



Non-surgical treatment (other than steroid injection) for carpal tunnel syndrome: a Cochrane review

Educational article - English edition

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Source article

O'Connor D, Marshall S, Massy-Westropp N. Non-surgical treatment (other than steroid injection) for carpal tunnel syndrome. Cochrane Database of Systematic Reviews.

Article type: Cochrane systematic review including randomised or quasi-randomised trials.

Background

Carpal tunnel syndrome (CTS) involves compression of the median nerve within the carpal tunnel. It may cause paraesthesia and numbness in the median nerve distribution, hand and wrist pain, nocturnal waking, reduced sensation and, in more advanced cases, muscle weakness and functional impairment.

Conservative treatments are generally offered for mild-to-moderate disease, intermittent symptoms, or when surgery is not indicated or must be deferred. This review assessed non-surgical CTS treatments excluding local corticosteroid injections.

Methods

The authors systematically reviewed randomised or quasi-randomised controlled trials comparing conservative treatment with placebo, no treatment or another non-surgical intervention. Twenty-one trials involving 884 participants were included.

Interventions comprised wrist orthoses, therapeutic ultrasound, oral corticosteroids, non-steroidal anti-inflammatory drugs (NSAIDs), diuretics, vitamin B6, tendon and nerve gliding exercises, carpal mobilisation, neurodynamic techniques, yoga, ergonomic keyboards, magnetic therapy, some chiropractic treatments and laser acupuncture.

1. Wrist orthoses

Orthoses were among the most studied conservative approaches. Available trials suggest short-term symptom improvement and functional benefit after several weeks.

Night wear may provide clinical benefit without routinely requiring continuous daytime wear. A neutral-position wrist orthosis appears preferable to one holding the wrist in extension.



This is consistent with limiting wrist positions that may increase carpal tunnel pressure. Evidence is limited but generally favourable for short-term benefit.

2. Oral corticosteroids

Oral corticosteroids showed some of the clearest symptom effects in the included trials. Significant improvement followed short courses, generally ten days to four weeks.

The effect appears mainly temporary and may diminish after treatment stops. They should therefore be regarded as short-term symptom treatment rather than correction of the mechanical cause of median nerve compression. Evidence is relatively favourable for short-term benefit.

3. Therapeutic ultrasound

Findings depend in part on protocol duration. Very short treatments did not show clear benefit. One methodologically stronger trial using approximately seven weeks of treatment reported significant symptom improvement, with some benefit still observed at six months.

Generalisation remains difficult because studies were few and protocols heterogeneous. Evidence is limited to moderate, with a favourable signal for some longer protocols.

4. Yoga

Approximately eight weeks of yoga reduced pain and improved some clinical parameters, including some provocative tests such as Phalen's test.

Findings for grip strength, nocturnal waking and some functional measures were less convincing. Yoga may be complementary, but evidence is insufficient to make it a reference treatment. Evidence is limited but encouraging.

5. Carpal mobilisation

Some carpal mobilisation techniques improved short-term symptoms, notably after several weeks. Benefits for overall function and pain were less clearly demonstrated. Small samples and few studies require caution. Evidence is limited.

Interventions without clearly demonstrated benefit

Trials did not establish sufficiently robust clinical benefit for diuretics, NSAIDs, magnetic therapy, laser acupuncture, some chiropractic techniques, vitamin B6, some isolated nerve and tendon gliding programmes, or some neurodynamic mobilisation techniques. Findings for ergonomic keyboards were insufficient or contradictory.

Absence of evidence does not necessarily mean ineffectiveness: for several interventions, study quantity and quality were too limited for firm conclusions.



Review limitations

Small samples: most interventions were examined in few studies, often with small patient groups.

Protocol heterogeneity: treatment duration, intensity, techniques and participant characteristics differed substantially.

Outcome heterogeneity: studies did not consistently use the same measures for pain, paraesthesia, function, strength, electrophysiology or patient satisfaction.

Short follow-up: most findings concern the short term; evidence of sustained medium- or long-term benefit is limited.

Difficult direct comparisons: too few trials per intervention prevent a reliable ranking of conservative treatments.

Authors' conclusions

Available evidence suggests short-term symptom benefit from oral corticosteroids, wrist orthoses, some therapeutic ultrasound protocols, yoga and some carpal mobilisation techniques.

Conversely, it does not clearly demonstrate effectiveness of NSAIDs, diuretics, magnetic therapy, vitamin B6, laser acupuncture, some chiropractic interventions or isolated nerve gliding exercises.

Clinical implications

Conservative treatment may be appropriate for mild-to-moderate CTS, particularly without severe neurological deficit or an urgent surgical indication.

Among the strategies evaluated, a neutral-position wrist orthosis, especially at night, is a simple, minimally invasive option supported by favourable short-term evidence.

Oral corticosteroids may provide relatively rapid relief, but mainly temporarily. Ultrasound, yoga or some manual mobilisation techniques may be considered as adjuncts, with less robust evidence. Routine NSAIDs, diuretics, magnets or vitamin B6 are not supported by sufficiently convincing evidence in this review.

Main clinical message

Conservative CTS treatments can improve short-term symptoms, but evidence is generally limited and varies substantially between interventions. A night orthosis holding the wrist near neutral is among the simplest and most clinically coherent approaches studied.

These findings must be contextualised: the review is based on older, small studies, often of limited methodological quality. It should not be interpreted as a definitive ranking of current conservative treatments.



Illustrations from the original resource

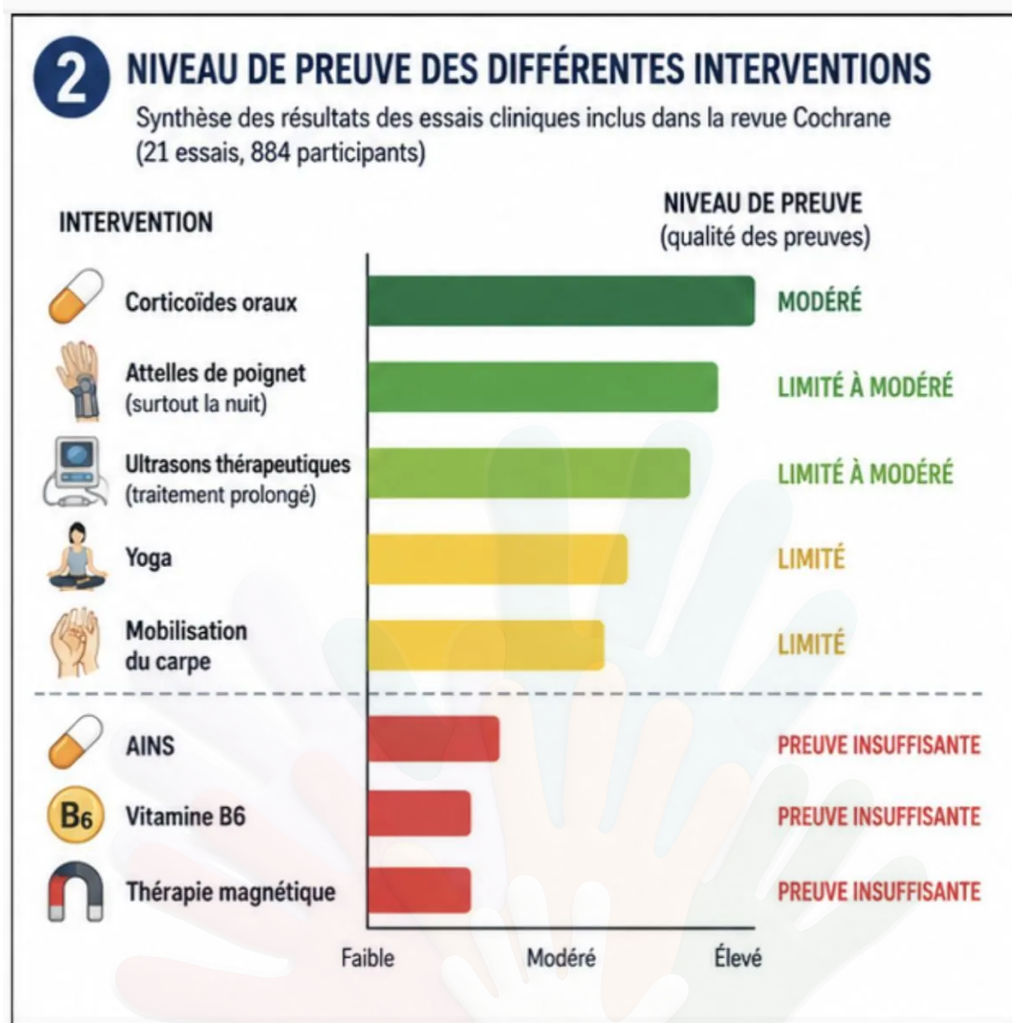
Figure 1

1 PANORAMA DES TRAITEMENTS DU SYNDROME DU CANAL CARPIEN		
EFFICACITÉ DÉMONTRÉE ✓	PREUVES LIMITÉES —	PAS DE BÉNÉFICE DÉMONTRÉ ✗
 Attelles de poignet (surtout la nuit, position neutre)	 Claviers ergonomiques Résultats contradictoires	✗ Diurétiques
 Corticoïdes oraux Amélioration rapide à court terme		✗ AINS
 Ultrasons Bénéfice après un traitement prolongé	 Exercices de glissement nerveux et tendineux Pas d'effet clair sur les symptômes principaux	✗ Thérapie magnétique
 Yoga Réduction de la douleur et amélioration fonctionnelle		✗ Acupuncture laser
 Mobilisation du carpe Amélioration des symptômes à court terme	 Vitamine B6 (pyridoxine) Effets mineurs sur certains symptômes secondaires	✗ Mobilisation neurodynamique
		✗ Soins chiropratiques
✓ Efficacité démontrée ● Preuves limitées ✗ Pas de bénéfice démontré		

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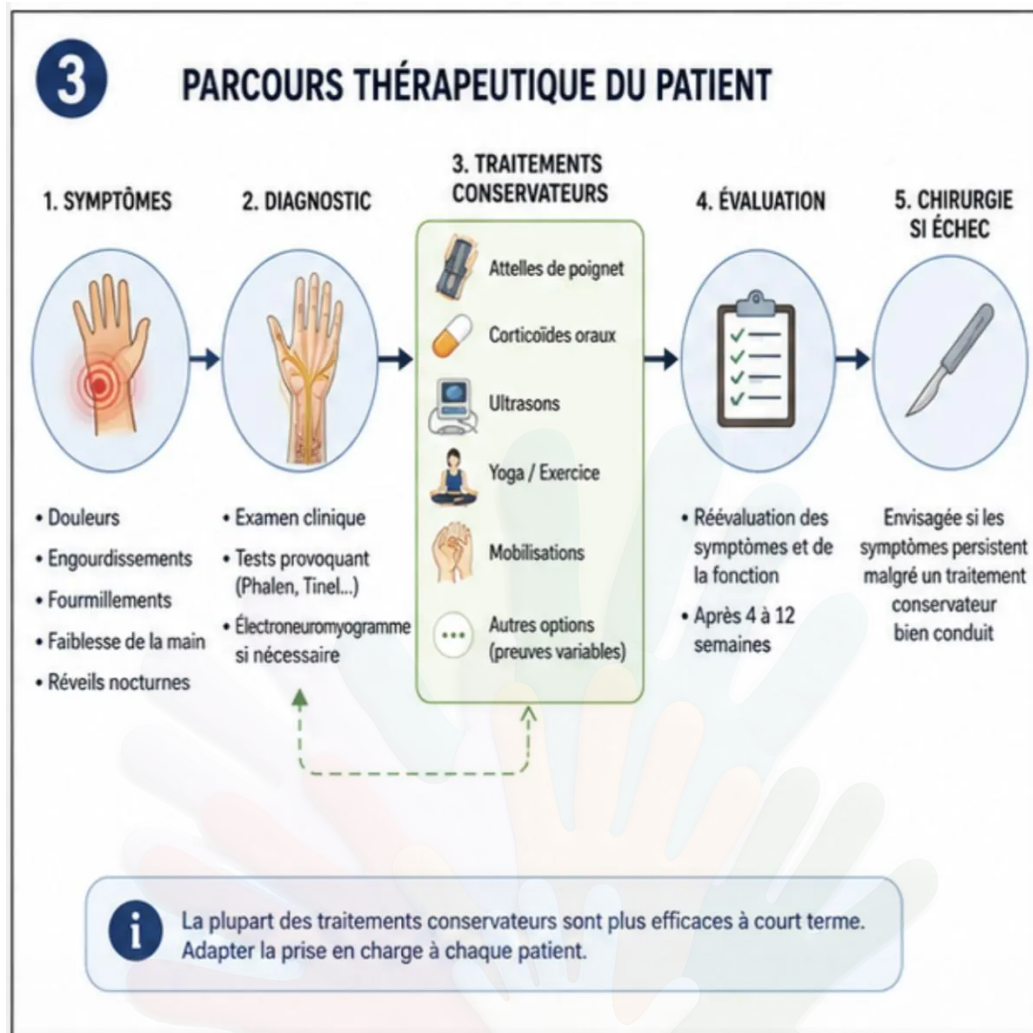
Figure 2



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Figure 3



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