Physiotherapy for patients with soft tissue shoulder disorders: a systematic review of randomised clinical trials
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Authors' objectives
To assess the effectiveness of physiotherapy for patients with soft tissue shoulder disorders.

Searching
MEDLINE was searched from 1966 to 1995, and EMBASE from 1984 to 1995, using a predefined search strategy. In addition, citations were tracked for studies published before 1996.

Study selection
Study designs of evaluations included in the review
Studies were included if they met five criteria: (1) patients had shoulder pain at inclusion; (2) treatments were allocated by a random procedure; (3) at least one of the treatments included physiotherapy; (4) success rate, pain, mobility, or functional status were included as outcome measures; (5) results were published as a full report before January 1996.

Specific interventions included in the review
Ultrasound (continuous and pulsed), pulsed electromagnetic fields, magnotherapy, low-level laser, tolmetin sodium and steroid injection, acupuncture, exercises, arthroscopic resection of bursae and acromion, mobilisation, steroid injection, transcutaneous electrical stimulation (constant), Ga-As-Al laser, Maitland mobilisations, ice packs, proprioceptive neuromuscular facilitation exercises, no treatment, infrared laser, naproxen tablets, constant voltage electrotherapy, forced manipulation, hydrocortisone injection, diathermy, aspirin, exercises, thermotherapy, dexamethasone iontophoresis, analgesics and muscle relaxants, ice, triamcinolone injection, infrared heat, hydrocortisone intra-articular injection, hydrocortisone tendon injection, analgesics, and placebo.

Participants included in the review
Patients treated with physiotherapy for disorders of soft tissue of the shoulder were included.

Outcomes assessed in the review
The outcomes were success rates, mobility, pain and functional status.

How were decisions on the relevance of primary studies made?
The initial screening of studies was undertaken by one reviewer; two additional reviewers selected those trials from the initial screening that contained patients with soft tissue shoulder disorders.

Assessment of study quality
The validity of the primary studies was assessed through eight criteria: (1) enrolment of a homogeneous population with respect to prognosis and susceptibility to allocated intervention; (2) randomisation; (3) similarity at baseline; (4) withdrawals from treatment; (5) missing values; (6) co-interventions; (7) blinded application of intervention; and (8) blinded assessment of outcome. The papers were assessed for validity by three independent reviewers, with agreement by at least two reviewers.

Data extraction
[A: By one reviewer].

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken, using adherence to the validity criteria to weight the strength of the evidence.

How were differences between studies investigated?
The studies were assessed using five criteria: (1) sample size of groups; (2) standardisation of allocated interventions; (3) reported outcome variables; (4) outcome assessments; and (5) actual data for outcome variables.

Results of the review
Twenty studies (1,297 patients) were included.

The validity of trials was poor, with only 6 of the 20 studies satisfying five of the eight criteria. Assessment of methods was limited by insufficient information on validity criteria, and trials were flawed by lack of blinding, high proportions of withdrawals from treatment and high proportions of missing values.

When assessed on validity criteria, 4 of the 6 trials studying the effect of ultrasound therapy were acceptable, but none showed evidence that it was more effective than cold therapy and steroid injection, non-steroidal anti-inflammatory drugs and acupuncture, transcutaneous electrical stimulation, analgesics, iontophoresis or placebo. Two trials of the effectiveness of low-level laser therapy, which were acceptable on validity criteria, showed no significant differences over placebo. One placebo-controlled trial on pulsed electromagnetic fields had acceptable validity and reported favourable results for treatment. Other trials showing significant effects were considered to be affected by validity problems.

Authors' conclusions
There is evidence that ultrasound therapy is ineffective in the treatment of soft tissue shoulder disorders. Due to small trial sizes and unsatisfactory methods, evidence for the effectiveness of other methods of physiotherapy, including low-level laser therapy, heat treatment, cold therapy, electrotherapy, exercise and mobilisation, is inconclusive. For all methods of treatment, trials were too heterogeneous with respect to included patients, index and reference treatments, and follow-up, to allow statistical pooling.

CRD commentary
The review appears to be fairly good, clearly defining participants, interventions, inclusion and validity criteria, search strategy, methods of synthesis and presentation of results. The methods of data extraction are not stated clearly and no cost information is provided. The evidence presented in the primary studies is methodologically poor, and further efforts are necessary to provide stronger evidence to back up the conclusions of the reviewers.

Implications of the review for practice and research
Further research is necessary to assess whether physiotherapy is superior to treatment with drugs, steroid injections or a wait-and-see policy.

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Other publications of related interest
This additional published commentary may also be of interest. Physiotherapy for soft tissue shoulder disorders [letters]. BMJ 1998;316:555-6.

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**Record Status**
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.