Eccentric overload training in patients with chronic Achilles tendinopathy: a systematic review

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CRD summary
This generally well-conducted review assessed the efficacy of eccentric overload training in patients with chronic Achilles tendinopathy. The authors concluded that while the treatment appears promising, the magnitude of its effect could not be determined. This conclusion is likely to be reliable.

Authors’ objectives
To assess the efficacy of eccentric overload training in reducing symptoms in patients with chronic Achilles tendinopathy.

Searching
CINAHL, PubMed, MEDLINE, EMBASE, the Cochrane Library, PEDro and Google Scholar were searched from 1966 to December 2005; the search terms were reported. Only full-text articles published in a peer-reviewed journal in English or Dutch were eligible for inclusion in the review.

Study selection
Randomised controlled trials (RCTs) and controlled clinical trials (CCTs) were eligible for inclusion in the review. Studies of interventions which contained some eccentric overload training and fell within the domain of the general practice physical therapist were eligible for inclusion. Most of the interventions in the included studies used the eccentric-overload-training model of Alfredson et al.; the other studies used a training model containing eccentric exercises with cointerventions such as stretching and ice application. The controls used in the included studies were eccentric training with a night splint, concentric training and surgery. Eligible studies enrolled patients of either sex with a diagnosis of chronic Achilles tendinopathy. The mean duration of symptoms in the included studies ranged from 3.6 to 22 months. Studies were required to report at least one patient-oriented outcome such as pain, stiffness or physical functioning. The included studies assessed various forms of pain and used visual analogue scales, ordinal scales or the Foot and Ankle Outcome Scale.

Two reviewers independently assessed studies for inclusion in the review.

Assessment of study quality
Two reviewers independently assessed the validity of the studies using the Delphi list, which assesses both internal and external validity and awards trials a score of between 0 and 9. The level of evidence was also graded between A1 and D using the classification system of the Dutch Institute for Healthcare Improvement.

Data extraction
Data were extracted on the nature of the intervention, the type of pain assessed, and the mean reduction in pain in the intervention and control groups. The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
The studies were combined in a narrative; the narrative also discussed differences between the studies. Some form of statistical pooling was employed to calculate a mean improvement in pain for the intervention and control groups, but it is unclear what form this took.

Results of the review
Nine trials were included in the review: 3 RCTs (n=128) and 6 CCTs (n=356).

Only one study was considered to be of adequate methodological quality, scoring 6 out of 9 on the Delphi scale. The
scores for the other 8 trials ranged from 0 to 4.

Pain was the primary outcome in 8 trials, with all studies reporting a reduction in pain for both the eccentric overload and the control groups, although different definitions and measures of pain were applied. The mean reduction in pain for eccentric training groups in all studies was 60% (95% confidence interval, CI: 29, 94), while for the control group it was 33% (95% CI: 13, 86). In all but one trial the reduction in pain was greater in the eccentric training group than in the control group.

**Authors’ conclusions**  
The effects of eccentric exercise training on pain in patients with chronic Achilles tendinopathy are promising, but the magnitude of the effects cannot be determined.

**CRD commentary**  
The review question and inclusion criteria were clear. The authors searched several relevant databases, but the decision to restrict inclusion to published articles reported in English or Dutch might have increased the possibility that some relevant studies were not included in the review. The authors reported using methods designed to minimise bias and error in the study selection and validity assessment processes, but not in the data extraction. The validity assessment used appropriate criteria. The decision to adopt a narrative synthesis appears appropriate, although some unspecified statistical synthesis was also employed: the appropriateness of this remains unclear. This was generally a well-conducted review, the conclusions of which accurately reflect the limited evidence available and are likely to be reliable.

**Implications of the review for practice and research**  
Practice: The authors did not state any implications for practice.

Research: The authors stated that large methodologically sound studies with functional outcome measures, in particular the Victorian Institute of Sport Assessment-Achilles Questionnaire, should be undertaken.

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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.