Nonoperative treatment of midportion Achilles tendinopathy: a systematic review
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CRD summary
This review concluded that eccentric exercise had the most evidence of effectiveness in the treatment of mid-portion Achilles tendinopathy, and that more research is needed on the value of a range of alternative therapies. The authors’ conclusions reflected the results of the review, but poor reporting and lack of a validity assessment mean that their reliability is unclear.

Authors' objectives
To assess the best available evidence for non-operative treatment for mid-portion Achilles tendinopathy.

Searching
MEDLINE, EMBASE, CINAHL, Cochrane Database of Systematic Reviews and Cochrane Central Register of Controlled Trials (CENTRAL) were searched for studies in English up to April 2007. Search terms were reported. References of identified studies and reviews from the previous five years were also checked.

Study selection
Randomised controlled trials (RCTs) of treatment of mid-substance Achilles tendinopathy were eligible for inclusion. Also included were trials of treatment of tendinopathy in multiple locations where outcome data were reported separately for mid-substance Achilles tendinopathy patients.

The primary outcome was change in numeric pain score. Secondary outcomes were focal tenderness, tendon thickness and other validated outcome scores.

Included trials assessed eccentric exercise, the use of splints and insoles, extracorporeal shockwave therapy, local injections and other conservative therapies. Most trials enrolled a majority of male patients, with mean ages ranging from 35 to 52; most were at least recreationally involved in athletic pursuits.

The authors did not state how the papers were selected for the review.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Data on results of statistical analyses were extracted, together with method of diagnosis and patient characteristics.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
The trials were combined in a narrative synthesis, grouped by the comparison assessed.

Results of the review
Sixteen studies were included in the review; sample sizes were not reported.

Eccentric exercise versus control: Four of five trials showed statistically significant improvements in pain scores in the eccentric exercise group compared with the control group.

Variations of eccentric exercises, splints or insoles: One RCT found no effect of restriction of running and jumping in patients undergoing eccentric training. A second RCT found that eccentric exercises were more effective in reducing pain than night splints, but that there was no additional advantage for the two treatments combined. A third study found
no difference between eccentric exercise and insole therapy, although insoles were superior to control (normal activity).

**Extracorporeal shockwave therapy:** One RCT showed a statistically significant benefit of extracorporeal shockwave therapy over a wait-and-see group, but no difference between extracorporeal shockwave therapy and eccentric exercise. A second trial found no difference between extracorporeal shockwave therapy and placebo therapy.

**Local injections:** One of two RCTs found a statistically significant effect of local steroid injection on ambulation pain at four weeks; the second found no difference in pain or return to function at 12 weeks. Trials using injections of other agents found benefits for polidocanol and deproteinised haemodialysate, but not for aprotinin (one RCT in each case).

**Other conservative treatments:** Benefits were found for iontophoresis with dexamethasone and topical glyceryl nitrate (one RCT in each case).

**Authors' conclusions**

Eccentric exercise had the most evidence of effectiveness in the treatment of mid-portion Achilles tendinopathy. More research is needed on the value of extracorporeal shockwave therapy, local corticosteroid treatments, injections of sclerosing agents or deproteinised haemodialysate, and topical glyceryl nitrate application.

**CRD commentary**

The review question and inclusion criteria were clear. The authors searched several relevant databases, but the limitation of the review to trials reported in English may have led to the omission of relevant studies and the possible introduction of language bias. No systematic attempts to locate unpublished studies were reported, so the possibility of publication bias was also possible. The authors did not report using methods designed to reduce reviewer bias and error at any stage of the review process.

No assessment of the validity of the included trials was reported, which meant that the reliability of the evidence was unclear. The failure to report sample sizes of included trials also contributed to uncertainty over the reliability of the evidence. The decision to employ a narrative synthesis was reasonable in view of clinical heterogeneity between trials.

The authors' conclusions reflected the results of the review, but poor reporting and lack of a validity assessment mean that their reliability is unclear.

**Implications of the review for practice and research**

**Practice:** The authors stated that eccentric exercise is ideal first-line therapy with alternative treatments considered for patients who are unable or unwilling to perform the exercises, or who have failed treatment with this therapy.

**Research:** The authors stated that significant additional research is needed into the use of extracorporeal shockwave therapy, local corticosteroid treatments, injections of sclerosing agents or deproteinised hemodialysate, and topical glyceryl nitrate application for mid-substance Achilles tendinopathy.

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