Keele UNIVERSITY

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Impact Accelerator Unit

Keele Critically Appraised Topic Form

Specific Question:

In adults with chronic shoulder pain, do exercises prescribed by a physiotherapist, help reduce pain compared to those who do not receive exercise?

Clinical bottom line

There is strong evidence from recent systematic and guideline reviews that exercise reduces shoulder pain. One systematic review highlighted that doing exercise is better than doing nothing in reducing shoulder pain.

A high quality RCT suggests that exercise delivered individually by a physiotherapist or exercise delivered in a group or exercises delivered in a supported home exercise programme are equally effective in reducing pain in those with sub acromial pain.

PPIE view on the clinical bottom line

"Having experienced shoulder pain for some time, an important factor in the daily management was relief from fairly severe pain. Medication gave temporary relief but mobility remained difficult. Following advice and instruction from a physiotherapist, exercises prescribed to me were carried out at home and the benefit of pain relief and greater flexibility became apparent quite quickly.

I posed this question as I was interested to see if there is any robust evidence which would support my experience.

I have followed the CAT process with Kay and Tina and the results show that there is strong evidence that exercise reduces shoulder pain. These results have backed-up my experience and the benefits I gained from prescribed exercise and has answered my question satisfactorily."

Why is this important?

This is the first CAT question generated by our Patient and Public member of the CAT group. They recognise that shoulder pain is a common problem and is experienced by many people. They have gained great benefit from exercises prescribed by a physiotherapist and by generally keeping active. They were interested to see if there was any robust evidence underpin their experience.

Search timeframe (e.g. 2017-2022)

Inclusion Criteria

	Description	Search terms
Population and Setting	Over 18 with chronic shoulder pain Longer than 3 months	Adults, shoulder pain, OA, Sub acromial pain syndrome, degeneration Gleno-humeral joint arthritis, acromial-clavicular joint arthritis, Rotator cuff tear, Rotator cuff arthropathy,
Intervention or Exposure	Exercise prescribe by physio	Exercise, strengthening, isometric, loaded prescribed by physio
Comparison, if any		No exercise
Outcomes of interest	Reduction in pain	Pain, VAS, NRS
Types of studies	RCTs Systematic reviews	RCTs Systematic reviews

Routine Databases Searched

Clinical Knowledge Summaries, PEDro, BMJ Updates, Clinical Evidence, TRIP, Database, NICE, HTA, Bandolier, The Cochrane Library, Medline, Cinahl, Embase, PsycInfo, Professional websites, Joanna Briggs Institute, Web of Science, Sports discus and Pub Med

Date of search- June 2022

Results of the search

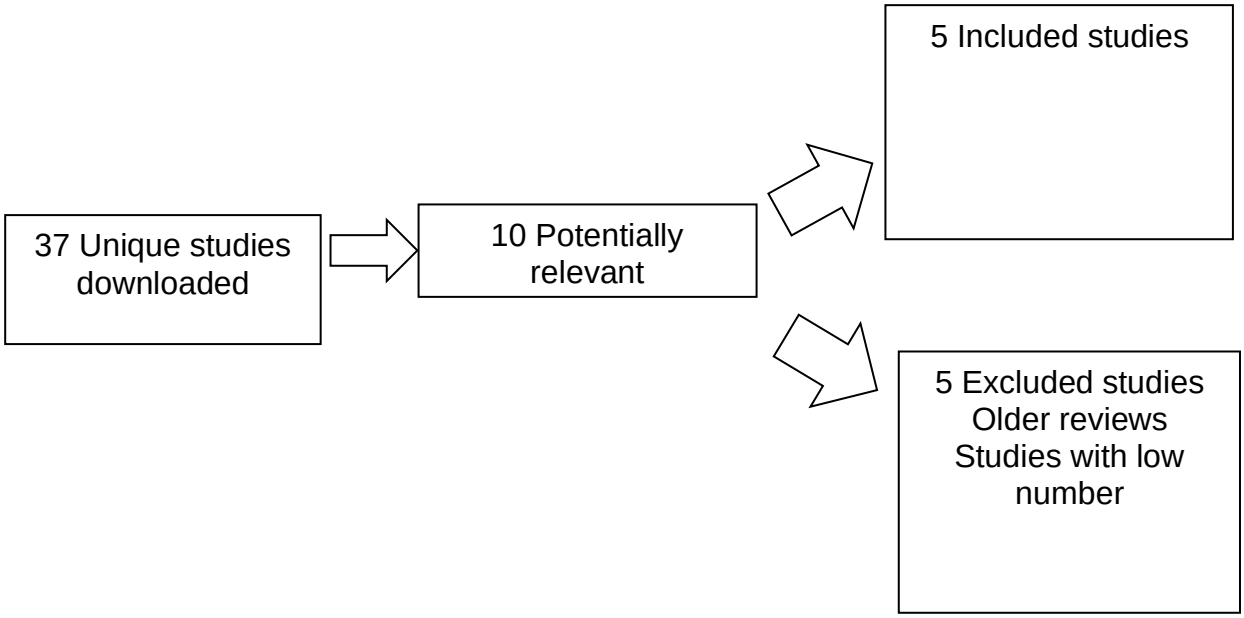

Table 1- Detail of included studies

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
David Høyrup Christiansen a,b, Jakob Hjort b 2021 RCT	18 years and over Subacromial impingement syndrome	Group based exercise (12 sessions) v home based v individualised (12 sessions)for 8 weeks All groups encouraged to continue exercises for further 4 weeks Following surgery or conservative management	208 patients All groups improved on Quick Dash, no differences between the groups at 6 months All have similar benefits home based has lowest cost No different in cost between group and individual	Danish study Outcome measure Quick DASH Clear inclusion and exclusion Randomisation described Outcome measures at 3 and 6 months Good description of intervention Power calculation and MCID Intension to treat Enough patients by 6 months in 2 group but only 57 in group exercise (needed 60)
Babatunde et al Systematic review and meta analysis 2017	Patients with top 5 musculoskel etal complaints 18 and over	Guidelines Pathways Systematic Reviews RCTs	146 studies Mod to strong evidence that exercise reduces pain Exercise therapy led to clinically significant improvement pain quality of life Little evidence on type of exercise but functional/adapted to ADL better	Appropriate search up to 2016 Quality assessment by AMSTAR and strength of evidence GRADE 2 reviewers Clear inclusion and exclusion

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Steuri et al 2017 Systematic review and meta analysis	Patients with shoulder impingement RCTs up to Jan 2017	Effectiveness non surgical intervention for adults with shoulder impingement	177 articles 10 studies small sample size Majority between 20-232 101 comparisons from 184 trails (10, 529 patients) Exercise superior to doing nothing (5 studies) Specific exercise superior to non specific exercise (2 studies) Exercise superior to no exercise / physical therapy	Reasonable search Only excluded Chinese and Farsi language 2 reviewers plus 3rd for disagreement Cochrane risk of bias tool used GRADE too to asses quality Poor quality studies Well conducted systematic review
Dong 2015 Systematic review Network meta analysis	18 years and over Subacromial impingement syndrome	Surgical and non surgical interventions f	Search up to 2014 33 RCTs 2300 patients 28 were non operative studies (n=2065) Combined treatment along side exercise yielded better results than single interventions in terms of pain reduction Non operative - Exercise intervention demonstrated better effects	Based on PRISMA statement Good search strategy Clear inclusion and exclusion Manual reference search No language limit 2 reviewers and 3rd for resolving disagreement Risk of bias assessed Exercise defined as routine exercise treatment inferring delivered by professional
Lin Systematic review of	Good practice Guidelines	Guidance for common MSK pain (Back, neck,	All Guidelines recommended activity and exercise	In English from 2021 Good search 3 reviewers

Guidelines 2020		shoulder, hip and knee	6 Guidelines identified for shoulder pain For rotator cuff disorders one Guideline recommended initial treatment with prescribed exercise such as stretching, flexibility and strength	AGREE II tools used to asses quality Described synthesis process Describe definitions of recommendations

Summary

Systematic reviews highlighted how important exercises are to improving shoulder pain, however there is less evidence to suggest what type of exercise is important and how it should be delivered. However, doing exercise is better than doing nothing in reducing shoulder pain. It appears that exercises that are related to functional activities or activities of daily living are important.

A recent Danish trial (Christiansen and Jort 2021) explores different mechanisms of exercise delivery for those with shoulder pain. It is important to note the number of sessions delivered was more than delivered on average in the UK (12 compared to an average of 4 in the UK).

	Good quality evidence to support use….	☑
	Insufficient or poor quality evidence OR substantial harms suggest intervention used with caution after discussion with patient…	☐
	No good quality evidence, do not use until further research is conducted OR Good quality evidence to indicate that harms outweigh the benefits….	☐

Implications for Practice/research

This can be added to the evidence shared with patients in a 'shared decision making process'. Undertaking prescribe exercise can reduce shoulder pain and it is better than doing nothing. Services may wish to consider the options for delivering exercise e.g individually, as a group or as a supported home exercise programme.

What would you tweet? (140 characters)

Prescribed exercise reduces shoulder pain, it is better than doing nothing. Improvement seen in group sessions, individual treatment and home exercise programme.

References

Babatunde OO, Jordan JL, Van der Windt DA, Hill JC, Foster NE, Protheroe J. Effective treatment options for musculoskeletal pain in primary care: A systematic overview of current evidence. PLoS One. 2017 Jun 22;12(6):e0178621. doi: 10.1371/journal.pone.0178621. PMID: 28640822; PMCID: PMC5480856.

Christiansen, David Høyrup; Hjort, Jakob Group-based exercise, individually supervised exercise and home-based exercise have similar clinical effects and cost-effectiveness in people with subacromial pain: a randomised trial.(includes abstract) Journal of Physiotherapy (Elsevier), Apr2021; 67(2): 124-131. (8p) (Article - research, tables/charts, randomized controlled trial) ISSN: 1836-9553 AN: 149688379

Dong W, Goost H, Lin XB, Burger C, Paul C, Wang ZL, Zhang TY, Jiang ZC, Welle K, Kabir K. Treatments for shoulder impingement syndrome: a PRISMA systematic review and network meta-analysis. Medicine (Baltimore). 2015 Mar;94(10):e510. doi: 10.1097/MD.0000000000000510. Erratum in: Medicine (Baltimore). 2016 Jun 10;95(23):e96d5. PMID: 25761173; PMCID: PMC4602475.

Steuri R, Sattelmayer M, Elsig S, Kolly C, Tal A, Taeymans J, Hilfiker R. Effectiveness of conservative interventions including exercise, manual therapy and medical management in adults with shoulder impingement: a systematic review and meta-analysis of RCTs. Br J Sports Med. 2017 Sep;51(18):1340-1347. doi: 10.1136/bjsports-2016-096515. Epub 2017 Jun 19. PMID: 28630217; PMCID: PMC5574390.