Are patients satisfied? A systematic review and meta-analysis of patient ratings in exercise therapy for the management of tendinopathy.

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Abstract

Introduction:

Outcomes measuring patient rating of overall condition, including patient satisfaction, are associated with improved general health and higher quality of life. However, this outcome domain is under-explored in the management of tendinopathy. The purpose of this systematic review and meta-analysis was to synthesise intervention data investigating patient satisfaction and perceived improvement or deterioration following engagement in exercise therapy for the management of tendinopathy.

Materials and Methods:

A search of randomised controlled trials investigating exercise therapy interventions across all tendinopathies was conducted, extracting data assessing patient rating of overall condition. Outcomes were split into those measuring satisfaction (binary) and those measuring global rating of change (GROC). Bayesian hierarchical models were used to meta-analyse proportions and mean effect size (percentage of maximum) for the two outcome categories.

Results:

From a total of 124 exercise therapy studies, 34(Achilles: 41%, rotator cuff: 32%, patellar: 15%, elbow: 9% and gluteal: 3%) provided sufficient information to be meta-analysed. The data were obtained across 48 treatment arms and 1246 participants. The pooled estimate for proportion of satisfaction was 0.63 [95%CrI: 0.53 to 0.73], and the pooled estimate for percentage of maximum GROC was 53 [95%CrI: 38 to 69%]. Evidence was also obtained that proportion of patients reporting positive satisfaction and perception of change increased with longer durations relative to treatment onset.

Conclusion:

Patient satisfaction is not commonly reported in tendinopathy research, and in those studies where it is reported, satisfaction and GROC appear similar and are ranked moderately high demonstrating that patients generally perceive exercise therapy for tendinopathy management positively. Further research including greater consistency in measurement tools is required to explore, and where possible identify patient and exercise moderating factors that can be used to improve person-centred care.

Introduction

Tendinopathy is a musculoskeletal condition frequently experienced by a range of patients and characterised by discomfort, reduced function and disability [1]. Management of tendinopathy can comprise a range of interventions, with exercise therapy among the most common [2, 3]. The International Scientific Tendinopathy Symposium Consensus (ICON 2019) [4] established a core set of nine health-related domains to improve the use of standardised end-point outcome measurements in the management of tendinopathy. It is recommended that outcome measures used in future research and clinical practice should align with these meaningful core domains, which includes patient rating of overall condition. Based on information presented from a recent large exercise therapy for tendinopathy scoping review, it was identified that the major dimensions of outcomes measuring patient rating of overall condition included patient satisfaction and perception of change[5].

Assessing patient satisfaction generally comprises subjective measures of how well a patient's expectations of care are met and provide an important indicator of quality in person-centred care including management of tendinopathy [6]. An emphasis on measuring patient satisfaction resulted in the launch of national UK patient surveys in 2000 [7], where NHS trusts are legally obliged to survey patients annually and report the results to their health regulators. As patient satisfaction and its measurement become critical features of care, the measurement and evaluation of satisfaction across all domains including musculoskeletal physiotherapy will be increasingly investigated, providing feedback to clinicians regarding the delivery of their services. This data can also be used for quality assurance and accreditation of health services [8]. In contrast to conventional patient-reported outcomes where the constructs of measurement are more easily defined (such as disability, function, or quality of life), the measurement of patient satisfaction is often complex and cannot be entirely captured by a basic measurement construct like a visual analogue scale [9]. Patients may have differing levels of satisfaction with the process and outcome of their care based on a range of contextual factors including initial expectations, patient experience, and socioeconomic status [6, 9, 10]. Additionally, patient experience is likely to reflect a range of aspects of care as perceived by the patient including accessibility, waiting times and interactions with healthcare staff. Given the complexity and range of contributing factors, patient satisfaction may not correlate with objective clinical outcomes or symptomatic improvements [9]. Both quantitative and qualitative approaches have been used to evaluate patient satisfaction. Quantitative methods including standardised single- or multi-item questionnaires (either self-

reported or interviewer-administered) are the most common tools used to assess patient satisfaction in research studies [8]. However, there is extensive variation across patient satisfaction questionnaires (e.g., Patient Satisfaction Questionnaires-18, Roles and Maudsley satisfaction scale, and a 38-item patient satisfaction scale), each demonstrating varying degrees of validity and reliability.

The second most common measure of patient rating of overall condition within exercise therapy for the management of tendinopathy is perception of change [5]. Frequently used tools include the global rating of change (GROC) scale or items asking whether current symptom levels are acceptable. GROC scales have become a popular outcome measure due to their ease of use, clinical relevance, and applicability across any musculoskeletal condition [11, 12]. Additionally, previous research has identified strong correlations between patient satisfaction and global change measures (r = 0.56 to 0.77)[13]. Whilst exercise therapy is the mainstay of conservative management of tendinopathy, no previous studies have attempted to synthesise existing literature on patient rating of overall condition to guide the use of exercise therapy in clinical practice. The importance of this domain is further emphasised by findings that patients expressing satisfaction with their treatment are more likely to adhere, to benefit from their healthcare, and experience higher quality of life [8, 9, 14]. Therefore, the purpose of this systematic review and meta-analysis was to synthesise the available research on the efficacy of exercise therapy in the management of tendinopathy from a patient-centred perspective.

Method

This review was part of a project funded by the National Institute for Health Research (NIHR) [Health Technology Assessment (HTA) 129388 Exercise therapy for the treatment of tendinopathies]. The inclusion criteria were influenced by the overall project aims, the results of our initial scoping review mapping the exercise and tendinopathy literature as well as stakeholder workshops [5]. The review was conducted according to the PRISMA extension statement for reporting of systematic reviews [15] and the completed PRISMA checklist can be found in the supplementary files: SF-1. An *a priori* protocol was also published [16].

Inclusion criteria

Participants

This review included people of any age or gender with a diagnosis of tendinopathy of any severity or duration and at any anatomical location. We accepted trial authors' diagnoses where a clearly verifiable group of clinical features was reported including: pathognomonic location of pain; a symptom altering response to applied load and/or stretch, with there being a specific test for most tendinopathies; strategies to rule out differential diagnoses; ultrasound or magnetic resonance imaging confirmation of structural change.

Intervention

The intervention was exercise therapy for the management of any tendinopathy. Exercise considered for inclusion comprised five different therapy classes including: 1) resistance; 2) plyometric; 3) vibration; 4) flexibility and 5) movement pattern retraining modalities (Definitions for each therapy class are presented in the supplementary files: SF-2). Exercise therapy may have been delivered in a range of settings (e.g., primary care, secondary care, community, people's homes) by a range of health or exercise professionals (e.g., physiotherapists, strength & conditioning coaches, personal trainers) or support workers, and may have been supervised or unsupervised. No restrictions were placed on these factors for inclusion. To be included in the review, studies were required to report sufficient information regarding the exercise intervention to enable appropriate identification of treatment class and quantification of exercise dose.

Comparator

No comparators were included, and all outcomes of patent ratings were based solely on the exercise therapy group data.

Outcomes

Outcomes of patient rating of overall condition were extracted which included measures of patient satisfaction, patient experience scores, and perceived change of improvement or recovery measured by GROC scales. Measurements collected consisted of: 1) post-intervention binary and ordinal level data which were mostly expressed as proportions (e.g., proportion of responders who reported "complete recovery" or "much improvement" following treatment); 2) continuous outcomes collected post-intervention that reflected changes across the treatment (positive scale only: e.g., 1 to 4; negative and positive scale: e.g., −4 to +4); and 3) continuous outcomes collected pre- and post-intervention reflecting symptom severity and general assessment of condition. Generally, outcome variables comprised questions focusing on treatment satisfaction (e.g., Participants were asked to "rate their satisfaction with treatment as poor, moderate, good, or excellent") [17], and global perception of change (e.g., Participants were asked about their "average tendon pain compared to the beginning of the exercise program" on a global rating of change scale from very much worse (−4) to very much better (+4) [18]).

Types of studies

We included randomised controlled trials where at least one intervention arm comprised an exercise-only therapy.

Context

The context included primary care, secondary care or community locations in any developed nation (defined as the top 62 countries in the Human Development Index at the time of protocol development) [19] for the findings to be relevant to the UK context.

Search strategy

The search strategy used for this study was part of a larger search conducted to scope the entire tendinopathy and exercise therapy research base [5]. The search comprised three steps; Firstly, a limited search of MEDLINE and CINAHL using initial keywords was conducted to develop a full search strategy. Secondly, the full search strategy was adapted to each database and applied systematically to: MEDLINE, CINAHL, AMED, EMBase, SPORTDiscus, Cochrane library (Controlled trials, Systematic reviews), JBI Evidence Synthesis, PEDRo, and Epistemonikos (search terms for each database are presented in the supplementary files: SF-3). The following trial registries were also searched: ClinicalTrials.gov, ISRCTN Registry, The

Research Registry, EU-CTR (European Union Clinical trials Registry), ANZCTR (Australia and New Zealand Clinical trials Registry). Finally, the third step involved conducting a search of cited and citing articles using Scopus and hand-searching a total of 130 systematic reviews that were identified to include information relevant to exercise therapy and tendinopathy. No limit was placed on language, with research studies published in languages other than English translated via Google Translate or via international collaborations of the review team members. Searches were initiated from 1998 as (i) the heavy load eccentric calf-training protocol for Achilles tendinosis by Alfredsson et al was published in 1998 and may be considered seminal work in the field of tendinopathy,[39] and (ii) there has been a proliferation of research on exercise interventions for tendinopathies post 1998. The final date of the search was 18/01/21.

Study selection

Proquest® Refworks was used to manage references and remove duplicates, before importing to Covidence (Melbourne, Australia) to facilitate screening. Two levels of screening were conducted. First all titles/abstracts were reviewed, independently, by two members of the research team. Conflicts were resolved by discussion or by a third reviewer. Full-text copies of all studies included at title/abstract screening stage were retrieved and these were also screened independently by two members of the research team with conflicts resolved in the same way.

Data extraction

Dual data extraction was conducted by 8 members of the review team (PS/KC/LA/RM/LG/EP/JS/AP) into pre-piloted excel sheets. Data were independently coded as described in the accompanying codebook (SF-4). Data were classified into broad therapy and dominant classes of therapy, where dominance was determined according to the primary intervention of interest.

Risk of Bias

We used Cochrane's Risk of Bias (RoB) tool [20] and six outcome domains: 1) selection bias (random sequence generation & allocation concealment); 2) performance bias (blinding of participants); 3) detection bias (blinding of outcome assessors); 4) attrition bias (incomplete outcome data); 5) reporting bias (selective reporting); and 6) other bias. RoB was recorded for each outcome and time point within each study. When obtaining a summary RoB for each domain within a study, the mode category across all outcomes and timepoints was selected. The Cochrane's RoB tool [20] was selected as a recent review of popular tools in tendinopathy

management highlighted none were superior [21] and Cochrane's RoB tool [20] could be semi-automated with RobotReviewer [22], a machine learning system software. RobotReviewer was used to make initial assessments on selection bias and performance bias domains, with manual validation made on the relevant free texts extracted to support the final selection of low, high, or unclear RoB. This semi-automated process was more efficient and provided an additional element of consistency in the review process.

Statistical analysis

A series of meta-analyses were conducted to pool estimates for patient rating outcomes that comprised a range of tools and scoring scales requiring distinct transformations and analysis methods. Outcome data were first split into measures collected post-intervention only, and outcomes collected pre- and post-intervention where change scores provided the relevant information. Post-intervention only data were further split into binary outcomes (e.g., patient satisfaction/dissatisfaction and treatment success/non-success) and outcomes measured on a scale that could be modelled as continuous. Data from binary outcomes were transformed into a "proportion of positive response" and meta-analyses used to pool values across treatment arms to estimate the mean value as an effect size (ES_{PROP}) and the between treatment standard deviation (τ_{PROP}). To perform the meta-analysis, the logit transformation with continuity correction was used with sampling variance calculated using standard distributional assumptions[23]. After pooling of data and obtaining uncertainty estimates, values were back-transformed and expressed as proportion. [23]. The primary meta-analysis was conducted on all available binary outcomes, with a sub-group analysis comprising patient satisfaction outcomes only.

For post-intervention data modelled continuously, study values were obtained by scaling group means relative to their maximum values. For outcomes restricted to positive values (all patient satisfaction measures), items were shifted to have zero as the lowest value and the group mean divided by the shifted maximum such that effect sizes and the pooled mean estimate ranged from 0 to 1 ($ES_{0:1}$). In contrast, for outcomes already centred on zero between symmetric positive and negative maximum values (all patients' perception of change measures), the group mean was divided by the positive maximum such that effect sizes and the pooled mean estimate ranged from -1 to 1 ($ES_{-1:1}$).. Sampling variances for effect sizes from both sets of outcomes were calculated using group standard deviation values. Finally, for outcomes measuring patient ratings across the exercise therapy, Standardised mean difference effect sizes were calculated by dividing

the mean difference by the baseline standard deviation (ES_{pre}) and including a small sample bias correction [24]. Standard distributional assumptions were used to calculate sampling variances. For all outcomes where required, effect sizes were reflected to ensure that greater values represented an improved clinical effect.

All meta-analyses were conducted within a Bayesian framework enabling results to be interpreted more intuitively through reporting of subjective probabilities. To account for treatments reporting multiple outcomes, Bayesian three-level hierarchical models were conducted enabling all outcomes to be pooled simultaneously [25]. Weakly-informative (Student-t and half Student-t)[26] priors were used for model parameters except for outcomes that were scaled relative to their maximum value where informative flat priors were used (e.g. uniform 0 to 1, or uniform -1 to 1). Heterogeneity in the data used for each meta-analysis was quantified by the between treatment arm standard deviation (τ). Covariance between multiple outcomes reported in the same study were estimated through the intraclass correlation coefficient (ICC) which was calculated by dividing the estimated between outcome variance by the total variance [25]. It was determined a priori to include moderator analyses investigating the effects of assessment duration (length of time from baseline to follow-up measurement) and tendinopathy location categorised as lower- or upper-body. Assessment duration was categorised as short (≤12 weeks), medium (13-52 weeks) and long durations (>52 weeks). Moderator analyses were only performed where at least 10 data points were available for each category. Inferences from all analyses were performed on posterior samples generated using the Hamiltonian Markov Chain Monte Carlo method with four chains for 20 000 iterations with a burn-in period of 10 000. Interpretations were based on the median value of the effect size selected for the meta-analysis ($ES_{0.5}$: 0.5-quantile) and the range described by credible intervals (CrIs). Bayesian CrIs can be interpreted probabilistically, such that with a 95% CrI there is a 95% probability that the true (unknown) estimate would lie within the interval given the model selected, the priors implemented and the evidence provided by the observed data. Additionally, the $ES_{0.5}$ represents the centre of the posterior such that values close to this point are viewed as more probable. Analyses were performed using the R wrapper package brms interfaced with Stan to perform sampling [27]. Convergence of parameter estimates was obtained for all models with Gelman-Rubin R-hat values below 1.1.

Confidence in cumulative evidence

Strength of evidence was assessed using the Grading of Recommendations Assessment Development and Evaluation (GRADE) guidelines [28, 29] and transparent reporting recommended in a recent review of how to improve reporting of evidence in tendinopathy management [30]. Assessments were made at the outcome level, with strength of evidence assessed according to overall RoB, inconsistency, imprecision, indirectness and small-study effects (e.g., publication bias and other biases associated with small number of studies). Overall RoB was identified by the mode rating across all outcome data included in the analysis, with high risk selected if the mode rating was high or unclear. Inconsistency was assessed based on meta-analysis results and comparison of central and variance parameter estimates and identified as high risk if between study standard error was >90% of effect size. Imprecision was judged based on the number of data points available (number of studies, treatment arms and outcome measures) and width of credible intervals for central estimates. Based on inclusion criteria that were developed from the scoping review and stakeholder workshops it was determined that indirectness for all outcomes would be identified as low risk. Small-study effects were assessed using visual inspection of the distribution of effect sizes and their sampling variance. Overall strength of evidence was categorised as high/moderate/low/very low. Assessments began with a categorisation of high strength of evidence and were downgraded one level for each of the domains were not judged low risk. Potential upgrading factors included the presence of large effects or evidence of dose-response [28, 29].

Results

Study selection

The search strategy identified a total of 9246 potential studies, with 4635 remaining following removal of duplicates. After title and abstract screening, 4210 studies were removed leaving 425 studies for full text screening. Of these studies, a further 391 were excluded (SF-5), leaving a total of 34 studies that were included in the review (Table 1). The overall study selection process and reasons for exclusion during full text screening are presented in Figure 1. The 34 included studies comprised 48 treatment arms, 110 outcomes and 1246 participants. A summary of the tendinopathy locations and dominant exercise therapy classes are presented in Table 2. Seventy-five percent of treatment arms comprised an exercise therapy where resistance exercise was the dominant class (23/48), with the most common tendinopathies including the Achilles (18/48) and rotator cuff-related shoulder pain (RCRSP) (17/48).

Table 1. Characteristics of included studies

Study (first author, year, country)	Design	Tendinopathy Location	Participants (number (n); sex (%female); mean (sd) age; mean (sd) symptom duration in months); Training status	Exercise Treatment arms	Exercise Therapy classes	Findings
Bahr 2006 Norway [31]	RCT	Patellar	N= 40 % female 12.5 Age 30.5 (7.9) Symptoms 34 (28.7) Training status Other	1	(Resistance)	No added benefit was observed for surgical treatment to eccentric strength training. Eccentric training should be offered for 12 weeks before tenotomy is considered for the treatment of patellar tendinopathy.
Breda 2020 Netherlands [32]	RCT	Patellar	N= 76 % female 23.7 Age 24 (3.9) Symptoms 98.5 (NR) Training status Performance	2	1*(Plyometric, Resistance);1*(Flexibility, Resistance)	In patients with patellar tendinopathy, progressive tendon-loading exercises resulted in a significantly better clinical outcome after 24 weeks than eccentric exercise therapy. Progressive tendon-loading exercises are superior to eccentric exercise therapy and are therefore recommended as initial conservative treatment for patellar tendinopathy.
Brox 1999 Norway [33]	RCT	Rotator cuff - subacromial impingement	N= 125 % female 44.0 Age 47.6 (23-66)** Symptoms NR Training status Other	1	(Proprioception, Resistance)	At 2.5 years follow-up, both arthroscopic surgery and supervised exercises are better treatments than placebo with no significant difference between the 2 active treatments.
Chaconas 2017 United States [34]	RCT	Rotator cuff - subacromial impingement	N=46 % female 41.7 Age 45.9 (17.4) Symptoms 49.1 (80) Training status Other	2	2*(Flexibility, Resistance)	An eccentric program targeting the external rotators was superior to a general exercise program for strength, pain, and function after six months. The findings suggest eccentric training may be efficacious to improve self-report function and strength for those with SAPS.
de Jonge 2008	RCT	Achilles	N= 70 % female NR	1	(Resistance)	Eccentric exercises with or without a night splint improved functional

Netherlands [35]			Age 44.6 (26-59) ** Symptoms 30.7 (2-204) ** Training status Other			outcome at one year follow-up. At follow-up there was no significant difference in clinical outcome when a night splint was used in addition to an eccentric exercise.
de Vos 2007 Netherlands [36]	RCT	Achilles	N= 63 % female 41.3 Age 44.6 (8) Symptoms 30.6 (50.6) Training status Recreational	1	(Resistance)	A night splint has no added benefit to eccentric exercises in the treatment of chronic midportion Achilles tendinopathy. There was no significant difference between the two groups in VISA-A score and patient satisfaction.
Gatz 2020 Germany [37]	RCT	Achilles	N= 42 % female 35.7 Age 50.0 (12.0) Symptoms 27.5 (23.8) Training status Other	2	2*(Resistance)	No additional clinical benefits of adding ISOs to a basic EE program could be found in this preliminary randomized controlled trial study over a period of 3 months. SWE was able to differentiate between insertional and midportion tendon tissue and localize reported symptoms to sublocations but this did not correlate with better clinical scores (VISA-A) over a 3-month follow-up period.
Granviken 2015 Norway [38]	RCT	Rotator cuff - subacromial impingement	N=44 % female 48 Age 47.9 (9.9) Symptoms 14.5 Training status Other	2	1*(Flexibility, Proprioception);1*(Resistance, Flexibility)	No significant differences in pain and disability were found between home exercises and supervised exercises of more than the first session of a 6-week exercise regime for people with subacromial impingement.
Hotta 2020 Brazil [39]	RCT	Rotator cuff - subacromial impingement	N=60 % female 70 Age 49 (9) Symptoms 28.5 (24) Training status Other	2	1*(Resistance, Proprioception);1*(Resistance)	The inclusion of the isolated scapular stabilization exercises, emphasizing retraction and depression of the scapula, to a progressive general periscapular strengthening protocol did not add benefits to self-reported shoulder pain and disability, muscle strength, and ROM in patients with subacromial pain syndrome.
Johansson	RCT	Rotator cuff -	N=85	1	(Flexibility, Resistance)	Acupuncture was more effective than

2005 Sweden [40]		subacromial impingement	% female 69.4 Age 49 (7.5) Symptoms NR Training status Other			ultrasound when applied in addition to home exercises.
Jonsson 2005 Sweden [41]	RCT	Patellar	N= 15 % female 13.3 Age 24.9 (8.2) Symptoms 17.5 (13.2) Training status Performance	2	2*(Resistance)	Eccentric, but not concentric, quadriceps training on a decline board, seems to reduce pain in jumper's knee.
Knobloch 2008 Italy [42]	RCT	Achilles	N= 92 % female 35.0 Age 47.5 (11.0) Symptoms NR Training status Recreational	1	(Resistance)	Patients with tendinopathy of the main body of the AT experienced improved clinical outcome with both management options. Although tendon microcirculation was optimized in the combined group of eccentric training and AirHeel Brace, these micro-vascular advantages do not translate into superior clinical performance when compared with eccentric training alone.
Kromer 2013 Germany [43]	RCT	Rotator cuff - subacromial impingement	N= 90 % female 51.1 Age 51.8 (11.2) Symptoms 7.8 (9.8) Training status Other	1	(Flexibility, Proprioception, Resistance)	Individually adapted exercises were effective in the treatment of patients with shoulder impingement syndrome. Individualized manual Physiotherapy contributed only a minor amount to the improvement in pain intensity.
Ludewig 2003 United States [44]	RCT	Rotator cuff - subacromial impingement	N= 85 % female 0.0 Age 48.8 (2.1) Symptoms NR Training status Other	1	(Flexibility, Resistance)	Home exercise programme are more effective in reducing symptoms and improving function (Shoulder Rating Questionnaire, shoulder satisfaction score) than the control group in construction workers with shoulder pain.
Marzetti 2014 Italy	RCT	Rotator cuff - subacromial	N= 48 % female 61.4 Age 62.1 (12.5)	2	1*(Flexibility, Resistance);1*(Proprioception)	Neurocognitive rehabilitation is effective in reducing pain and improving function in patients with

[45]		impingement	Symptoms NR Training status Other			shoulder impingement syndrome, with benefits maintained for at least 24 weeks.
McCormack 2016 United States [46]	RCT	Achilles	N= 15 % female 68.8 Age 53.6 (38-69)** Symptoms 9.9 (NR) Training status Other	1	(Resistance)	Soft tissue treatment (Astym) plus eccentric exercise was more effective than eccentric exercise alone at improving function during both short- (26 weeks) and long-term (52 weeks) follow-up periods.
Mulligan 2016 United States [47]	RCT	Rotator cuff - subacromial impingement	N=50 % female 65 Age 50.1 (10.7) Symptoms 7.9 (7.4) Training status Other	1	(Proprioception, Resistance)	Patients with SAIS demonstrate improvement in pain and function with a standardized program of physical therapy regardless of group exercise sequencing.
Nishizuka 2017 Japan [48]	RCT	Lateral elbow/tennis elbow	N=110 % female 39.1 Age 53.6 (11.8) Symptoms 2.04 (1.77) Training status Other	1	(Flexibility)	A forearm band may have no more than a placebo effect and is not recommended based on its effectiveness.
Nørregaard 2007 Denmark [49]	RCT	Achilles	N= 35 % female 49.0 Age 42.0 (2.0)*** Symptoms 28.4 (8.8)*** Training status Other	2	1*(Resistance);1*(Flexibility)	Symptoms gradually improved during the 1-year follow-up period and were significantly better assessed by pain and symptoms after 3 weeks and all later visits. However, no significant differences could be observed between the two groups.
Østerås 2010 Norway [50]	RCT	Rotator cuff - subacromial impingement	N=61 % female 20.5 Age 43.9 (13) Symptoms 40.2 (56.3) Training status Other	2	2*(Flexibility, Resistance)	In long-term subacromial pain syndrome, high dosage medical exercise therapy is superior to a conventional low dosage exercise programme
Paavola 2018 Finland [51]	RCT	Rotator cuff - subacromial impingement	N= 186 % female 69.8 Age 50.6 (5.0) Symptoms 19.5 (18.9) Training status NR	1	(Flexibility, Proprioception, Resistance)	Arthroscopic subacromial decompression provided no benefit over diagnostic arthroscopy in patients with shoulder impingement syndrome.

Reyhan 2020 Turkey [52]	RCT	Lateral elbow/tennis elbow	N= 40 % female 82.5 Age 42.4 (9.9) Symptoms 4 (0.78) Training status Other	1	(Flexibility, Resistance)	MWM plus exercise and cold therapy is safe and effective at improving elbow pain, functional capacity, and grip strength.
Rompe 2007 Germany [53]	RCT	Achilles	N= 75 % female 61.3 Age 48.5 (10.6) Symptoms 10.8 (8.5) Training status Other	1	(Flexibility, Resistance)	At 4-month follow-up, eccentric loading and low-energy shock-wave therapy showed comparable results. The wait-and-see strategy was ineffective for the management of chronic recalcitrant Achilles tendinopathy.
Rompe 2009 Germany [54]	RCT	Achilles	N= 68 % female 55.9 Age 49.7 (9.9) Symptoms 14.5 (6.0) Training status Other	1	(Resistance)	The likelihood of recovery after 4 months was higher after a combined approach of both eccentric loading and shock-wave therapy compared to eccentric loading alone.
Rompe 2009 Germany [55]	RCT	Gluteal (including GTPS)	N= 68 % female 55.9 Age 49.7 (9.9) Symptoms 14.5 (6) Training status Other	1	(Resistance)	Both corticosteroid injection and home training were significantly less successful than was shock wave therapy at 4-month follow-up. Corticosteroid injection was significantly less successful than was home training or shock wave therapy at 15-month follow-up.
Rompe 2008 Germany [56]	RCT	Achilles	N= 50 % female 60.0 Age 39.8 (11) Symptoms 25.55 (9.45) Training status Other	1	(Resistance)	Eccentric loading as applied in the present study showed inferior results to low-energy shock wave therapy as applied in patients with chronic recalcitrant tendinopathy of the insertion of the Achilles tendon at four months follow-up.
Roos 2004 Sweden [57]	RCT	Achilles	N= 44 % female 52.3 Age 45 (26-60)** Symptoms 5.5 (1-180)*	1	(Resistance)	Eccentric exercises reduce pain and improve function in patients with Achilles tendinopathy.

			Training status Recreational			
Silbernagel 2001 Sweden [58]	RCT	Achilles	N= 47 % female 22.5 Age 44.0 (12.5) Symptoms 30.5 (40.7) Training status Recreational	2	1*(Flexibility, Proprioception, Resistance);1*(Flexibility)	The eccentric overload protocol used in the present study can be recommended for patients with chronic pain from the Achilles tendon. More patients achieved full recovery, improved pain and ROM in the Exp group compared to the control group.
Steunebrink 2013 Netherlands [59]	RCT	Patellar	N= 33 % female 24.2 Age 32.9 (10) Symptoms 11 (8) Training status Recreational	1	(Resistance)	Continuous topical GTN treatment in addition to an eccentric exercise programme does not improve clinical outcome compared to placebo patches and an eccentric exercise programme in patients with chronic patellar tendinopathy.
Stevens 2014 United Kingdom [17]	RCT	Achilles	N= 28 % female 60.7 Age 48.7 (10.8) Symptoms 7.4 (4.0) Training status Other	2	2*(Resistance)	Performing a 6-week do-as-tolerated program of eccentric heel-drop exercises compared to the recommended 180 repetitions per day, did not lead to lesser improvement for individuals with midportion Achilles tendinopathy, based on VISA-A and VAS scores.
vanArk 2016 Australia [18]	RCT	Patellar	N= 19 % female 6.9 Age 23 (4.7) Symptoms 35.8 (33.8) Training status Recreational	2	2*(Resistance)	This study found favourable results for athletes with patellar tendinopathy without modification of the training. Both isometric and isotonic exercise programs reduced pain and improve function in athletes with patellar tendinopathy during a season.
Vuvan 2019 Australia [60]	RCT	Lateral elbow/tennis elbow	N= 39 % female 28 Age 48.5 (9) Symptoms 4 (NR) Training status Other	2	2*(Flexibility, Resistance)	Unsupervised isometric exercise was effective in improving pain and disability, but not perceived rating of change and pain-free grip strength when compared with wait-and-see at 8 wk. With only one of the three primary outcomes being significantly improved,

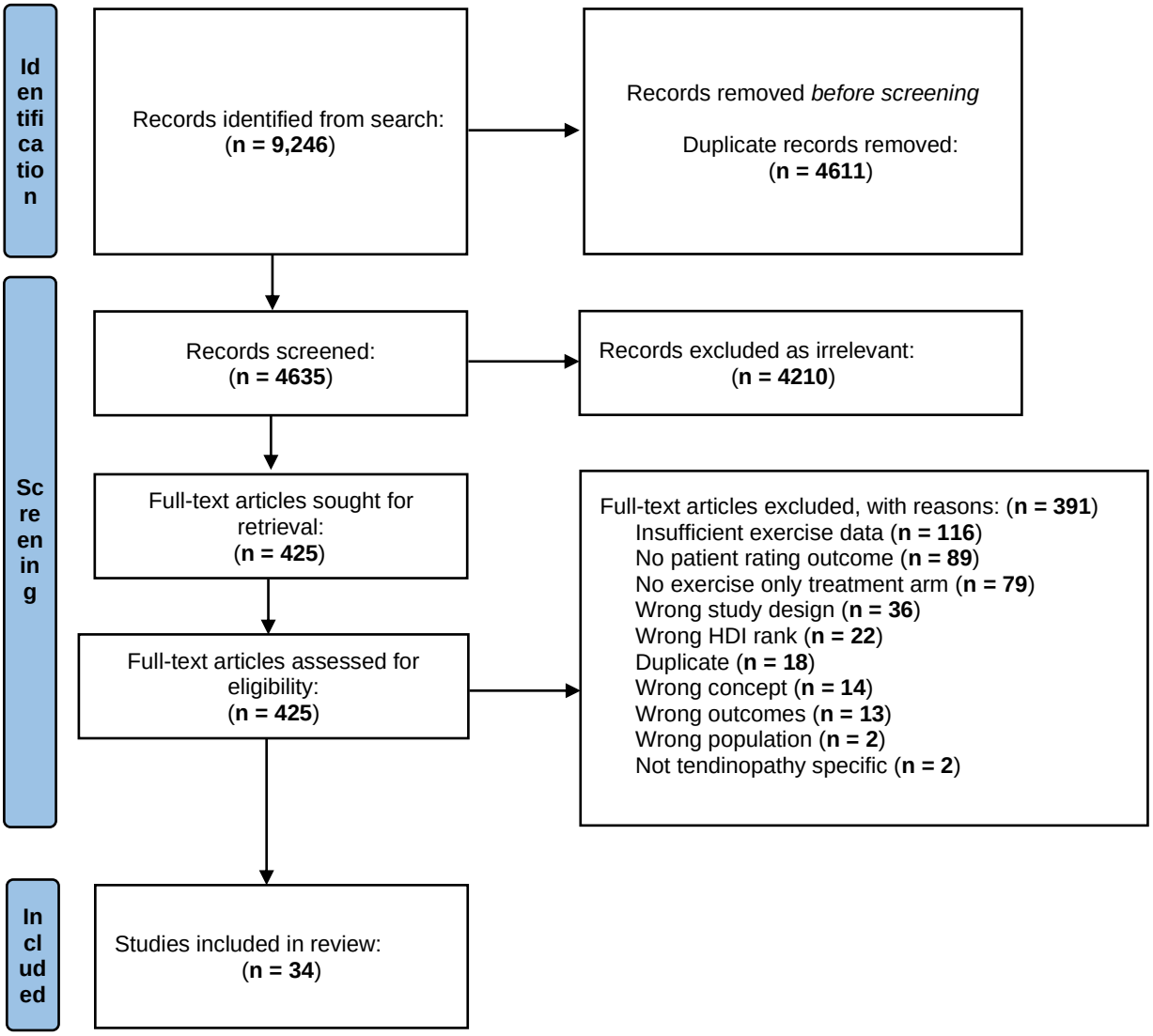
						it is doubtful if isometric exercises can be an efficacious standalone treatment.
Werner 2002 Germany [61]	RCT	Rotator cuff - subacromial impingement	N=20 % female 50 Age 51.75 (NR) Symptoms 27.5 Training status Other	2	1*(Flexibility, Resistance);1*(Proprioception, Resistance)	Strengthening of the centering muscles around the humeral head lead to positive outcomes for subacromial impingement. Self-training after instruction showed no difference to physiotherapist-supervised exercises.
Yelland 2011 Australia [62]	RCT	Achilles	N= 43 % female NR Age 46.7 (NR) Symptoms 17 (NR) Training status Other	1	(Resistance)	Prolotherapy and particularly eccentric loading exercises combined with prolotherapy gave more rapid improvements in Achilles tendinosis symptoms than eccentric loading exercises alone. Long term VISA-A scores were similar.

RCT = Randomised Controlled Trials; NR = Not Reported; SAIS = Subacromial impingement syndrome; AT = Achilles Tendinopathy; VISA-A = Victorian Institute of Sport Assessment-Achilles; VAS = Visual Analog Scale; GTN = ; ROM = Range of Motion; SAP = Subacromial Pain Syndrome; MWM = Mobilization with Movement; ISO = Isometric; EE = Eccentric Exercise; SWE = Shear Wave Elastography

Table 2. Tendinopathy locations and associated dominant exercise therapy classes and treatments.

Tendinopathy type	Dominant resistance therapy class and treatment	Number (%) of treatment arms
Achilles	Resistance: Eccentric only	14 (74%)
	Resistance: Concentric and eccentric	3 (16%)
	Resistance: Isometric	1 (5%)
	Flexibility: Static stretching	1 (5%)
RCRSP	Proprioception: Movement pattern retraining	6 (35%)
	Resistance: Concentric and eccentric	6 (35%)
	Flexibility: Dynamic stretching	2 (12%)
	Resistance: Eccentric only	1 (6%)
	Resistance: Isometric	1 (6%)
	Proprioception: Joint position sense	1 (6%)
Patellar	Resistance: Eccentric only	3 (38%)
	Resistance: Isometric	2 (25%)
	Resistance: Concentric only	2 (25%)
	Resistance: Concentric and eccentric	1 (12%)
Lateral elbow	Resistance: Isometric	1 (33%)
	Flexibility: Dynamic stretching	1 (33%)
	Flexibility: Static stretching	1 (33%)
Gluteal	Resistance: Concentric and eccentric	1 (100%)

Figure 1: Flow chart of study selection.

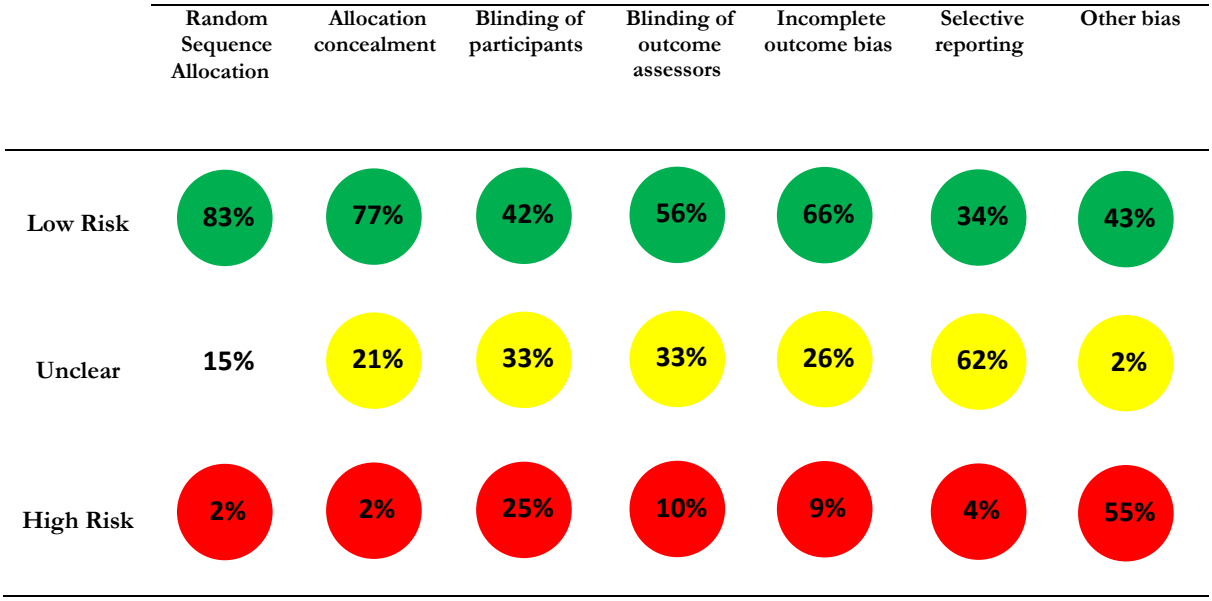


Confidence in cumulative evidence

RoB for individual studies are presented in the supplementary files: SF-6, with a summary across all treatment arms presented in Figure 2. RoB was highest for "other bias" (55% high Rob) followed by blinding of participants and outcome assessors (25% and 10% high RoB, respectively). Reporting quality was also identified as a potential limitation with high percentages of unclear risk of bias identified for selective reporting (62%unclear RoB) and blinding (participants: 33% unclear RoB; outcome assessors: 33% high RoB). Generally, the RoB due to randomisation, allocation concealment, and incomplete outcomes were low. Strength of evidence assessment across the different meta-analysis models are presented in supplementary files: SF-7.

In general, strength of evidence assessments were low to moderate due to risk of bias and inconsistency. There were few occurrences of small study-effects skewing effect size estimates and imprecision in estimates.

Figure 2: Risk of bias assessment with percentages of low-, unclear- and high-risk evaluations expressed relative to the number of treatment arms.

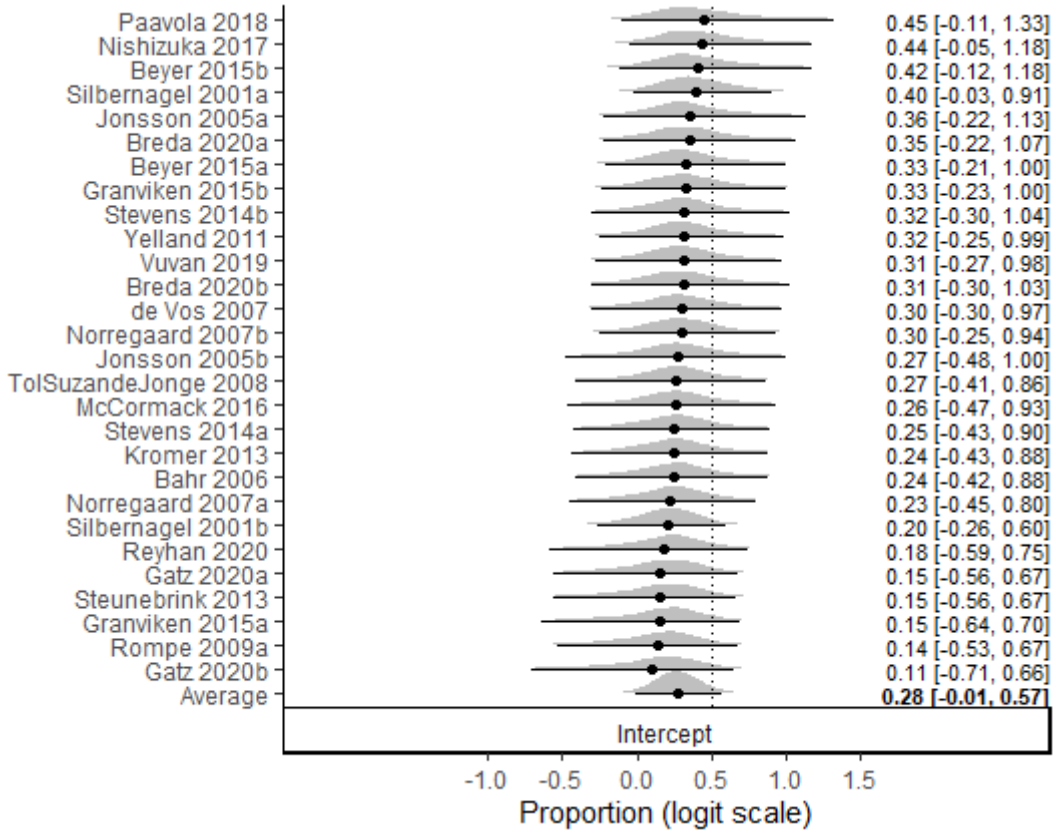


Patient Rating Outcomes

Across the 110 outcomes extracted, 65 were from binary outcomes measured post-intervention (28 treatment arms), 36 were from continuous or Likert scale data measured post-intervention (17 treatment arms), and 9 were from continuous scales conduced pre- and post-intervention (6 treatment arms). Of the 65 binary outcomes, 26 consisted of counts of patient satisfaction measurements dichotomised as satisfied or not satisfied with treatment. The breakdown of the data across tendinopathy locations included 9 outcomes for the Achilles, 8 outcomes for the patellar, 4 outcomes for lateral elbow, and 5 outcomes for RCRSP. The remaining 39 binary outcomes consisted of GROC scales of recovery (17 outcomes), symptom status (20 outcomes), and global impression of change (2 outcomes). These commonly took the form of Likert scores that were dichotomised at certain cut-offs to obtain groups of responders (completely recovered or much improved) and non-responders (unchanged or slightly improved). For the GROC scales, the breakdown of the data across tendinopathy locations included 32 outcomes for

Achilles, 3 outcomes for the lateral elbow, 3 outcome for gluteal tendinopathy, and 1 outcome for RCRSP. Meta-analysis of the binary outcomes to estimate the pooled proportion of positive response was $ES_{PROP_{0.5}}$ = 0.57 [95%CrI: 0.49 to 0.64]; $\tau_{PROP_{0.5}}$= 0.56 [75%CrI: 0.51 to 0.62]; $ICC_{PROP_{0.5}}$=0.07 [75%CrI: 0.01 to 0.24]; Moderate certainty (Figure 3). Moderator analysis of assessment duration (short: 23 outcomes; medium: 40 outcomes) identified evidence of higher proportion of positive response for outcomes assessed over a medium duration ($ES_{PROP:Short_{0.5}}$ = 0.47 [95%CrI: 0.34 to 0.61]; Moderate certainty vs. $ES_{PROP:Medium_{0.5}}$ = 0.61 [95%CrI: 0.51 to 0.69]; Low certainty; p(Medium>Short)=0.985), but limited evidence of a difference between region (upper: 13 outcomes; lower: 52 outcomes) of the tendinopathy ($ES_{PROP:Upper_{0.5}}$= 0.62 [95%CrI: 0.36 to 0.84]; Low certainty vs. $ES_{PROP:Lower_{0.5}}$= 0.55 [95%CrI: 0.48 to 0.63]; Low certainty; p(Upper>Lower)=0.761). A sub-analysis of binary outcomes restricted to tools measuring patient satisfaction was conducted. The analysis comprised 26 outcomes from 17 treatment arms and estimated that the pooled proportion of positive responses was $ES_{PROP:Satisfaction_{0.5}}$ = 0.63 [95%CrI: 0.53 to 0.73]]; $\tau_{PROP:Satisfaction_{0.5}}$= 0.59 [75%CrI: 0.52 to 0.67]; $ICC_{PROP:Satisfaction_{0.5}}$=0.16 [75%CrI: 0.01 to 0.49]; High certainty.

Figure 3: Bayesian forest plot of binary post-intervention outcomes quantifying overall proportion of positive response. Analysis conducted on the logit scale.

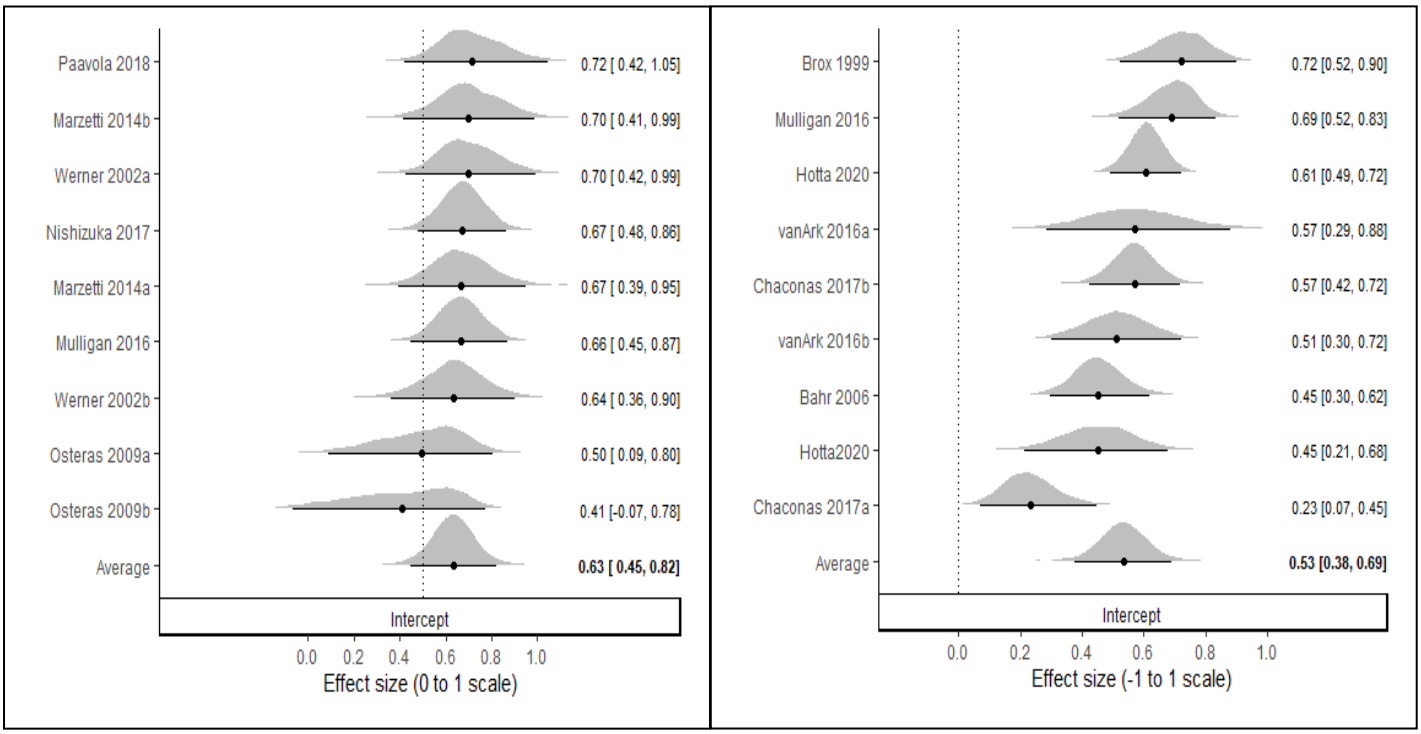


Distributions represent "shrunken estimates" based on all relevant effect sizes, the random effects model fitted, and borrowing of information across studies to reduce uncertainty. Black circles and connected intervals represent the median value and 95% credible intervals for the shrunken estimates. Vertical line at 0 represents proportion of 0.5 on the standard scale.

A total of 36 outcomes measured post-intervention on various measurement scales were obtained from 17 treatment arms quantifying patient satisfaction and perceptions of condition and recovery. Fourteen outcomes (9 treatment arms) were obtained from tools with positive only scales each quantifying patient satisfaction. Additionally, 22 outcomes (9 treatment arms) each measuring patients' perception of change were obtained using tools with zero as a neutral point and values below and above this point representing negative and positive changes, respectively. Expressed as a proportion of the maximum score, the pooled estimate of the positive only scales measuring patient satisfaction was $ES_{0:1_{0.5}}$ = 0.63 [95%CrI: 0.45 to 0.82]; $\tau_{0:1_{0.5}}$= 0.16 [75%CrI: 0.04 to 0.32]; $ICC_{0:1_{0.5}}$ =0.65 [75%CrI: 0.23 to 0.98]; Moderate certainty (Figure 4). Similarly, the pooled estimate of symmetric scales with a neutral point measuring patients' perception of change was $ES_{-1:1_{0.5}}$ = 0.53 [95%CrI: 0.38 to 0.69]; $\tau_{-1:1_{0.5}}$= 0.19 [75%CrI: 0.13 to 0.29]; $ICC_{-1:1_{0.5}}$ =0.24 [75%CrI: 0.10 to 0.53]; Higher certainty (Figure 4). There were insufficient data to conduct moderator analyses across both outcome types. Finally, a total of 9 outcomes from 6

treatment arms quantified patients perception of change based on differences in pre- to post-intervention values measuring tendinopathy symptoms. The pooled estimate of the standardised mean difference was $ES_{Pre_{0.5}}$ = 1.7 [95%CrI: 0.54 to 2.8]; $\tau_{Pre_{0.5}}$ = 0.83 [75%CrI: 0.25 to 1.6]; $ICC_{Pre_{0.5}}$ =0.23 [75%CrI: 0.01 to 0.89]; Low certainty (Figure 5).

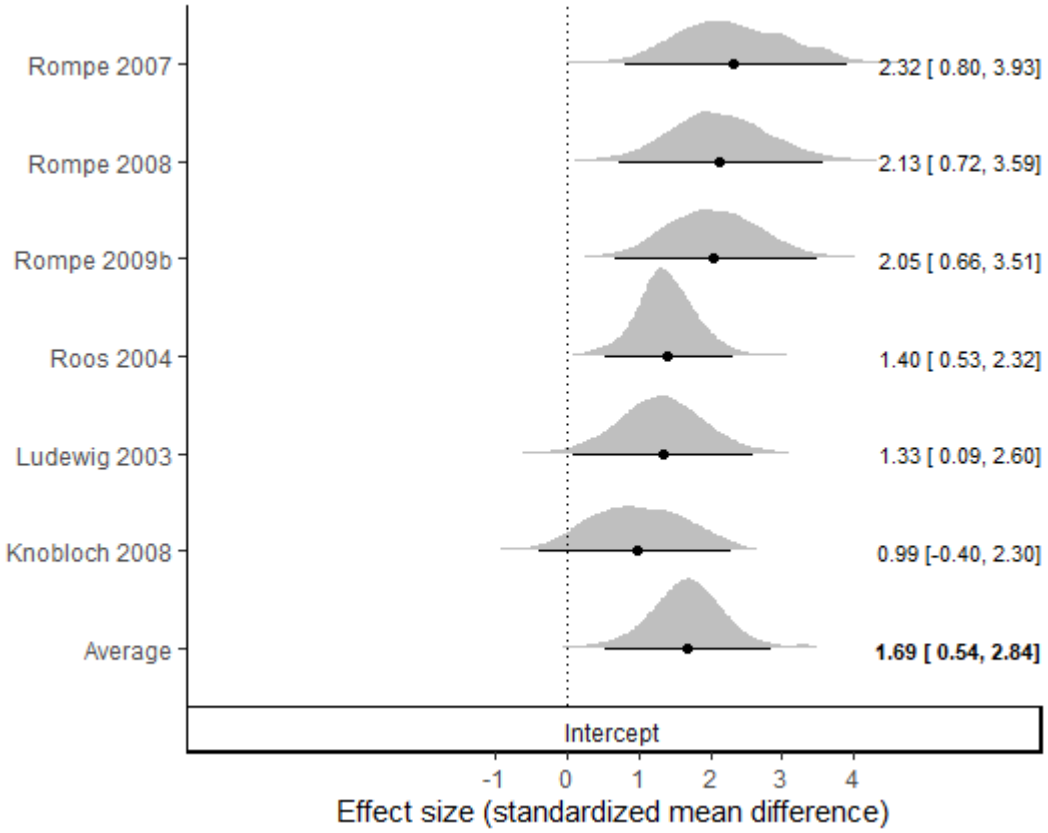
Figure 4: Bayesian forest plot of post-intervention patient satisfaction outcomes standardised on a zero to one scale (Left) and perception of change outcomes standardised on minus one to one



scale (Right).

Distributions represent "shrunken estimates" based on all relevant effect sizes, the random effects model fitted, and borrowing of information across studies to reduce uncertainty. Black circles and connected intervals represent the median value and 95% credible intervals for the shrunken estimates. Vertical line at 0.5 (left) or 0 (right) represents a response half-way up the given scale.

Figure 5: Bayesian forest plot of pre- to post-intervention standardized mean difference effect sizes of patient perception of change.



Distributions represent "shrunken estimates" based on all relevant effect sizes, the random effects model fitted, and borrowing of information across studies to reduce uncertainty. Black circles and connected intervals represent the median value and 95% credible intervals for the shrunken estimates. Vertical line at 0 represents no change pre- to post-intervention.

Discussion

The purpose of this systematic review and meta-analysis was to synthesise research findings investigating patient rating of overall condition measures including patient satisfaction and perceptions of change following exercise therapy for the management of tendinopathy. Data were collected from interventions investigating management of the five most common tendinopathies and representative exercise therapies comprising primarily resistance training, with proprioceptive exercise also popular for the management of RCRSP. A range of outcomes and measurement practices were identified across the studies. However, quantitative synthesis through meta-analysis identified relatively consistent findings, with patient satisfaction and perception of change estimated to range between moderate and high. Binary evaluation of patient satisfaction (satisfied or not-satisfied) indicted that between half and three-quarters of patients were likely to report being satisfied ($\mathbf{ES}_{\mathbf{PROP:Satisfaction}_{0.5}}$ = 0.63 [95%CrI: 0.53 to 0.73]. Similar estimates were obtained for patient satisfaction measured on a 0 to 1 scale ($\mathbf{ES}_{0:1_{0.5}}$0.63 [95%CrI: 0.45 to 0.82]) and patients perception of change ($\mathbf{ES}_{-1:1_{0.5}}$ = 0.53 [95%CrI: 0.38 to 0.69]), after taking into account that an estimate of 0.5 on the positive axis reflects a value of 0.75 across the scale overall. Finally, standardised mean differences estimated that pre- to post-intervention change in patients' evaluation of their condition was likely to be at least moderate and potentially very large.

Evidence was also obtained to indicate that satisfaction and perceptions of change may be increased as follow-up duration increases from short to medium time frames (up to 12 months). This meta-analysis result reflects the findings from individual studies including Nishizuka et al. (2016) [48], that evaluated a 6 month exercise intervention for lateral epicondylitis with a 12-month follow-up period. Nishizuka et al. (2016)[48], reported progressive improvement in patient satisfaction over assessment durations of 1,3, 6 and 12 months following baseline [48]. The authors acknowledged that the study comprised a longer treatment period and a high proportion of patients with acute symptoms (symptom duration of less than 8 weeks), suggesting that this combination may provide superior results. Collectively, our systematic review and meta-analysis indicate that engaging in standard exercise therapies for the most common tendinopathies is likely to lead to appropriate levels of satisfaction and perceptions of improved change. The inclusion of different outcome measures may explain some heterogeneity but overall, the findings for satisfaction are relatively consistent across different outcome measures within tight confidence intervals and fairly small margins of error. Overall, the dominant treatment for all

tendinopathies is largely resistance-focused, with RCRSP demonstrating a greater range with the inclusion of more proprioceptive and flexibility exercises.

The present analysis represents the largest quantitative synthesis of exercise therapy interventions for the management of tendinopathies to date. However, only 34 of the 124 studies including exercise only therapies reported outcomes within the patient rating of overall condition domain. The majority of the data pertained to resistance exercise (75%) across a range of tendinopathies; with Achilles (41%) being the largest contributor followed by RCRSP (32%), patellar (15%), elbow (9%) and gluteal (3%). Positive overall response included proportion of individuals who are satisfied and positive responders according to GROC data. The GROC allows for individuals to indicate the direction of change (i.e., improvement or deterioration) and the degree of change (i.e., small to large) using a Likert scale anchored by negative to positive affect scores (e.g. −7 "a very great deal worse", to 0 "no change", to +7 "a very great deal better"). The GROC was proposed as a means to indirectly establish a minimum clinically important difference, which may be used as a threshold that patients must surpass to qualify as responders [63]. When normalised to lie on a -1 to 1 scale, the estimated pooled mean of +0.55 in the present study can be interpreted as a 75% effect size (considering its shift from the negative affect to the mid-point of the positive scale) which qualitatively would be considered moderate to high.

Across the tendinopathy literature there is considerable variability in GROC scales, with the most common including the Patient Global Impression of Change (PGIC) scale, [64] Global Scale, [65] and Global Perceived Effect [66]scale. There is also variation in the scale design including the range of scores and the qualitative terms used as anchor points. In the present review, it was identified that some GROC scales are more reflective of patients' satisfaction with overall treatment or recovery, while others are reflective of improvement or deterioration in symptoms. When extracting data for the current review it was identified that studies frequently described their GROC scales with sufficient detail to enable full reproducibility. Such limitations in reporting hinder efforts to compare efficacy of different interventions and ultimately, establish clearer treatment hierarchies.

In a recent large meta-analysis of exercise therapies for the management of tendinopathy, it was identified that the majority of interventions lasted 12 weeks or less with patient rating of overall

condition measures [5] obtained at an average of 27 weeks to follow up. The potential for recall bias must therefore be considered. It has been argued that GROC has better validity with shorter recall periods and therefore, for chronic conditions like tendinopathy, serial measures may be preferable to single self-reported retrospective change when transition times stretch over months [11, 67, 68]. In contrast, retrospective measures more readily capture the patient's overall experience of a change in symptom or health state over time, which has greater relevance to the patient. Taking the patient's views into account is associated with greater satisfaction with care, better treatment adherence, and ensures a continuous relationship with healthcare [69, 70]. These are sufficient reasons for including the patient's retrospective assessment in studies. Measurement of complex subjective constructs such as treatment satisfaction or recovery is an inherently difficult process. Recognising that no singular instrument completely captures this construct, [6] it is important to then consider data from any outcome measure not in isolation but within the wider clinical context.

Clinical and research implications:

Although results suggest that patients are generally satisfied and report positive perceptions of change with exercise therapy as a treatment for tendinopathy (~ 50 to 75%), it is recommended that substantively more focus on these outcome domains be applied in future. The current and recent reviews demonstrate that patient rating of overall condition is one of the least measured outcome domains in studies investigating exercise therapy for management of tendinopathies. In addition, the domain is among the most complex, resulting in a wide variety of tools and scales, whilst also suffering from issues related to poor quality reporting that limits future evidence syntheses and clinical interpretation. We propose that further research investigating satisfaction and GROC is required to obtain more consistent tools and ultimately, progress to exploring patient and exercise related moderating factors that can improve person-centred care.

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Conflicts of interest

The authors declare no conflict of interest.

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List of Supplementary files

SF-1: PRISMA 2020 statement: guideline for reporting systematic reviews

SF-2: Definitions for each therapy class

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Supplementary file 1: PRISMA 2020 statement- guideline for reporting systematic reviews

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	3-4
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	4
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	5-6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	6-7
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	6-7
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	7 (+SF2, 3 & 4)
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	6
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	5-6
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	7-8
Effect	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	8-9

Section and Topic	Item #	Checklist item	Location where item is reported
measures			
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	7-9
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	8-9
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	8-9
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	8-9
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	9
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	8-9
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	7-8
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	10
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	20
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	11 (+SF5)
Study characteristics	17	Cite each included study and present its characteristics.	11-18
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	20-21 (+SF6)
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	21-25
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	21-22
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the	21-25

Section and Topic	Item #	Checklist item	Location where item is reported
		effect.	
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	19, 21-25
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	24-25
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	20-21 (+SF6)
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	21-22 (+SF7)
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	26-28
	23b	Discuss any limitations of the evidence included in the review.	27
	23c	Discuss any limitations of the review processes used.	27-28
	23d	Discuss implications of the results for practice, policy, and future research.	28
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	5
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	5 (+ref list)
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	NA
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	28
Competing interests	26	Declare any competing interests of review authors.	29
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	5-7 (+SF2,4)

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: http://www.prisma-statement.org/

Supplementary file 2: Definitions for each therapy class

Therapy Class	Definition	Therapy Treatment	Definition
Resistance	Exercise designed primarily to increase strength of muscles by causing them to produce substantive force against an applied resistance which can take several forms including the mass of the body or its segments, isoinertial resistance, elastic resistance, or strength training equipment such as isokinetic devices. In tendinopathy, the stimulus may also be intended to provoke tendon remodelling, reduce pain and improve function.	Concentric Only	Includes movements where force produced overcomes the resistance such that muscle shortening occurs.
		Eccentric Only	Includes movements where force produced is less than the resistance such that controlled muscle lengthening occurs.
		Concentric and eccentric	Includes movements where force produced exceeds the resistance in one phase and is less than the resistance in another such that controlled muscle lengthening and shortening occurs.
		Isokinetic	Uses specialised exercise equipment such that the resistance is adjusted in real-time to ensure joint angular velocity remains constant.

		Isometric	Includes muscular actions against a resistance such that joint angle remains constant.
Therapy Class	**Definition**	**Therapy Treatment**	**Definition**
Flexibility	Exercise designed to increase joint range of motion and extensibility of muscles and/or associated tissues. Also referred to as range-of-motion exercises or stretching.	Static	Joint range of motion actions where the movement is held at or near the end range of motion.
		Dynamic	Joint range of motion actions where the movement is performed continuously into and out of the end range of motion.
		PNF	Proprioceptive neuromuscular facilitation is a technique combining passive stretching and isometric action to achieve maximum range of motion.
		Ballistic	Uses the momentum of a moving body or a limb to increase joint range of motion, bouncing into (or out of) a stretched position.

Proprioception	Exercise designed to enhance the sensation of the joint relative to body position and movement, sense of force, and to encourage muscular stabilisation of the joint in the absence of external stabilising devices e.g., ankle brace.	Sense of joint position and force	Exercise aimed at enhancing the ability to perceive joint position and force with minimal external cues.
		Balance	Includes exercise that require the person to keep or return the displacement of centre of gravity over the base of support through various environmental conditions and changes in body position.
		Movement pattern retraining	Exercise aimed at re-education of motor control and movement patterns that may involve specific retraining of under- or over-active muscles and alteration of kinematic rotation +- translation timing between body segments. May also be termed motor control or stabilisation.
Therapy Class	**Definition**	**Therapy Treatment**	**Definition**
Plyometric	Exercise where a resistance is overcome by a muscle rapidly stretching then shortening	Plyometric	Exercise where a resistance is overcome by a muscle rapidly stretching then shortening.

Vibration	Exercise where body segments are held stationary or actively displaced as per definitions for other treatment classes whilst applying a rapid oscillating resistance	Vibration	Exercise where body segments are held stationary or actively displaced as per definitions for other treatment classes whilst applying a rapid oscillating resistance

Supplementary file 3: Search terms for each database

Search last updated 19/01/2021

Embase (Ovid)	(exercise OR exercise*.mp OR "isometric exercise" OR kinesiotherapy OR Eccentric.mp OR concentric.mp OR "heavy slow resistance".mp OR "isokinetic exercise" OR plyometrics OR "muscle stretching" OR "muscle training") AND (tendinitis OR Tendinopathy.mp OR "tendon injury" OR "shoulder injury" OR "rotator cuff injury" OR "tennis elbow" OR tendin.mp OR tendon.mp OR bursitis OR "shoulder impingement syndrome" OR 2posterior tibial tendon dysfunction" OR "Greater trochanteric pain syndrome".mp)
CINAHL (EBSCO-host)	(MH Exercise OR AB exercise* OR MH "muscle strengthening" OR MH "rehabilitation" OR MH "eccentric contraction" OR TX "heavy slow resistance exercis*" OR AB eccentric OR AB concentric OR AB isokinetic OR MH "therapeutic exercise") AND (MH tendinopathy OR MH "arm injuries" OR "tendon injuries" OR MH tendons OR TX tendin* OR TX tendon* OR AB bursitis OR MH Bursitis OR MH "Posterior tibial tendon dysfunction" OR MH "shoulder impingement syndrome" OR AB "Greater trochanteric pain syndrome")
Medline (EBSCO-host)	(MH exercise OR AB exercise* OR MH "isometric contraction" OR MH rehabilitation OR TX eccentric OR TX concentric OR TX "heavy slow resistance" OR TX isokinetic) AND (MH tendinopathy OR MH "shoulder injuries" OR MH tendons OR MH "tendon injuries OR TX tendin* OR tendon* OR MH bursitis OR AB bursitis OR MH "posterior tibial tendon dysfunction" OR MH "shoulder impingement syndrome" OR AB "greater trochanteric pain syndrome")
SPORTDiscus (EBSCO-host)	(DE exercise OR DE "exercise therapy" OR AB exercise* OR TX eccentric OR TX concentric OR TX "heavy slow resistance" OR DE "isokinetic exercise" OR DE plyometrics OR DE "strength training" OR DE "stretch (physiology)" OR DE "isometric exercise" OR DE rehabilitation) AND (DE tendinitis OR DE tendinosis OR AB tendinopathy OR DE "tendon injuries" OR "shoulder injuries" OR DE "tennis elbow" OR AB tendin* OR AB tendon* OR DE bursitis OR AB "shoulder impingement syndrome" OR AB "posterior tibial tendon dysfunction" OR AB "greater trochanteric pain syndrome")
Amed (EBSCO-host)	(ZU exercise OR ZU "exercise therapy" OR AB exercise OR ZU "muscle stretching exercises" OR ZU "isometric contraction" OR ZU rehabilitation OR TZ eccentric OR TZ concentric OR TX "heavy slow resistance" OR TX isokinetic OR AB plyometric) AND (ZU tendinopathy OR ZU "tendon injuries" OR ZU tendons OR ZU "shoulder injuries" OR ZU "tennis elbow" OR TX tendin* OR TX tendon* OR ZU bursitis OR AB bursitis OR ZU "shoulder impingement syndrome" OR ZU "posterior tibial tendon dysfunction" OR AB "greater trochanteric pain syndrome")

Open Grey	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
Mednar	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
New York Academy Grey Literature Report	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
EThOS	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
Google Scholar	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
JBI Evidence Synthesis	Tendinopathy AND exercise
Cochrane Library	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
PEDro	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
Epistemonikos	(tendinopathy OR tendon* OR tendin*) AND exercise
CORE	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
Clinicialtrials.gov	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise

ISRCTN	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
EU CTR	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise
ANZCTR	Tendinopathy AND exercise
	Tendin* AND exercise
	Tendon AND exercise

ISRCTN – the Research Registry; EU CTN – European Clinical Trials Registry; ANZCTR – Australia and New Zealand Clinical Trials Registry

Supplementary file 4: Data Codebook

Column		Heading	Description
Study Details	A	Initials Reviewer	Identification of individual extracting information
	B	Covidence Identifier	Reference number for Covidence
	C	Author	First author surname *et al.,*
	D	Year	Year of publication
	E	Title	Study title
	F	Country	Country where study was conducted
	G	Journal	Journal name
	H	Aims/Purpose	Study aims/purpose
	I	Tendinopathy type	1=Achilles; 2= Lateral elbow (tennis); 3 = Patellar; 4 = Rotator cuff (SI)
	J	Study Design	RCT = 1; Quasi-experimental = 2
	K	Age Mean	Mean age of study sample as a whole
	L	Age SD	Standard deviation age of study sample as a whole
	M	Baseline Total N	Total sample across all interventions measured at baseline
	N	Training Status Description	Brief description of training status of study sample as a whole
	O	Training Status Code	1 = Performance; 2 = Sporting; 3 = Other
	P	Sex	Percentage female of study sample as a whole
	Q	BMI Mean	Mean BMI of study sample as a whole
	R	BMI SD	Standard deviation of BMI of study sample as a whole
	S	Symptom Severity Mean	Mean severity measure at baseline of study sample as a whole
	T	Symptom Severity SD	Standard deviation of severity measure at baseline of study sample as a whole
	U	Symptom Duration Mean (Months)	Mean symptom duration reported in months
	V	Symptom Duration SD (Months)	Standard deviation symptom duration reported in months
	W	Population Comments	Any additional information relevant to the participants investigated including diagnostic criteria
Outcomes	X	Outcome Category	1 = Disability; 2 = Pain on loading/activity; 3 = Pain over a specified time; 4 = Pain without further specification; 5 = Physical function capacity
	Y	Outcome Tool	Description of outcome tool
	Z	Reflection	1 = Increase in outcome indicates positive treatment; -1 = Decrease in outcome indicates positive treatment
	AA	Measurement Time (Weeks)	Time of measurement in weeks
Intervention	AB	Dominant Treatment Class	**Only one dominant theme to be selected** 1 = Resistance; 2 = Plyometric; 3 = Vibration; 4 = Flexibility; 5 = Movement pattern retraining
	AC	Total Treatment class	**Multiple themes to be selected as required** 1 = Resistance; 2 = Plyometric; 3 = Vibration; 4 = Flexibility; 5 = Movement pattern retraining
	AD	Intervention N	Intervention sample size at specified time
	AE	Intervention Total Duration	Total duration of exercise intervention in weeks
	AF	Intervention Adherence %	Reporting of adherence to exercise (reported as a percentage) if applicable
	AG	Intervention Location	Location exercise was performed 1 = Home; 2 = Clinic; 3 = Fitness facility; 4 = NR; 5 = NA
	AH	Intervention Volume	Numerical value describing volume
	AI	Intervention Volume Category	1 = Duration of session (mins); 2 = sets * repetitions; 3 = number of repetitions; 4 = number of sets
	AJ	Intervention Volume Comments	Any additional information relevant.
	AK	Intervention Intensity	Numerical value describing intensity
	AL	Intervention Intensity Category	1 = Absolute; 2 = Relative
	AM	Intervention Frequency	Number of sessions per week. Where there is progression, average value is to

			be entered.
	AN	Intervention Frequency Comments	Any additional information relevant.
	AO	Intervention Progression	**Multiple themes to be selected as required** 1 = No progression; 2 = NR; 3 = Progression volume; 4 = Progression intensity; 5 = Progression frequency; 6 = Progression specificity; 7 = Progression capacity; 8 = Other
	AP	Intervention Progression Comments	Any additional information relevant.
Control	AQ	Control Comparator	1 = Placebo; 2 = No treatment
	AR	Control Comparator Comments	Any additional information relevant.
Data	AS	Intervention Baseline Mean	Baseline mean for exercise therapy
	AT	Intervention Baseline SD	Baseline standard deviation for exercise therapy
	AU	Intervention Measurement Mean	Mean of outcome for exercise therapy at stated time point
	AV	Intervention Measurement SD	Standard deviation of outcome for exercise therapy at stated time point
	AW	Control Baseline Mean	Baseline mean for control
	AX	Control Baseline SD	Baseline standard deviation for control
	AY	Control Measurement Mean	Mean of outcome for control at stated time point
	AZ	Control Measurement SD	Standard deviation of outcome for control at stated time point
	BA	Measurement Comments	State if a different value has been entered for means (e.g. median), a different value for standard deviations (e.g. standard error, IQR, percentiles, distance from mean to upper bound). Provide the relevant statistic (width of CI's, width of percentiles). Also state if data has been extracted by digitization

*** Outcome Specific**

Supplementary file 5: List of excluded studies

Citation	Exclusion reason
Abat F, Diesel WJ, Gelber PE, Polidori F, Monllau JC, Sanchez-Ibañez JM. Effectiveness of the Intratissue Percutaneous Electrolysis (EPI®) technique and isoinertial eccentric exercise in the treatment of patellar tendinopathy at two years follow-up. *MLTJ*. 2014;4:188-193.	Wrong study design
Abat F, Gelber PE, Polidori F, *et al.* 1 Clinical Results After EPI ® and Eccentric Exercise in Patellar Tendinopathy at 10 Years Follow-Up. *Br J Sports Med* 2014;48:A1. https://bjsm.bmj.com/lookup/doi/10.1136/bjsports-2014-094114.1 (accessed Feb 2021).	Insufficient exercise data
Abat F, Gelber PE, Polidori F, Monllau JC, Sanchez-Ibañez JM. Clinical results after ultrasound-guided intratissue percutaneous electrolysis (EPI®) and eccentric exercise in the treatment of patellar tendinopathy. *Knee Surg Sports Traumatol Arthrosc.* 2015;23:1046-52.	Wrong study design
Abat F, Sánchez-Sánchez JL, Martín-Nogueras AM, *et al.* Randomized controlled trial comparing the effectiveness of the ultrasound-guided galvanic electrolysis technique (USGET) versus conventional electro-physiotherapeutic treatment on patellar tendinopathy. *J Exp Orthop* 2016;3:34.	No exercise only treatment arm
Aceituno-Gómez J, Avendaño-Coy J, Gómez-Soriano J, *et al.* Efficacy of high-intensity laser therapy in subacromial impingement syndrome: a three-month follow-up controlled clinical trial. *Clin Rehabil* 2019;33:894–903.	No patient rating outcome
Akgün K, Birtane M, Akarirmak U. Is local subacromial corticosteroid injection beneficial in subacromial impingement syndrome? *Clin Rheumatol* 2004;23:496–500.	Insufficient exercise data
Akhtar M, Karimi H, Gilani SA, *et al.* Effects of routine physiotherapy with and without neuromobilization in the management of internal shoulder impingement syndrome: A randomized controlled trial. *Pak J Med Sci* 2020;36:596-602	Wrong HDI rank
Akkaya N, Akkaya S, Gungor HR, *et al.* Effects of weighted and un-weighted pendulum exercises on ultrasonographic acromiohumeral distance in patients with subacromial impingement syndrome. *J Back Musculoskelet Rehabil* 2017;30:221–8.	No patient rating outcome
Akkurt HE, Kocabas H, Yilmaz H, *et al.* Comparison of an epicondylitis bandage with a wrist orthosis in patients with lateral epicondylitis. *Prosthet Orthot Int* 2018;42:599–605.	Insufficient exercise data
Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed electromagnetic field in conservative treatment of subacromial impingement syndrome. *Clin Rheumatol* 2007;26:1234–9.	No exercise only treatment arm
Akyol Y, Ulus Y, Durmus D, *et al.* Effectiveness of microwave diathermy on pain, functional capacity, muscle strength, quality of life, and depression in patients with subacromial impingement syndrome: a randomized placebo-controlled clinical study. *Rheumatol Int* 2012;32:3007–16.	No exercise only treatment arm
Al Dajah SB. Soft tissue mobilization and PNF improve range of motion and minimize pain level in shoulder impingement. *J Phys Ther Sci* 2014;26:1803–5.	Insufficient exercise data
Alfredson H, Lorentzon R. Intratendinous glutamate levels and eccentric training in chronic Achilles tendinosis: a prospective study using microdialysis technique. *Knee Surg Sports Traumatol Arthrosc* 2003;11(3):196-199.	Wrong study design
Alfredson H, Nordström P, Pietilä T, *et al.* Bone mass in the calcaneus after heavy loaded eccentric calf-muscle training in recreational athletes with chronic achilles tendinosis. *Calcif Tissue Int* 1999;64:450–5.	No patient rating outcome
Alfredson H, Öhberg L. Sclerosing injections to areas of neo-vascularisation reduce pain in chronic Achilles tendinopathy: a double-blind randomised controlled trial. *Knee Surg Sports Traumatol Arthros*c 2005; 13:338-44.	Wrong concept
Alfredson H, Pietilä T, Jonsson P, *et al.* Heavy-load eccentric calf muscle training for the treatment of chronic Achilles tendinosis. *Am J Sports Med* 1998;26:360–6.	No patient rating outcome
Apostolos S. The influence of low level laser and pyrometric exercises in the treatment of patients with tennis elbow. a pilot study. 2004. http://cev.org.br/biblioteca/the-	Insufficient exercise data

influence-of-low-level-laser-and-plyometric-exercises-in-the-treatment-of-patients-with-tennis-elbow-pilot-study/ (accessed Feb 2021)	
Arias-Buría JL, Truyols-Domínguez S, Valero-Alcaide R, *et al.* Ultrasound-Guided Percutaneous Electrolysis and Eccentric Exercises for Subacromial Pain Syndrome: A Randomized Clinical Trial. *Evidence-Based Complement Altern Med* 2015;2015:1–9.	No patient rating outcome
Arias-Buría L. J, Fernández-de-Las-Peñas C, Palacios-Ceña M, *et al.* Exercises and dry needling for subacromial pain syndrome: A randomized parallel-group trial. *J Pain* 2017;18:11–8.	No patient rating outcome
Askling CM, Tengvar M, Tarassova O, *et al.* Acute hamstring injuries in Swedish elite sprinters and jumpers: a prospective randomised controlled clinical trial comparing two rehabilitation protocols. *Br J Sports Med* 2014;48:532–9.	No patient rating outcome
Atya AM. Efficacy of microcurrent electrical stimulation on pain, proprioception accuracy and functional disability in subacromial impingement: RCT. *Indian J Physiother Occup Ther* 2012;6:15-18.	Wrong HDI rank
Aytar A, Baltaci G, Uhl TL, *et al.* The effects of scapular mobilization in patients with subacromial impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial. *J Sport Rehabil* 2015;24:116–29.	Insufficient exercise data
B Buyuksireci DE, Turk AC. Evaluation of the effectiveness of dexamethasone iontophoresis in patients with subacromial impingement syndrome. *Journal of Orthopaedic Science* 2021;26:786-91.	No exercise only treatment arm
Babaei-Ghazani A, Shahrami B, Fallah E, *et al.* Continuous shortwave diathermy with exercise reduces pain and improves function in Lateral Epicondylitis more than sham diathermy: A randomized controlled trial. J *Bodyw Mov Ther* 2020; 1:69-76.	Wrong HDI rank
Bae YH, Lee GC, Shin WS, *et al.* Effect of motor control and strengthening exercises on pain, function, strength and the range of motion of patients with shoulder impingement, syndrome. *J Phys Ther Sci* 2011;23:687–92.	No patient rating outcome
Baeske R, Hall T, Silva MF. The inclusion of mobilisation with movement to a standard exercise programme for patients with rotator cuff related pain: a randomised, placebo-controlled protocol trial. *BMC Musculoskelet Disord* 2020;21:1-10.	Wrong study design
Bağcıer F, Yılmaz N. The impact of extracorporeal shock wave therapy and dry needling combination on the Pain, Grip strength and functionality in patients diagnosed with lateral epicondylitis. *Turk Osteoporoz Derg* 2019;25:65–71.	No exercise only treatment arm
Bal A, Eksioglu E, Gurcay E, *et al.* Low-level laser therapy in subacromial impingement syndrome. *Photomed Laser Surg* 2009;27:31–6.	Insufficient exercise data
Balius R, Álvarez G, Baró F, *et al.* A 3-Arm Randomized Trial for Achilles Tendinopathy: Eccentric Training, Eccentric Training Plus a Dietary Supplement Containing Mucopolysaccharides, or Passive Stretching Plus a Dietary Supplement Containing Mucopolysaccharides. *Curr Ther Res* 2016;78:1–7.	Duplicate
Balius R, Álvarez G, Baró F, *et al.* A 3-Arm Randomized Trial for Achilles Tendinopathy: Eccentric Training, Eccentric Training Plus a Dietary Supplement Containing Mucopolysaccharides, or Passive Stretching Plus a Dietary Supplement Containing Mucopolysaccharides. *Curr Ther Res* 2016;78:1–7.	No patient rating outcome
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Desmeules F, Minville L, Riederer B, *et al.* Acromio-humeral distance variation measured by ultrasonography and its association with the outcome of rehabilitation for shoulder impingement syndrome. *Clin J Sport Med* 2004;14:197-205.	Wrong study design
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Dogan SK, Ay S, Evcik D. The effectiveness of low laser therapy in subacromial impingement syndrome: a randomized placebo controlled double-blind prospective study. *Clinics (Sao Paulo)* 2010;65:1019–22.	No exercise only treatment arm
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Dragoo JL, Wasterlain AS, Braun HJ, *et al.* Platelet-Rich Plasma as a Treatment for Patellar Tendinopathy. *Am J Sports Med* 2014;42:610–8.	Insufficient exercise data
Dupuis F, Barrett E, Dubé MO, *et al.* Cryotherapy or gradual reloading exercises in acute presentations of rotator cuff tendinopathy: a randomised controlled trial. *BMJ*	No patient rating outcome

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Eken Gedik D, Dost Sürücü G, Yildirim A, *et al.* Effectiveness of autologous blood injection in the treatment of lateral epicondylitis: Randomized clinical study. *Duzce Med J* 2016;18:1–7.	No exercise only treatment arm
Ellegaard K, Christensen R, Rosager S, *et al.* Exercise therapy after ultrasound-guided corticosteroid injections in patients with subacromial pain syndrome: a randomized controlled trial. *Arthritis Res Ther* 2016;18:129.	No exercise only treatment arm
Elsodany AM, Alayat MSM, Ali MME, *et al.* Long-Term Effect of Pulsed Nd:YAG Laser in the Treatment of Patients with Rotator Cuff Tendinopathy: A Randomized Controlled Trial. *Photomed Laser Surg* 2018;36:506–13.	Insufficient exercise data
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Entrellardat Tortillol E. Effectiveness of percutaneus needle electrolysis and eccentric exercise in chronic patellar tendinopathy. *Rev Fisioter Invasiva / J Invasive Tech Phys Ther* 2019;02:75.	Insufficient exercise data
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Eslamian F, Shakouri SK, Ghojazadeh M, *et al.* Effects of low-level laser therapy in combination with physiotherapy in the management of rotator cuff tendinitis. *Lasers Med Sci* 2012; 27:951-8.	Wrong HDI rank
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Farfaras S, Sernert N, Hallström E, *et al.* Comparison of open acromioplasty, arthroscopic acromioplasty and physiotherapy in patients with subacromial impingement syndrome: a prospective randomised study. *Knee Surgery, Sport Traumatol Arthrosc* 2016;24:2181–91.	Insufficient exercise data
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Frohm A, Saartok T, Halvorsen K, *et al.* Eccentric treatment for patellar tendinopathy: a prospective randomised short-term pilot study of two rehabilitation protocols. *Br J Sports Med* 2007;41:e7.	Duplicate
Furia JP. Extracorporeal shockwave therapy in the treatment of chronic insertional Achilles tendinopathy: A congress report. Orthopade 2005;34:571-578.	Wrong concept
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Ganderton C, Semciw A, Cook J, *et al.* Gluteal loading versus sham exercises to improve pain and dysfunction in postmenopausal women with greater trochanteric pain	Duplicate

syndrome: a randomized controlled trial. *J Women's Heal* 2018;27:815–29.	
Ganderton C, Semciw A, Cook J, *et al.* Gluteal loading versus sham exercises to improve pain and dysfunction in postmenopausal women with greater trochanteric pain syndrome: a randomized controlled trial. *J Women's Health* 2018;27:815–29.	No patient rating outcome
García I, Lobo C, López E, *et al.* Comparative effectiveness of ultrasonophoresis and iontophoresis in impingement syndrome: a double-blind, randomized, placebo controlled trial. *Clin Rehabil* 2016;30:347–58.	No exercise only treatment arm
Gärdin A, Movin T, Svensson L, *et al.* The long-term clinical and MRI results following eccentric calf muscle training in chronic Achilles tendinosis. *Skeletal Radiol* 2010; 39:435-442.	Wrong outcomes
Gatz M, Betsch M, Tingart M, *et al.* Effect of a 12-week Eccentric and Isometric Training in Achilles Tendinopathy on the Gastrocnemius Muscle: an Ultrasound Shear Wave Elastography Study. *Musles Ligaments Tendons J* 2020; 10:92-99.	Wrong outcomes
Genç E, Duymaz T. Effectiveness of kinesio taping in bicipital tendinitis treatment: A randomized controlled trial. *Ann Clin Anal Med* 2020.	No patient rating outcome
Giombini A, Di Cesare A, Safran MR, *et al.* Short-term Effectiveness of Hyperthermia for Supraspinatus Tendinopathy in Athletes. *Am J Sports Med* 2006;34:1247–53.	Insufficient exercise data
Giray E, Karali-Bingul D, Akyuz G. The Effectiveness of Kinesiotaping, Sham Taping or Exercises Only in Lateral Epicondylitis Treatment: A Randomized Controlled Study. *Pm&r* 2019;11:681–93.	No patient rating outcome
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Gündüz R, Malas FÜ, Borman P, *et al.* Physical therapy, corticosteroid injection, and extracorporeal shock wave treatment in lateral epicondylitis. *Clin Rheumatol* 2012; 1:807-12.	Wrong concept
Gürsel YK, Ulus Y, Bilgiç A, *et al.* Adding ultrasound in the management of soft tissue disorders of the shoulder: a randomized placebo-controlled trial. *Phys Ther* 2004;84:336–43.	No exercise only treatment arm
Haahr JP, Andersen JH. Exercises may be as efficient as subacromial decompression in patients with subacromial stage II impingement: 4-8-years' follow-up in a prospective, randomized study. *Scand J Rheumatol* 2006;35:224–8.	Insufficient exercise data
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Hallgren HCB, Holmgren T, Öberg B, *et al.* A specific exercise strategy reduced the need for surgery in subacromial pain patients. *Br J Sports Med* 2014;48:1431–6.	No patient rating outcome

Hernández Herrero D, Berjillos Donamayor A, de la Corte Rodríguez H, *et al.* Elbow tendinosis treated by several electrotherapy techniques: a prospective randomized study. 2006;4:131–138	Insufficient exercise data
Heron SR, Woby SR, Thompson DP. Comparison of three types of exercise in the treatment of rotator cuff tendinopathy/shoulder impingement syndrome: A randomized controlled trial. *Physiotherapy* 2017;103:167–73.	Duplicate
Heron SR, Woby SR, Thompson DP. Comparison of three types of exercise in the treatment of rotator cuff tendinopathy/shoulder impingement syndrome: A randomized controlled trial. *Physiotherapy* 2017;103:167–73.	No patient rating outcome
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Holden S, Lyng K, Graven-Nielsen T, *et al.* Isometric exercise and pain in Patellar tendinopathy: a randomized crossover trial. *J Sci Med* 2020;1:208-14.	Wrong study design
Holmgren T, Björnsson Hallgren H, Öberg B, *et al.* Effect of specific exercise strategy on need for surgery in patients with subacromial impingement syndrome: randomised controlled study. *BMJ* 2012;344:e787–e787.	No exercise only treatment arm
Hölmich P, Uhrskou P, Ulnits L, *et al.* Effectiveness of active physical training as treatment for long-standing adductor-related groin pain in athletes: randomised trial. *Lancet* 1999; 6:439-43.	Wrong outcomes
Horstmann T, Jud HM, Fröhlich V, *et al.* Whole-Body Vibration Versus Eccentric Training or a Wait-and-See Approach for Chronic Achilles Tendinopathy: A Randomized Clinical Trial. *J Orthop Sport Phys Ther* 2013;43:794–803.	No patient rating outcome
Houck J, Neville C, Tome J, *et al.* Randomized controlled trial comparing orthosis augmented by either stretching or stretching and strengthening for stage II tibialis posterior tendon dysfunction. *Foot ankle Int* 2015;36:1006–16.	No exercise only treatment arm
Ibrahim DH, El-Gazzar NM, El-Saadany HM, *et al.* Ultrasound-guided injection of platelet rich plasma versus corticosteroid for treatment of rotator cuff tendinopathy: effect on shoulder pain, disability, range of motion and ultrasonographic findings. *Egypt Rheumatol* 2019; 41:157-161.	Wrong HDI rank
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Jensen B, Bliddal H, Danneskiold-Samsøe B. Comparison of two different treatments of lateral humeral epicondylitis--" tennis elbow". A randomized controlled trial. *Ugeskr Laeg* 2001;163:1427-1431.	Insufficient exercise data
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Jerosch J, Wustner P. The effect of a sensorimotor exercise program in patients with subacromial pain syndrome. *Unfallchirurg* 2002;105:36–43.	Insufficient exercise data
Jiang W, Zhuang J, Zhang Y, *et al.* The effect of platelet-rich plasma in the treatment of external humeral epicondylitis and an analysis of the influencing factors. *Int J Clin Exp Med* 2020;13:3866-3874.	Wrong HDI rank
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Kim J, Shin D, Song C. Visual feedback to improve the effects of scapular stabilization exercises on pain intensity, range of motion, strength, and disability in patients with shoulder impingement syndrome. *Med Sci Technol* 2017;58:42–8.	No patient rating outcome
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Kumar N, Nehru A, Rajalakshmi D. Effect of taping as a component of conservative treatment for subacromial impingement syndrome. *Health* 2012; 26:237-41.	Wrong HDI rank
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Kumar PG, Balamurugan N, Rajavel R, *et al.* Comparison between the effectiveness of decline squat exercise and forward lunges in athletes with patellar tendinopathy. *Drug Invent Today*. 2020;14:997-1000.	Wrong HDI rank
Kvalvaag E, Brox JI, Engebretsen KB, *et al.* Effectiveness of radial extracorporeal shock wave therapy (rESWT) when combined with supervised exercises in patients with subacromial shoulder pain. *Am J Sports Med* 2017;45:2547–54.	Insufficient exercise data
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Lee S, Ko Y, Lee W. Changes in pain, dysfunction, and grip strength of patients with acute lateral epicondylitis caused by frequency of physical therapy: A randomized controlled trial. *J Phys Ther Sci* 2014;26:1037–40.	No exercise only treatment arm
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Littlewood C, Malliaras P, Mawson S, *et al.* Development of a self-managed loaded exercise programme for rotator cuff tendinopathy. *Physiotherapy* 2013; 1;99:358-362.	Wrong study design
Littlewood C, Malliaras P, Mawson S, *et al.* Self-managed loaded exercise versus usual physiotherapy treatment for rotator cuff tendinopathy: a pilot randomised controlled trial. *Physiotherapy* 2014;100:54–60.	Insufficient exercise data
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Lyftogt J. Prolotherapy and Achilles tendinopathy: a prospective pilot study of an old treatment. *Australas Musculoskelet Med* 2005;10:17-19	Wrong study design
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Maenhout AG, Mahieu NN, De Muynck M, *et al.* Does adding heavy load eccentric training to rehabilitation of patients with unilateral subacromial impingement result in better outcome? A randomized, clinical trial. *Knee surgery, Sport Traumatol Arthrosc* 2013;21:1158–67.	No patient rating outcome
Maffulli N, Walley G, Sayana MK, Longo UG, Denaro V. Eccentric calf muscle training in athletic patients with Achilles tendinopathy. *Disabil. Rehabil.* 2008;30:1677-84.	Wrong study design
Mafi N, Lorentzon R, Alfredson H. Superior short-term results with eccentric calf muscle training compared to concentric training in a randomized prospective multicenter study on patients with chronic Achilles tendinosis. *Knee Surgery, Sport Traumatol Arthrosc* 2001;9:42–7.	No patient rating outcome
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McQueen KS, Powell RK, Keener T, et al. Role of strengthening during nonoperative treatment of lateral epicondyle tendinopathy. *J Hand Ther* 2021;34:619-26.	No exercise only treatment arm
Melegati G, Tornese D, Bandi M. Effectiveness of extracorporeal shock wave therapy associated with kinesitherapy in the treatment of subacromial impingement: a randomised, controlled study. / Efficacia della terapia con onde d'urto extracorporee associata a chinesiterapia nel trattament. *Recreat Resour* 2000;22:58–64.	No patient rating outcome

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Menek B, Tarakci D, Algun ZC. The effect of Mulligan mobilization on pain and life quality of patients with Rotator cuff syndrome: A randomized controlled trial. *J Back Musculoskelet Rehabil* 2019;32:171-178.	No exercise only treatment arm
Miccinilli S, Bravi M, Morrone M, *et al.* A Triple Application of Kinesio Taping Supports Rehabilitation Program for Rotator Cuff Tendinopathy: a Randomized Controlled Trial. *Ortop Traumatol Rehabil* 2018;20:499–505.	Insufficient exercise data
Miller P, Osmotherly P. Does scapula taping facilitate recovery for shoulder impingement symptoms? A pilot randomized controlled trial. *J Man Manip Ther* 2009; 1:6E-13E.	Wrong study design
Moezy A, Sepehrifar S, Dodaran MS. The effects of scapular stabilization based exercise therapy on pain, posture, flexibility and shoulder mobility in patients with shoulder impingement syndrome: a controlled randomized clinical trial. *Med J Islam Repub Iran* 2014;28:87.	Wrong HDI rank
Moslehi M, Letafatkar A, Miri H. Feedback improves the scapular-focused treatment effects in patients with shoulder impingement syndrome. *Knee Surg Sports Traumatol Arthrosc* 2021;29:2281-2288.	Wrong HDI rank
Mostafaee N, Divandari A, Negahban H, *et al.* Shoulder and scapula muscle training plus conventional physiotherapy versus conventional physiotherapy only: a randomized controlled trial of patients with lateral elbow tendinopathy. *Physiother Theory Pract* 2020;26:1-2.	Wrong HDI rank
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Nazligul T, Akpinar P, Aktas I, *et al.* The effect of interferential current therapy on patients with subacromial impingement syndrome: a randomized, double-blind, sham-controlled study. *Eur J Phys Rehabil Med* 2018;54:351–7.	No exercise only treatment arm
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Notarnicola A, Maccagnano G, Tafuri S, *et al.* CHELT therapy in the treatment of chronic insertional Achilles tendinopathy. *Lasers Med Sci* 2014;29:1217–25.	No exercise only treatment arm
Nowotny J, El-Zayat B, Goronzy J, *et al.* Prospective randomized controlled trial in the treatment of lateral epicondylitis with a new dynamic wrist orthosis. *Eur J Med Res* 2018;23:43.	No patient rating outcome
O'Neill S, Watson P, Barry S. Eccentric rehabilitation for runners with Achilles tendinopathy improves endurance capacity of the plantarflexors [Abstract]. *Physiotherapy* 2015;101:e1143–4.	Insufficient exercise data
Öhberg L, Alfredson H. Effects on neovascularisation behind the good results with eccentric training in chronic mid-portion Achilles tendinosis? *Knee Surg Sports Traumatol Arthrosc* 2004;12:465-470.	Wrong outcomes
Ohberg L, Lorentzon R, Alfredson H. Eccentric training in patients with chronic Achilles tendinosis: normalised tendon structure and decreased thickness at follow up. *Br J Sports Med* 2004;38:8–11.	Insufficient exercise data
Oken O, Kahraman Y, Ayhan F, *et al.* The Short-term Efficacy of Laser, Brace, and Ultrasound Treatment in Lateral Epicondylitis: A Prospective, Randomized, Controlled Trial. *J Hand Ther* 2008;21:63–8.	Insufficient exercise data
Olaussen M, Holmedal Ø, Mdala I, *et al.* Corticosteroid or placebo injection combined with deep transverse friction massage, Mills manipulation, stretching and eccentric exercise for acute lateral epicondylitis: a randomised, controlled trial. *BMC Musculoskelet Disord* 2015;16:122.	No exercise only treatment arm
Østerås H, Arild Torstensen T, Arntzen G, *et al.* A comparison of work absence	No patient

periods and the associated costs for two different modes of exercise therapies for patients with longstanding subacromial pain. *J Med Econ* 2008;11:371–81.	rating outcome
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Paoloni JA, Appleyard RC, Nelson J, *et al.* Topical Glyceryl Trinitrate Treatment of Chronic Noninsertional Achilles Tendinopathy. *J Bone Jt Surg* 2004;86:916–22.	Insufficient exercise data
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Pasin T, Ataoglu S, Pasin O, *et al.* Comparison of the effectiveness of platelet-rich plasma, corticosteroid, and physical therapy in subacromial impingement syndrome. *Arch Rheumatol* 2019;34:308–16.	Insufficient exercise data
Payne C. Clinical applications of shear wave elastography to achilles tendon imaging and the monitoring of a rehabilitation protocol for achilles tendinopathy (Doctoral dissertation, University of Brighton). 2018.109-187.	Wrong study design
Pearson J, Rowlands D, Highet R. Autologous Blood Injection to Treat Achilles Tendinopathy? A Randomized Controlled Trial. *J Sport Rehabil* 2012;21:218–24.	No patient rating outcome
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Pearson SJ, Stadler S, Menz H, Morrissey D, Scott I, Munteanu S, Malliaras P. Immediate and short-term effects of short-and long-duration isometric contractions in patellar tendinopathy. *Clin J Sport Med.* 2020;30:335-340.	Insufficient exercise data
Pekgöz F, Taşkıran H, Mutlu EK, et al. Comparison of mobilization with supervised exercise for patients with subacromial impingement syndrome. *Turkish Journal of Physical Medicine and Rehabilitation* 2020;66:184.	No exercise only treatment arm
Pekyavas NO, Baltaci G. Short-term effects of high-intensity laser therapy, manual therapy, and Kinesio taping in patients with subacromial impingement syndrome. *Lasers Med Sci* 2016;31:1133–41.	No patient rating outcome
Pérez-Merino L, Casajuana MC, Bernal G, *et al.* Evaluation of the effectiveness of three physiotherapeutic treatments for subacromial impingement syndrome: a randomised clinical trial. *Physiotherapy* 2016;102:57–63.	No exercise only treatment arm
Petersen W, Welp R, Rosenbaum D. Chronic Achilles tendinopathy: a prospective randomized study comparing the therapeutic effect of eccentric training, the AirHeel brace, and a combination of both. *Am J Sports Med* 2007;35:1659–67.	No patient rating outcome
Peterson M, Butler S, Eriksson M, *et al.* A randomized controlled trial of exercise versus wait-list in chronic tennis elbow (lateral epicondylosis). *Ups J Med Sci* 2011;116:269–79.	No patient rating outcome
Peterson M, Butler S, Eriksson M, *et al.* A randomized controlled trial of eccentric vs. concentric graded exercise in chronic tennis elbow (lateral elbow tendinopathy). *Clin Rehabil* 2014;28:862–72	No patient rating outcome
Pienimaki T, Karinen P, Kemila T, *et al.* Long-term follow-up of conservatively treated chronic tennis elbow patients. A prospective and retrospective analysis. *Scand J Rehabil Med* 1998;30:159–66.	Insufficient exercise data
Polimeni V, Panuccio A, Furfari P, et al. Preliminary study on the efficacy of various rehabilitation therapies for shoulder pain. *Eur J Phys Rehabil Med* 2003;39:59.	No patient rating outcome
Praet SFE, Purdam CR, Welvaert M, *et al.* Oral Supplementation of Specific Collagen Peptides Combined with Calf-Strengthening Exercises Enhances Function and Reduces Pain in Achilles Tendinopathy Patients. *Nutrients* 2019;11:76.	No patient rating outcome
Prat PI, Cibrowski D, Zuliani A, *et al.* Efficacy of fascial manipulation and eccentric exercise for lateral elbow pain. *J Bodyw Mov Ther* 2018;22:855.	Insufficient exercise data
Rabusin CL, Menz HB, McClelland JA, et al. Efficacy of heel lifts versus calf muscle	No patient

eccentric exercise for mid-portion Achilles tendinopathy (HEALTHY): a randomised trial. *Br J Sports Med* 2021;55:486-92.	rating outcome
Ram R, Meeuwisse W, Patel C, *et al.* The Limited Effectiveness of a Home-Based Eccentric Training for Treatment of Achilles Tendinopathy. *Clin Investig Med* 2013;36:197.	Insufficient exercise data
Ramon S, Russo S, Santoboni F, et al. Focused shockwave treatment for greater trochanteric pain syndrome: a multicenter, randomized, controlled clinical trial. *JBJS* 2020;102:1305-11.	No exercise only treatment arm
Ramteke S, Samal S. To Study the Effect of Rotator Cuff Exercises on Tennis Elbow. *Indian J Public Health Res Dev* 2020;11:610-613.	Wrong HDI rank
Rasmussen S, Christensen M, Mathiesen I, *et al.* Shockwave therapy for chronic Achilles tendinopathy: a double-blind, randomized clinical trial of efficacy. *Acta Orthop* 2008;79:249-256.	Insufficient exercise data
Razavi M, Jansen GB. Effects of acupuncture and placebo TENS in addition to exercise in treatment of rotator cuff tendinitis. *Clin Rehabil* 2004;18:872–8.	Insufficient exercise data
Rhon DI, Boyles RB, Cleland JA. One-year outcome of subacromial corticosteroid injection compared with manual physical therapy for the management of the unilateral shoulder impingement syndrome: a pragmatic randomized trial. *Ann Intern Med* 2014;161:161-9.	No exercise only treatment arm
Riley SP, Cote MP, Leger RR, *et al.* Short-term effects of thoracic spinal manipulations and message conveyed by clinicians to patients with musculoskeletal shoulder symptoms: a randomized clinical trial. *J Man Manip Ther* 2015;23:3–11.	Insufficient exercise data
Rio E, Kidgell D, Purdam C, *et al.* Isometric exercise induces analgesia and reduces inhibition in patellar tendinopathy. *Br J Sports Med* 2015;49:1277–1283.	Insufficient exercise data
Rio E, van Ark M, Docking S, *et al.* Isometric Contractions Are More Analgesic Than Isotonic Contractions for Patellar Tendon Pain. *Clin J Sport Med* 2017;27:253–9.	No patient rating outcome
Roddy E, Ogollah RO, Oppong R, Zwierska I, Datta P, Hall A, Hay E, Jackson S, Jowett S, Lewis M, Shufflebotham J. Optimising outcomes of exercise and corticosteroid injection in patients with subacromial pain (impingement) syndrome: a factorial randomised trial. *Br. J. Sports Med.* 2021;55:262-271.	Insufficient exercise data
Rodríguez-Huguet M, Góngora-Rodríguez J, Lomas-Vega R, et al. Percutaneous electrolysis in the treatment of lateral epicondylalgia: A single-blind randomized controlled trial. *Journal of Clinical Medicine* 2020;9:2068.	No exercise only treatment arm
Rodríguez-Huguet M, Góngora-Rodríguez J, Rodríguez-Huguet P, et al. Effectiveness of percutaneous electrolysis in supraspinatus tendinopathy: A single-blinded randomized controlled trial. *Journal of clinical medicine* 2020;9:1837.	No exercise only treatment arm
Røe C, Brox JI, Bøhmer AS, *et al.* Muscle activation after supervised exercises in patients with rotator tendinosis. *Arch Phys Med Rehabil* 2000;8:67-72.	Wrong study design
Røe C, Ødegaard TT, Hilde F, *et al.* No effect of supplement of essential fatty acids on lateral epicondylitis. *Tidsskr Nor Laegeforen* 2005;125:2615–8.	No exercise only treatment arm
Romero-Morales C, Javier Martín-Llantino P, Calvo-Lobo C, *et al.* Ultrasonography effectiveness of the vibration vs cryotherapy added to an eccentric exercise protocol in patients with chronic mid-portion Achilles tendinopathy: A randomised clinical trial. *Int Wound J* 2019;16:542-549.	Wrong outcomes
Romero-Morales C, Martín-Llantino PJ, Calvo-Lobo C, *et al.* Effectiveness of eccentric exercise and a vibration or cryotherapy program in enhancing rectus abdominis muscle thickness and inter-rectus distance in patients with chronic mid-portion achilles tendinopathy: A randomized clinical trial. *Int J Med Sci* 2018;15:1764-1770.	Wrong outcomes
Romero-Morales C, Martín-Llantino PJ, Calvo-Lobo C, et al. Vibration increases multifidus cross-sectional area versus cryotherapy added to chronic non-insertional Achilles tendinopathy eccentric exercise. *Phys Ther Sport* 2020;42:61-7.	No patient rating outcome
Rosety-Rodriguez M, Ordonez-Munoz F, Huesa-Jimenez F, *et al.* Eccentric training programs for infrapatellar tendinopathy: new strategies for an old problem. *Patalogia del Apar Locomot* 2006;4:105–7.	No exercise only treatment arm

Saggini R, Di Stefano A, Galati V, *et al.* Long-term effectiveness of combined mechanotransduction treatment in jumper's knee. *Eur J Inflamm* 2012;10:515–24.	Insufficient exercise data
Sandford FM, Sanders TA, Wilson H, *et al.* A randomised controlled trial of long-chain omega-3 polyunsaturated fatty acids in the management of rotator cuff related shoulder pain. *BMJ Open Sport Exerc Med* 2018;4:e000414.	Insufficient exercise data
Santamato A, Panza F, Notarnicola A, *et al.* Is Extracorporeal Shockwave Therapy Combined With Isokinetic Exercise More Effective Than Extracorporeal Shockwave Therapy Alone for Subacromial Impingement Syndrome? A Randomized Clinical Trial. *J Orthop Sport Phys Ther* 2016;46:714–25.	No exercise only treatment arm
Saunders L. Laser versus ultrasound in the treatment of supraspinatus tendinosis: randomised controlled trial. *Physiotherapy* 2003;1:365-373.	Wrong concept
Savoie A, Mercier C, Desmeules F, Frémont P, Roy JS. Effects of a movement training oriented rehabilitation program on symptoms, functional limitations and acromiohumeral distance in individuals with subacromial pain syndrome. *Man Ther.* 2015;20:703-8.	Wrong study design
Sayana MK, Maffulli N. Eccentric calf muscle training in non-athletic patients with Achilles tendinopathy. *J Sci Med Sport.* 2007;10:52-8.	Wrong study design
Schmitt J, Haake M, Tosch A, *et al.* Low-energy extracorporeal shock-wave treatment (ESWT) for tendinitis of the supraspinatus: a prospective, randomised study. *J Bone Joint Surg Am* 2001;83:873-6.	Wrong concept
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Schmitt J, Tosch A, Hünerkopf M, *et al.* Extracorporeal shockwave therapy (ESWT) as therapeutic option in supraspinatus tendon syndrome? One year results of a placebo controlled study. *Orthopade* 2002;1:652-7.	Wrong concept
Scott A, LaPrade RF, Harmon KG, *et al.* Platelet-rich plasma for patellar tendinopathy: a randomized controlled trial of leukocyte-rich PRP or leukocyte-poor PRP versus saline. *Am J Sports Med* 2019;47:1654–61.	No exercise only treatment arm
Selvanetti A, Barrucci A, Antonaci A, *et al.* L'esercizio eccentrico nella rieducazione funzionale dell' epicondilite: studio randomizzato controllato (Role of the eccentric exercise in the functional reeducation of lateral epicondylitis: a randomised controlled clinical trial) [Italian]. *Med Dello Sport* 2003;56:103–13.	Insufficient exercise data
Senbursa G, Baltacı G, Atay A. Comparison of conservative treatment with and without manual physical therapy for patients with shoulder impingement syndrome: a prospective, randomized clinical trial. *Knee Surg Sports Traumatol Arthrosc.* 2007;15:915-921.	Wrong outcomes
Şenbursa G, Baltaci G, Atay ÖA. The effectiveness of manual therapy in supraspinatus tendinopathy. *Acta Orthop Traumatol Turc* 2011;45:162–7.	No patient rating outcome
Seven MM, Ersen O, Akpancar S, *et al.* Effectiveness of prolotherapy in the treatment of chronic rotator cuff lesions. *Orthop Traumatol Surg Res* 2017;103:427–33.	No patient rating outcome
Sevier TL, Stegink-Jansen CW. Astym treatment vs. eccentric exercise for lateral elbow tendinopathy: a randomized controlled clinical trial. *PeerJ* 2015;3:e967. https://peerj.com/articles/967 (accessed Feb 2021).	No patient rating outcome
Shakeri H, Keshavarz R, Arab AM, *et al.* A randomized clinical trial of Kinesio-taping on DASH in patients with subacromial impingement syndrome. *J Nov Physiother* 2013;3:169.	Wrong HDI rank
Silbernagel KG, Thomeé R, Eriksson BI, *et al.* Continued sports activity, using a pain-monitoring model, during rehabilitation in patients with Achilles tendinopathy: a randomized controlled study. *Am J Sports Med* 2007;35:897–906.	No patient rating outcome
Silbernagel KG, Thomeé R, Eriksson BI, *et al.* Full symptomatic recovery does not ensure full recovery of muscle-tendon function in patients with Achilles tendinopathy. *Br J Sports Med* 2007;41:276-280.	Wrong study design
Silder AM, Sherry MA, Sanfilippo J, et al. Clinical and morphological changes following 2 rehabilitation programs for acute hamstring strain injuries: a randomized clinical trial.	No patient rating outcome

J Orthop Sports Phys Ther 2013;43:284-99.	
Şimşek HH, Balki S, Keklik SS, *et al.* Does Kinesio taping in addition to exercise therapy improve the outcomes in subacromial impingement syndrome? A randomized, double-blind,controlled clinical trial. *Acta Orthop Traumatol Turc* 2013;47:104–10.	No patient rating outcome
Skorupska E, Lisinski P, Samborski W. The effectiveness of the conservative versus myofascial pain physiotherapy in tennis elbow patients: double-blind randomized trial of 80 patients. *J Musculoskelet Pain* 2012; 1:41-50.	Wrong concept
Smidt N, van der Windt DA, Assendelft WJ, *et al.* Corticosteroid injections, physiotherapy, or a wait-and-see policy for lateral epicondylitis: a randomised controlled trial. *Lancet* 2002;359:657–62.	No exercise only treatment arm
Söderberg J, Grooten WJ, Äng BO. Effects of eccentric training on hand strength in subjects with lateral epicondylalgia: a randomized-controlled trial. *Scand J Med Sci Sports* 2012;22:797–803.	No exercise only treatment arm
Solomons L, Lee JJY, Bruce M, *et al.* Intramuscular stimulation vs sham needling for the treatment of chronic midportion Achilles tendinopathy: A randomized controlled clinical trial. PloS One 2020;15: e0238579	Insufficient exercise data
Sosa C, Lorenzo A, Jimenez SL, *et al.* Eccentric exercise in treatment of patellar tendinopathy in high level basketball players. A randomised clinical trial [Abstract]. *J Strength Cond Res* 2014;28:1	Insufficient exercise data
Speed CA, Richards C, Nichols D, *et al.* Extracorporeal shock-wave therapy for tendonitis of the rotator cuff: a double-blind, randomised, controlled trial. *J Bone Joint Surg Am* 2002;84:509-12.	Wrong concept
Speed CA, Richards C, Nichols D, *et al.* Extracorporeal shock-wave therapy for tendonitis of the rotator cuff: a double-blind, randomised, controlled trial. *J Bone Surg Joint Am* 2002;84:509-512.	Wrong concept
Stasinopoulos D, Manias P. Comparing two eccentric exercise programmes for the management of Achilles tendinopathy. A pilot trial. *J Bodyw Mov Ther* 2013;17:309-115.	Duplicate
Stasinopoulos D, Stasinopoulos I, Pantelis M, *et al.* Comparing the effects of exercise program and low-level laser therapy with exercise program and polarized polychromatic non-coherent light (Bioptron light) on the treatment of lateral elbow tendinopathy. *Photomed Laser Surg* 2009;27:513–20.	No exercise only treatment arm
Stasinopoulos D, Stasinopoulos I, Pantelis M, *et al.* Comparison of effects of a home exercise programme and a supervised exercise programme for the management of lateral elbow tendinopathy. *Br J Sports Med* 2010;44:579–83.	No patient rating outcome
Stasinopoulos D, Stasinopoulos I. Comparison of effects of Cyriax physiotherapy, a supervised exercise programme and polarized polychromatic non-coherent light (Bioptron light) for the treatment of lateral epicondylitis. *Clin Rehabil* 2006;20:12–23.	No patient rating outcome
Stasinopoulos D, Stasinopoulos I. Comparison of effects of eccentric training, eccentric-concentric training, and eccentric-concentric training combined with isometric contraction in the treatment of lateral elbow tendinopathy. *J Hand Ther* 2017;30:13–9.	No patient rating outcome
Stasinopoulos D, Stasinopoulos I. Comparison of effects of exercise programme, pulsed ultrasound and transverse friction in the treatment of chronic patellar tendinopathy. *Clin Rehabil* 2004;18:347-352.	Wrong outcomes
Stefanou A, Marshall N, Holdan W, *et al.* A randomized study comparing corticosteroid injection to corticosteroid iontophoresis for lateral epicondylitis. *J Hand Surg Am* 2012; 37:104-109.	Insufficient exercise data
Stefansson SH, Brandsson S, Langberg H, et al. Using Pressure Massage for Achilles Tendinopathy: A Single-Blind, Randomized Controlled Trial Comparing a Novel Treatment Versus an Eccentric Exercise Protocol. *Orthop J Sport Med* 2019;7:232596711983428. http://journals.sagepub.com/doi/10.1177/2325967119834284 (accessed Feb 2021).	No patient rating outcome
Stergioulas A, Stergioula M, Aarskog R, *et al.* Effects of low-level laser therapy and eccentric exercises in the treatment of recreational athletes with chronic achilles tendinopathy. *Am J Sports Med* 2008;36:881–7.	Duplicate

Stergioulas A, Stergioula M, Aarskog R, *et al.* Effects of low-level laser therapy and eccentric exercises in the treatment of recreational athletes with chronic achilles tendinopathy. *Am J Sports Med* 2008;36:881–7.	No exercise only treatment arm
Stergioulas A. Effects of Low-Level Laser and Plyometric Exercises in the Treatment of Lateral Epicondylitis. *Photomed Laser Surg* 2007;25:205–13.	No exercise only treatment arm
Struijs PAA, Kerkhoffs GMMJ, Assendelft WJJ, *et al.* Conservative Treatment of Lateral Epicondylitis: Brace Versus Physical Therapy or a Combination of Both—A Randomized Clinical Trial. *Am J Sports Med* 2004;32:462–9.	No exercise only treatment arm
Struijs PAA, Korthals-de Bos IBC, van Tulder MW, *et al.* Cost effectiveness of brace, physiotherapy, or both for treatment of tennis elbow. *Br J Sports Med* 2006;40:637–43.	Insufficient exercise data
Struyf F, Nijs J, Mollekens S, *et al.* Scapular-focused treatment in patients with shoulder impingement syndrome: a randomized clinical trial. *Clin Rheumatol* 2013;32:73–85.	Insufficient exercise data
Subaşı V, Çakır T, Arıca Z, *et al.* Comparison of efficacy of kinesiological taping and subacromial injection therapy in subacromial impingement syndrome. *Clin Rheumatol* 2016;35:741–6.	Insufficient exercise data
Subaşi V, Toktaş H, Demirdal ÜS, *et al.* Water-Based versus Land-Based Exercise Program for the Management of Shoulder Impingement Syndrome. / Omuz Subakromiyal Sıkışma Sendromunun Tedavisinde Su İçi Egzersizler ile Kara Egzersizlerinin Karşılaştırılması. *Turkish J Phys Med Rehabil* 2012;58:79–84.	Insufficient exercise data
Svernlov B, Adolfsson L. Non-operative treatment regime including eccentric training for lateral humeral epicondylalgia (Clinical Study). *Scand J Med Sci Sports* 2001;11:328–34.	No patient rating outcome
Szczurko O, Cooley K, Mills EJ, *et al.* Naturopathic treatment of rotator cuff tendinitis among Canadian postal workers: A randomized controlled trial. *Arthritis Rheum* 2009;61:1037–45.	Insufficient exercise data
Tahran Ö, Yeşilyaprak SS. Effects of Modified Posterior Shoulder Stretching Exercises on Shoulder Mobility, Pain, and Dysfunction in Patients With Subacromial Impingement Syndrome. *Sports Health* 2020;12:139–48.	No patient rating outcome
Taskaynatan MA, Ozgul A, Ozdemir A, *et al.* Effects of Steroid Iontophoresis and Electrotherapy on Bicipital Tendonitis. *J Musculoskelet Pain* 2007;15:47–54.	Insufficient exercise data
Taunton JE, Ryan MB, Wong T. Eccentric only heel drop training: examining a dose response in patients with achilles tendinosis. *Clin J Sport Med* 2004;14:382-383.	Insufficient exercise data
Tetschke E, Rudolf M, Lohmann CH, *et al.* Autologous proliferative therapies in recalcitrant lateral epicondylitis. *Am J Phys Med Rehabil* 2015;1:696-706.	Insufficient exercise data
Thanasas C, Papadimitriou G, Charalambidis C, *et al.* Platelet-rich plasma versus autologous whole blood for the treatment of chronic lateral elbow epicondylitis: a randomized controlled clinical trial. *Am J Sports Med* 2011;39:2130–4.	Insufficient exercise data
Thijs KM, Zwerver J, Backx FJG, *et al.* Effectiveness of shockwave treatment combined with eccentric training for patellar tendinopathy: a double-blinded randomized study. *Clin J Sport Med* 2017;27:89–96.	No exercise only treatment arm
Thompson G, Pearson JF. No attributable effects of PRP on greater trochanteric pain syndrome. *N Z Med J* 2019;132:22–32.	Insufficient exercise data
Tonks JH, Pai SK, Murali SR. Steroid injection therapy is the best conservative treatment for lateral epicondylitis: a prospective randomised controlled trial. *Int J Clin Pract* 2007;61:240–6.	No patient rating outcome
Tonks JH. Evaluation of short-term conservative treatment in patients with tennis elbow (lateral epicondylitis): A prospective randomised, assessor-blinded trial (Doctoral dissertation, University of Central Lancashire) 2012.	No patient rating outcome
Tumilt Tumilty S, McDonough S, Hurley DA, *et al.* Clinical effectiveness of low-level laser therapy as an adjunct to eccentric exercise for the treatment of Achilles' tendinopathy: a randomized controlled trial. *Arch Phys Med Rehabil* 2012;93:733–9.y et al.	No exercise only treatment arm
Tumilty S, Baxter GD. Heavy load eccentric exercise for Achilles tendinopathy; too much of a good thing?. *Physiotherapy* 2015;101:e1546-1547.	Wrong study design
Tumilty S, Mani R, Baxter GD. Photobiomodulation and eccentric exercise for Achilles tendinopathy: a randomized controlled trial. *Lasers Med Sci* 2016;31:127–135.	Duplicate

Tumilty S, Mani R, Baxter GD. Photobiomodulation and eccentric exercise for Achilles tendinopathy: a randomized controlled trial. *Lasers Medical Sci* 2016;31:127-35.	No exercise only treatment arm
Turgut E, Duzgun I, Baltaci G. Effects of Scapular Stabilization Exercise Training on Scapular Kinematics, Disability, and Pain in Subacromial Impingement: A Randomized Controlled Trial. *Arch Phys Med Rehabil* 2017;98:1915.	No patient rating outcome
Turgut E, Duzgun I. AB1428-HPR Two-year follow-up of the therapeutic exercise program for patients with rotator cuff tendinopathy: a single group study to investigate the effects on pain and disability. In: *Saturday, 16 JUNE 2018*. BMJ Publishing Group Ltd and European League Against Rheumatism 2018. 1847.3-1848.	Insufficient exercise data
Tyler TF, Nicholas SJ, Schmitt BM, *et al.* Clinical outcomes of the addition of eccentrics for rehabilitation of previously failed treatments of golfers elbow. *Int J Sports Phys Ther* 2014;9:365-370	Wrong study design
Tyler TF, Thomas GC, Nicholas SJ, *et al.* Addition of isolated wrist extensor eccentric exercise to standard treatment for chronic lateral epicondylosis: a prospective randomized trial. *J Shoulder Elb Surg* 2010;19:917–22.	No exercise only treatment arm
Valera-Garrido F, Minaya-Muñoz F, Medina-Mirapeix F. Ultrasound-guided percutaneous needle electrolysis in chronic lateral epicondylitis: short-term and long-term results. *Acupunct Med* 2014;32(6):446-454.	Wrong study design
Vallés-Carrascosa E, Gallego-Izquierdo T, Jiménez-Rejano JJ, *et al.* Pain, motion and function comparison of two exercise protocols for the rotator cuff and scapular stabilizers in patients with subacromial syndrome. *J Hand Ther* 2018;31:227–37.	No patient rating outcome
van Ark M, Rio E, Cook J, et al. Clinical improvements are not explained by changes in tendon structure on UTC following an exercise program for patellar tendinopathy. *Am J Phys Med* 2018;97:708-714.	Duplicate
van Ark M. Patellar tendinopathy: Physical therapy and injection treatments (Doctoral dissertation, University of Groningen).2015:1-136.	Duplicate
van der Plas A, de Jonge S, de Vos RJ, *et al.* A 5-year follow-up study of Alfredson's heel-drop exercise programme in chronic midportion Achilles tendinopathy. *Br J Sport Med* 2012;46:214–8.	Insufficient exercise data
van der Vlist AC, van Oosterom RF, van Veldhoven PL, et al. Effectiveness of a high volume injection as treatment for chronic Achilles tendinopathy: randomised controlled trial. *BMJ* 2020 9;370.	No exercise only treatment arm
van der Vlist AC, Veldhoven PLJ, Oosterom RF, *et al.* Isometric exercises do not provide immediate pain relief in Achilles tendinopathy: A quasi-randomized clinical trial. *Scand J Med Sci Sports* 2020;30:1712–21.	Insufficient exercise data
van der Worp H, Zwerver J, Hamstra M, *et al.* No difference in effectiveness between focused and radial shockwave therapy for treating patellar tendinopathy: a randomized controlled trial. *Knee Surgery, Sport Traumatol Arthrosc* 2014;22:2026–32.	Insufficient exercise data
van Rensburg KJ, Atkins E. Does thoracic manipulation increase shoulder range of movement in patients with subacromial impingement syndrome? A pilot study. *Int Musculoskelet Med* 2012; 1:101-107.	Wrong study design
Vinuesa-Montoya S, Aguilar-Ferrándiz ME, Matarán-Peñarrocha GA, *et al.* A Preliminary Randomized Clinical Trial on the Effect of Cervicothoracic Manipulation Plus Supervised Exercises vs a Home Exercise Program for the Treatment of Shoulder Impingement. *J Chiropr Med* 2017;16:85–93.	No patient rating outcome
Visnes H, Hoksrud A, Cook J, *et al.* No Effect of Eccentric Training on Jumper's Knee in Volleyball Players During the Competitive Season. *Clin J Sport Med* 2005;15:227–34.	No patient rating outcome
Walther M, Werner A, Stahlschmidt T, *et al.* The subacromial impingement syndrome of the shoulder treated by conventional physiotherapy, self-training, and a shoulder brace: results of a prospective, randomized study. *J Shoulder Elbow Surg* 2004;1:417-23.	Duplicate
Walther M, Werner A, Stahlschmidt T, et al. The subacromial impingement syndrome of the shoulder treated by conventional physiotherapy, self-training, and a shoulder brace: results of a prospective, randomized study. *J Shoulder Elbow Surg*. 2004;13:417-23.	No patient rating outcome
Wang CJ, Ko JY, Chan YS, *et al.* Extracorporeal shockwave for chronic patellar	Insufficient

tendinopathy. *Am J Sports Med* 2007;35.	exercise data
Warden SJ, Metcalf BR, Kiss ZS, *et al.* Low-intensity pulsed ultrasound for chronic patellar tendinopathy: a randomized, double-blind, placebo-controlled trial. *Rheumatology* 2008;47:467–71.	No exercise only treatment arm
Wegener RL, Brown T, O'Brien L. A randomized controlled trial of comparative effectiveness of elastic therapeutic tape, sham tape or eccentric exercises alone for lateral elbow tendinosis. *Hand Ther* 2016;21:131–9.	No patient rating outcome
Weir A, Jansen J, Van de Port IGL, *et al.* Manual or exercise therapy for long-standing adductor-related groin pain: a randomised controlled clinical trial. *Man Ther* 2011;16:148–54.	Insufficient exercise data
Wen DY, Schultz BJ, Schaal B, *et al.* Eccentric strengthening for chronic lateral epicondylosis: a prospective randomized study. *Sports Health* 2011;3:500–3.	No patient rating outcome
Wetke E, Johannsen F, Langberg H. A hilles tendinopathy: A prospective study on the effect of active rehabilitation and steroid injections in a clinical setting. *Scan J Med Sci Sports* 2015;25:e392-399.	Wrong study design
Wiedmann M, Mauch F, Huth J, *et al.* Treatment of mid-portion Achilles tendinopathy with eccentric training and its effect on neovascularization. *Sport Orthop Traumatol* 2017;33:278–85.	No patient rating outcome
Wiener M, Mayer F. Effects of physiotherapy on peak torque and pain in patients with tendinitis of the supraspinatus muscle. *Dtsch Z Sportmed* 2005;56:383–7.	Insufficient exercise data
Wilson JK, Sevier TL, Helfst R, *et al.* Comparison of rehabilitation methods in the treatment of patellar tendinitis. *J Sport Rehabil* 2000;9:304–14.	Insufficient exercise data
Winters JC, Sobel JS, Groenier KH, *et al.* Comparison of physiotherapy, manipulation, and corticosteroid injection for treating shoulder complaints in general practice: randomised, single blind study. *BMJ* 1997;3:1320-1325.	Not tendinopathy specific
Worsley P, Mottram S, Warner M, *et al.* Clinical outcomes following motor control rehabilitation for shoulder impingement. *Rheumatology* 2012;51:95.	Insufficient exercise data
Worsley P, Warner M, Mottram S, *et al.* Motor control retraining exercises for shoulder impingement: effects on function, muscle activation, and biomechanics in young adults. *J Shoulder Elbow Surg* 2013;22:e11-9.	Wrong study design
Yazmalar L, Sarıyıldız MA, Batmaz İ, *et al.* Efficiency of therapeutic ultrasound on pain, disability, anxiety, depression, sleep and quality of life in patients with subacromial impingement syndrome: A randomized controlled study. *J Back Musculoskelet Rehabil* 2016;29:801–7.	No exercise only treatment arm
Yeldan I, Cetin E, Ozdincler AR. The effectiveness of low-level laser therapy on shoulder function in subacromial impingement syndrome. *Disabil Rehabil* 2009;31:935–40.	No exercise only treatment arm
Yelland M, Rabago D, Ryan M, *et al.* Prolotherapy injections and physiotherapy used singly and in combination for lateral epicondylalgia: a single-blinded randomised clinical trial. *BMC Musculoskelet Disord* 2019;20:509.	Insufficient exercise data
Yerlikaya M, Talay Çaliş H, Tomruk Sütbeyaz S, *et al.* Comparison of Effects of Leukocyte-Rich and Leukocyte-Poor Platelet-Rich Plasma on Pain and Functionality in Patients With Lateral Epicondylitis. *Arch Rheumatol* 2018;33:73–9.	No patient rating outcome
Yiasemides R, Halaki M, Cathers I, *et al.* Does passive mobilization of shoulder region joints provide additional benefit over advice and exercise alone for people who have shoulder pain and minimal movement restriction? A randomized controlled trial. *Phys Ther* 2011; 1:178-189.	Wrong population
Yildirim MA, Ones K, Celik EC. Comparison of ultrasound therapy of various durations in the treatment of subacromial impingement syndrome. *J Phys Ther Sci* 2013;25:1151–4.	Insufficient exercise data
Young M, Cook J, Purdam C, *et al.* Conservative treatment of patellar tendinopathy: A randomised trial comparing two treatment regimes [Abstract]. *J Sci Med Sport* 2002;5:120.	Insufficient exercise data
Young MA, Cook JL, Purdam CR, *et al.* Eccentric decline squat protocol offers superior results at 12 months compared with traditional eccentric protocol for patellar	No patient rating outcome

tendinopathy in volleyball players *Br J Sports Med* 2005;39:102–5.	
Yu J, Park D, Lee G. Effect of eccentric strengthening on pain, muscle strength, endurance, and functional fitness factors in male patients with achilles tendinopathy. *Am J Phys Med Rehabil* 2013;92:68–76.	No patient rating outcome
Yuksel E, Yesilyaprak SS. The Effectiveness of Scapular Stabilization Exercises in Patients with Subacromial Impingement Syndrome and Scapular Dyskinesis. *Ann Rheum Dis* 2015;74:1316.	Insufficient exercise data
Yuruk ZO, Kirdi N, Şimşek N. Effects of Radial Extracorporeal Shock Wave Therapy on Pain, Grip Strength, and Functionality in Patients with Lateral Epicondylitis: A Randomized Controlled Study. *Clin Exp Health Sci* 2016;6:107-115.	No exercise only treatment arm
Zwerver J, Hartgens F, Verhagen E, *et al.* No effect of extracorporeal shockwave therapy on patellar tendinopathy in jumping athletes during the competitive season: a randomized clinical trial. *Am J Sports Med* 2011;39:1191-1199.	Wrong concept

Supplementary file 6: Risk of bias for individual studies

#	Author, Year	Random sequence generation	Allocation concealment	Blinding of participants/ personnel	Blinding of outcome assessment	Incomplete outcome bias	Selective reporting	Other bias
1	Bahr et al 2006	Low risk	Low risk	High risk	Low risk	Low risk	Unclear	Low risk
2	Breda et al 2020	Low risk	Low risk	High risk	Low risk	Low risk	High risk	High risk
3	Brox et al 1999	High risk	High risk	High risk	High risk	No Data	No Data	No Data
4	Chaconas et al 2017	Low risk	Unclear	Unclear	Low risk	High risk	Unclear	High risk
5	de Jonge et al 2008	Unclear	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
6	de Vos et al 2007	Low risk	Unclear	Low risk	Low risk	Unclear	Low risk	High risk
7	Gatz et al 2020	Low risk	Low risk	Low risk	Low risk	Unclear	Unclear	High risk
8	Granviken et al 2015	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
9	Hotta et al 2020	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	High risk
10	Johansson et al 2005	Low risk	Unclear	Unclear	Low risk	Low risk	Unclear	High risk
11	Jonsson 2009	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
12	Knobloch et al 2008	Unclear	Low risk	Unclear	Unclear	Unclear	Unclear	High risk
13	Kromer et al 2013	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
14	Ludewig et al 2003	Low risk	Unclear	High risk	Unclear	Low risk	Unclear	Low risk
15	Marzetti et al 2014	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
16	McCormack et al 2016	Low risk	Low risk	Unclear	Unclear	Low risk	Low risk	Low risk
17	Mulligan et al 2016	Low risk	Low risk	Low risk	Low risk	Low risk	Unclear	High risk
18	Nishizuka et al 2017	Low risk	Low risk	High risk	Unclear	Low risk	Unclear	High risk
19	Nørregaard et al 2007	Low risk	Low risk	Unclear	Unclear	Unclear	Unclear	High risk
20	Østerås et al 2010	Low risk	Low risk	Unclear	High risk	Low risk	Unclear	Low risk
21	Paavola et al 2018	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
22	Reyhan et al 2020	Low risk	Low risk	Unclear	Unclear	Low risk	Unclear	High risk
23	Rompe et al 2007	Low risk	Low risk	Unclear	Low risk	Low risk	Unclear	Low risk
24	Rompe et al 2008	Low risk	Low risk	Unclear	Low risk	Low risk	Unclear	Unclear
25	Rompe et al 2009	Unclear	Low risk	High risk	High risk	Low risk	Unclear	Low risk

26	Rompe et al 2009	Low risk	Low risk	High risk	Low risk	Low risk	Unclear	Low risk
27	Roos et al 2004	Low risk	Unclear	Unclear	Low risk	Low risk	Unclear	Low risk
28	Silbernagel et al 2001	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	High risk
29	Steunebrink et al 2013	Low risk	Low risk	Low risk	Low risk	Low risk	Unclear	Low risk
30	Stevens et al 2014	Unclear	Unclear	High risk	High risk	Unclear	Unclear	High risk
31	vanArk et al 2016	Low risk	Low risk	Low risk	Unclear	Unclear	Low risk	Low risk
32	Vuvan et al 2019	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
33	Werner et al 2002	Low risk	Unclear	Unclear	Unclear	Unclear	Unclear	High risk
34	Yelland et al 2011	Low risk	Low risk	High risk	Low risk	Low risk	Unclear	Low risk

Supplementary file 7: Strength of Evidence assessment

Meta-analysis	Overall RoB	Inconsistency	Imprecision	Indirectness	Small study-effects	Strength of Evidence
Post-intervention Binary	High risk	Low risk	Low risk	Low risk	Low risk	Moderate
Post-intervention Binary (short duration)	Low risk	High risk	Low risk	Low risk	Low risk	Moderate
Post-intervention Binary (medium duration)	High risk	High risk	Low risk	Low risk	Low risk	Low
Post-intervention Binary (lower-body)	High risk	High risk	Low risk	Low risk	Low risk	Low
Post-intervention Binary (upper-body)	Low risk	High risk	High risk	Low risk	Low risk	Low
Post-intervention Binary (patient satisfaction	Low risk	Low risk	Low risk	Low risk	Low risk	High
Post-intervention Scale (positive only)	Low risk	Low risk	Low risk	Low risk	High risk	Moderate
Post-intervention Scale (negative/positive)	Low risk	Low risk	Low risk	Low risk	Low risk	High
Pre- to post-intervention change	Low risk	Low risk	High risk	Low risk	High risk	Low