

**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 (<sup>99m</sup>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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8

**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

9  
10  
11  
12  
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20  
21  
22  
23  
24

\* 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  
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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.<sup>1,2,3,4,5,6</sup>

33  
34          References:

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

2. Cholewicki [?], McGill SM. Mechanical stability of the vivo lumbar spine: Implications for injury and chronic lowback pain. *Clin Biomech* 1996; 111-15.
3. Juker [?], McGill SM, et al. Quant intramuscular myoelectric activity of lumbar portions of psoas and abdominal wall during side variety of tasks. *Med Sci Sports Exercise* 1998; 30: 301-310.
4. McGill SM. Lumbar Spine Stability: Mechanism of Injury and Restabilization. In: Liebenson C. (ed.) *Rehabilitation of the Spine* 2<sup>nd</sup> Ed, Baltimore: Lippincott Williams 2007; p. 102-10.
5. Richardson [?], Jull GA, Hodges PW, Hides [?]. Therapeutic Exercise for Spinal Segmental Stabilization in Lumbar Spine Pain. Edinburgh: Churchill Livingstone 1999; p. [????]
6. Janda V, Vavrova M, Herbenova A, Veverkova M. Sensory Motor Stimulation. In: Liebenson C. (ed.) *Rehabilitation of the Spine*. 2<sup>nd</sup> Ed. Baltimore: Lippincott Williams 2007; p. 513-530.

#### **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)]