

# **Mobilization and Manipulation of the Cervical Spine in Patients with Cervicogenic Headache: Any Scientific Evidence?**

**Frontiers in Neurology**  
**March 21, 2016; Vol. 7; Article 40**

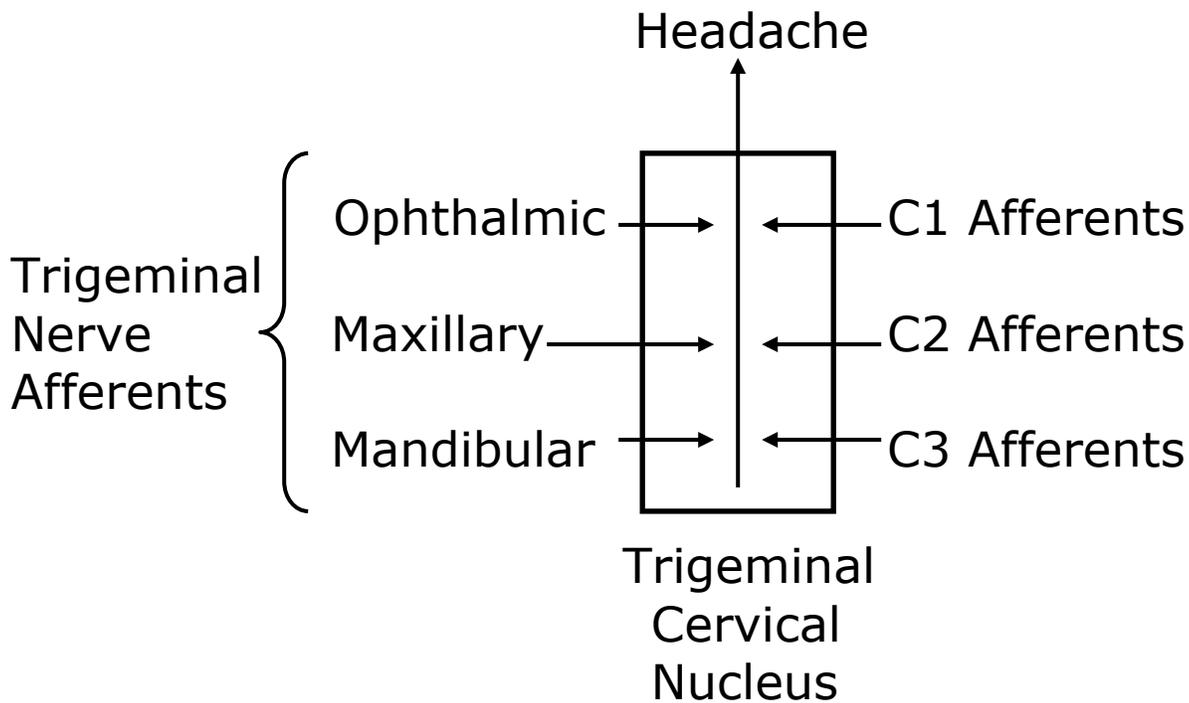
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This article has 31 references.

The purpose of this article was to investigate the effects of cervical mobilization and manipulation on pain intensity and headache frequency, compared to traditional physical therapy interventions in patients diagnosed with cervicogenic headache.

The authors found 10 studies that met their stringent inclusion criteria, with a total of 685 subjects. "Seven of the 10 studies had statistically significant findings that subjects who received mobilization or manipulation interventions experienced improved outcomes or reported fewer symptoms than control subjects."

## **KEY POINTS FROM THIS ARTICLE:**

- 1) Officially, cervicogenic headache is a "secondary headache arising from musculoskeletal disorders in the cervical spine and is frequently accompanied by neck pain."
- 2) The estimated incidence of cervicogenic headache is:
  - 4.1% of the total population
  - Perhaps as high as 15% of the headache population
  - Up to 20% of all chronic and recurrent headaches
- 3) Women may be affected with cervicogenic headache four times more frequently than men.
- 4) Patients who have sustained concussion or whiplash injuries with neck pain and limitation of movement often develop cervicogenic headache.
- 5) "The symptoms of cervicogenic headache may arise from any of the components of the cervical spine, including vertebrae, disks, or soft tissue." However, cervicogenic headache pain "most commonly arises from the second and third cervical spine (C2/3) facet joints, followed by C5/6 facet joints."
- 6) "The afferent fibers of the trigeminal nerve and the upper three cervical nerves converge on second-order sensory neurons at the dorsal horn of the upper cervical spinal cord. This convergence is the anatomical basis for the clinical observation that patients with cervicogenic headache often present with headache at both cervical and trigeminal dermatomes."



7) “Upper cervical spine mobility restriction (hypomobility), cervical pain, and muscle tightness are clinical findings associated with cervicogenic headache during physical examination.”

8) The neurophysiological benefit for cervicogenic headache may be that the “afferent input induced by manual therapy may stimulate neural inhibitory pathways in the spinal cord and can also activate descending inhibitory pathways in the lateral periaqueductal gray area of the midbrain.” [SEE DRAWING BELOW]

9) “Cervical mobilization and manipulation are frequently used to treat patients diagnosed with cervicogenic headache.”

10) “Many studies on the short-term effectiveness of manual therapy to the cervical spine (mobilization and manipulative therapy) have found it beneficial in reducing headache pain or disability, intensity, frequency, and duration.”

11) The benefits of manual therapy for cervicogenic headache have been shown to be maintained at long-term follow-up assessments. **[Important]**

12) There is evidence that the lasting benefits of manipulation for cervicogenic headache is enhanced by combining therapeutic exercise.

13) Seven of the ten included studies examined how the effects of spinal manipulative therapy compared to an alternate intervention or a placebo; “six studies found statistically significant improvements in symptoms for participants in the manipulation group as compared to controls.”

14) Only one of the included studies compared manipulation to mobilization in patients with cervicogenic headache:

[Dunning JR, Butts R, Mourad F, Young I, Fernandez-de-Las Peñas C, Hagins M, et al. Upper cervical and upper thoracic manipulation versus mobilization and exercise in patients with cervicogenic headache: a multi-center randomized clinical trial. *BMC Musculoskelet Disord* (2016) 17(1):64.] In this study:

- Subjects were randomized into either a manipulation intervention group or a combined mobilization and exercise group.
- The treatment and exercise program lasted 4 weeks, and participants received six to eight sessions of manipulation or mobilization.
- “The findings of this study indicated that manipulation was more effective at reducing cervicogenic headache intensity and disability at 1 week, 4 weeks, and 3 months.”
- “The manipulation group experienced significantly reduced duration and frequency of headaches as well as perceiving greater improvement.”
- “These findings suggest that the high-velocity, low-amplitude manipulation was more effective at treating cervicogenic headache than the slow rhythmic mobilization techniques used as an intervention.”

15) Only one of the included studies looked at the relationship between treatment frequency and patient outcomes for subjects receiving one, three, or four treatments per week.

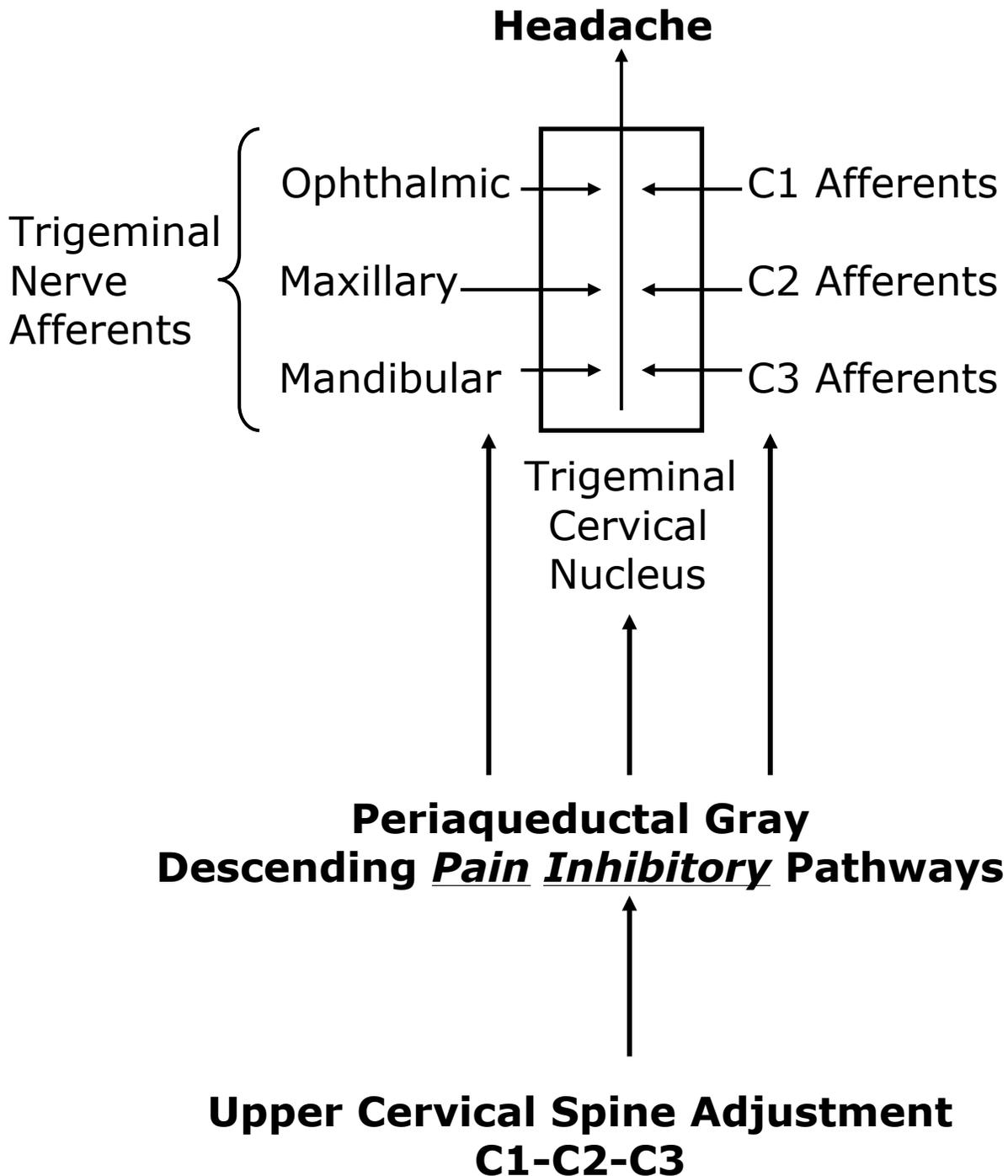
[Haas M, Group E, Aickin M, Fairweather A, Ganger B, Attwood M, et al. Dose response for chiropractic care of chronic cervicogenic headache and associated neck pain: a randomized pilot study. *J Manip Physiol Ther* (2004) 27(9):547–53.] The study found:

- “After 4 weeks, subjects receiving four visits per week had significant reductions in headache pain and intensity compared to the subjects receiving one treatment per week.”
- “After 12 weeks, subjects receiving three or four visits per week had reduced pain and intensity compared to the once-per-week treatment group.”
- “This suggests that there may be an optimal dosage effect for spinal manipulative therapy intervention and that, to a certain extent, more frequent treatments may be related to more significant positive outcomes.” **[Important]**

16) The studies reviewed for this article varied greatly in duration, frequency and approach of manual therapy. However, the “findings of the studies suggest that manual therapy on the cervical spine is more effective than traditional physical therapy interventions or sham intervention in reducing pain intensity and frequency of headaches in this population.”

17) There is a growing body of evidence supporting cervical manipulation for the treatment of cervicogenic headache.

18) "Patients with cervicogenic headache could benefit from manual therapy techniques, including spinal manipulative therapy."



**Spinal manipulation of the upper cervical spine activates the Descending Pain Inhibitory pathway through the Periaqueductal Grey of the midbrain.**