**Page MJ, O’Connor D, Pitt V, Massy-Westropp N. Exercise and mobilization interventions for carpal tunnel syndrome. *Cochrane Database of Systematic Reviews* 2012; Issue 6.**

**PMID:** 22696387

**Reviewer:** Linda Metzger 10-5-15

**Design:** Cochrane Systematic Review (No meta-analysis)

**Objective:** To assess the effectiveness and safety of exercise and mobilization interventions compared with no treatment, placebo or another nonsurgical intervention in people with carpal tunnel syndrome (CTS).

**Summary of Results:**

* Includes 16 studies with a total of 741 participants with carpal tunnel syndrome. Two studies compared a mobilization regimen to a no treatment control, three compared one mobilization intervention (e.g. carpal bone mobilization) to another (e.g. soft tissue mobilization), 9 compared nerve mobilization delivered as part of a multi-component intervention to another non-surgical intervention (e.g. splint or therapeutic ultrasound), and 3 compared a mobilization intervention other than nerve mobilization (e.g. yoga or chiropractic treatment) to another non-surgical intervention.
* One very low quality trial with only 21 participants found that all participants receiving either neurodynamic mobilization or carpal bone mobilization, and neither in the control treatment group, reported overall improvement (RR 15.00, 95% CI 1.02 to 220.92), though the precision of this effect estimate is very low and the sample size is extremely small. It was unclear if the allocation was concealed, and participants were not blinded to treatment, thus introducing possible selection and performance bias (Tal-Akabi 2000).
* Another low quality trial with 22 participants found that the chance of being ’satisfied’ or ’very satisfied’ with treatment was 24% higher for participants receiving instrument-assisted soft tissue mobilization compared to standard soft tissue mobilization (RR 1.24, 95% CI 0.89 to 1.75), though participants were not blinded to treatment and it was unclear if the allocation sequence was concealed. Selection and reporting bias may have been present (Burke 2007).
* Yet another very low-quality trial with 26 (35 wrists) participants found that more CTS-affected wrists receiving nerve gliding exercises plus splint plus activity modification had no pathologic finding on median and ulnar nerve distal sensory latency assessment at the end of treatment compared to wrists receiving splint plus activity modification alone (RR 1.26, 95% CI 0.69 to 2.30). Failure to adjust for the correlation between wrists in participants with bilateral CTS in this study, as well as high risk of selection bias due to inadequate random sequence generation and allocation concealment, suggest that this data should be interpreted with caution. (Pinar 2005).
* Only two studies measured adverse effects, so more data are required before any firm conclusions on the safety of exercise and mobilization interventions can be made.
* The authors concluded that there is limited data and very low quality evidence of benefit and effectiveness for all of a diverse collection of exercise and mobilization interventions for improving symptoms and functional ability for people with carpal tunnel syndrome, compared with other non-surgical interventions for CTS (such as splinting, therapeutic ultrasound or oral drugs), and when compared with one another. Until more high quality randomized controlled trials assessing the effectiveness and safety of various exercise and mobilization interventions compared to other non-surgical interventions are undertaken, the decision to provide this type of non-surgical intervention to people with CTS should be based on the clinician’s expertise in being able to deliver these treatments and patient’s preferences.
* Overall, there is insufficient evidence that one exercise or mobilization intervention is more effective than another or to support the use of exercise or mobilization as a treatment with greater efficacy compared to other non-surgical interventions for CTS, such as splinting, and oral drugs.

**Reasons not to Cite as Evidence:**

* Only 4 studies measured the primary outcome of interest, short-term overall improvement at three months or less.
* The present search went through January 2012. One study was published in 2011, and all the others were 2009 or older.
* The risk of bias and overall quality of the evidence was low in some studies, and unclear or high in other studies with only 3 reporting that the allocation sequence was concealed, and 4 reporting blinding of participants. The studies were heterogeneous in terms of the interventions delivered, outcomes measured, and timing of outcome assessment, and so pooling results across studies was not possible. Random sequence generation was present in 8 studies, and 9 studies reported blinding outcome assessors.
* This very low quality evidence does not meet our literature critique criteria and would not qualify for an evidence statement.
* Because the limited evidence is of very low quality, further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate, and so we are uncertain about the magnitude of the effect, and thus no useful conclusions can be drawn.

**Assessment:**

* High quality Cochrane review that shows there is inadequate evidence for the effectiveness of exercise and mobilization interventions compared with no treatment, placebo or another non-surgical intervention for the treatment of people with carpal tunnel syndrome (CTS).

**References:**

* Burke J, Buchberger DJ, Carey-Loghmani MT, Dougherty PE, Greco DS, Dishman JD. A pilot study comparing two manual therapy interventions for carpal tunnel syndrome.

Journal of Manipulative and Physiological Therapeutics 2007; 30(1):50–61.

* Pinar L, Enhos A, Ada S, Güngör N. Can we use nerve gliding exercises in women with carpal tunnel syndrome? Advances in Therapy 2005; 22(5):467–75.
* Tal-Akabi A, Rushton A. An investigation to compare the effectiveness of carpal bone mobilization and neurodynamic mobilization as methods of treatment for carpal tunnel syndrome. Manual Therapy 2000; 5(4):214–22.