Cervical traction devices for neck pain for home use

Clinical Policy ID: CCP.1444

Recent review date: 2/2024

Next review date: 6/2025

Policy contains: Cervical traction; neck pain; radiculopathy.

AmeriHealth Caritas has developed clinical policies to assist with making coverage determinations. AmeriHealth Caritas' clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by AmeriHealth Caritas when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. AmeriHealth Caritas' clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. AmeriHealth Caritas' clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, AmeriHealth Caritas will update its clinical policies as necessary. AmeriHealth Caritas' clinical policies are not guarantees of payment.

Coverage policy

Cervical traction devices for neck pain for home use are investigational/not clinically proven and, therefore, not medically necessary.

Limitations

No limitations were identified during the writing of this policy.

Alternative covered services

Cervical traction devices in clinical settings.

Background

Neck pain affects about one in three people in a given year, and is more common in women (InformedHealth.org, 2019). It affects people of all ages, and often is acute, but more likely to become chronic (defined as three or more consecutive months) in the elderly. In most cases, symptoms resolve with little or no treatment. Diagnosis of neck pain is usually a documentation of symptoms; occasionally, imaging such as a computerized tomography scan or magnetic resonance imaging scan is needed. The two types of neck pain are axial pain, felt in the cervical spine, and radicular pain, which radiates along the nerves from the back of the head or an arm. Identifying a clear cause of neck pain is often difficult (InformedHealth.org, 2019).

Cervical traction, involving a light stretching of the neck, is a means of treating neck pain and preventing neck pain from spreading to adjoining body parts (Abi-Aad, 2023). Traction is used in a variety of cervical conditions, along with other therapies (e.g., exercise, postural education, and joint mobilization). The cervical conditions include cervical disc disease, cervical spine fracture, facet joint dislocation, atlantoaxial subluxation, occipitocervical synopsis, spondylosis, radiculopathy, foraminal stenosis, and myofascial tightness. In theory, traction distracts the neural foramen and decompresses the affected nerve root (Childress, 2016).

Although traction was developed for use in clinical settings, some devices can now be used at home; the most common of these are air neck traction devices, over the door neck traction, posture pumps, and neck traction slings (e.g., the Neck Hammock) (Abi-Aad, 2023).

Findings

Current guidelines reflect the variable quality of, and associated uncertainty in, the available evidence. The Canadian Chiropractic Guideline Initiative offered a weak recommendation for cervical traction as a component of multimodal care for patients with persistent (> three months) neck pain and associated disorders grades I to II, based on patient preference, prior response to care, and resources available; it found insufficient evidence to recommend cervical traction for persistent neck pain and associated disorders grade III (Bussieres, 2016). Another Canadian guideline from the Ontario Protocol for Traffic Injury Management Collaboration did not recommend traction for neck pain and associated disorders grade III of three or fewer months duration (Cote, 2016).

The American Academy of Family Physicians guideline on non-operative treatment of acute neck pain and radicular symptoms assigned a “C” (lowest) rating to home cervical traction units, stating they “may provide temporary relief of radicular pain” (Eubanks, 2010).

The North American Spine Society (2010) issued a guideline on cervical radiculopathy stating that traction, alone or in combination with other ancillary treatments, “may be considered” in cases with no demonstrated improvement. The guideline did not specify types of traction, and included just several small trials from the medical literature supporting its position.

A guideline from the American Physical Therapy Association recommended the use of mechanical intermittent cervical traction, combined with other interventions, for chronic neck pain with mobility deficits, but cited only several small-scale studies supporting its position (Blanpied, 2017).

While cervical traction has been used in various cervical pathologies, including radiculopathy, no accurate description of the technique’s relief mechanism exists. One review states that evidence of the benefits of cervical traction for radiculopathy, spondylosis, and myelopathy is of low quality, has a small number of subjects, and lacks evidence on long-term benefits (Abi-Aad, 2023).

A number of systematic reviews of cervical traction reached similar conclusions, with home use not specified:

A systematic literature review/meta-analysis of seven trials (n = 589) of participants with cervical radicular syndrome showed that compared to other treatments alone, adding traction yielded statistically significant outcomes only for mechanical and continuous modalities, and not clinically meaningful (Colombo, 2020).

A meta-analysis of five randomized controlled trials (n = 449) compared efficacy of physical therapy for cervical radiculopathy with cervical traction versus without cervical traction. Neck pain in the traction group declined significantly in the long term and the short term. Non-significant improvements to function and disability were observed. While no specific mention was made of whether care occurred in the home, the authors did state that the care was considered outpatient rehabilitation (Romeo, 2018).

A network meta-analysis of radiculopathy encompassing 16 studies (n = 1,071) showed surgery, traction, and corticosteroids were superior to other treatments in pain change, in that order (Zhang, 2018).

A meta-analysis of seven randomized controlled trials concluded that participants treated with intermittent cervical traction for neck pain had significantly lower pain scores (in the short term) after therapy than participants receiving placebo (Yang, 2017).

A systematic review/meta-analysis of five studies (n = 896) indicated Chinese massage therapy (*Tui Na*) for cervical radiculopathy was more effective for lowering pain compared to cervical traction (*P* = .002) (Wei, 2017).

A systematic review/meta-analysis of three trials (n = 502) showed cervical spine manipulation was more effective than cervical computer traction in improving visual analogue scale for pain due to cervical radiculopathy (*P* < .00001) (Zhu, 2016).

A systematic review of 15 articles on cervical radiculopathy treatment revealed that traction was no more effective than placebo traction, based on low-level evidence (Thoomes, 2013).

The evidence of effectiveness for cervical traction used at home is limited to small, low quality case series studies that do not provide conclusive evidence of benefit or clearly identify the optimal treatment protocol or candidate for the intervention. Among the largest studies are:

Another study found 45.6% (47 of 103) participants with neck pain responded to home-based mechanical cervical traction. Responsiveness exceeded 80% for those with a low fear-avoidance beliefs work subscale score, high pre-intervention pain, a positive cervical distraction test, and pain below the shoulder (Cai, 2011).

In a double-blinded study of 20 women with mild to moderate osteoarthritis, all received routine physical therapy; one group was also assigned over-the-door home cervical traction. Both groups had a significant decrease in pain intensity and disability (*P* < .05), with the cervical traction group's decline being nonsignificantly greater. Differences in drug consumption within and between the groups was also not significant (Bagheripour, 2016).

A comparison (n = 86) of subjects with radiculopathy/neck pain who received standard exercise with or without mechanical traction or over-the-door traction showed that the over-the-door traction group had significantly lower (worse) disability score differences after six months (8.1 versus 13.3). Thus, mechanical traction was the preferred method (Fritz, 2014).

In 2022, we removed several older articles from the references. We added one new systematic review and one guideline to the policy. An updated guideline from the American Academy of Family Physicians concluded that treatments such as compression therapy may offer some short term pain relief, but no reliable long-term data exist to offer specific guidance (Childress, 2020).

A systematic review analyzed 21 randomized controlled trials of manual therapy for cervical radiculopathy (Kuligowski, 2021). Twelve trials of low to moderate quality examined cervical traction either alone or in combination with exercises and physical therapy (electrotherapy, hot packs, and ultrasound). While the underlying etiology of cervical radiculopathy, treatment techniques, and protocols varied, traction-oriented approaches appear to be effective in reducing pain and improving functional outcomes. The study did not mention home use of cervical traction. No policy changes are warranted.

In 2023, we updated two guidelines and the reference list, and added new information. No policy changes are warranted.

A comprehensive comparative effectiveness review from the Agency for Healthcare Research and Quality that found insufficient evidence, based on one small randomized controlled trial (n = 79) with a high risk of bias, to determine the effects of cervical traction versus infrared irradiation control on neck pain or function over the short term; harms were not reported (Skelly, 2020).

A new systematic review and meta-analysis of 11 randomized controlled trials (n = 994) compared the efficacy of manipulation to that of cervical traction alone for treating radical cervical spondylosis. Manual treatment (pulling or rotational manipulation) was superior to cervical traction, in terms of short-term efficacy, Visual Analogue Scale scores, neck pain, upper extremity anesthesia, and survivorship improvement (all $P < .05$). The review did not specify home use (Chen, 2022).

In 2024, we updated the references and identified no newly relevant published literature to add to the policy. No policy changes are warranted.

References

On December 7, 2023, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “neck pain (MeSH),” “traction (MeSH),” “cervical traction device,” “home cervical neck traction,” and “neck traction device.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

Abi-Aad KR, Derian A. Cervical traction. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. https://www.ncbi.nlm.nih.gov/books/NBK470412/. Last updated August 8, 2023.

Bagheripour B, Kamyab M, Azadinia F, Amiri A, Akbari M. The efficacy of a home-mechanical traction unit for patients with mild to moderate cervical osteoarthrosis: A pilot study. *Med J Islam Repub Iran*. 2016;30:386. https://www.ncbi.nlm.nih.gov/pubmed/27493930.

Blanpied PR, Gross AR, Elliott JM, et al. Neck pain: Revision 2017. *J Orthop Sports Phys Ther*. 2017;47(7):A1-A83. Doi: 10.2519/jospt.2017.0302.

Bussieres AE, Stewart G, Al-Zoubi F, et al. The treatment of neck pain-associated disorders and whiplash-associated disorders: A clinical practice guideline. *J Manipulative Physiol Ther*. 2016;39(8):523-564.e27. Doi: 10.1016/j.jmpt.2016.08.007.

Cai C, Ming G, Ng Y. Development of a clinical prediction rule to identify patients with neck pain who are likely to benefit from home-based mechanical cervical traction. *Eur Spine J*. 2011;20(6):912-922. Doi: 10.1007/s00586-010-1673-6.

Chen J, Chen R, Li Y, et al. Systematic review and meta-analysis of the evaluation of the efficacy of manipulation and cervical traction in the treatment of radical cervical spondylosis. *Emerg Med Int*. 2022;2022:3837995. Doi: 10.1155/2022/3837995.

Childress MA, Becker BA. Nonoperative management of cervical radiculopathy. *Am Fam Physician*. 2016;93(9):746-754. American Family Physician website: https://www.aafp.org/afp/2016/0501/p746.html.

Childress MA, Stuek SJ. Neck pain: Initial evaluation and management. *Am Fam Physician.* 2020;102(3):150-156. American Family Physician website: https://www.aafp.org/afp/2020/0801/p150.html.

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;9(11):E3389. Doi: 10.3390/jcm9113389.

Cote P, Wong JJ, Sutton D, et al. Management of neck pain and associated disorders: A clinical practice guideline from the Ontario Protocol for Traffic Injury Management (OPTIMA) Collaboration. *Eur Spine J*. 2016;25(7):2000-22. Doi: 10.1007/s00586-016-4467-7.

Eubanks JD. Cervical radiculopathy: Nonoperative management of neck pain and radicular symptoms. *Am Fam Physician.* 2010;81(1):33-40. American Family Physician website: https://www.aafp.org/afp/2010/0101/p33.html.

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;44(2):45-57. Doi: 10.2519/jospt.2014.5065.

InformedHealth.org. Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG); 2006-. Neck pain: Overview. https://www.ncbi.nlm.nih.gov/books/NBK338120/. Last updated February 14, 2019.

Kuligowski T, Skrzek A, Cieślik B. Manual therapy in cervical and lumbar radiculopathy: A systematic review of the literature. *Int J Environ Res Public Health.* 2021;18(11):6176. Doi: 10.3390/ijerph18116176.

North American Spine Society. Evidence-based guidelines for multidisciplinary spine care: Diagnosis and treatment of cervical radiculopathy from degenerative disorders. https://www.spine.org/Portals/0/assets/downloads/ResearchClinicalCare/Guidelines/CervicalRadiculopathy.pdf Published 2010.

Romeo A, Vanti C, Boldrini V, et al. Cervical radiculopathy: Effectiveness of adding traction to physical therapy-A systematic review and meta-analysis of randomized controlled trials. *Phys Ther*. 2018;98(4):231-242. Doi: 10.1093/physth/pzy001.

Skelly AC, Chou R, Dettori JR, et al. Noninvasive nonpharmacological treatment for chronic pain: A systematic review update. Comparative Effectiveness Review No. 227. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2015-00009-I.) AHRQ Publication No. 20-EHC009. Rockville, MD: Agency for Healthcare Research and Quality; April 2020. Doi: 10.23970/AHRQEPCCER227.

Thoomes EJ, Scholten-Peeters W, Koes B, Falla D, Verhagen AP. The effectiveness of conservative treatment for patients with cervical radiculopathy: A systematic review. *Clin J Pain*. 2013;29(12):1073-1086. Doi: 10.1097/AJP.0b013e31828441fb.

Wei X, Wang S, Li L, Zhu L. Clinical evidence of Chinese massage therapy (Tui Na) for cervical radiculopathy: A systematic review and meta-analysis. *Evid Based Complement Alternat Med*. 2017;2017:9519285. Doi: 10.1155/2017/9519285.

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;42(13):959-965. Doi: 10.1097/BRS.0000000000001948.

Zhang X, Zhang Z, Wen J, Lu J, Sun Y, Sang D. The effectiveness of therapeutic strategies for patients with radiotherapy: A network meta-analysis. *Mol Pain*. 2018;14:1744806918768972. Doi: 10.1177/1744806918768972.

Zhu L, Wei X, Wang S. Does cervical spine manipulation reduce pain in people with degenerative cervical radiculopathy? A systematic review of the evidence, and meta-analysis. *Clin Rehabil*. 2016;30(2):145-155. Doi: 10.1177/0269215515570382.

Policy updates

2/2020: initial review date and clinical policy effective date: 3/2020.

2/2021: Policy references updated.

2/2022: Policy references updated.

2/2023: Policy references updated.

2/2024: Policy references updated.