

Evidence for exercise therapy in patients with hand and wrist tendinopathy is limited: a systematic review



MASTER
SCIENZA E PRATICA
IN FISIOTERAPIA
MUSCOLOSCHIELETRICA
E REUMATOLOGICA
UNIMOL

Fabrizio Scopece, Roberta Fornaro, Elena Lanfranchi, Leonardo Pellicciari, Giuseppe Giovannico, Marco Cordella

Background

According to the recent literature, exercise therapy is the most recommended approach for the management of tendinopathies in many districts, such as the ankle, knee, and shoulder. However, few studies assess the treatment efficacy in patients with hand and wrist tendinopathies. Therefore, this study aimed to perform a systematic review of the literature to assess the efficacy of exercise therapy in managing hand and wrist tenosynovitis.

Methods

The search was undertaken on four electronic databases: MEDLINE (via PubMed), Cochrane Library, PEDro, and EMBASE from their inception to April 10th 2022. A study was included in this systematic review if it met the following inclusion criteria: · Participants: patient with hand and/or wrist tenosynovitis; · Interventions: any exercise therapy modality (e.g., concentric, eccentric, isometric, etc.); · Comparator(s)/control: any other conservative or surgical intervention; · Outcome measures: any clinical outcome (e.g., range of motion, pain, patient-reported outcome measures, etc.). The methodological quality of the studies included was evaluated independently by two authors (RF and FS), and any disagreement between the two authors was resolved through discussion with a third author (EL or MC).

Results

The search strategy identified 8,255 studies through database searching, and 11 studies were finally included in the systematic review. The different types of exercise therapy administered were: eccentric training (n=7, 63.6%); concentric training (n=4, 36.4%), mobilization with movement (MWM) (n=3 27.3%); strengthening exercises (n=2, 18.2%); grip proprioception training (n=2, 18.2%). In five studies the patients were also educated to home exercises (36.4%). Other interventions investigated in the included studies were: physical therapy modalities, in particular ultrasound, low level laser, cryotherapy, iontophoresis, high-voltage electrical stimulation, taping; manual therapy (mobilizations/manipulations); soft tissue mobilization; bracing/splinting; acupuncture; rest; stretching; education; drugs, including sclerosing therapy (polidocanol), NSAIDs/analgesics. The duration of the treatments ranged from 223 to 12 weeks and follow-up ranged from 2 weeks to 22 months. The outcome measures considered were: pain, active and passive ROM of the wrist and thumb, functional limitation and disability, palpation of the wrist radial side, special tests, resisted tests, grip and muscle strength tests, wrist circumference and artrokinematic movements.

Discussion

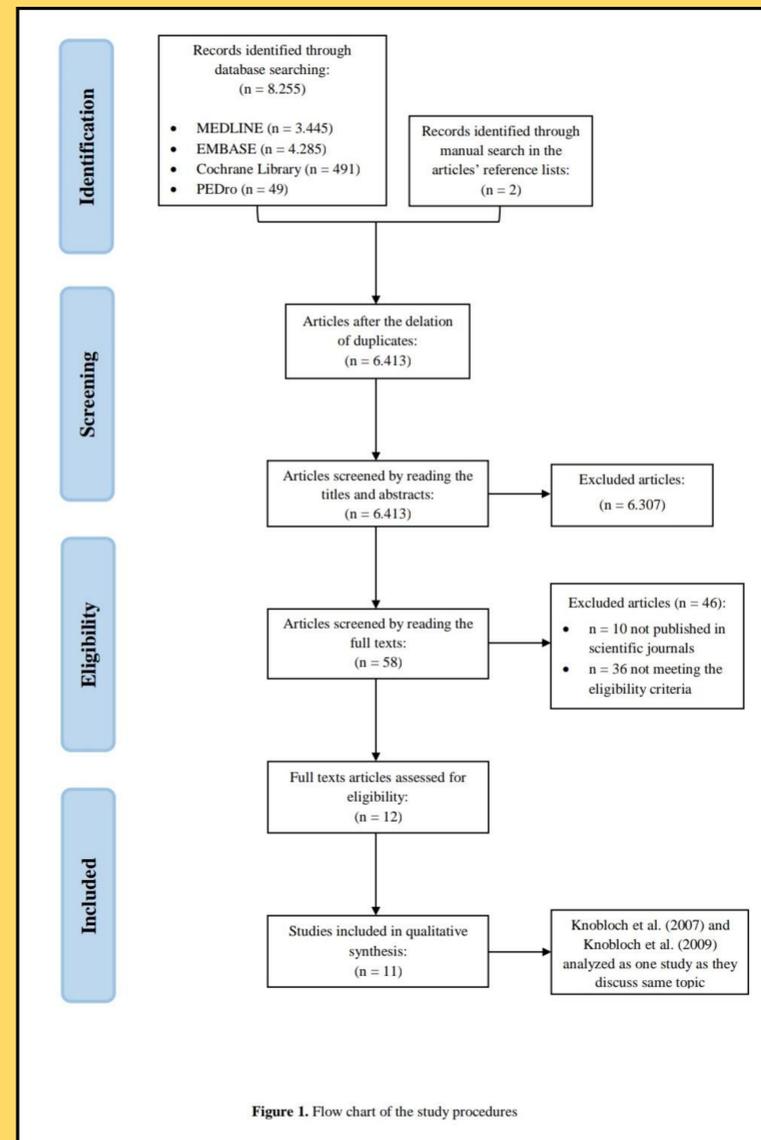
This is the first systematic review to investigate exercise therapy's effect on hand and wrist tendinopathy patients. The main findings of our systematic review were: a) only one study considered a different tenosynovitis from the De Quervain Syndrome – considering FCR tendinopathy – and b) in all the studies included, exercise therapy was not used alone but in combination with other therapeutic strategies (i.e., ultrasound, iontophoresis, kinesiology taping, etc.). It follows that although trigger finger/thumb or extensor carpi ulnaris/flexor carpi radialis are widespread hand or wrists tenosynovitis, they are not well represented in the present literature, making it necessary for the future research to conduct specific studies about exercise therapy treatment on these pathologies. Moreover, although the patients improved pain and functionality in some cases, the authors could not determine if this was due to exercise therapy alone since it was never used alone.

Conclusion

The authors suggest further exploration of the topic, trying to attain a higher methodological quality to obtain clinically and statistically significant and generalisable results as it happened for rotator cuff, patellar and Achilles tenosynovitis.

References

- Knobloch, K., Gohritz, A., Spies, M. & Vogt, P. M. Neovascularisation in flexor carpi ulnaris tendinopathy: Novel combined sclerosing therapy and eccentric training of the forearms in athletics' wrist pain. *BMJ Case Rep* (2009). doi: 10.1136/bcr.08.2008.0714.
- Papa, J. A. Conservative management of De Quervain's stenosing tenosynovitis: a case report. *J Can Chiropr Assoc* vol. 56 (2012).
- Howell, E. R. Conservative care of De Quervain's tenosynovitis/ tendinopathy in a warehouse worker and recreational cyclist: a case report. *J Can Chiropr Assoc* vol. 56 (2012).
- Földvári-Nagy, L. et al. Treatment of de Quervain's tendinopathy with conservative methods. *Orv Hetil* 161, 419–424 (2020). doi: 10.1556/650.2020.31672.
- Young, S. W., Young, T. W. & MacDonald, C. W. Conservative management of De Quervain's tendinopathy with an orthopedic manual physical therapy approach emphasizing first CMC Manipulation: a retrospective case series. *Physiother Theory Pract* 38, 587–596 (2022). doi: 10.1080/09593985.2020.1771800.



Supplementary Material 1. Full search queries for each databases

MEDLINE (through PubMed)	("Tenosynovitis"[MeSH] OR "Tenosynovitis" OR "De Quervain Disease"[MeSH] OR "De Quervain" OR "Trigger Finger Disorder"[MeSH] OR "Trigger Finger" OR "Trigger Thumb" OR "Tendon Entrapment" [MeSH] OR "Tendon Entrapment" OR "Tendinopathy" [MeSH] OR "Tendinopathy" OR "Tenovaginitis" OR "Tendovaginitis" OR "Paratenonium") AND ("Physical Therapy Modalities"[MeSH] OR "Physical Therapy" OR Physiotherapy OR "Therapeutic Exercise" OR "Exercise Therapy"[MeSH] OR "Exercise" OR "Eccentric" OR "Concentric" OR "Isometric" OR "Conservative Treatment"[MeSH] OR "Conservative Treatment" OR "Resistance Training" OR "Stretching")
EMBASE	('tenosynovitis'/exp OR 'tenosynovitis' OR 'de quervain' OR 'trigger finger'/exp OR 'trigger finger' OR 'trigger thumb'/exp OR 'trigger thumb' OR 'tendon entrapment'/exp OR 'tendon entrapment' OR 'tendinopathy'/exp OR 'tendinopathy') AND ('physical therapy' OR 'physiotherapy'/exp OR physiotherapy OR 'exercise'/exp OR 'exercise' OR 'resistance training'/exp OR 'resistance training' OR 'muscle stretching'/exp OR 'muscle stretching')
Cochrane Library	"tenosynovitis" OR "de quervain" OR "trigger finger" OR "trigger thumb" OR "tendon entrapment"
PEDro	de quervain tenosynovitis tendon entrapment trigger finger trigger thumb