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[Intervention Review]

# Arthrographic distension for adhesive capsulitis (frozen shoulder)

Rachelle Buchbinder<sup>1</sup>, Sally Green<sup>2</sup>, Joanne M Youd<sup>3</sup>, Renea V Johnston<sup>1</sup>, Miranda Cumpston<sup>2</sup>

<sup>1</sup>Monash Department of Clinical Epidemiology at Cabrini Hospital, Department of Epidemiology and Preventive Medicine, Monash University, Malvern, Australia. <sup>2</sup>Monash Institute of Health Services Research, Monash University, Clayton, Australia. <sup>3</sup>c/- Ivy Suite Bendat Family Comprehensive Cancer Centre, St John of God Hospital Subiaco, Subiaco, Australia

Contact address: Rachelle Buchbinder, Monash Department of Clinical Epidemiology at Cabrini Hospital, Department of Epidemiology and Preventive Medicine, Monash University, Suite 41, Cabrini Medical Centre, 183 Wattletree Road, Malvern, Victoria, 3144, Australia. [rachelle.buchbinder@med.monash.edu.au](mailto:rachelle.buchbinder@med.monash.edu.au).

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## ABSTRACT

### Background

Adhesive capsulitis (frozen shoulder or painful stiff shoulder) is characterised by spontaneous onset of shoulder pain accompanied by progressive stiffness and disability. It is usually self-limiting but often has a prolonged course over two to three years.

### Objectives

To determine the effectiveness and safety of arthrographic distension of the glenohumeral joint in the treatment of adults with adhesive capsulitis.

### Search methods

We searched the Cochrane Musculoskeletal Review Group Register, CENTRAL, MEDLINE, CINAHL, and EMBASE to November 2006, unrestricted by date or language.

### Selection criteria

We included randomised controlled trials and controlled clinical trials comparing arthrographic distension with placebo or other interventions.

### Data collection and analysis

Two review authors independently assessed study quality and extracted data.

### Main results

Five trials with 196 people were included. One three-arm trial (47 participants) compared arthrographic distension using steroid and air to distension using air alone and to steroid injection alone. One trial (46 participants) compared arthrographic distension using steroid and saline to placebo. Two trials (45 and 22 participants) compared arthrographic distension using steroid to steroid injection alone. One trial (36 participants) compared arthrographic distension using steroid and saline plus physical therapy to physical therapy

alone. Trials included similar study participants, but quality and reporting of data were variable. Only one trial was at low risk of bias. No meta-analysis was performed.

The trial with low risk of bias demonstrated that distension with saline and steroid was better than placebo for pain (number needed to treat to benefit (NNTB) = 2), function (NNTB = 3) and range of movement at three weeks. This benefit was maintained at six and 12 weeks only for one of two scores measuring function (NNT = 3). A second trial with high risk of bias also reported that distension combined with physical therapy improved range of movement and median percent improvement in pain (but not pain score) at eight weeks compared to physical therapy alone. Three further trials, all at high risk of bias, reported conflicting, variable effects of arthrographic distension with steroid compared to distension alone, and arthrographic distension with steroid compared to intra-articular steroid injection. The trials reported a small number of minor adverse effects, mainly pain during and after the procedure.

### Authors' conclusions

There is "silver" level evidence that arthrographic distension with saline and steroid provides short-term benefits in pain, range of movement and function in adhesive capsulitis. It is uncertain whether this is better than alternative interventions.

## PLAIN LANGUAGE SUMMARY

### Arthrographic distension for adhesive capsulitis (frozen shoulder)

This summary of a Cochrane review presents what we know from research about the effect of arthrographic distension for adhesive capsulitis. In people with adhesive capsulitis;

Undergoing distension with steroid and saline solution compared to placebo (fake distension);

- May improve pain at three weeks.
- May improve disability at three, six and 12 weeks.

Undergoing distension with steroid and saline solution compared to ordinary injection with steroid;

- May not lead to any difference in pain and disability.

We often do not have precise information about side effects and complications. Possible minor side effects may include pain or claustrophobia at the time of the procedure and fluid noises in the shoulder.

### What is adhesive capsulitis and what is arthrographic distension?

Another name for adhesive capsulitis is "frozen shoulder" or "painful stiff shoulder". In fact, it is so painful and stiff, it becomes difficult to move your shoulder in a normal way. Sometimes the loss of movement to your shoulder makes it feel like it is completely frozen. It is thought to be caused by scar-like tissue (adhesions) forming in the shoulder joint. Arthrographic distension is a procedure where fluid is injected into the shoulder joint to break up the adhesions that might be restricting the shoulder's movement and causing disability. Depending on the treatment, the fluid might contain a saline solution or steroids.

### Best estimate of what happens to people with adhesive capsulitis who have arthrographic distension:

**Pain:** at three weeks after treatment, people's pain improved by 2 points on a scale of 0-10. This could be as low as 1.1 or as high as 3.5 points on a scale of 1-10.

**Disability:** One study found that at three weeks after treatment, people's disability was improved by 11 points on a scale of 0-100, possibly as few as 4 or as many as 11 points on a scale of 0-100. Another study found disability was improved by 17 points. This improvement could possibly be as low as 6 or as many as 28 points on a scale of 0-100.

At six weeks after treatment, people's disability was improved by 46 points on a scale of 0-500. This improvement could possibly be as little as 20 points or as many as 80 points on a scale of 0-500.

At 12 weeks after treatment, people's disability was improved by 54 points on a scale of 0-500. This improvement could be as little as 15 points or as many as 95 points on a scale of 0-500.

The numbers given are our best estimate. When possible, we have also presented a range because there is a 95 percent chance that the true effect of the treatment lies somewhere between that range.