19 evaluation should be performed to determine whether the patient has made clinically
20 meaningful improvement (e.g., enhanced ability of the patient to perform their usual
21 daily activities at work and/or home). A determination of the necessity for additional
22 treatment should be based upon the response to the initial trial of care and the
23 likelihood that additional gains can be achieved. As patients begin to plateau in their
24 response to treatment, further care should be tapered or discontinued depending on
25 the presentation. A final re-evaluation is recommended to confirm that the condition
26 has resolved or a clinical plateau has occurred and for the practitioner to provide final
27 patient education and instructions in effective self-management. Such evaluation also
28 serves to document the patients status, whether complete resolution, pre-injury, or
29 permanent and stationary with associated disability.

30
31 When a patient reaches complete or partial resolution of their condition and all
32 reasonable treatment and diagnostic studies have been provided then this should be
33 considered a final plateau (maximal therapeutic benefit). The doctor of chiropractic
34 should perform a final examination to verify that maximum therapeutic benefit
35 (MTB) has been achieved, and provide any necessary patient education and
36 instructions in effective future self-management.

1
2 If the criteria to support continuing chiropractic care (as described in the under
3 additional care) have been achieved, a follow-up course of treatment may be
4 indicated. However, one of the goals of any treatment plan should be to reduce the
5 frequency of treatments to the point where maximum therapeutic benefit continues to
6 be achieved while encouraging more active self-therapy, such as independent
7 strengthening and range of motion exercises, and rehabilitative exercises. Patients
8 also need to be encouraged to return to usual activity levels despite residual pain, as
9 well as to avoid overdependence on physicians, including doctors of chiropractic.

10
11 The frequency of continued treatment generally depends upon the severity and
12 duration of the condition. Upon completion of the initial trial of care, if the
13 appropriate criteria have been met, the following parameters of continued treatment
14 are recommended, based on clinical experience combined with the best available
15 evidence.

16
17 • **Frequency and Duration for Continuing Courses of Treatments**
18

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

19
20 When the patient's condition reaches a plateau, or no longer shows ongoing
21 improvement from the therapy, a decision must be made on whether the patient will
22 need to continue treatment. Generally, progressively longer trials of therapeutic
23 withdrawal may be useful in ascertaining whether therapeutic gains can be
24 maintained absent treatment.
25

1 • **Additional Care**

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

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

13
14 **3. Therapy, Passive**

15 (The following recommendations for passive and active therapy are adapted for the
16 thoracic spine from the following references: **Lumbar Spine Medical Treatment**
17 **Guidelines** from the proposed by the **State of New York Department of Insurance** to
18 the **Workers' Compensation Board**; **Cervical Spine Medical Treatment Guidelines**
19 from the proposed by the **State of New York Department of Insurance** to the
20 **Workers' Compensation Board**; **State of Wisconsin Thoracic Spine Pain Medical**
21 **Treatment Guidelines for Workers Compensation**; the **Council on Chiropractic**
22 **Guidelines and Practice Parameters (CCGPP)**; the **Guidelines for Chiropractic**
23 **Quality Assurance and Practice Parameters**; **State of Colorado Lumbar Spine Pain**
24 **Medical Treatment Guidelines for Workers Compensation**; **State of Colorado**
25 **Cervical Spine Pain Medical Treatment Guidelines for Workers Compensation**).

26
27 Passive therapies include those treatment modalities that do not require energy
28 expenditure on the part of the patient. They are principally effective during the early
29 phases of treatment and are directed at controlling symptoms such as pain, inflammation
30 and swelling. If employed, they should be used adjunctively with active therapies such as
31 postural stabilization and exercise programs to help control swelling, pain, and
32 inflammation during the active rehabilitation process. Passive therapies may be used
33 intermittently as a treating provider deems appropriate or regularly if there are specific
34 goals with objectively measured functional improvements during treatment.

35

1 On occasion, specific diagnoses and post-surgical conditions may warrant durations of
2 treatment beyond those listed below. Factors such as exacerbation of symptoms, re-
3 injury, interrupted continuity of care and co-morbidities may also extend durations of
4 care. Specific goals with objectively measured functional improvement during treatment
5 must be cited to justify extended durations of care. It is recommended that, if no
6 functional gain is observed after the number of treatments under “time to produce effect”
7 has been completed, alternative treatment interventions,
8

9 **a. Mobilization (Joint)**

10
11 Joint mobilization consists of passive movement involving oscillatory motions to the
12 vertebral segment(s). The passive mobility is performed in a graded manner (I, II, III,
13 IV, or V), which depicts the speed and depth of joint motion during the maneuver. It
14 may include skilled manual joint tissue stretching. Indications include the need to
15 improve joint play, segmental alignment, improve intracapsular arthrokinematics, or
16 reduce pain associated with tissue impingement. Mobilization should be accompanied
17 by active therapy. For Level V mobilization, contraindications include joint
18 instability, fractures, severe osteoporosis, infection, metastatic cancer, active
19 inflammatory arthritides, and signs of progressive neurologic deficits, myelopathy,
20 vertebrobasilar insufficiency, or carotid artery disease. Relative contraindications
21 include stenosis, spondylosis, and disc herniation.

- 22 • Time to Produce Effect: 6 to 9 treatments.
23 • Frequency: Up to 3 times per week.
24 • Optimum Duration: 4 to 6 weeks.
25

26 **b. Mobilization (Soft Tissue)**

27
28 Mobilization of soft tissue is the skilled application of muscle energy, strain/counter
29 strain, myofascial release, manual trigger point release, and other manual therapy
30 techniques designed to improve or normalize movement patterns through the
31 reduction of soft tissue pain and restrictions. These can be interactive with the patient
32 participating or can be with the patient relaxing and letting the practitioner move the
33 body tissues. Indications include muscle spasm around a joint, trigger points,
34 adhesions, and neural compression. Mobilization should be accompanied by active
35 therapy.

- 36 • Time to Produce Effect: 4 to 9 treatments.

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

c. Massage (Manual or Mechanical)

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

- Manual massage is recommended for select use in subacute and chronic thoracic spine pain as an adjunct to more efficacious treatments consisting primarily of joint manipulation / mobilization and/or a graded aerobic and strengthening exercise program.

Indication: Consideration for time-limited use in subacute and chronic thoracic spine pain patients without underlying serious pathology is as an adjunct to a conditioning program that has both graded aerobic exercise and strengthening exercises. The intervention is only recommended to assist in increasing functional activity levels more rapidly and the primary attention should remain on the conditioning program. In those not involved in a conditioning program, or who are non-compliant with graded increases in activity levels, this intervention is not recommended.

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

1 **Indications for Discontinuation:** Resolution, intolerance, lack of benefit, or
2 noncompliance with aerobic and strengthening exercises.

- 3
4 • Massage is recommended as a treatment for acute thoracic spine pain and chronic
5 radicular syndromes in which thoracic spine pain is a substantial symptom
6 component.

7
8 **Indications:** Patients with sub-acute and chronic thoracic spine pain without
9 underlying serious pathology, such as fracture, tumor, or infection.

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

- 15 • Time to Produce Effect: Immediate.
16 • Frequency: 1 to 2 times per week.
17 • Optimum Duration: 6 weeks.

18
19 **Indications for Discontinuation:** Resolution, intolerance or lack of benefit.

20
21 ▪ **Mechanical Devices for Massage**

22
23 The therapeutic effectiveness of this procedure for thoracic spine pain needs to be
24 investigated further at this time

25
26 **d. Superficial Heat and Cold Therapy**

27
28 Superficial heat and cold are thermal agents applied in various manners that lower or
29 raise the body tissue temperature for the reduction of pain, inflammation, and/or
30 effusion resulting from injury or induced by exercise. It includes application of heat
31 just above the surface of the skin at acupuncture points. Indications include acute
32 pain, edema and hemorrhage, need to increase pain threshold, reduce muscle spasm,
33 and promote stretching/flexibility. May be used in conjunction with other active
34 therapy and may be self-administered by the patient.

- 35 • Time to Produce Effect: Immediate.
36 • Frequency: 2 to 5 times per week.

- Optimum Duration: 3 weeks as primary or intermittently as an adjunct to other therapeutic procedures up to 2 months.

e. Traction – Manual

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

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

f. Traction - Mechanical

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

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

g. Transcutaneous Electrical Nerve Stimulation (TENS)

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

Indications: TENS (single or dual channel) may be recommended as treatment for chronic thoracic spine pain when clear objective and functional goals are being

1 achieved, which includes reductions in medication use. TENS is used as adjunctive
2 treatment in chronic pain conditions to support or facilitate
3 manipulation/mobilization, graded aerobic exercise and strengthening exercises. In
4 those not involved in a conditioning program, or who are non-compliant with graded
5 increases in activity levels, this intervention is not recommended. There is no quality
6 evidence that more complex TENS units beyond the single or dual channel models
7 are more efficacious, thus those models are not recommended.

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

- 16 • Time to Produce Effect: Immediate.
- 17 • Frequency: Variable.
- 18 • Optimum Duration: 3 sessions.

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

26
27 **Indications for Discontinuation:** Resolution, intolerance or non-compliance,
28 including non-compliance with aerobic and strengthening exercises.

30 **h. Neuromuscular Electrical Stimulation**

31
32 For purposes of this section, neuromuscular electrical muscle stimulation includes
33 galvanic stimulation, transcutaneous electrical nerve stimulation, interferential and
34 microcurrent therapies.

35

1 Electrical Stimulation (Unattended): unattended means that the physician,
2 chiropractor or therapist is not physically present with the patient on a 1:1 basis when
3 treatment is being administered , while attended requires the presence of that
4 provider. Nerve and muscle stimulation can be useful in any disorder in which the
5 patient has lost or never had adequate voluntary control over skeletal muscle. This
6 type of stimulation strengthens and retrains muscle following surgery, soft tissue
7 injury or after weakness occurs. The application of unattended electrical muscle
8 stimulation, in and of itself, has not been found to have any significant long term
9 therapeutic benefit; however, by providing a temporary pain modulating effect, it may
10 assist the chiropractor in preparing the soft tissue for chiropractic manipulative
11 therapy facilitate more efficacious treatment such as manipulation/mobilization and
12 therapeutic exercise/activities.

13
14 **i. Ultrasound (Including Phonophoresis)**

15
16 For purposes of this section, neuromuscular electrical muscle stimulation includes
17 galvanic stimulation.

18
19 In situations where deeper heating is desirable, a limited trial of ultrasound for the
20 treatment of thoracic spine pain is reasonable. Ultrasound uses sonic generators to
21 deliver acoustic energy for therapeutic thermal and/or non-thermal soft tissue effects.
22 Indications include scar tissue, adhesions, collagen fiber and muscle spasm, and the
23 need to extend muscle tissue or accelerate the soft tissue healing. Ultrasound with
24 electrical stimulation is concurrent delivery of electrical energy that involves
25 dispersive electrode placement. Indications include muscle spasm, scar tissue, pain
26 modulation, and muscle facilitation.

27
28 Phonophoresis is the transfer of medication through the use of sonic generators to the
29 target tissue to control inflammation and pain. These topical medications include, but
30 are not limited to, steroidal anti-inflammatory and anesthetics.

- 31 • Time to Produce Effect: 6 to 15 treatments.
32 • Frequency: 3 times per week.
33 • Optimum Duration: 4 to 8 weeks.

34
35
36

1 **j. Biofeedback**

2
3 Biofeedback is recommended for select patients with chronic thoracic spine pain, as a
4 component of an interdisciplinary approach.

5
6 **Indications:** Moderate to severe chronic thoracic spine pain with sufficient symptoms
7 that multiple treatment options have failed, particularly including NSAIDs,
8 progressive aerobic exercise program, other exercises, and potentially manipulation
9 or acupuncture. These select patients must also be willing to learn about biofeedback
10 and motivated to comply with the treatment regimen which requires self discipline.

11
12 **k. Reflexology**

13
14 The therapeutic effectiveness of this procedure for thoracic spine pain needs to be
15 investigated further at this time

16
17 **l. Myofascial Release**

18
19 Myofascial release is a form of soft tissue therapy intended for pain relief, increasing
20 range of motion and balancing the body. Techniques include manual massage for
21 stretching the fascia and releasing bonds between fascia, integument, muscles, and
22 bones are applied. The fascia is manipulated, directly or indirectly, supposedly to
23 allow the connective tissue fibers to reorganize themselves in a more flexible,
24 functional fashion.

25
26 The therapeutic effectiveness of this procedure for thoracic spine pain needs to be
27 investigated further at this time

28
29 **m. Diathermy**

30
31 Electrically induced heat is commonly used for muscle relaxation. It is also a method
32 of heating tissue electromagnetically or ultrasonically for therapeutic purposes in
33 medicine.

34

1 **Indications:** In situations where deeper heating is desirable, a limited trial of
2 diathermy for the treatment of thoracic spine pain is reasonable, but only if performed
3 as an adjunct with joint mobilization, manipulation and/or exercise.
4

5 **n. Infrared Therapy**

6
7 **Indications:** In situations where deeper heating is desirable, a limited trial of heat
8 therapy for the treatment of thoracic spine pain is reasonable, but only if performed as
9 an adjunct with joint mobilization, manipulation and/or exercise.
10

11 **o. Low Level Laser Therapy**

12
13 The therapeutic effectiveness of this procedure for thoracic spine pain needs to be
14 investigated further at this time
15

16 **p. Manipulation of the Spine under General Anesthesia (MUA) and Medication-**
17 **Assisted Spinal Manipulation (MASM)**

18
19 There is sufficient evidence to warrant limited trials of care for a defined subset of
20 patients with significant joint fixation which is non-responsive to joint manipulation
21 and mobilization techniques.
22

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

34 There is growing evidence that Medication-Assisted spinal manipulation produces
35 measurable reduction in pain and disability, which remained apparent at 1 year. MUA
36 should only be contemplated for qualified candidates as the final conservative

1 treatment prior to consideration of more invasive procedures such as surgery. MUA
2 should only be performed once conservative care (ie. physical therapy and
3 manipulative therapy accompanied by an aggressive active care program), has been
4 exhausted. The goal is to improve function and to decrease pain. MUA should be
5 restricted to those patients who fit strict utilization review criteria. MUA should be
6 followed by appropriate re-conditioning stabilization program.
7

8 Risks associated with MUA and MASM performed by an adequately trained medical
9 or osteopathic physician or doctor of chiropractic are the same as those associated
10 with manipulative therapy and those specific to the accompanying agents.
11

12 References:

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14 with epidural fibrosis and recurrent HNP. *ACA J Chiro* 1993 June; 79-81.
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5

6 **4. Nutritional Therapy**

7 (Adapted for the thoracic spine from the proposed **New York State Workers**
8 **Compensation Low Back Pain Guidelines**).
9

10 The therapeutic effectiveness of this procedure for spine pain needs to be investigated
11 further at this time.
12

13 **a. Herbal and Other Preparations**

14 *General Herbal Treatments*

15
16
17 The therapeutic effectiveness of this procedure for spine pain needs to be investigated
18 further at this time.
19

20 i. Recommendation: Harpagoside

21
22 For acute, subacute, or chronic back pain syndromes there is evidence that
23 harpagoside reduces pain more than a placebo in a dose-dependent manner. In
24 carefully selected patients, harpagoside is recommended for treatment of thoracic
25 spine pain.
26

27 **Indications:** For acute, subacute, chronic thoracic spine pain in patients in whom
28 NSAIDs are contraindicated or not tolerated, harpagoside is a reasonable
29 consideration. However, longterm safety is unclear and caution is warranted about
30 long-term treatment with this compound.
31

32 **Indications for Discontinuation:** Resolution of thoracic spine pain, lack of
33 efficacy, or development of adverse effects necessitate discontinuation. Not
34 recommended for use more than 3 months until more evidence of efficacy is
35 available.
36

1 **ii. Capsaicin, “Sports Creams” and Other Creams and Ointments**

2
3 Capsicum is recommended for treatment of acute and subacute back pain, or
4 temporary flare-ups of chronic thoracic spine pain. Long-term use is not
5 recommended. Capsicum appears superior to Spiroflor. Other creams and
6 ointments may be useful, although there is no quality evidence to guide
7 recommendations.

8
9 **Indications:** For acute and subacute, and for temporary flare-ups of chronic
10 thoracic spine pain, capsaicin is recommended for treatment. Providers should be
11 aware that there are other treatments that appear to likely have greater efficacy
12 (e.g., medications, progressive exercise program, etc.). However, capsaicin may
13 be a useful adjunct. These compounds may also be used in those patients who
14 prefer topical treatments over oral treatments and other more efficacious
15 treatments, but have only mild thoracic spine pain.

16
17 **Indications for Discontinuation:** Resolution of thoracic spine pain, lack of
18 efficacy or development of adverse effects that necessitate discontinuation.
19 Recommended not to be used more than 1 month as the costs become high and
20 the patient should be transitioning to an active treatment program.

21
22 **5. Acupuncture**

23 (Adapted for the thoracic spine from the proposed **New York State Workers**
24 **Compensation Low Back Pain Guidelines** and **New York State Workers**
25 **Compensation Cervical Spine Injury Guidelines**.)

26
27 Acupuncture is recommended for select use in chronic spine pain as an adjunct.

28
29 **Indications:** Acupuncture may be recommended as treatment of chronic thoracic spine
30 pain as a limited course during which time there are clear objective and functional goals
31 that are to be achieved. Consideration for time-limited use in chronic thoracic spine pain
32 patients without underlying serious pathology is as an adjunct to a conditioning program
33 that has both graded aerobic exercise and strengthening exercises. Acupuncture is only
34 recommended to assist in increasing functional activity levels more rapidly and the
35 primary attention should remain on the conditioning program. This intervention is not

1 recommended for patients not involved in a conditioning program, or who are
2 noncompliant with graded increases in activity levels.

3
4 **Frequency/Duration:** There are different patterns which are used in quality studies.
5 These range from weekly for a month to 20 appointments over 6 months; however the
6 norm is generally no more than 8 to 12 sessions. An initial trial of 5 to 6 appointments
7 would appear reasonable in combination with a conditioning program of aerobic and
8 strengthening exercises. Future appointments should be tied to improvements in objective
9 measures and would justify an additional 6 sessions, for a total of 12 sessions.

10
11 **Indications for Discontinuation:** Resolution, intolerance, or non-compliance, including
12 non-compliance with aerobic and strengthening exercises.

13 14 **6. Thoracic Orthoses**

15 (Adapted for thoracic spine injury from the **Lumbar Spine Medical Treatment**
16 **Guidelines** proposed by the **State of New York Department of Insurance** to the
17 **Workers' Compensation Board**; **State of Wisconsin Thoracic Spine Pain Medical**
18 **Treatment Guidelines for Workers Compensation**; the **Council on Chiropractic**
19 **Guidelines and Practice Parameters (CCGPP)**; the **Guidelines for Chiropractic**
20 **Quality Assurance and Practice Parameters**; **State of Colorado Lumbar Spine Pain**
21 **Medical Treatment Guidelines for Workers Compensation**).

22 23 **a. Thoracic Supports**

24
25 The use of back supports may provide some relief during acute injury and may also
26 serve as a reminder to avoid those activities which may aggravate the injured
27 workers' condition (e.g., avoidance of improper postures, bending and lifting). Their
28 use is not recommended as a primary or sole approach to patient care, and has been
29 demonstrated to be less effective than traditional methods of treatment (e.g., spinal
30 manipulation). Further investigation is warranted for chronic thoracic spine pain.

31 32 **b. Other Orthoses, Devices and Equipment**

33 34 **i. Kinesiotaping and Taping**

35
36 The therapeutic effectiveness of this procedure for spine pain needs to be

1 investigated further at this time.

2
3 **ii. Magnets**

4
5 The therapeutic effectiveness of this procedure for spine pain needs to be
6 investigated further at this time.

7
8 **7. Patient Education**

9 (Adapted for the thoracic spine from the proposed **New York State Workers**
10 **Compensation Low Back Pain Guidelines** and the **New York State Workers**
11 **Compensation Cervical Spine Injury Guidelines**).

12
13 No treatment plan is complete without addressing issues of individual and/or group
14 patient education as a means of prolonging the beneficial effects of treatment, as well as
15 facilitating self-management of symptoms and injury prevention. The patient should be
16 encouraged to take an active role in the establishment of functional outcome goals. They
17 should be educated on their specific injury, assessment findings, and plan of treatment.
18 Instruction on proper body mechanics and posture, positions to avoid, self-care for
19 exacerbation of symptoms, and home exercise should also be addressed.

20
21 **8. Restriction of Activities**

22 (Adapted for the thoracic spine from the proposed **New York State Workers**
23 **Compensation Low Back Pain Guidelines** and **New York State Workers**
24 **Compensation Cervical Spine Injury Guidelines**).

25
26 There is some evidence to support the continuation of normal daily activities as the
27 recommended treatment for acute and chronic spine injuries without neurologic
28 symptoms. Complete work cessation should be avoided, if possible, since it often further
29 aggravates the pain presentation. Modified return-to-work is almost always more
30 efficacious and rarely contraindicated in the vast majority of patients with thoracic spine
31 injuries.

32
33 **9. Return-to-work**

34 (Adapted for the thoracic spine from the proposed **New York State Workers**
35 **Compensation Low Back Pain Guidelines** and the **New York State Workers**
36 **Compensation Cervical Spine Injury Guidelines**).

1
2 Communication is essential between the patient, employer, and provider to determine
3 appropriate restrictions and return-to work dates. It is the responsibility of the physician
4 to provide clear concise restrictions, and it is the employer's responsibility to determine if
5 temporary duties can be provided within the restrictions.
6

7 **a. Establishment of Activity Level Restrictions**
8

9 For spine injuries, the following should be addressed when describing the patient's
10 activity level:
11

- 12 i. Total body position including trunk, especially rotation and flexion, to include
13 duration and frequency.
14 ii. Upper extremity requirements including reaching above the shoulder, repetitive
15 motions, pushing, pulling, and lifting or carrying requirements. Duration and
16 frequency should be included.
17
18 iii. Sitting duration and frequency with regard to posture, work height(s), and
19 movements of the head and thoracic spine.
20
21 iv. Visual field requirements in respect to limitations in head and thoracic spine
22 movements and tolerance to looking upward and downward.
23
24 v. Use of adaptive devices or equipment for proper office ergonomics or to enhance
25 capacities can be included.
26

27 **b. Compliance with Activity Restrictions**
28

29 In some cases, compliance with restriction of activity levels may require a complete
30 jobsite evaluation, a functional capacity evaluation (FCE), or other special testing.
31

32 **10. Therapy, Active**
33

34 The following active therapies are based on the philosophy that therapeutic exercise
35 and/or activity are beneficial for restoring function by enhancing flexibility, strength,
36 endurance, function, range of motion, and can alleviate discomfort. Active therapy

1 requires an internal effort by the individual to complete a specific exercise or task. This
2 form of therapy requires supervision from a therapist or medical provider such as verbal,
3 visual, and/or tactile instruction(s). At times, the provider may help stabilize the patient
4 or guide the movement pattern but the energy required to complete the task is
5 predominately executed by the patient.
6

7 Patients should be instructed to continue active therapies at home as an extension of the
8 treatment process in order to maintain improvement levels. Follow-up visits to reinforce
9 and monitor progress and proper technique are recommended. Home exercise can include
10 exercise with or without mechanical assistance or resistance and functional activities with
11 assistive devices. The following active therapies are listed in alphabetical order:
12

13 **a. Activities of Daily Living (ADL)**
14

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

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

21
22 **b. Functional Activities**
23

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

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

30
31 **c. Functional Electrical Stimulation (FES)**
32

33 Functional Electrical Stimulation is the application of electrical current to elicit
34 involuntary or assisted contractions of atrophied and/or impaired muscles. Indications
35 include muscle atrophy, weakness, and sluggish muscle contraction secondary to

1 pain, injury, neuromuscular dysfunction or where the potential for atrophy exists. It
2 may be an appropriate treatment in conjunction with an active exercise program.

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

6
7 **d. Neuromuscular Re-education**

8
9 Neuromuscular Re-education is the skilled application of exercise with manual,
10 mechanical, or electrical facilitation to enhance strength, movement patterns,
11 neuromuscular response, proprioception, kinesthetic sense, and coordination,
12 education of movement, balance, and posture. Indications include the need to promote
13 neuromuscular responses through carefully timed proprioceptive stimuli, to elicit and
14 improve motor activity in patterns similar to normal neurologically developed
15 sequences, and improve neuromotor response with independent control.

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

19
20 **e. Spinal Stabilization**

21
22 The goal of Spinal Stabilization is to strengthen the spine in its neural and anatomic
23 position. The stabilization is dynamic which allows whole body movements while
24 maintaining a stabilized spine. It is the ability to move and function normally through
25 postures and activities without creating undue vertebral stress.

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

30
31 Reference:

32 McGill, S. Thoracic spine Disorders: Evidence-Based Prevention and Rehabilitation. Champlain, IL:
33 Human Kinetics [Date]; Stabilization Protocols p. 137-147; Developing Protocols p. 239-259.

34
35
36

1 **f. Therapeutic Exercise**

2
3 Therapeutic exercise, with or without mechanical assistance or resistance, may
4 include isoinertial, isotonic, isometric and isokinetic types of exercises. Indications
5 include the need for cardiovascular fitness, reduced edema, improved muscle
6 strength, improved connective tissue strength and integrity, increased bone density,
7 promotion of circulation to enhance soft tissue healing, improvement of muscle
8 recruitment, improved proprioception and coordination, increased range of motion
9 and are used to promote normal movement patterns. Therapeutic exercise can also
10 include complementary/ alternative exercise movement therapy (with oversight of a
11 physician or appropriate healthcare professional).

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

15
16 **g. Neuroreflexotherapy**

17
18 Neuroreflexotherapy is recommended for treatment of moderate to severe chronic
19 thoracic spine pain in patients who have failed management with NSAIDs,
20 progressive aerobic exercise program or other exercises, and manipulation.

21
22 **11. Activity Modification and Exercise**

23 (Adapted for the thoracic spine from the proposed **New York State Workers**
24 **Compensation Low Back Pain Guidelines** and **New York State Workers**
25 **Compensation Cervical Spine Injury Guidelines**).

26
27 **a. Bed Rest**

28
29 Bed rest is not recommended for the management of acute thoracic spine pain.
30 Though bed rest is non-invasive, it is costly and associated with high morbidity.

31
32 Bed rest is not recommended for the management of subacute and chronic spine pain.
33 It is suspected that it is just as ineffective for these situations as it is for acute spine
34 pain; however, there is less evidence on which to rely.

35

1 There is no quality evidence that other back pain related problems are successfully
2 treated with bed rest, including spondylolisthesis, spondylolysis, spinal stenosis, facet
3 related pain, or pain thought to be related to the sacroiliac joint. There also are likely
4 adverse effects. Bed rest is costly, has no documented benefits, and is expected to be
5 associated with higher morbidity, although it is non-invasive. This treatment strategy
6 is not recommended.

7
8 There is no quality evidence regarding the use of bed rest or other activity limitations
9 for the treatment of stable spinal fractures, such as transverse process fractures or
10 compression fractures. In those settings, bed rest is costly, has no documented
11 benefits, and is expected to be associated with higher morbidity, although it is
12 noninvasive. This treatment strategy is not recommended. Instead, gentle activity
13 within tolerance is recommended.

14
15 There are no quality studies evaluating the role of bed rest in the management of
16 unstable spinal fractures or spinal nerve root syndrome. There is consensus that these
17 require bed rest or other marked activity limitations to prevent adverse events.
18 Although bed rest is costly and has no documented benefits, the hazard of
19 mobilization in this setting is theoretically catastrophic, thus this treatment strategy is
20 considered to be recommended.

21
22 Bed rest is not recommended for the management of radicular pain syndromes,
23 including sciatica. It is suspected that it is as unhelpful as it is for acute spine pain,
24 but there are not as many studies.

25
26 **b. Sleep Posture**

27
28 The most appropriate sleep posture is that which is most comfortable for the patient.
29 If a patient habitually chooses a particular sleep posture, it would appear reasonable
30 to recommend altering posture to determine if there is reduction in pain or other
31 symptoms.

32
33 Criteria for Initiation: Acute, subacute or chronic spine pain that results in nocturnal
34 awakening, particularly if not amenable to other treatments.

35
36 Criteria for Discontinuation: Non-tolerance.

1
2 **c. General Exercise**
3

4 Stretching and aerobic exercise are recommended, while strengthening is not, as there
5 is insufficient time for deconditioning to occur and there is a potential for aggravation
6 of spine pain. Pain control modalities may be needed as a complement to exercise.
7

8 Classification-based exercise management may be beneficial in selection of specific
9 exercises. The recommended frequency is 1 to 3 sessions a week for up to 4 weeks as
10 long as periodically documented functional improvement and symptom reduction is
11 occurring.
12

13 The treatment strategy is the same as for acute thoracic spine pain. However,
14 movements that centralize thoracic spine pain may be used to guide exercise
15 selection. Concentration on radicular symptoms is emphasized over axial pain. Rapid
16 progression of radicular symptoms and objective signs may necessitate
17 discontinuation of exercise and consideration of further diagnostic testing.
18

19 For patients with no prior treatment, the treatment plan is similar to nonspecific spine
20 pain. The frequency is 1 to 3 sessions per week for 4 weeks as long as periodically
21 documented functional improvement and symptom reduction is occurring.
22

23 For those who failed acute treatment, a trial of more intensive reconditioning that
24 includes strengthening exercises is recommended. Particular attention should be paid
25 to psychosocial factors that may impair compliance with exercise recommendations
26 among those with subacute spine pain, as it is believed possible to reduce risk for the
27 thoracic spine pain to become chronic. Providers should educate patients to help
28 motivate, encourage, and facilitate recovery. The frequency is 2 to 5 sessions per
29 week for 4 weeks as long as there is objective functional improvement, symptom
30 reduction, patient compliance and efficacy. Progress should be reassessed after 8
31 sessions. Visit frequency depends on work status, symptom severity, comorbidities
32 and functional status.
33

34 Subacute radicular pain is treated similarly to subacute spine pain above, except if
35 there is rapid progression of radicular symptoms and objective signs. If this occurs it
36 may be necessary to discontinue exercise and to consider further diagnostic testing.

1
2 Postoperative progressive exercise programs should first emphasize flexibility and
3 aerobic exercises, and then progress to strengthening. Treatment frequency of 1 to 3
4 sessions per week progressing to 2 to 4 sessions per week is recommended depending
5 on patient compliance, periodically documented functional improvement and
6 symptom reduction. Reassessment should occur after 10 sessions, with continuation
7 based on demonstration of functional improvement. The upper range is 20 sessions.

8
9 For patients with mild symptoms or a flare-up of symptoms, the treatment focus is on
10 education regarding home management and exercise. Individuals with mild symptoms
11 and minimal functional limitations may receive a therapy evaluation and 1 follow-up
12 visit to adjust the home therapy program.

13
14 For individuals with moderate to severe flare-up with mild to severe disability,
15 treatment should consist of a progressive exercise program first emphasizing
16 flexibility and aerobic exercises, and progressing to strengthening treatment
17 frequency of 1 to 3 visits per week up to a maximum of 12 visits. Reassessment
18 should occur after the 6th visit, with continuation based on patient compliance,
19 periodically documented functional improvement and symptom reduction.

20
21 For individuals with mild symptoms and minimal disability, treatment should consist
22 of a therapy evaluation to instruct the patient in home based exercise program, with 1
23 to 2 follow-up visits.

24
25 For individuals who had failure of prior treatment and have moderate symptoms and
26 some functional deficits, if the patient had no previous exposure to exercise therapy,
27 he or she should be treated the same as a patient with subacute symptoms (outlined
28 above). If the patient failed prior exercise therapy, consider 6 additional exercise
29 visits, or consider an interdisciplinary approach.

30
31 Reference:

32 McGill, S. Lumbar spine Disorders: Evidence-Based Prevention and Rehabilitation. Champlain, IL:
33 Human Kinetics [Date?]; Reducing the Risk at Work p. 161-186.

34
35
36

1 **d. Aerobic Exercises**

2
3 Aerobic exercise is recommended for treatment of acute, subacute and chronic spine
4 pain, although most available evidence is from studies treating chronic thoracic spine
5 pain patients. For most patients, a structured, progressive walking program on level
6 ground or no incline on a treadmill is recommended. There has been some
7 controversy about whether bicycling is helpful or harmful from a biomechanical
8 perspective (lordosis) and the back muscles are less active with bicycling, thus it may
9 be less appropriate. Yet, if bicycling is the preferred exercise for the patient, it is
10 believed to be far superior to obtaining no aerobic exercise. For those patients who
11 desire other aerobic exercises, there are no specific data, although there are
12 indications that imply that there is a direct correlation between benefit and the amount
13 of aerobic activity that results in higher MET expenditure. Therefore, the activity that
14 the patient will adhere to is believed to be the one most likely to be effective, given
15 that compliance is a recognized problem.

16
17 **Indications:** All patients with acute, subacute and chronic spine pain appear to
18 benefit from aerobic exercises. However, those with significant cardiac disease, or
19 significant potential for cardiovascular disease should be considered for whether an
20 evaluation is required prior to institution of vigorous exercises.

21
22 **Frequency/Duration:** For patients with chronic spine pain, walking at least 4 times
23 per week at 60% of predicted maximum heart rate ($220 - \text{age} = \text{maximum heart rate}$) is
24 recommended. One successful study benchmarked 20 minutes during Week 1, 30
25 minutes during Week 2, and 45 minutes after that point. For acute or subacute
26 thoracic spine pain patients, a graded walking program is generally desired, often
27 using distance or time as minimum benchmarks. For example, a patient can start with
28 10 to 15 minutes twice a day for 1 week, and increase in 10 to 15 minute increments
29 per week until at least 30 minutes per day is achieved.

30
31 **Indications for Discontinuation:** Aerobic exercise should be discontinued when
32 there is intolerance (rarely occurs) or development of other disorders. Nearly all
33 patients should be encouraged to maintain aerobic exercises on a long-term basis for
34 both prevention of spine pain (see below), and to maintain optimal health.

35
36 Aerobic exercise is believed to be strongly recommended for post-operative patients.

1
2 Unfortunately there is no quality evidence to support this recommendation. In the
3 absence of evidence, it is suggested that the above guideline be used for treatment of
4 post-operative thoracic spine pain patients.
5

6 **e. Stretching and Flexibility**
7

8 Evidence suggests specific stretching exercises are somewhat helpful for acute spine
9 pain. However, aerobic exercise should be the first-line treatment and stretching
10 exercises may be added for self-treatment if needed.
11

12 **Indications:** For acute, subacute, or chronic spine pain, either slump stretch-related
13 exercises or directional preference stretching exercises are recommended. Generic
14 stretching exercises are not recommended.
15

16 **Frequency/Duration:** Three to five times per day for acute spine pain; two to three
17 times per day for subacute or chronic spine pain.
18

19 **Indications for Discontinuation:** Stretching exercises should be discontinued if there
20 is a strain in the course of treatment, or failure to improve.
21

22 There is one reported low-quality RCT of aggressive stretching exercises for the
23 treatment of chronic “myofascial” spine pain and there is no duplication of those
24 results in the literature. Thus, there is no quality evidence base for aggressive
25 stretching. There are concerns that over-stretching may result in additional injuries to
26 patients. Aggressive stretching requires a doctor of chiropractic for each session and
27 thus costs are considerably greater than those for self-performed stretching exercises.
28 While they were not invasive, there are concerns that the potential for harm
29 outweighs the potential for benefit. There are many other interventions with evidence
30 of efficacy.
31

32 Stretching exercises as an isolated prescription or program for purposes of preventing
33 thoracic spine pain need further investigation
34
35
36

1 **f. Strengthening and Stabilization Exercises**

2
3 Specific strengthening exercises, such as stabilization exercises, are helpful for the
4 prevention and treatment (including post-operative treatment) of spinal pain.

5
6 **Indications:** For acute, subacute, or chronic spine pain, or post-operative spine pain
7 patients, strengthening exercises are recommended for treatment of spinal pain.
8 However, as evidence of efficacy of aerobic exercises appears greater, these exercises
9 should be added after aerobic exercises have already been instituted and either
10 additional treatment is needed, or in situations where both are felt to be required.
11 Exercises should be taught and then performed by the patient in a home exercise
12 program. For those patients who do not improve, follow up appointments to verify
13 technique and compliance (by exercise log books) are recommended. Some patients,
14 particularly those lacking motivation to be in a home exercise program may benefit
15 from a supervised exercise program, although strong questions about long-term
16 compliance are apparent among patients with chronic spine pain. More intensive
17 programs with more intensive exercises and direct supervision with active coaching
18 appear warranted for chronic thoracic spine pain.

19
20 **Frequency/Duration:** Home program frequency is 1 to 2 times a day for acute spine
21 pain, and two to three times a day for subacute or chronic spine pain. Supervised
22 treatment frequency and duration is dependent on symptom severity and acuity, the
23 presence of comorbid conditions and yellow flags.

24
25 **Indications for Discontinuation:** Indications to discontinue strengthening exercises
26 include development of a strain in the course of treatment or failure to improve.

27
28 Strengthening of abdominal muscles (e.g., rectus abdominus and obliques with sit-up
29 exercises) is a frequent goal of thoracic spine pain rehabilitation or prevention
30 programs. There are numerous studies that link abdominal strengthening, activation
31 and breathing exercises to stability of the thoracic spine and training of these muscles
32 to prevent thoracic spine pain.^{1,2,3,4,5,6}

33
34 References:

- 35 1. Hodges PW, Jull GA. Spinal Segmental Stabilization Training. In: Liebenson C. (ed.).
36 Rehabilitation of the Spine, 2nd Ed., Baltimore: Lippincott Williams 2007; p. 585- 607

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g. Aquatic Therapy (Including Swimming)

If the patient has subacute or chronic spine pain and meets criteria for a referral for supervised exercise therapy and has co-morbidities (e.g., extreme obesity, significant degenerative joint disease, etc.) that preclude effective participation in a weight-bearing physical activity, then a trial of aquatic therapy is recommended for the treatment of subacute or chronic spine pain. Osteoarthritis of the knee is not a clear contraindication to a walking program, rather walking may be therapeutically indicated based on high quality evidence.

Reference:

Ettinger WH Jr., et al. A randomized trial comparing aerobic exercise and resistance exercise with a health education program in older adults with knee osteoarthritis. The Fitness Arthritis and Seniors Trial (FAST). *JAMA* 1997; 277(1): 25-31.

Frequency/Duration: A program should generally begin with 3 to 4 visits per week. The patient must have demonstrated evidence of functional improvement within the first 2 weeks to justify additional visits. The program should include up to 4 weeks of aquatic therapy with progression towards a land-based, self-directed physical activity or self-directed aquatic therapy program by 6 weeks.

Indications for Discontinuation: Non-tolerance, failure to progress, or reaching a 4 to 6 week time frame.

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Recommendation: Acute, Subacute or Chronic spine Pain

For all other subacute and chronic spine pain patients, and for all acute spine pain, aquatic therapy is not recommended as other therapies are believed to be more efficacious.

h. Yoga

There is some evidence to support the effectiveness of Yoga Therapy in alleviating symptoms and decreasing medication use in uncomplicated spine pain.

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

1 **Sources:**

2
3 This Thoracic Spine Injury Chiropractic Treatment Parameters Guideline is adapted, with
4 modification, from the following documents:

- 5
6 1. The proposed Low Back Injury Medical Treatment Guidelines from the State of New York
7 Insurance Department to the New York State Workers' Compensation Board. [Publisher
8 Information, Date, Pages??? Accessed [Date] @ Website URL (if applicable)]
9
10 2. The proposed Cervical Spine Injury Medical Treatment Guidelines from the State of New
11 York Insurance Department to the New York State Workers' Compensation Board.
12 [Publisher Information, Date, Pages??? Accessed [Date] @ Website URL (if applicable)]
13
14 3. State of Colorado's Lumbar Spine Injury Medical Treatment Guideline. [Publisher
15 Information, Date, Pages??? Accessed [Date] @ Website URL (if applicable)]
16
17 4. Council on Chiropractic Guidelines and Practice Parameters (CCGPP) documents. [Publisher
18 Information, Date, Pages??? Accessed [Date] @ Website URL (if applicable)]
19
20 5. Guidelines for Chiropractic Quality Assurance and Practice Parameters (Mercy Guidelines).
21
22 6. American College of Occupational and Environmental Medicine (ACOEM). Occupational
23 Medicine Treatment Guidelines. [Publisher Information, Date, Pages??? Accessed [Date] @
24 Website URL (if applicable)]
25
26 7. State of Wisconsin Department of Workforce Development Worker's Compensation
27 Division Medical Treatment Guidelines. [Publisher Information, Date, Pages??? Accessed
28 [Date] @ Website URL (if applicable)]
29
30 8. State of Minnesota Medical Treatment Guidelines. [Publisher Information, Date, Pages???
31 Accessed [Date] @ Website URL (if applicable)]