

**Exercise therapy in the management of shoulder pain:
a summary of recent relevant research
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Key messages:

Rotator cuff disorders

- Exercise therapy may result in greater pain reduction when combined with other therapies, including manual therapy and acupuncture.
- Exercise should initially be supervised but is then equally effective when performed independently.
- Exercises should include stretching and range of motion exercises to be performed daily and strengthening exercises to be performed 3 times weekly.

Frozen shoulder

- Exercise should only be recommended once movement can be tolerated after the acute phase.

CONTEXT

This article is designed to give a brief overview of predominantly manual therapy and osteopathic-relevant research, with references provided for further reading; it is not intended to be an exhaustive account of the literature.

Exercise therapy in the management of shoulder pain

A proportion of osteopathic patients present with shoulder pain (6.8%) and practitioners may recommend exercises as part of their treatment plan (Fawkes et al., 2013). This summary seeks to identify and summarise current evidence to inform the recommendation of exercise for shoulder pain. Papers considering neuropathic pain; underlying disease processes, such as cancer and rheumatoid arthritis; fibromyalgia; and aquatic exercise were excluded.

This summary was based on existing published systematic reviews, Clinical Knowledge Summaries, and National Institute for Health and Care Excellence (NICE) guidelines. Although it is acknowledged that osteopaths do not limit treatment to the management of *conditions* and may use a range of techniques not considered to be exercise therapy, the purpose of this summary is to consider only the use of exercise therapy in the management of shoulder pain.

We reviewed 8 papers, 4 of which were systematic reviews, written between 2009 and 2016 to create this summary.

Rotator cuff disorders

Clinical knowledge summaries (CKS 2015b) summarise a number of recommendations for the management of rotator cuff impingement. Of particular relevance to osteopaths and manual therapists is that aggravating activities involving movement within the painful arc of abduction (60 - 120 degrees) should be avoided. Clinical guidance supports the use of exercise therapy which focuses on optimising shoulder function.

The following exercise therapy recommendations were based on the findings of Kuhn (2009); their evidence-based exercise protocol can be found as an appendix at the end of their review.

- Range of motion and stretching exercises should be performed daily.
- Strengthening exercises should be performed 3 times weekly.
- Exercise interventions should be initially supervised but are then equally as effective if continued independently.

Strength and range of motion

The following exercises were advised to improve strength and range of motion (ROM):

- pendulum exercise;
- postural exercises e.g. shoulder shrugs and shoulder retraction;
- active assisted ROM using a cane, pulley or the uninvolved arm, followed by active ROM if pain permits;
- resisted internal and external rotation using an elastic resistance band;
- scapular stability exercises e.g. chair press, push up and upright row using an elastic band; and
- use of a mirror to perform exercises to prevent recruitment of upper trapezius.

Flexibility

Flexibility exercises should focus on anterior and posterior shoulder tightness. The following exercises were advised:

- self-stretch of pectoralis minor in a door frame;
- horizontal shoulder adduction stretch e.g. sleeper stretch or cross-body stretch; and
- cane-assisted shoulder flexion and external rotation.

The recommendation for stretches was that they should be held for 15-30 seconds followed by 10 seconds of rest, for 3-5 repetitions.

Scapula-focused approach

Reijneveld et al. (2016) and Bury et al. (2016) carried out systematic reviews on scapula-focused approaches to shoulder treatment and identified a potential benefit for pain and disability reduction, although both were limited by the small number of trials they reviewed. They both highlighted a need for good quality studies with larger sample sizes. Bury et al. (2016) identified high levels of bias, including potential therapist bias and recommended that future studies should use a wider range of practitioners. They also commented on the poor reliability of the measurement of scapula position. Reijneveld et al. (2016) suggested that dynamic scapula tests should be used to measure scapula dyskinesis.

Combining therapies

Dong et al. (2015) concluded that greater pain reduction could be achieved when exercise was combined with other therapies, such as acupuncture, manual therapy and Kinesio-taping. A Cochrane review of manual therapy and exercise for rotator cuff disease (Page et al., 2016) identified high quality evidence that manual therapy and exercise resulted in slightly greater reductions in overall pain when compared with placebo, however they considered the difference not clinically significant. The review reported that there was low

quality evidence that manual therapy and exercise may be similar to glucocorticoid injections and arthroscopic subacromial decompression in reducing pain and improving function and quality of life.

Frozen Shoulder

It is currently unclear whether exercise and manual therapy is an effective adjunct to glucocorticoid injection or oral non-steroidal anti-inflammatories according to the Cochrane Review conducted by Page et al. (2014). They also found that exercise and manual therapy were not likely to be as effective as these treatments when offered as an alternative. Clinical knowledge summaries (CKS 2015a) don't recommend exercises for frozen shoulder in the acute stage as they are likely to exacerbate pain. However, they recommend that supervised exercise may be beneficial once movements can be tolerated. Management should include advice on avoiding painful movements in the acute stage but to continue with regular range of movement where possible.

References

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