

Spinal manipulative therapy (SMT) for neck pain and associated disorders in adults

Guidelines

A 2014 evidence-based guideline¹ made the following recommendations:

- For acute neck pain, a moderate recommendation was made for SMT as a treatment in combination with other conservative treatments (such as education, exercise and mobilization) for both short- and long-term improvements in pain and number of days to recover. Several treatment sessions were deemed appropriate, for example, 4-5 over a 2-week period and an average of 15 over a 12-week period. A weak recommendation was made for exercise alone. Due to insufficient evidence, thoracic manipulation (tSMT) and trigger point therapy could not be recommended.
- For chronic neck pain, SMT was weakly recommended as a treatment option benefitting pain and disability using 2 sessions per week for 9 weeks. Additionally, SMT as a part of a multimodal approach such as education, upper thoracic SMT, laser therapy, massage, mobilization, exercise and stretching was strongly recommended. This was as a result of a number of treatments over several weeks as well as a single treatment in the short-term. Insufficient evidence precluded the authors from recommending transcutaneous nerve stimulation, tSMT, laser and traction.

A 2013 evidence-based guideline² from the Italian Society of Physical and Rehabilitation Medicine recommended, for non-specific acute neck pain, NSAIDs, manipulation, massage, physical therapy, acupuncture or anesthetic blocks. For persistent non-specific neck pain it recommended exercises (especially strengthening and stabilizing), manipulation and mobilization. Ultrasound, TENS, laser and acupuncture may be combined to optimize pain relief.

Cervical manipulation

A 2015 Cochrane review by Gross et al³ studied the effectiveness of manipulation or mobilisation alone compared to a control or another treatment for neck pain. For the treatment of subacute or chronic neck pain, they found a single session of cervical manipulation (cSMT) provided temporary pain relief when compared to an inactive control, but multiple treatments produced conflicting results at short-term follow-up. For acute to subacute neck pain, cSMT was more effective than various combinations of prescription medications for improving pain and function.

In a 2013 systematic review of the use of manual therapies,⁴ manipulation produced better short-term results than electro-thermal therapy and better long-term results than anti-inflammatory or analgesic medications for patients with acute neck pain. Results were also better with manipulation than with medications or acupuncture; however, in the long-term, no differences were found between these groups for patients with chronic neck pain. For variable durations of neck pain, combining manipulation and mobilisation or exercise and mobilisation was better than exercise alone or only medications or passive interventions. Also, cSMT in combination with laser therapy was shown to be more effective than either treatment alone.

Thoracic manipulation

Systematic reviews that include evaluating the effectiveness of tSMT for the treatment of neck pain show:

- Reduced pain at short- and intermediate-term follow-up in patients with acute or subacute neck pain, and improved function in patients with acute to chronic pain as compared to a control.³
- Results indicating tSMT was superior to mobilisation, placebo, modalities, and no treatment as well as evidence supporting tSMT as an intervention for improvements in disability and range of motion (ROM) in the short-term.⁵
- Some evidence that the combination of tSMT and other conservative treatments such as exercise, mobilisation, electro-thermal therapy, infrared radiation therapy, and education was more effective than any of the treatments delivered without the manipulation.⁶

Whiplash-associated disorders (WAD)

A 2014 systematic review⁷ suggests:

- Multimodal care, including manual therapy, education and exercise, has a role in the management of patients with neck pain and associated disorders (NAD) and WAD.
- Relationship of intensity of multimodal care to outcomes:
 - Patients with recent WAD and NAD who received >6 visits in 8 weeks did not report better outcomes than those who received fewer treatments.
 - “Association between type and intensity of care was strongest during the first 6 months post-collision.”

Cost-effectiveness

A 2015 review of the cost-effectiveness of the conservative treatments of WAD (grades I-III) and neck pain was conducted to build upon the previous work of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders (NPTF).⁸ For NAD, the authors found evidence consistent with the NPTF’s findings regarding manual therapy (including manipulation) as a cost-effective intervention. Regarding new findings, multimodal care that includes manual therapy for the treatment of grades I-II NAD, as well as advice and exercise, appeared to be cost-effective interventions. The addition of manual therapy or diathermy to advice and exercise alone did not seem cost-effective. They did not find economic evaluations for persistent grade III NAD or grades I-III WAD.

Radiculopathy

In a 2015 systematic review and meta-analyses, 3 included studies (N=502) compared cSMT to cervical computer traction (control group) for the treatment of degenerative cervical radiculopathy.⁹ Mean differences in pain measured by VAS showed statistically significant improvements in the active groups in all studies. The authors deemed the level of evidence to be of moderate quality due to statistical heterogeneity ($I^2 >50\%$).

According to a 2014 systematic review, “most patients with symptomatic cervical spine disc herniation with radiculopathy recover.”¹⁰ The course of symptomatic cervical disc herniation with radiculopathy is comparable with neck pain the general population (recurrent, and may be persistent and/or progressive). With regard to literature quality for prognostic factors for patients with this condition, the authors deemed it poor.

Prognostic factors for recurrence following SMT

A secondary analysis was performed of a prospective cohort study of chiropractic care for the treatment of neck pain with a 1-year follow-up and published in 2015.¹¹ Chiropractic care could include spinal manipulation, advice on activities of daily living, trigger point therapy, therapeutic exercises, and mobilization techniques as deemed appropriate by the treating clinician. In the assessment of the number of new episodes or recurrences after 1 year of treatment, 11% of patients reported recurrence or had a need for an additional intervention. Eighty-nine percent reported they had recovered from their neck pain episode. A previous episode of neck pain and age may be prognostic factors for recurrence.

Cervical lordosis

Concerning the status of cervical lordosis and practice implications, a 2015 cohort study¹² found:

- No statistically significant differences in the lordoses between patients with mild non-specific neck pain and matched healthy volunteers at baseline, suggesting that a reduction in lordosis is not necessarily associated with neck pain.
- Patients who received cervical SMT 2x/week for 4 weeks did show variable increases in cervical lordotic angle; however, only 14% of the patient's lordosis increased by at least the minimum detectable change, and overall changes were not statistically significant.

Dry needling and ischemic compression

Two systematic reviews were performed in 2015 studying the effectiveness of dry needling (DN) trigger points for the treatment of neck pain and found limited evidence. One review evaluated both DN and ischemic compression (IC) on trigger points in the upper trapezius musculature, and concluded there is strong evidence for a positive effect following DN and moderate evidence following IC in terms of pain reduction.¹³ The reduction was greater when compared with active ROM exercises and a placebo or no intervention, but similar to massage, muscle energy techniques, ultrasound and passive stretching. Only weak evidence was found concerning effects on other outcomes such as function and quality-of-life. The second review included a meta-analysis and cautiously recommended DN for pain relief in the neck and shoulders following application to trigger points in the corresponding musculature.¹⁴ This was based on short- and medium-term follow-up when compared to a control or sham. However, wet needling was shown to be more effective for pain reduction than DN in the medium-term.

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