

Implementing AHRQ Effective Health Care Reviews

Helping Clinicians Make Better Treatment Choices

Chronic Neck Pain: Nonpharmacologic Treatment

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Key Clinical Issue

Which noninvasive nonpharmacologic treatments for chronic neck pain improve function or pain for at least one month?

Evidence-Based Answer

Combination exercise (including three of four exercise categories: muscle performance, mobility, muscle reeducation, and aerobic) slightly improves function and pain in the short term (one to less than six months). (Strength of Recommendation [SOR]: B, based on inconsistent or limited-quality patient-oriented evidence.) Low-level laser therapy moderately improves function and pain in the short term. (SOR: B, based on inconsistent or limited-quality patient-oriented evidence.) Acupuncture slightly improves function in the short and intermediate term (six to less than 12 months) but is not more effective than sham acupuncture for pain. (SOR: B, based on inconsistent or limited-quality patient-oriented evidence.) The Alexander technique, a mind-body practice, slightly improves function in the short and intermediate term. (SOR: B, based on inconsistent or limited-quality patient-oriented evidence.) Massage does not improve function in the short or intermediate term. (SOR: B, based on

inconsistent or limited-quality patient-oriented evidence.) Physical therapist–led relaxation techniques do not improve pain or function when compared with no treatment or advice alone.¹ (SOR: B, based on inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

Neck pain is a common symptom, with a worldwide mean prevalence of 23%.² Globally, neck pain ranks fourth in terms of overall disability and leads to reduced work productivity, increased work absenteeism, and increased insurance costs.³

This Agency for Healthcare Research and Quality (AHRQ) review examined 218 publications on noninvasive nonpharmacologic treatments for several chronic pain conditions. A subset of 25 randomized controlled trials specifically evaluated the effects of treatments for chronic neck pain, defined as pain lasting more than three months, on pain or function. Most of the trials took place outside of the United States, primarily in Asia and Europe. Outcomes were classified as short term (one to less than six months following treatment completion), intermediate term (six to less than 12 months), or long term (12 months or longer).

The Agency for Healthcare Research and Quality (AHRQ) conducts the Effective Health Care Program as part of its mission to produce evidence to improve health care and to make sure the evidence is understood and used. A key clinical question based on the AHRQ Effective Health Care Program systematic review of the literature is presented, followed by an evidence-based answer based upon the review. AHRQ's summary is accompanied by an interpretation by an AFP author that will help guide clinicians in making treatment decisions. For the full review and evidence summary, go to <https://effectivehealthcare.ahrq.gov/topics/nonpharma-treatment-pain/research-2018>.

This series is coordinated by Kenny Lin, MD, MPH, Deputy Editor.

A collection of Implementing AHRQ Effective Health Care Reviews published in *AFP* is available at <https://www.aafp.org/afp/ahrq>.

CME This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 141.

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Studied interventions included exercise (single or combined types), massage, acupuncture, relaxation techniques, mind-body practices, and physical modalities. The mind-body practice was the Alexander technique, which involves changing posture, breathing, and balance and coordination to release tension within the body. The physical modality was low-level laser therapy, which consists of using lasers at wavelengths ranging from red to infrared to induce tissue healing.

The improvements in function were small to moderate across all interventions. Function was

measured using the Northwick Park Questionnaire, the Neck Disability Index, and the Neck Pain and Disability Scale, which assess pain-related limitations in daily activities. Functional improvement meant that patients were able to perform activities of daily living and other daily activities more easily.

Although no single type of exercise improved pain or function, two trials found that combination exercise produced small improvements in short- and long-term function and short-term pain.^{4,5} Low-level laser therapy produced moderate improvement in short-term pain and function.

CLINICAL BOTTOM LINE

Summary of Key Findings and Strength of Evidence for Chronic Neck Pain Interventions Compared with Usual Care, Placebo, Sham, Attention Control, or Waitlist

Intervention	Outcome	Studies	Strength of evidence
Exercise	Short-term function	2 RCTs	No difference ●○○
	Short-term pain	4 RCTs	No difference ●○○
Combination exercise	Short- and long-term function	2 RCTs	Small effect ●○○
	Short-term pain	2 RCTs	Small effect ●○○
Physical therapist–led relaxation training	Short- and intermediate-term function	1 RCT	No difference ●○○
	Short- and intermediate-term pain	1 RCT	No difference ●○○
Low-level laser therapy	Short-term function	2 RCTs	Moderate effect ●●○
	Short-term pain	3 RCTs	Moderate effect ●●○
Massage	Short- and intermediate-term function	2 RCTs	No difference ●○○
Mind-body practices	Short- and intermediate-term function	3 RCTs	Small effect ●○○
Acupuncture	Short- and intermediate-term function	9 RCTs	Small effect ●○○
	Short-, intermediate-, and long-term pain	8 RCTs	No difference ●○○

Strength of evidence scale

- **High:** High confidence that the evidence reflects the true effect. Further research is very unlikely to change the confidence in the estimate of effect.
- **Moderate:** Moderate confidence that the evidence reflects the true effect. Further research may change the confidence in the estimate of effect and may change the estimate.
- **Low:** Low confidence that the evidence reflects the true effect. Further research is likely to change the confidence in the estimate of effect and is likely to change the estimate.
- **Insufficient:** Evidence either is unavailable or does not permit a conclusion.

RCT = randomized controlled trial.

Adapted from the Agency for Healthcare Research and Quality, Effective Health Care Program. Noninvasive nonpharmacological treatment for chronic pain: a systematic review. Agency for Healthcare Research and Quality; June 2018. Accessed September 15, 2018. <https://effectivehealthcare.ahrq.gov/topics/nonpharma-treatment-pain/research-2018>

Summary of Key Findings and Strength of Evidence for Chronic Neck Pain Interventions Compared with Exercise

Intervention	Outcome	Studies	Strength of evidence
Physical therapist–led relaxation training	Short- and intermediate-term function	1 RCT	No difference ●○○○
	Short- and intermediate-term pain	1 RCT	No difference ●○○○
Massage	Intermediate-term pain	1 RCT	No difference ●○○○
Body awareness therapy	Short-term function	1 RCT	No difference ●○○○

Strength of evidence scale

- **High:** High confidence that the evidence reflects the true effect. Further research is very unlikely to change the confidence in the estimate of effect.
- **Moderate:** Moderate confidence that the evidence reflects the true effect. Further research may change the confidence in the estimate of effect and may change the estimate.
- **Low:** Low confidence that the evidence reflects the true effect. Further research is likely to change the confidence in the estimate of effect and is likely to change the estimate.
- **Insufficient:** Evidence either is unavailable or does not permit a conclusion.

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Few trials compared nonpharmacologic with pharmacologic treatments. Two trials of acupuncture found no statistically significant differences in pain when compared with nonsteroidal anti-inflammatory drugs (NSAIDs).^{6,7} One trial of exercise showed no statistically significant difference in pain or function when compared with ibuprofen and thiocolchicoside.⁵

Despite low-quality evidence, a reasonable approach is discussing nonpharmacologic options with patients who have chronic neck pain and engaging in shared decision-making, because there are minimal harms to these therapies and documented risks associated with NSAIDs.⁸ Based on this AHRQ review, family physicians should consider incorporating low-level laser therapy, acupuncture, combination exercise, and/or the Alexander technique into treatment plans for patients with chronic neck pain.

Editor's Note: American Family Physician SOR ratings are different from the AHRQ Strength of Evidence ratings.

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