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## A Randomized Controlled Trial of Exercise and Manipulative Therapy for Cervicogenic Headache

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**Study Design.** A multicenter, randomized controlled trial with unblinded treatment and blinded outcome assessment was conducted. The treatment period was 6 weeks with follow-up assessment after treatment, then at 3, 6, and 12 months.

**Objectives.** To determine the effectiveness of manipulative therapy and a low-load exercise program for cervicogenic headache when used alone and in combination, as compared with a control group.

**Summary of Background Data.** Headaches arising from cervical musculoskeletal disorders are common. Conservative therapies are recommended as the first treatment of choice. Evidence for the effectiveness of manipulative therapy is inconclusive and available only for the short term. There is no evidence for exercise, and no study has investigated the effect of combined therapies for cervicogenic headache.

**Methods.** In this study, 200 participants who met the diagnostic criteria for cervicogenic headache were randomized into four groups: manipulative therapy group, exercise therapy group, combined therapy group, and a control group. The primary outcome was a change in headache frequency. Other outcomes included changes in headache intensity and duration, the Northwick Park Neck Pain Index, medication intake, and patient satisfaction. Physical outcomes included pain on neck movement, upper cervical joint tenderness, a craniocervical flexion muscle test, and a photographic measure of posture.



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**Results.** There were no differences in headache-related and demographic characteristics between the groups at baseline. The loss to follow-up evaluation was 3.5%. At the 12-month follow-up assessment, both manipulative therapy and specific exercise had significantly reduced headache frequency and intensity, and the neck pain and effects were maintained ( $P < 0.05$  for all). The combined therapies was not significantly superior to either therapy alone, but 10% more patients gained relief with the combination. Effect sizes were at least moderate and clinically relevant.

**Conclusion.** Manipulative therapy and exercise can reduce the symptoms of cervicogenic headache, and the effects are maintained.

**Key words:** cervical spine; clinical trial; exercise; headache; manipulative therapy

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