Cigna Medical Coverage Policy- Therapy Services Axial/Spinal Decompression Therapy/Mechanical Traction (Provided in a Clinic Setting)

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GUIDELINES

Medically Necessary

Cervical

Use of cervical mechanical traction is considered medically necessary in the clinic setting for patients who meet all of the following criteria:

- Failure of other evidence-based therapeutic procedures to resolve symptoms after 3 weeks
- Only used in combination with other evidence-based treatments including therapeutic exercise. The therapeutic exercise(s) should not cause aggravation or peripheralization of symptoms.
- Patient has cervical radiculopathy diagnosis with at least 3 of the following findings:

- Patient reported peripheralization with lower cervical spine (C4-7) mobility testing;
- Positive shoulder abduction test;
- Age > or =55;
- Positive upper limb tension test A
- Positive neck distraction test

Cervical mechanical traction is considered not medically necessary for the treatment of other conditions or when the above criteria are not met.

Lumbar

Use of lumbar mechanical traction is considered medically necessary in the clinic setting for patients who meet all of the following criteria:

- Failure of other evidence-based therapeutic procedures to resolve symptoms after 3 weeks
- Only used in combination with other evidence-based treatments including therapeutic exercise with extension movements. The therapeutic exercise(s) should not cause aggravation or peripheralization of symptoms.
- Patient has sciatica or signs of nerve root compression and either peripheralization with extension movements or a positive crossed straight leg raise test.

Lumbar mechanical traction is considered not medically necessary for treatment of other conditions or when the above criteria are not met. These guidelines are NOT relevant to axial or spinal decompression therapy.

Note: Using a table with moving roller(s) against the spine or paraspinal tissue (e.g., Spinalator) is considered a type of passive mobilization modality (often referred to as "intersegmental traction") that may have limited value in reducing spinal stiffness and muscle tension and is only appropriate as preparatory or adjunctive to spinal manipulative procedures. It should not be used as a stand-alone therapy. It should only be used for a short duration (1-2 weeks) to facilitate manipulations and to transition into an active therapy program. This modality is not a form of mechanical traction as described in this clinical practice guideline.

Experimental, Investigational, Unproven

Nonsurgical axial/spinal decompression therapy is considered to be experimental, investigational, and/or unproven for the treatment of neck, low back and related disorders. This includes any motorized mechanical traction device that is promoted as providing "decompression therapy" e.g., VAX-D, IDD Therapy® [Intervertebral Differential Dynamics Therapy], DRS, DRX, DRX-2000, DRX-3000, DRX-5000, DRX-9000, Accu-SPINA™, Lordex Power Traction device, Mettler Traction Device [MTD 4000], Tru Trac 401, Integrity Spinal Care System Alpha-SPINA System, Dynatron DX2, Dynapro™ DX2, Spinerx LDM, or any other device that claims to create spinal decompression.

Not Medically Necessary

Mechanical traction applied to the thoracic spine is considered not medically necessary for treatment of thoracic conditions or other spinal conditions other than those outlined in this guideline.

DESCRIPTION

Traction as a treatment option for low back pain and sciatica has existed for many years. Its use has progressed from continuous static traction to intermittent motorized traction. Traditional mechanical traction is a therapeutic method used to relieve pain by stretching and separating the vertebrae to help to relieve direct nerve pressure and stress on the vertebral discs. Cervical traction is a common nonsurgical treatment for a herniated disc in the

neck that relieves pain by opening up the cervical foramen to reduce pressure on compressed nerve roots exiting the spinal canal. Traction can either be applied manually or by spinal traction devices. This guideline focuses on various mechanical traction devices that provide continuous or intermittent forces to the spine. It has been proposed that cervical traction results in an expansion of the intervertebral spaces, an increase joint mobility, and a stretching muscles and ligaments adjacent to the vertebral bodies, which will improve clinical outcomes in those with neck pain. After 2 minutes of sustained traction, the intervertebral spaces begin to widen. Forces between 20 and 50 pounds are frequently used to achieve intervertebral separation. Continuous or static traction can be applied in a steady amount for specific time periods. Intermittent or cyclical traction involves traction being applied and released multiple times during one treatment session. Duration of cervical traction can range from a few minutes to 20 to 30 minutes, one to three times weekly.

Traction is used for treatment of low back pain (LBP) as well and it is provided in combination with other treatment modalities, as is cervical traction. Lumbar traction uses a harness (with Velcro strapping) that is put around the lower rib cage and around the iliac crest. Duration and level of force exerted through this harness can be varied in a continuous or intermittent mode. The exact mechanism through which traction might be effective is still unclear. It has been suggested that spinal elongation, through decreasing lordosis and increasing intervertebral space, inhibits pain (nociceptive) impulses, improves mobility, decreases mechanical stress, reduces muscle spasm or spinal nerve root compression (due to osteophytes), releases luxation of a disc or capsule from the zygapophyseal joint, and releases adhesions around the zygapophyseal joint and the annulus fibrosus. So far, the proposed mechanisms have not been supported by sufficient empirical information.

According to CPT, mechanical traction is described as the force used to create a degree of tension of soft tissues and/or to allow for separation between joint surfaces. The degree of traction is controlled through the amount of force (pounds) allowed, duration (time), and angle of pull (degrees) using mechanical means. Terms often used in describing pelvic (lumbar)/cervical traction are intermittent or static (describing the length of time traction is applied).

GENERAL BACKGROUND

The most recent form of intermittent motorized traction is commonly referred to as axial/spinal decompression therapy. Developers and manufacturers of the equipment along with clinicians often consider it to be a unique form of traction. Proponents of nonsurgical axial/spinal decompression therapy claim it to be a safe and effective alternative to surgical interventions. Companies demonstrate intense marketing programs and claim high success rates. Axial/spinal decompression therapy is intended to create negative pressure within the spine so that as the spinal column is elongated, pressure is taken off the nerve root(s), and herniated disc material may be pulled back into place. Axial/spinal decompression therapy is generally performed using a specially designed computerized mechanical table that separates in the middle. Depending on the type of table being used, a patient is strapped in a prone or supine position to the lower part of the table using a pelvic harness and may hold handgrips at the top of the table. The table is then mechanically separated in the middle creating a distractive force to relieve pressure within the spine that may be causing pain. The amount of distractive force is tailored for each patient and usually lasts about 60 seconds. Depending on the device utilized, static, intermittent, or cycled distractive force may be applied. Typical treatment protocols include 20 sessions, each lasting 30 to 40 minutes. The process of distraction and relaxation is fully computerized using a programmable logic controller and is monitored by a licensed health care practitioner. The American Medical Association (AMA), Food and Drug Administration (FDA), and Centers for Medicare & Medicaid Services (CMS) all consider axial/spinal decompression therapy to be a form of traction. However, this therapy involves a special table and protocol that isn't the same as conventional or traditional traction with claims of spinal decompression.

The tables utilized for axial/spinal decompression therapy are classified by the FDA as powered traction equipment. Examples of axial/spinal decompression therapy tables (and their manufacturers) include:

- VAX-D Table (VAX-D Manufacturing, Palm Harbor, FL)
- Decompression, Reduction, Stabilization (DRS) System (North American Medical Corporation, Atlanta, GA)
- DRX 2000 and DRX 9000 (Axiom Worldwide, Tampa, FL)
- Spina System (North American Medical Corporation, Atlanta, GA)

Two popular units will be described here. Due to the number of available products, it would be impractical to provide information on all of them.

VAX-D: The manufacturer suggests that use of the VAX-D table applies distractive forces in a gradual, progressive fashion through extension of the lower end of the table. The level of tension is preset on a control panel and can be increased, allowing for various decompression phases and a rest phase. Various decompression phases allow alternating cycles of distraction and relaxation. Typically, a treatment cycle consists of 15 cycles of tension and relaxation. The patient lies prone on the VAX-D table. The table is split, allowing the table to slowly extend, thus decreasing load bearing in the intervertebral discs and/or intervertebral joint spaces. The VAX-D manufacturer claims specific parameters of their system make the device inherently safe. These safety features include the use of air pressure as the energy source; the ramp characteristics employed in applying the distraction tensions; the release rate of the distraction and relaxation cycles; the cycle periodicity; the upper limits on the distraction tensions; the positioning of the patient and the means of fixing the upper body; and the ability of the patient to release the handgrips if the distraction tension causes pain or discomfort. Information regarding the range and incidence of adverse effects that occur during VAX-D therapy is limited. Complications reported with VAX-D include:

- The development of a sharp burning, radiating pain during therapy;
- Stress to the shoulder girdle and rotator cuff muscles; and
- Overstretching of the soft tissue of the back.

Decompression, Reduction, Stabilization (DRS) System: Manufacturers recommend the DRS System for treatment of low back pain. This device uses a bed that is split into two cushions. The patient can step onto a foot pad, have a pelvic and chest harness attached, after which the patient and bed are lowered to a horizontal position. Distraction tension is applied by the pelvic harness while the patient's upper body is secured to the locked upper cushion via the chest harness. The DRS System is marketed for the treatment of low back pain associated with herniated and degenerated discs. According to the manufacturer, the DRS System applies pressures on the disc in a graduated manner, which bypasses the inherent neurological mechanisms that lead to firing of stretch receptors in the paravertebral structures. This decreased resistance to the distractive forces allows a reduction in intradiscal pressures, which promotes retraction of herniated disc material and facilitates influx of oxygen, proline, and other substrates. The research evidence concerning nonsurgical axial/spinal decompression therapy is lacking and of low quality. Any estimate of treatment effect is uncertain, as is the clarity of risk, benefit and burden to the patient.

There are significant burdens placed upon health plan members due to high out-of-pocket costs, time spent receiving the intervention, and the unsubstantiated/misleading marketing about the alleged proven effectiveness and safety of nonsurgical axial/spinal decompression therapy. These burdens have been recognized as significant by some professional licensing boards and state justice departments.

LITERATURE REVIEW

Cervical: Although traction has been used as a treatment for neck pain for decades, its effectiveness is unproven. Large, well designed, randomized controlled trials are needed that evaluate the effect of cervical traction as an adjunct treatment in both chronic and acute neck pain syndromes. Regardless, cervical traction remains a common treatment modality in the treatment of neck pain and radiculopathy. Borman et al. (2008) evaluated cervical for the treatment of chronic neck pain. Patients received standard care (hot pack, ultrasound and exercise) or cervical traction + standard care. The main outcome measures of the treatment were pain intensity by visual analog scale (VAS), disability by neck disability index (NDI), and quality of life assessed by Nottingham Health Profile (NHP) Both groups improved significantly in pain intensity and the scores of NDI and physical status of NHP at the end of the therapies ($p<0.05$). Authors concluded that there was no specific effect of traction over standard physical therapy interventions in patients with chronic neck pain. Young et al. (2009) conducted a randomized controlled trial (RCT) on 81 patients with cervical radiculopathy to examine the effects of manual therapy and exercise, with or without the addition of cervical traction, on pain, function, and disability. Patients were randomly assigned to 1 of 2 groups: a group that received manual therapy, exercise, and intermittent cervical traction and a group that received manual therapy, exercise, and sham intermittent cervical traction. Patients were treated, on average, 2 times per week for an average of 4.2 weeks. Results demonstrated there were no significant differences between the groups for any of the primary or secondary outcome measures at 2 weeks or 4 weeks. Authors concluded that the addition of mechanical cervical traction

to a multimodal treatment program of manual therapy and exercise adds no significant additional benefit to pain, function, or disability in patients with cervical radiculopathy.

Raney et al. (2009) sought to determine a clinical prediction rule to identify those patients that were likely to benefit from cervical traction and exercise. Patients were randomly selected into the following groups: exercise only, exercise with mechanical traction, or exercise with over-door traction for patients with cervical radiculopathy. Sixty-eight patients (38 female) were included in data analysis of which 30 had a successful outcome. A CPR with five variables was identified: (1) patient reported peripheralization with lower cervical spine (C4-7) mobility testing; (2) positive shoulder abduction test; (3) age > or =55; (4) positive upper limb tension test A; and (5) positive neck distraction test. Having at least three out of five predictors present resulted in a +LR equal to 4.81 (95% CI = 2.17-11.4), increasing the likelihood of success with cervical traction from 44 to 79.2%. If at least four out of five variables were present, the +LR was equal to 23.1 (2.5-227.9), increasing the post-test probability of having improvement with cervical traction to 94.8%. This preliminary CPR provides the ability to a priori identify patients with neck pain likely to experience a dramatic response with cervical traction and exercise. Before the rule can be implemented in routine clinical practice, future studies are necessary to validate the rule. In 2014, Fritz et al. examined the effectiveness of cervical traction in addition to exercise for specific subgroups of patients with neck pain. Patients with neck pain and signs of radiculopathy were randomized to 4 weeks of treatment with exercise, exercise with mechanical traction, or exercise with over-door traction. Secondary outcomes favored mechanical traction at several time points. The validity of the subgrouping rule was supported on the Neck Disability Index at the 6-month time point only. Authors concluded that adding mechanical traction to exercise for patients with cervical radiculopathy resulted in lower disability and pain, particularly at long-term follow-ups.

Chiu et al. (2011) investigated the efficacy of intermittent cervical traction in the treatment of chronic neck pain over a 12-week period in a RCT of 79 patients The experimental group received intermittent cervical traction and the control group received infrared irradiation alone twice a week over a period of six weeks. The authors concluded that there were no significant differences between the two groups. Graham et al. (2013) completed a systematic review on physical modalities for acute to chronic neck pain. Of 103 reviews eligible, 20 were included and 83 were excluded. Moderate evidence of benefit in the short term was noted for intermittent traction over placebo for chronic neck pain. No benefit was noted for continuous traction over placebo for whiplash associated disorder (WAD). Moderate evidence of no benefit for continuous traction was noted, as it was no better than placebo for acute whiplash associated disorder, chronic myofascial neck pain or subacute to chronic neck pain. Improved design and long term follow up were suggested for future research.

Yang et al. (2017) performed a comprehensive search of current literature and conduct a meta-analysis of randomized controlled trials (RCTs) to assess the neck pain relieving effect of intermittent cervical traction (ICT). The meta-analysis included seven RCTs. The results indicated that patients who received ICT for neck pain had significantly lower pain scores than those receiving placebos did immediately after treatment. The pain scores during the follow-up period and the neck disability index scores immediately after treatment and during the follow-up period did not differ significantly. Authors concluded that ICT may have a short-term neck pain-relieving effect. Some risks of bias were noted in the included studies, reducing the evidence level of this meta-analysis. According to Blanpied et al. (2017), for patients with chronic neck pain with mobility deficits, clinicians should provide a multimodal approach that may included intermittent mechanical/manual traction. They also report that for patients with chronic neck pain with radiating pain, clinicians should provide mechanical intermittent cervical traction, combined with other interventions such as stretching and strengthening exercise plus cervical and thoracic mobilization/manipulation. However, Bier et al. (2018) states that the physical therapist is advised not to use traction. Romeo et al. (2018) conducted a review and meta-analysis of randomized controlled trials (RCTs) on the effect of cervical traction combined with other physical therapy procedures versus physical therapy procedures alone on pain and disability on patients with cervical radiculopathy (CR). Five studies met the inclusion criteria. Mechanical traction had a significant effect on pain at short- and intermediate-terms and significant effects on disability at intermediate term. Manual traction had significant effects on pain at short- term. Authors conclude that the current literature lends some support to the use of the mechanical and manual traction for CR in addition to other physical therapy procedures for pain reduction, but yielding lesser effects on function/disability.

Colombo et al. (2020) investigated the effectiveness of traction therapy in reducing pain for patients with cervical radicular syndrome (CRS) by performing a systematic review with meta-analysis. A total of seven studies (589 patients), one with low risk of bias, were evaluated. An overall estimate of treatment modalities showed low

evidence that adding traction to other treatments is statistically compared to other treatments alone. The subgroup analyses were still statistically significant only for mechanical and continuous modalities. Authors concluded that overall analysis showed that, compared to controls, reduction in pain intensity after traction therapy was achieved in patients with cervical radiculopathy. However, the quality of evidence was generally low and none of these effects were clinically meaningful.

Jellad et al. (2024) sought to make a preliminary estimate of efficacy of adding mechanical intermittent cervical traction (MICT) to conventional rehabilitation on cervicogenic headache (CGH) in patients with cervical radiculopathy (CR). A total of 36 CR patients with CGH were randomly allocated to 3 equally sized groups (A, B and C). The treatment consisted of twelve sessions of conventional rehabilitation (4 weeks) combined with MICT (2 kg for group A, 8 kg for group B and 12 kg for group C). Primary outcomes were CGH intensity (visual analog scale) and frequency (days per week). Secondary outcomes were radicular pain intensity (visual analog scale), cervical range of motion (cervical range of motion instrument), proprioception (cervical range of motion instrument) and muscle strength (MicroFET2 dynamometer), handgrip strength (handheld dynamometer), function (Neck Disability Index), kinesiophobia (Tampa Scale for Kinesiophobia), anxiety and depression (Hospital Anxiety and Depression questionnaire), and quality of life (World Health Organization Quality of Life). Patients were assessed at baseline, one, three and six months after the beginning of treatment. At one, three and six month follow-ups, Group C exhibited the highest improvement in CGH intensity and frequency compared to the other groups. Both groups C and B showed a significant improvement in radicular pain compared to group A at one month follow-up. The improvement in group C was significantly better in terms of function and anxiety at three months and quality of life at six months. Authors concluded that the blend of conventional rehabilitation alongside 12 kg MICT seems to be efficacious in diminishing both the intensity and frequency of CGH in patients with CR. These advantages appear to last for up to six months following the treatment period, potentially leading to decreased CGH severity and occurrence rates, heightened functionality, reduced anxiety levels, and an overall enhancement in quality of life. These findings are preliminary and require confirmation in larger trials.

Lumbar: According to the Philadelphia Panel Evidence-Based Clinical Practice Guidelines on Selected Rehabilitation Interventions for Low Back Pain publication (2001), mechanical traction for chronic LBP was not effective or beneficial for pain, function, patient global assessment, and return to work. This was based on four (4) RCTs of mechanical traction versus placebo or no treatment and rated as level I (good evidence). A larger Cochrane Collaboration systematic review by Clarke et al. (2009) determined similar results (25 RCTs). Available studies in this review involved mixed groups of acute, sub-acute and chronic patients with LBP with and without sciatica and were all consistent, indicating that continuous or intermittent traction as a single treatment for LBP is not likely effective for these patients. Traction for patients with sciatica cannot be judged effective at present either, due to inconsistent results and methodological problems in most studies (Clarke et al., 2009). An updated Cochrane review published in 2013 by Wegner et al. indicated that traction, either alone or in combination with other treatments, has little or no impact on pain intensity, functional status, global improvement and return to work among people with LBP (with or without sciatica). The effects shown by the included studies were small and not clinically relevant. These conclusions were applicable to both manual and mechanical traction.

One study attempted to determine which subcategory of patients with LBP would most benefit from mechanical traction. Fritz et al. (2007) determined that patients with sciatica, signs of nerve root compression, and either peripheralization with extension movements or a positive crossed straight leg raise test were most likely to benefit from a combined traction and extension-oriented physical therapy intervention. The authors reported improvements in both disability (Oswestry Disability Questionnaire) and fear-avoidance beliefs (Fear Avoidance Belief Questionnaire) in the combined traction/extension-oriented approach group at two weeks compared to the group that received just an extension-oriented approach. This study provides some initial evidence for the use of traction for the subgroup of patients mentioned above. The primary limitation to this study is the type of traction table used is not one that is typically found in most clinical settings. The authors used a mechanical traction table allowing for modifications of a subject's position in flexion/extension, rotation or side-bending (3-dimensional ActiveTrac table, The Saunders Group, Inc.). The following parameters were utilized: static traction for a maximum of 12 minutes (10 minutes at desired intensity and one minute ramp up/down) at 40% - 60% of the patient's body weight for a maximum of 12 sessions during a 6 week period (four sessions/week during the first two weeks then one session/week during weeks three through six).

The North American Spine Society's clinical practice guideline on "Diagnosis and treatment of degenerative lumbar spinal stenosis" (2011) noted that there is insufficient evidence to make a recommendation for or against traction, electrical stimulation or transcutaneous electrical nerve stimulation for the treatment of patients with lumbar spinal stenosis.

Thackeray et al. (2016) examined the effectiveness of mechanical traction in patients with lumbar nerve root compression and within a predefined subgroup. One hundred twenty patients with low back pain with nerve root compression were recruited from physical therapy clinics. Using predefined subgrouping criteria, patients were stratified at baseline and randomized to receive an extension-oriented treatment approach with or without the addition of mechanical traction. During a 6-week period, patients received up to 12 treatment visits. Primary outcomes of pain and disability were collected at 6 weeks, 6 months, and 1 year by assessors blinded to group allocation. No significant differences in disability or pain outcomes were noted between treatment groups at any time point, nor was any interaction found between subgroup status and treatment. Authors concluded that patients with lumbar nerve root compression presenting for physical therapy can expect significant changes in disability and pain over a 6-week treatment period. There is no evidence that mechanical lumbar traction in combination with an extension-oriented treatment is superior to extension-oriented exercises alone in the management of these patients or within a predefined subgroup of patients.

According to the AHRQ publication on Non-Invasive Techniques for Low Back Pain (Chou, et al., 2016):

- For low back pain with or without radicular symptoms, a systematic review included 13 trials that found no clear differences with inconsistent effects of traction versus placebo, sham, or no treatment in pain, function, or other outcomes, though two trials reported favorable effects on pain in patients with radicular back pain (SOE: insufficient for pain and function).
- For low back pain with or without radicular symptoms, a systematic review included five trials that found no clear differences between traction versus physiotherapy versus physiotherapy alone.
- For low back pain with or without radicular symptoms, a systematic review included 15 trials of traction versus other interventions that found no clear between traction versus other active interventions in pain or function (SOE: low for pain and function).
- A systematic review included five trials that found no clear differences between different types of traction.
- Eleven trials of traction in a systematic review reported no adverse events or no difference in risk of adverse events versus placebo or other interventions. Three subsequent trials reported findings consistent with the systematic review.

Overall, there is insufficient evidence to support the isolated use of mechanical traction as a treatment for chronic LBP.

According to the American College of Physician’s clinical practice guideline on noninvasive treatments for acute, subacute, and chronic low back pain, evidence was insufficient to determine the effectiveness of traction tables/devices (Qaseem, et al., 2017). Foster et al. (2018) summarize that passive electrical or physical modalities, such as traction, interferential therapy, short-wave diathermy, are generally ineffective and not recommended. Chou et el. (2018) states that clinicians should not offer traction for neck and back pain given lack of effectiveness.

Bilgilisoy Filiz et al. (2018) compared the effects of mechanical lumbar traction either in the supine or in the prone position with conventional physical therapy (PT) in patients with chronic low back pain and lumbosacral nerve root involvement in terms of disability, pain, and mobility. Participants (N = 125) were randomly assigned to receive 15 sessions of PT with additional mechanical lumbar traction either in the supine position (supine traction group) or in the prone position (prone traction group) or only PT without traction (PT only group). Patients were assessed at baseline and at the end of the PT sessions in terms of disability, pain, and mobility. Disability was assessed using the modified Oswesty Disability Index; pain was assessed using a visual analog scale, and lumbar mobility was assessed using the modified lumbar Schober test. One hundred eighteen patients completed the trial. All groups improved significantly for all outcomes. In the between-group analysis, improvements of Oswesty Disability Index and visual analog scale were found significantly better in the prone traction group compared with the PT only group. Authors concluded that the addition of traction in the prone position to other modalities resulted in larger immediate improvements in terms of pain and disability, and the

results suggest that when using traction, prone traction might be first choice. Kuligowski et al. (2019) completed a study that enrolled 37 people aged 22-35. The subjects underwent radiological evaluation (MRI), which constituted the basis for assigning them to one of two groups: a protrusion group (PRO) or an extrusion group (EXT). During the experiment, the patient was in the supine position while the therapist administered three-dimensional traction using a manual therapy belt. Authors concluded the following: 1. The type of intervertebral disc damage determines the functional status of young people with degenerative disc disease. 2. The study demonstrated and confirmed a positive effect of traction on the functional status of subjects with lumbar disc herniation. 3. Traction techniques are safe and can be successfully used in the treatment of lumbar disc herniation as noted on MRI.

Hirayama et al. (2019) sought to develop a clinical prediction rule (CPR) that predicts treatment responses to mechanical lumbar traction (MLT) among patients with lumbar disc herniation (LDH). The subjects included 103 patients diagnosed with LDH for which they underwent conservative therapy. The subjects received MLT for 2 weeks, and the application of any other medication was left at the discretion of the attending physician. The patients whose ODI after 2 weeks of treatment improved by ≥50% of that at the initial evaluation were defined as responders. Of the 103 subjects, 24 were responders, and the five predictors selected for the CPR were limited lumbar extension range of motion, low-level fear-avoidance beliefs regarding work, no segmental hypomobility in the lumbar spine, short duration of symptoms, and sudden onset of symptoms. For the patients with at least three of the five predictors, the probability of their ODI greatly improving increased from 23.3% to 48.7% compared with the patients without these predictors (positive likelihood ratio, 3.13). Cheng et al. (2020) evaluated the effectiveness of traction in improving low back pain, functional outcome, and disk morphology in patients with herniated intervertebral disks. Seven articles involving 403 participants were included for quantitative analysis. Compared with the control group, the participants in the traction group showed significantly greater improvements in pain and function in the short term, with standard mean differences of 0.44 (95% confidence interval (CI): 0.11-0.77) and 0.42 (95% CI: 0.08-0.76), respectively. The standard mean differences were not significant to support the long-term effects on pain and function, nor the effects on herniated disk size. Authors concluded that compared with sham or no traction, lumbar traction exhibited significantly more pain reduction and functional improvements in the short term, but not in the long term. There is insufficient evidence to support the effect of lumbar traction on herniated disk size reduction.

Vanti et al. (2020) evaluated the effects of different types of traction added to or compared with conservative treatments on pain and disability in a systematic review and meta-analysis. Eight studies met the inclusion criteria, and 5 were meta-analyzed. Meta-analyses of results from low-quality studies indicated that supine mechanical traction added to physical therapist treatments had significant effects on pain. Analyses of results from high-quality studies of prone mechanical traction added to physical therapist intervention for pain and disability were not significant. These results were also evident at short-term follow-up (up to 3 months after intervention). Authors concluded that literature suggests that, for pain and disability in lumbar radiculopathy, there is short-term effectiveness of supine mechanical traction when added to physical therapist intervention.

In an updated clinical practice guideline, George et al. (2021) state that physical therapists should not use mechanical traction for patients with chronic LBP with leg pain, based on the lack of benefit when added to other interventions. Vanti et al. (2021) evaluated the effects of different types of traction added to or compared with conservative treatments on pain and disability for patients with lumbar radiculopathy in a systematic review and meta-analysis. Eight studies met the inclusion criteria, and 5 were meta-analyzed. Meta-analyses of results from low-quality studies indicated that supine mechanical traction added to physical therapist treatments had significant effects on pain and disability. Analyses of results from high-quality studies of prone mechanical traction added to physical therapist intervention for pain and disability were not significant. These results were also evident at short-term follow-up (up to 3 months after intervention). Authors concluded that the literature suggests that, for pain and disability in lumbar radiculopathy, there is short-term effectiveness of supine mechanical traction when added to physical therapist intervention.

Wang et al. (2022) aimed at exploring the clinical effect of mechanical traction on lumbar disc herniation (LDH). Visual analog scale (VAS) in the mechanical traction group was lower than that in the conventional physical therapy group. Oswestry disability index (ODI) in the mechanical traction group was lower than that in the conventional physical therapy group. There was no significant difference in Schober test scores between the mechanical traction group and the conventional physical therapy group. Authors concluded that mechanical traction can effectively relieve lumbar and leg pain and improve ODI in patients with lumbar disc herniation but has no significant effect on spinal motion. The therapeutic effect of mechanical traction was significantly better

than that of conventional physical therapy. Lumbar traction can be used in conjunction with other traditional physical therapy. It is important to keep in mind that the study had methodological weakness and in particular statistical methods used.

Vanti et al. (2023) aimed to conduct a systematic review and meta-analysis of randomized controlled trials (RCTs) on the comparative effects of different types or parameters of lumbar traction in low back pain (LBP). Sixteen studies met the inclusion criteria for qualitative analysis, and five were pooled. Meta-analyses of results from five studies on LBP with LR showed no significant difference between diverse tractions modalities at short-term follow-up. Very low to low-quality evidence supports these results. High-force and low-force traction demonstrated clinically significant improvements in pain. Authors concluded that literature suggests the short-term effectiveness of traction on pain in LBP with LR, regardless of the type or the dosage employed.

Farrokhi et al. (2024) explored associations between the utilization of active, passive, and manual therapy interventions for low back pain (LBP) with 1-year escalation-of-care events, including opioid prescriptions, spinal injections, specialty care visits, and hospitalizations. This was a retrospective cohort study of 4827 patients identified via the Military Health System Data Repository who received physical therapist care for LBP in 4 outpatient clinics between January 1, 2015, and January 1, 2018. One-year escalation-of-care events were evaluated based on type of physical therapist interventions (i.e., active, passive, or manual therapy) received using adjusted odds ratios. Most patients (89.9%) received active interventions. Patients with 10% higher proportion of visits that included at least 1 passive intervention had a 3% to 6% higher likelihood of 1-year escalation-of-care events. Similarly, with 10% higher proportion of passive to active interventions used during the course of care, there was a 5% to 11% higher likelihood of 1-year escalation-of-care events. When compared to patients who received active interventions only, the likelihood of incurring 1-year escalation-of-care events was 50% to 220% higher for those who received mechanical traction and 2 or more different passive interventions, but lower by 50% for patients who received manual therapy. Authors concluded that greater use of passive interventions for LBP was associated with elevated odds of 1-year escalation-of-care events. In addition, the use of specific passive interventions such as mechanical traction in conjunction with active interventions resulted in suboptimal escalation-of-care events, while the use of manual therapy was associated with more favorable downstream health care outcomes.

Nonsurgical axial/spinal decompression therapy: Proponents of nonsurgical axial/spinal decompression therapy assert this form of traction is, however, unique for being proven able to reduce the relative pressure measured within intervertebral discs (decompression). The evidence typically cited to support this claim is from a study by Ramos, 1994. An evaluation of this study shows the conclusions are based upon data from only three subjects. This study demonstrated a number of methodological flaws likely to invalidate the results. These included not using a closed transducer system, not taking into account temperature effects, absent hydrostatic conditions (in degenerative discs), and no attempt reported to calibrate negative readings. Regardless of the flaws, this study is not sufficient to arrive at conclusions about the translation of basic science research into clinical care settings. The author (Ramos) concluded additional study is needed to establish the relationship of negative intradiscal pressures with clinical outcomes. The Australian Medical Services Advisory Committee (MSAC, 2001) performed an assessment of the literature on VAX-D therapy. The Committee concluded that "there is currently insufficient evidence pertaining to the effectiveness of vertebral axial decompression (VAX-D) therapy…" In 2007, the Centers for Medicare & Medicaid Services (CMS) Technology Advisory Committee 2007, requested that the Agency for Healthcare Research and Quality (AHRQ) commission an evidence-based technology assessment. The AHRQ report “Decompression Therapy for the Treatment of Lumbosacral Pain” concluded the current evidence regarding the efficacy of axial/spinal decompression therapy is too limited in quality and quantity to allow for evidence-based conclusions. Adverse event reporting for axial/spinal decompression therapy was viewed as infrequent. The CMS Technology Advisory Committee did not recommend coverage of the VAX-D system because of the absence of scientific data on its effectiveness.

Macario and Pergolizzi (2006) conducted a systematic review of the literature to assess the efficacy of nonsurgical axial/spinal decompression that is achieved with motorized traction for chronic discogenic low back pain. The authors reviewed data from 10 studies between 1975 and 2003. Seven were randomized controlled trials of motorized traction using various apparatus types, including split-tabletop, plain tabletop, and friction-free couch with weights. A total of 408 individuals received placebo, and 438 individuals received motorized spinal decompression. Follow-up averaged 28 weeks. None of the studies were blinded, and only three had description of the randomization method. Six of the seven randomized trials reported no difference with motorized spinal decompression, and one study reported reduced pain but not disability. In the author’s opinion,

the efficacy of spinal decompression achieved with motorized traction for discogenic low back remains unproven. Daniel (2007) reported that there is very limited evidence in the scientific literature to support the effectiveness of non-surgical axial/spinal decompression therapy. One randomized controlled trial, one clinical trial, one case series and seven other papers were available in the published literature for review by the author as part of an intended systematic review. Due to the limited evidence a systematic review was not done and each study was reviewed individually. The author noted many of the reviewed studies utilized the VAX-D unit. Furthermore, the intervention has not been compared to exercise, spinal manipulation, standard medical care or other less expensive conservative treatments.

In a prospective case series study, Beattie et al. (2008) examined outcomes after an intervention of a prone lumbar traction protocol using the VAX-D system. A total of 296 subjects with low back pain and evidence of a degenerative and/or herniated intervertebral disc at one or more levels of the lumbar spine were included in this study. Patients underwent an 8-week course of prone lumbar traction, using the VAX-D system, consisting of five 30-minute sessions a week for four weeks, followed by one 30-min session a week for four additional weeks. These researchers noted significant improvements for all post-intervention outcome scores when compared with pre-intervention scores ($p<0.01$). The authors noted that causal relationships between the outcomes and the intervention cannot be made. This study lacked a comparison group.

Macario and associates (2008) discussed the retrospective chart audit of 100 patients with discogenic low back pain (LBP) lasting more than 12 weeks treated with a 2-month course of motorized spinal decompression via the DRX9000. Patients at a convenience sample of 4 clinics received 30-min DRX9000 sessions daily for the first 2 weeks tapering to 1 session/week. Treatment protocol included lumbar stretching, myofascial release, or heat prior to treatment, with ice and/or muscle stimulation afterwards. The authors concluded that this retrospective chart audit provides preliminary data that chronic LBP may improve with DRX9000 spinal decompression, however caution should be taken with this interpretation given it was not provided as a singular treatment. They stated that randomized double-blind trials are needed to measure the effectiveness of such systems. Schimmel et al. (2009) conducted a randomized sham-controlled trial of intervertebral axial decompression. Sixty subjects with chronic symptomatic lumbar disc degeneration or bulging disc with no radicular pain and no prior surgical treatment (dynamic stabilization, fusion, or disc replacement) were randomly assigned to a graded activity program with an Accu-SPINA device (20 traction sessions during six weeks, reaching >50% body weight), or to a graded activity program with a non-therapeutic level of traction (<10% body weight). In addition to traction, the device provided massage, heat, blue relaxing light, and music during the treatment sessions in both groups. Neither patients nor evaluators were informed about the intervention received until after the 14-week follow-up assessment, and intention-to-treat analysis was performed (93% of subjects completed follow-up). Both groups showed improvements in validated outcome measures (visual analog scores for back and leg pain, Oswestry Disability Index, and Short-Form 36), with no differences between the treatment groups. The authors reported that the added axial, intermittent, mechanical traction of IDD Therapy to a standard graded activity program has been shown not to be effective.

Apfel et al. (2010) conducted a retrospective cohort study of adults with chronic LBP attributed to disc herniation and/or discogenic LBP who underwent a six-week treatment protocol of motorized non-surgical spinal decompression via the DRX9000. The main outcomes were changes in pain as measured on a verbal rating scale during a flexion-extension range of motion evaluation and changes in disc height as measured on CT scans. The authors identified 30 patients with lumbar disc herniation and an average duration of LBP of 12.5 weeks. During treatment, low back pain decreased from 6.2 (SD 2.2) to 1.6 (2.3, $p<0.001$) and disc height increased from 7.5 (1.7) mm to 8.8 (1.7) mm ($p<0.001$). Increase in disc height and reduction in pain were significantly correlated ($r=0.36$, $p=0.044$). Reported limitations of this study are no control group and small sample size. The authors reported that a randomized controlled trial is needed to confirm the efficacy and elucidate the mechanism of this treatment modality.

Demirel et al., (2017) sought to determine whether or not non-invasive spinal decompression therapy (NSDT) was effective in resorption of herniation, increasing disc height in patients with lumbar disc herniation (LHNP). A total of twenty patients diagnosed as LHNP and suffering from pain at least 8 weeks were enrolled to the study. Patients were randomly allocated in study (SG) and control groups (CG). Both groups received combination of electrotherapy, deep friction massage and stabilization exercise for fifteen session. SG received additionally NSDT different from CG. Numeric Analog Scale, Straight leg raise test, Oswestry Disability Index (ODI) were applied at baseline and after treatment. Disc height and herniation thickness were measured on MRI which performed at baseline and three months after therapy. Both treatments had positive effect for improving pain,

functional restoration and reduction in thickness of herniation. Although reduction of herniation size was higher in SG than CG, no significant differences were found between groups and any superiority to each other (p> 0.05). Given the study design, the study showed that physiotherapy was helpful but that adding NSDT did not confer additional benefits.

Koçak et al. (2017) compared the efficiency of conventional motorized traction (CMT) with non-surgical spinal decompression (NSD) using the DRX9000™ device in patients with low back pain associated with lumbar disc herniation (LDH). Between March 2009 and September 2009, a total of 48 patients (29 females, 19 males; mean age 43.1±9.8 years; range, 18 to 65 years) were randomized into two groups. The first group (n=24) underwent CMT and the second group (n=24) underwent NSD for a total of 20 sessions over six weeks. The patients were evaluated before and after the treatment. Pain was assessed using the Visual Analog Scale (VAS), functional status using the Oswestry Disability Index (ODI), quality of life using the Short Form-36 (SF-36), state of depression mood using the Beck Depression Inventory (BDI), and the global assessment of the illness using the Patient's Global Assessment of Response to Therapy (PGART) and Investigator's Global Assessment of Response to Therapy (IGART) scales. There was no significant difference in the evaluation outcomes before the treatment between the groups. However, a statistically significant decline was found in the VAS, ODI, and BDI scores after the treatment in both groups. Except for two subgroups, no significant changes were observed in the SF-36 form. Assessment of "marked improvement" was globally most frequently reported one in both groups. No significant difference was observed in the evaluation outcomes after treatment between the groups. Authors concluded that their results show that both CMT and NSD are effective methods in pain management and functional status and depressive mood improvement in patients with LDH, and NSD is not superior to CMT in terms of pain, functionality, depression and quality of life.

Vanti et al. (2021) conducted a systematic review of randomized controlled trials (RCTs) on the effects of vertical traction (VT) on pain and activity limitation in patients affected by lumbar radiculopathy. Three studies met the inclusion criteria. Meta-analysis was not possible due to the heterogeneity of the included studies. Authors found very low quality evidence for a large effect of VT added to bed rest when compared to bed rest alone. Similarly, VT added to medication may have a large effect on pain relief when compared to medication alone, but again this is low quality evidence. Effects of VT added to physical therapy on pain relief were very small when compared to physical therapy without VT (low quality evidence). All reported effects concerned short-term effect up to 3 months post-intervention. Authors concluded that for short-term effects, VT may have a positive effect on pain relief if added to medication or bed rest. However evidence is of low quality. Long-term effects of VT are currently unknown. Future higher quality research is very likely to have an important impact on confidence in the estimate of effect and may change these conclusions.

Amjad et al. (2022) sought to determine the effects of non-surgical spinal decompression (NSD) therapy in addition to routine physical therapy on pain, lumbar range of motion (ROM), functional disability, back muscle endurance (BME), and quality of life (QOL) in patients with lumbar radiculopathy. A total of sixty patients with lumbar radiculopathy were randomly allocated into two groups, an experimental (n = 30) and a control (n = 30) group, through a computer-generated random number table. Baseline values were recorded before providing any treatment by using a visual analogue scale (VAS), Urdu version of Oswestry disability index (ODI-U), modified-modified Schober's test (MMST), prone isometric chest raise test, and Short Form 36-Item Survey (SF-36) for measuring the pain at rest, functional disability, lumbar ROM, BME, and QOL, respectively. All patients received twelve treatment sessions over 4 weeks, and then all outcome measures were again recorded. A statistically significant between-group improvement was observed in VAS, ODI-U, BME, lumbar ROM, role physical (RP), and bodily pain (BP) domains of SF-36, which was in favour of NSD therapy group. For these outcomes, a medium to large effect size (d = 0.61-2.47, 95% CI: 0.09-3.14) was observed. Authors concluded that a combination of non-surgical spinal decompression therapy with routine physical therapy is more effective, statistically and clinically, than routine physical therapy alone in terms of improving pain, lumbar range of motion, back muscle endurance, functional disability, and physical role domain of quality of life, in patients with lumbar radiculopathy, following 4 weeks of treatment.

Choi et al. (2022) aimed to evaluate the clinical effectiveness of the nonsurgical spinal decompression therapy (NSDT) and change in disc volume through magnetic resonance imaging (MRI) in subacute lumbosacral herniated intervertebral disc (L-HIVD). Sixty patients with subacute L-HIVD were randomized into either the decompression group (group D, n = 30) or the nondecompression group (group N, n = 30). In group D, NSDT was performed ten times in eight weeks. In group N, pseudodecompression therapy (no force) was performed with the same protocol. Lower back and lower leg pain intensities and functional improvements were measured

by the visual analog scale and the Korean Oswestry Disability Index (K-ODI). The change in the lumbosacral disc herniation index (HI) was evaluated through a follow-up MRI three months after the therapy. The lower leg pain intensity in group D was lower than that in group N at two months. Additionally, there were significantly lower K-ODI scores in group D at two and three months than in group N. The change in lumbosacral disc herniation index (HI) after the therapy between groups was significantly different. Approximately 26.9% of patients in group D and no patients in group N showed over 50% reduction in HI. Authors concluded that NSDT may be a suitable treatment option for conservative treatment of subacute L-HIVD.

Currently, there is not adequate scientific evidence which proves that axial/spinal decompression is an effective single intervention or adjunct to conservative therapy for back pain. In addition, axial/spinal decompression devices have not been adequately studied as alternatives to back surgery.

Coding Information

Notes:

1. This list of codes may not be all-inclusive since the American Medical Association (AMA) and Centers for Medicare & Medicaid Services (CMS) code updates may occur more frequently than policy updates.
2. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.

Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

CPT®* Codes	Description
97012	Application of a modality to 1 or more areas; traction, mechanical

Considered Not Medically Necessary for the treatment of thoracic conditions or other spinal conditions not outlined in this guideline:

CPT®* Codes	Description
97012	Application of a modality to 1 or more areas; traction, mechanical

Considered Experimental, Investigational, Unproven:

HCPCS Codes	Description
S9090	Vertebral axial decompression, per session

References

1. Abi-Aad KR, Derian A. Cervical Traction. [Updated 2023 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470412/

2. Agency for Health Care Research and Quality (2007). Decompression Therapy for the Treatment of Lumbosacral Pain. Centers for Medicare and Medicaid Services, 100-3(1), 1-84.

3. Apfel CC, Cakmakkaya OS, Martin W, Richmond C, Macario A, George E, et al. Restoration of disk height through non-surgical spinal decompression is associated with decreased discogenic low back pain: a retrospective cohort study. BMC Musculoskelet Disord. 2010 Jul 8;11:155.

4. Amjad F, Mohseni-Bandpei MA, Gilani SA, Ahmad A, Hanif A. Effects of non-surgical decompression therapy in addition to routine physical therapy on pain, range of motion, endurance, functional disability and quality of life versus routine physical therapy alone in patients with lumbar radiculopathy; a randomized controlled trial. BMC Musculoskelet Disord. 2022 Mar 16;23(1):255.

5. Beattie PF, Nelson RM, Michener LA, Cammarata J, Donley J. Outcomes after a prone lumbar traction protocol for patients with activity-limiting low back pain: a prospective case series study. Arch Phys Med Rehabil. 2008 Feb;89(2):269-74.

6. Bergman S. Management of musculoskeletal pain. Best Pract Res Clin Rheumatol.2007;21:153-166.

7. Beurskens, A. J., H. C. de Vet, et al. (1997). Efficacy of traction for nonspecific low back pain. 12-week and 6-month results of a randomized clinical trial. Spine, 22(23): 2756-62.

8. Bier JD, Scholten-Peeters WGM, Staal JB, Pool J, van Tulder MW, Beekman E, Knoop J, Meerhoff G, Verhagen AP. Clinical Practice Guideline for Physical Therapy Assessment and Treatment in Patients With Nonspecific Neck Pain. Phys Ther. 2018 Mar 1;98(3):162-171.

9. Bilgilisoy Filiz M, Kiliç Z, Uçkun A, Çakir T, Koldaş Doğan Ş, Toraman NF. Mechanical Traction for Lumbar Radicular Pain: Supine or Prone? A Randomized Controlled Trial. Am J Phys Med Rehabil. 2018 Jun;97(6):433-439.

10. Blanpied PR, Gross AR, Elliott JM, Devaney LL, Clewley D, Walton DM, Sparks C, Robertson EK. Neck Pain: Revision 2017. J Orthop Sports Phys Ther. 2017 Jul;47(7):A1-A83. Borman, P., D. Keskin, et al. (2003). The efficacy of lumbar traction in the management of patients with low back pain. Rheumatology International, 23(2): 82-6.

11. Borman, P., D. Keskin, et al. (2003). The efficacy of lumbar traction in the management of patients with low back pain. Rheumatology International, 23(2): 82-6.

12. Borman P, Keskin D, Ekici B, et al. The efficacy of intermittent cervical traction in patients with chronic neck pain. Clin Rheumatol. 2008 Oct;27(10):1249-53.

13. Cameron MH. Physical Agents in Rehabilitation: From Research to Practice. (5th Edition.) Saunders; 2017.

14. Centers for Medicare & Medicaid Services (CMS). National Coverage Determination 160.16. Vertebral axial decompression (VAX-D). Effective date April 15, 1997. Accessed March 4, 2025. Available at URL address: http://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=124&ncdver=1&bc=BAABAAAAAAAA&

15. Cheng YH, Hsu CY, Lin YN. The effect of mechanical traction on low back pain in patients with herniated intervertebral disks: a systemic review and meta-analysis. Clin Rehabil. 2020 Jan;34(1):13-22.

16. Choi E, Gil HY, Ju J, Han WK, Nahm FS, Lee PB. Effect of Nonsurgical Spinal Decompression on Intensity of Pain and Herniated Disc Volume in Subacute Lumbar Herniated Disc. Int J Clin Pract. 2022 Sep 19;2022:6343837.

17. Chou R and Hoyt Huffman LH. Nonpharmacologic therapies for acute and chronic low back pain: A review of the evidence for an American Pain Society/American College of Physicians Clinical Practice Guideline. Annals of Internal Medicine. 2007;147(7):492-504.

18. Chou R, Qaseem A, Snow V, Casey D, Cross Jr T, Shekelle P, Owens DK. Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American College of Physicians and the American Pain Society. Annals of Internal Medicine. 2007;147(7):478-490.

19. Chou R, Deyo R, Friedly J, Skelly A, Hashimoto R, Weimer M, Fu R, Dana T, Kraegel P, Griffin J, Grusing S, Brodt E. Noninvasive Treatments for Low Back Pain [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2016 Feb.

20. Chou R, Côté P, Randhawa K, Torres P, Yu H, Nordin M, Hurwitz EL, Haldeman S, Cedraschi C. The Global Spine Care Initiative: applying evidence-based guidelines on the non-invasive management of back and neck pain to low- and middle-income communities. Eur Spine J. 2018 Sep;27(Suppl 6):851-860.

21. Clarke J, van Tulder M, Blomberg S, de Vet H, van der Heijden G, Bronfort G. Traction for low back pain with or without sciatica: an updated systematic review within the framework of the Cochrane collaboration. Spine (Phila Pa 1976). 2006 Jun 15;31(14):1591-9.

22. Clarke JA, van Tulder MW, Blomberg SEI, de Vet HCW, van der Heijden G, Brønfort G, 17 Bouter LM. Traction for low-back pain with or without sciatica. Cochrane Database 18 of Systematic Reviews 2009, Issue 2. Art. No.: CD003010.

23. Colombo C, Salvioli S, Gianola S, Castellini G, Testa M. Traction Therapy for Cervical Radicular Syndrome is Statistically Significant but not Clinically Relevant for Pain Relief. A Systematic Literature Review with Meta-Analysis and Trial Sequential Analysis. J Clin Med. 2020 Oct 22;9(11):3389.

24. Daniel DM. Non-surgical spinal decompression therapy: does the scientific literature support efficacy claims made in the advertising media? Chiropr Osteopat. 2007 May 18;15:7.

25. Deen, H. G., Jr., T. D. Rizzo, et al. (2003). Sudden progression of lumbar disc protrusion during vertebral axial decompression traction therapy. Mayo Clinic Proceedings, 78(12): 1554-6.

26. Demirel A, Yorubulut M, Ergun N. Regression of lumbar disc herniation by physiotherapy. Does non-surgical spinal decompression therapy make a difference? Double-blind randomized controlled trial. J Back Musculoskelet Rehabil. 2017 Sep 22;30(5):1015-1022.

27. Farrokhi S, Bechard L, Gorczynski S, et al. The Influence of Active, Passive, and Manual Therapy Interventions for Low Back Pain on Opioid Prescription and Health Care Utilization. Phys Ther. 2024;104(3):pzad173.

28. Foster NE, Anema JR, Cherkin D, Chou R, Cohen SP, Gross DP, Ferreira PH, Fritz JM, Koes BW, Peul W, Turner JA, Maher CG; Lancet Low Back Pain Series Working Group. Prevention and treatment of low back pain: evidence, challenges, and promising directions. Lancet. 2018 Mar 20. pii: S0140-6736(18)30489-6.

29. Fritz JM, Lindsay W, Matheson JW, Brennan GP, Hunter SJ, Moffit SD, Swalberg A, 40 Rodriquez B. Is there a subgroup of patients with low back pain likely to benefit 41 from mechanical traction? Spine. 2007; 32(26): E793-E800.

30. Fritz JM, Thackeray A, Brennan GP, Childs JD. Exercise only, exercise with mechanical traction, or exercise with over-door traction for patients with cervical radiculopathy, with or without consideration of status on a previously described subgrouping rule: a randomized clinical trial. J Orthop Sports Phys Ther. 2014 Feb;44(2):45-57.

31. George SZ, Fritz JM, Silfies SP, et al. Interventions for the Management of Acute and Chronic Low Back Pain: Revision 2021. J Orthop Sports Phys Ther. 2021;51(11):CPG1-CPG60.

32. Graham N, Gross AR, Carlesso LC, Santaguida PL, Macdermid JC, Walton D, Ho E; ICON. An ICON Overview on Physical Modalities for Neck Pain and Associated Disorders. Open Orthop J. 2013 Sep 20;7:440-60.

33. Gross AR, Goldsmith C, Hoving JL, Haines T, Peloso P, Aker P, et al. Conservative management of mechanical neck disorders: a systematic review. J Rheumatol 2007;34:1083-1102.

34. Guzman J, Haldeman S, Carroll LJ, Carragee EJ, Hurwitz EL, Peloso P, et al. Clinical practice implications of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders: from concepts and findings to recommendations. Spine 2008;33:S199-S213.

35. Haldeman S, Carroll L, Cassidy D, Schubert J, Nygren A. The Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders: executive summary. Spine 2008;33:S5-S7.

36. Harrison, D. E., R. Cailliet, et al. (2002). Changes in sagittal lumbar configuration with a new method of extension traction: nonrandomized clinical controlled trial. Archives of Physical Medicine and Rehabilitation, 83(11): 1585-91.

37. Harte, A. A., G. D. Baxter, et al. (2003). The efficacy of traction for back pain: a systematic review of randomized controlled trials. Archives of Physical Medicine and Rehabilitation, 84(10): 1542-53.

38. Hirayama K, Tsushima E, Arihara H, Omi Y. Developing a clinical prediction rule to identify patients with lumbar disc herniation who demonstrate short-term improvement with mechanical lumbar traction. Phys Ther Res. 2019;22(1):9–16. Published 2019 Apr 20.

39. Hurwitz EL, Carragee EJ, van d, V, Carroll LJ, Nordin M, Guzman J, et al. Treatment of neck pain: noninvasive interventions: results of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. J Manipulative Physiol Ther 2009;32:S141-S175.

40. Jellad A, Kalai A, Chaabeni A, et al. Effect of cervical traction on cervicogenic headache in patients with cervical radiculopathy: a preliminary randomized controlled trial. BMC Musculoskelet Disord. 2024;25(1):842. Published 2024 Oct 24.

41. Jurecki-Tiller M, Bruening W, Tregear S, Schoelles K, Erinoff E, Coates V. Agency for Healthcare Research and Quality (AHRQ). Decompression therapy for the treatment of lumbosacral pain. April 26, 2007.

42. Koçak FA, Tunç H, Tomruk Sütbeyaz S, Akkuş S, Köseoğlu BF, Yılmaz E. Comparison of the short-term effects of the conventional motorized traction with non-surgical spinal decompression performed with a DRX9000 device on pain, functionality, depression, and quality of life in patients with low back pain associated with lumbar disc herniation: A single-blind randomized-controlled trial. Turk J Phys Med Rehabil. 2017 Feb 16;64(1):17-27.

43. Krause, M., K. M. Refshauge, et al. (2000). Lumbar spine traction: evaluation of effects and recommended application for treatment. Manual Therapy, 5(2): 72-81.

44. Kuligowski T, Dębiec-Bąk A, Skrzek A. Effectiveness of Traction in Young Patients Representing Different Stages of Degenerative Disc Disease. Ortop Traumatol Rehabil. 2019 Jun 30;21(3):187-195.

45. Lee, R. Y. and J. H. Evans (2001). Loads in the lumbar spine during traction therapy. Australian Journal of Physiotherapy, 47(2): 102-8.

46. Local Coverage Determination (LCD): Outpatient Physical and Occupational Therapy Services (L33631). Retrieved on March 4, 2025 from https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?lcdid=33631&ver=51&keyword=Outpatient%20Physical%20and%20Occupational%20Therapy%20Services&keywordType=starts&areaId=all&docType=NCA,CAL,NCD,MEDCAC,TA,MCD,6,3,5,1,F,P&contractOption=all&sortBy=relevance&bc=AAAAAAQAAAAA&KeyWordLookUp=Doc&KeyWordSearchType=Exact

47. Macario A, Pergolizzi JV. Systematic literature review of spinal decompression via motorized traction for chronic discogenic low back pain. Pain Pract. 2006 Sep;6(3):171-8.

48. Macario A, Richmond C, Auster M, Pergolizzi JV. Treatment of 94 outpatients with chronic discogenic low back pain with the DRX9000: a retrospective chart review. Pain Pract. 2008 Mar;8(1):11-7.

49. Maher, C. G. (2004). Effective physical treatment for chronic low back pain. The Orthopedic Clinics of North America. 35(1): 57-64.

50. Mancuso T, Poole JL. The effect of paraffin and exercise on hand function in persons with scleroderma: a series of single case studies. J Hand Ther. 2009 Jan-Mar;22(1):71-7.

51. Medical Services Advisory Committee. (2001, June). [MSAC Application 1012]. Canberra, Australia: Medical Services Advisory Committee.

52. Meszaros, T. F., R. Olson, et al. (2000). Effect of 10%, 30%, and 60% body weight traction on the straight leg raise test of symptomatic patients with low back pain. The Journal of Orthopaedic and Sports Physical Therapy. 30(10): 595-601.

53. Naguszewski, W. K., R. K. Naguszewski, et al. (2001). Dermatomal somatosensory evoked potential demonstration of nerve root decompression after VAX-D therapy. Neurology Research, 23(7): 706-14.

54. North American Spine Society (NASS). Diagnosis and treatment of degenerative lumbar spinal stenosis. Burr Ridge, IL: North American Spine Society (NASS); 2011.

55. Pellecchia, G. L. (1994). Lumbar traction: a review of the literature. The Journal of Orthopaedic and Sports Physical Therapy 20(5): 262-7.

56. Philadelphia Panel. Philadelphia Panel evidence-based clinical practice guidelines on selected rehabilitation interventions for low back pain. Phys Ther. 2001;81(10):1641-74.

57. Qaseem A, Wilt TJ, McLean RM, Forciea MA; Clinical Guidelines Committee of the American College of Physicians.. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians. Ann Intern Med. 2017 Apr 4;166(7):514-530.

58. Ramos, G. and W. Martin (1994). Effects of vertebral axial decompression on intradiscal pressure. Journal of Neurosurgery. 81(3): 350-3.

59. Ramos, G. (2004). Efficacy of vertebral axial decompression on chronic low back pain: study of dosage regimen. Neurological Research 26(3): 320-4.

60. Raney NH, Petersen EJ, Smith TA, Cowan JE, Rendeiro DG, Deyle GD, Childs JD. Development of a clinical prediction rule to identify patients with neck pain likely to benefit from cervical traction and exercise. Eur Spine J. 2009 Mar;18(3):382-91.

61. Revel, M. (2000). Does traction still have a role in nonspecific low back disorders? Joint Bone Spine 67(3): 146-9.

62. Romeo A, Vanti C, Boldrini V, Ruggeri M, Guccione AA, Pillastrini P, Bertozzi L. Cervical Radiculopathy: Effectiveness of Adding Traction to Physical Therapy-A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Phys Ther. 2018 Apr 1;98(4):231-242.

63. Schimmel JJ, de Kleuver M, Horsting PP, Spruit M, Jacobs WC, van Limbeek J. No effect of traction in patients with low back pain: a single centre, single blind, randomized controlled trial of Intervertebral Differential Dynamics Therapy. Eur Spine J. 2009 Dec;18(12):1843-50.

64. Thackeray A, Fritz JM, Childs JD, Brennan GP. The Effectiveness of Mechanical Traction Among Subgroups of Patients With Low Back Pain and Leg Pain: A Randomized Trial. J Orthop Sports Phys Ther. 2016 Mar;46(3):144-54.

65. Vanti C, Panizzolo A, Turone L, Guccione AA, Violante FS, Pillastrini P, Bertozzi L. Effectiveness of Mechanical Traction for Lumbar Radiculopathy: A Systematic Review and Meta-analysis. Phys Ther. 2020 Dec 31:pzaa231.

66. Vanti C, Panizzolo A, Turone L, et al. Effectiveness of Mechanical Traction for Lumbar Radiculopathy: A Systematic Review and Meta-Analysis. Phys Ther. 2021;101(3):pzaa231.

67. Vanti C, Turone L, Panizzolo A, Guccione AA, Bertozzi L, Pillastrini P. Vertical traction for lumbar radiculopathy: a systematic review. Arch Physiother. 2021;11(1):7. Published 2021 Mar 15.

68. Vanti C, Saccardo K, Panizzolo A, Turone L, Guccione AA, Pillastrini P. The effects of the addition of mechanical traction to physical therapy on low back pain? A systematic review with meta-analysis. Acta Orthop Traumatol Turc. 2023 Jan;57(1):3-16.

69. Verhagen AP, Scholten-Peeters GG, de Bie RA, Bierma-Zeinstra SM. Conservative treatments for whiplash. Cochrane Database Syst Rev 2004;CD003338.

70. Waddell G. The clinical course of low back pain. In: The Back Pain Revolution. Edinburgh, U.K.: Churchill Livingstone, 1998:103-17.

71. Wang W, Long F, Wu X, Li S, Lin J. Clinical Efficacy of Mechanical Traction as Physical Therapy for Lumbar Disc Herniation: A Meta-Analysis. Comput Math Methods Med. 2022 Jun 21;2022:5670303.

72. Yang JD, Tam KW, Huang TW, Huang SW, Liou TH, Chen HC. Intermittent Cervical Traction for Treating Neck Pain: A Meta-analysis of Randomized Controlled Trials. Spine (Phila Pa 1976). 2017 Jul 1;42(13):959-965.