

# Research Paper Review

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Evidence-Based Guidelines for the Chiropractic Treatment of Adults with Neck Pain

Journal of Manipulative & Physiological Therapeutics 2014; 37: 42-63 Bryans R, Decina P, Descarreaux M, et al.

## ABSTRACT

#### **OBJECTIVE**

The purpose of this study was to develop evidence-based treatment recommendations for the treatment of nonspecific (mechanical) neck pain in adults.

#### **METHODS**

Systematic literature searches of controlled clinical trials published through December 2011 relevant to chiropractic practice were conducted using the databases MEDLINE, EMBASE, EMCARE, Index to Chiropractic Literature, and the Cochrane Library. The number, quality, and consistency of findings were considered to assign an overall strength of evidence (strong, moderate, weak, or conflicting) and to formulate treatment recommendations.

## RESULTS

Forty-one randomized controlled trials meeting the inclusion criteria and scoring a low risk of bias were used to develop 11 treatment recommendations. Strong recommendations were made for the treatment of chronic neck pain with manipulation, manual therapy, and exercise in combination with other modalities. Strong recommendations were also made for the treatment of chronic neck pain with stretching, strengthening, and endurance exercises alone. Moderate recommendations were made for the treatment of acute neck pain with manipulation and mobilization in combination with other modalities. Moderate recommendations were made for the treatment of chronic neck pain with manipulation and mobilization in combination with other modalities. Moderate recommendations were made for the treatment of chronic neck pain with manipulation and mobilization in combination with other modalities. Moderate recommendations were made for the treatment of chronic neck pain with manipulation was made for the treatment of acute neck pain with manipulation and mobilization as well as massage in combination with other therapies. A weak recommendation was made for the treatment of acute neck pain with manipulation alone. Thoracic manipulation and trigger point therapy could not be recommended for the treatment of acute neck pain. Transcutaneous nerve stimulation, thoracic manipulation, laser, and traction could not be recommended for the treatment of chronic neck pain.

## **CONCLUSIONS**

Interventions commonly used in chiropractic care improve outcomes for the treatment of acute and chronic neck pain. Increased benefit has been shown in several instances where a multimodal approach to neck pain has been used.

#### ANALYSIS

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Guidelines Development Committee (GDC) of the Canadian Chiropractic Association and the Federation Clinical Practice Guidelines Project.

#### **Background Information**

Nonspecific neck pain affects an estimated 30% to 50% of the general population and persistent neck pain is reported by 50% to 85% of patients 1 to 5 years after its onset (1). It is a common condition!

Neck or cervical problems are reported by 27% of patients who seek chiropractic treatment, making the treatment of neck pain a key part of chiropractic (and other manual medicine disciplines') practice.

Doctors of chiropractic (DCs) and others use a variety of treatment modalities to care for neck pain patients, including manual and device-assisted spinal manipulation, spinal mobilization, patient education, physical therapy modalities, heat/ice, massage, soft tissue therapies, and strengthening and stretching exercises.

Neck Pain Guidelines were previously developed by the Canadian Chiropractic Association and the Federation Clinical Practice Guidelines Project and were published in 2005. The 2005 guidelines relied on studies that were derived from a literature search that was conducted up to October 2004. However, because of the lack of high-quality research, the resulting treatment recommendations were mainly supported by the expert opinion of the Guidelines Development Committee (GDC).

The current evidence-based guideline had 2 purposes, which are as follows:

- 1. To develop evidence-based treatment recommendations for the treatment of nonspecific (mechanical) neck pain in adults;
- 2. To present recommendations synthesized from this evidence and strength ratings of each recommendation.

## **SUMMARY OF GUIDELINES**

Searches of several appropriate databases and reference sections of the identified papers resulted in a total of 560 publications being reviewed. After removing articles that did not meet the selection criteria as well as duplicates, 41 studies were used in making the recommendations below. In addition, 24 systematic reviews were included which were compared with the guideline recommendations.

Following are the Guidelines Development Committee's recommendations for the chiropractic treatment of adults with neck pain. These recommendations could obviously apply to other manual therapy providers:

## Spinal Manipulation (SMT)

- SMT, when used *in combination with other treatment modalities*, such as advice, exercise, and mobilization is recommended for the treatment of acute neck pain for both short- and long-term benefit; grade of recommendation moderate.
- SMT is recommended in the treatment of chronic neck pain for short- and long-term benefit; grade of recommendation weak.

• SMT, *as part of a multimodal approach*, including advice, upper thoracic manipulation, low-level laser therapy, and others is recommended in the treatment of chronic neck pain for both short-and long-term benefit; grade of recommendation – strong.

## **Spinal Mobilization**

- Spinal mobilization *in combination with advice and exercise* is recommended for the treatment of acute neck pain for short- and long-term benefit; grade of recommendation moderate.
- Spinal mobilization is recommended for the treatment of chronic neck pain for short-term benefit; grade of recommendation moderate.

## Manual Therapy

• Manual therapy *in combination with advice, stretching, and exercise* is recommended in the treatment of chronic neck pain for short- and long-term benefit; grade of recommendation – strong.

## Exercise

- Home exercise with advice or training is recommended in the treatment of acute neck pain for both long- and short-term benefits; grade of recommendation weak.
- Regular home stretching (3-5 times per week) with advice/training is recommended in the treatment of chronic neck pain for long- and short-term benefits in reducing pain and analgesic intake; grade of recommendation strong.
- Home strengthening and endurance exercises with advice/training/supervision are recommended for both short- and long-term benefits in the treatment of chronic neck pain; grade of recommendation strong.
- Exercise, consisting of stretching, isometric, stabilization, and strengthening, *when combined with infrared radiation, massage, or other physical therapies* is recommended for short- and long-term benefits as part of a multimodal approach to the treatment of chronic neck pain; grade of recommendation strong.

## Laser

• Due to inconsistent findings, there is insufficient evidence that supports a recommendation for the use of infrared laser in the treatment of chronic neck pain.

## Massage

• Massage, when provided *in combination with self-care, stretching, and/or exercise*, is recommended for the treatment of chronic neck pain for short-term benefit; grade of recommendation – moderate.

## Transcutaneous Nerve Stimulation (TENS)

• There is insufficient evidence that supports a recommendation for TENS for the treatment of chronic neck pain.

## **Thoracic Spinal Manipulation**

• There is insufficient evidence that supports a recommendation for the use of thoracic manipulation *in combination with electrotherapy or exercise* for the treatment of acute neck pain, due to inconsistent findings.

• There is insufficient evidence that supports a recommendation for the use of thoracic manipulation for the treatment of chronic neck pain because of inconsistent findings from 3 low-risk-of-bias studies.

## Traction

• There is insufficient evidence to support a recommendation for intermittent mechanical traction for the treatment of chronic neck pain.

# **Trigger Point Therapy**

• There is insufficient evidence that supports a recommendation for activator, ischemic compression, and trigger point pressure release for the treatment of acute neck pain.

## **CLINICAL APPLICATION & CONCLUSIONS**

The authors emphasized that these guidelines should be considered a supportive tool, developed for practitioners and their patients to help in making treatment decisions. They should not, however, be considered a standard of care. The guidelines should serve as a tool, which can connect what happens in clinical practice to the best available published evidence.

As valuable as guidelines are, one should bear in mind that evidence from research is only one element of evidence-informed patient care, which should also incorporate clinical expertise and patient values (2). Sound clinical decisions cannot be made based on evidence alone, though evidence can definitely help support the patient care process.

EDITOR'S NOTE: As always, the dissemination and integration of Clinical Practice Guidelines (CPGs) like these is paramount to the advancement and improvement of patient care. Clinicians in all disciplines can benefit from these recommendations and it is important that we work together to implement them in practice. One of the most important take home messages from this CPG (and the literature in general) is that combining spinal manipulation/mobilization with exercise can lead to better patient outcomes. This concept is also promoted in the American Physical Therapy Association Guidelines (5).

# STUDY METHODS

With the help of an experienced medical research librarian, a search strategy was developed and used to search the following databases: MEDLINE, EMBASE, EMCARE, Index to Chiropractic Literature, and the Cochrane Library. Only studies published between January 2004 and December 2011 were included.

A multistage screening of the retrieved articles was conducted. Publications that were excluded were done so in the following stages:

- after reading the title and abstract (level 1),
- after reading the full-text for methodology and relevance (level 2),
- after screening the randomized controlled trials (RCTs) and systematic reviews (level 3), and
- after full-text final screening for relevant clinical content and risk of bias assessment and identification of potential methodological flaws (level 4);
- in addition, any duplicate citations were removed during these steps.

The steps used during identification and inclusion only permitted studies that were considered to be of high-quality (i.e., having a low risk of bias). The quality of the RCTs was determined using methods recommended by the Cochrane Back Review Group. Two assessors rated the quality of the studies independently, though they were not blinded as to study authors, institutions, and source journals. Any discrepancies were resolved through discussion.

The guideline developers considered chiropractic treatment of neck pain to include any of the techniques or procedures that are commonly used by DCs. However, only chiropractic treatment modalities for which there is sufficient evidence were addressed. Treatment had to include adults with nonspecific neck pain that was evaluated by validated clinical outcome measures.

For each of the interventions, RCTs were assigned to acute or chronic categories based on the length of time the patients had symptoms. Some of the RCTs included both acute and chronic participants. In those cases, category assignment was determined by the average symptom duration of the group. Studies that included subacute participants were assigned to the acute category.

The strength of treatment recommendations was rated as strong, moderate, weak, or inconsistent, based on the number, quality, and consistency of research results, as follows:

- A strong recommendation was assigned when 2 or more low-risk-of-bias RCTs had consistent findings and were free of limiting factors.
- The recommendation was moderate when there were 2 or more low-risk-of-bias RCTs, but with limiting factors, or 1 high-quality RCT that was free of limiting factors.
- A weak recommendation was given when only 1 low-risk-of-bias RCT that had methodological flaws was found.
- Where conflicting evidence was found, support for the treatment was rated as inconsistent.

Systematic reviews were also located and assessed for quality, and then used to compare with the guideline recommendations.

#### STUDY STRENGTHS/WEAKNESSES

The procedures used to develop these guidelines were very good, so the results should be trustworthy and the findings will be helpful to chiropractors and other manual practitioners in the management of adult patients with neck pain.

When the guidelines were compared with the conclusions of the included systematic reviews (SRs), findings within intervention categories remained reasonably consistent. For instance, 11 of the 12 included SRs that considered manipulation pointed to a therapeutic benefit, as did 12 of the 13 SRs for exercise.

Blinding of both participants and providers is difficult to carry out when manual therapies are being studied. As a result, 2 items in the study rating questionnaire that had to do with blinding, were frequently not met. Nonetheless, studies were scored as low risk only when blinding was reported and deemed to be possible.

When potential sources of bias existed in studies, such as method of randomization, allocation concealment, blinding, reporting of missing data, etc., yet were not reported, a high risk of bias score was given. In studies where the intervention's "immediate effect" was tested, the rating criteria co-intervention and compliance were deemed "not applicable" and simply not counted in the scoring.

Many of the studies used to develop these guidelines were "pragmatic studies" in which the

intervention of interest was used in combination with other treatments. However, pragmatic studies make it difficult to discriminate the therapeutic effect of the primary intervention from the co-treatment(s). This is a common problem in chiropractic research, since most practitioners provide various forms of multi-modal treatments to neck pain patients. Furthermore, the results of "explanatory studies", wherein an individual intervention is compared with a placebo or alternate treatment, are often not comparable to what actually occurs in practice (3, 4).

#### **Additional References**

- 1. Hogg-Johnson S, van der Velde G, Carroll LJ, et al. The burden and determinants of neck pain in the general population: results of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. Spine 2008; 33: S39-51.
- 2. Sackett, D. Evidence-based Medicine What it is and what it isn't. BMJ 1996; 312: 71-72.
- 3. Patsopoulos N. A pragmatic view on pragmatic trials. Dialogues Clin Neurosci 2011; 13(2): 217-24.
- 4. Rothwell P. External validity of randomised controlled trials: "to whom do the results of this trial apply?" Lancet 2005; 365: 82–93.
- 5. Childs JD, Cleland JA, Elliott JM et al. American Physical Therapy Association. Neck pain: clinical practice guidelines linked to the International Classification of Functioning, Disability, and Health from the Orthopaedic Section of the American Physical Therapy Association. JOSPT 2008; 38(9): A1-34.

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