

Gaida JE, Cook J. Treatment options for patellar tendinopathy: critical review. Curr Sports Med Rep. 2011;10(5):255-70.

Design: Critical review of randomized trials and observational studies

Reasons not to cite this review by itself as evidence:

- The article is better designated as an informal than a systematic review; only one author selected studies for inclusion and the summary is mainly narrative in nature
- For some included studies, there is insufficient information about study design to ensure that unbiased comparisons were carried out, and the full text of the articles have to be examined to determine if they are adequate for evidence
- The focus is principally on sports medicine applications with return to play as an outcome of interest
- However, the review does provide good information which may not qualify as evidence but which can provide guidance for guideline options
- Conservative management presents two options with support from observational studies, and either or both could be employed in a rehabilitation program for patellar tendinopathy
 - o Eccentric exercise is likely to be beneficial, and a 25° decline squat board has been reported to produce improvements in patellar tendon function
 - o The authors mention an RCT (Bahr 2006) which reported that rehabilitation with eccentric exercise was as effective as surgery in improving knee function at 12 months; details of this study are not given, but it was adequately designed and reported
 - 35 patients (40 knees) were allocated by block randomization with opaque, sealed envelopes into two treatment groups
 - A power calculation was done and the sample size was adequate to detect a difference of 13 points on the Victorian Institute of Sport Assessment (VISA) score, a 100 point scale designed for testing patellar tendon function
 - The exercise group performed home exercise twice daily on a 25° decline squat board for 12 weeks, doing 3 sets of 15 repetitions at each session
 - The downward (eccentric) phase was done with the affected leg, and the upward (concentric) phase done with the unaffected leg; if both knees were affected, the patient was to use the arms to assist with the concentric phase
 - The surgical group had a wedge-shaped full-thickness excision followed by a rehab program with a gradual increase in weight-bearing and gradual discontinuation of the use of crutches

- At 3, 6, and 12 months, the two treatment groups showed no significant difference in their VISA scores; some secondary outcomes such as jumping tests were also equal, and satisfaction was not different between groups
 - 5 of the 20 knees in the exercise group crossed over to surgery during the 12 month followup time
 - The authors concluded that eccentric training is a low-risk, low-cost option which should be tried before surgery is considered
- There is an adequate methodological summary of a 2011 RCT testing extracorporeal shock wave therapy (ESWT) for patellar tendinopathy, and ESWT made no difference in VISA scores at followup; the summary of the study design shows that it had acceptable control of bias, and supports the conclusion that ESWT is not an effective treatment for this condition
- Platelet-rich plasma has insufficient data from unbiased studies, as has been reported by other more formally conducted systematic reviews
- A small RCT (Kongsgaard 2009) comparing corticosteroid injection to eccentric exercise and to heavy slow resistance training did not show any advantage of steroid injection over either exercise program, both of which had greater improvements in VISA scores than the steroid group; although probably not adequate to support evidence that exercise is better than steroid, it does support an information statement that there is no evidence that steroid injection is more effective than eccentric exercise
 - The heavy slow resistance training requires special equipment, while the eccentric exercise can be done at home with a 25° decline board similar to that used in other studies
- The available evidence on the effectiveness of sclerosing injections was inadequate to support its use; arthroscopic shaving may be more effective (but no patient in either group was provided an exercise program)

Comments:

- Most of the data come from studies which are susceptible to bias, but some valuable conclusions can be cautiously drawn, most of which support noninvasive exercise rehabilitation over injections, ESWT, or surgery
- The evidence on sclerosing injections fails to compare them with exercise programs; the patients did not have a rehabilitation protocol, rendering the evidence inadequate regarding the usefulness of sclerosing injection

Assessment: Information from the review, when supplemented by reference to some of the included literature, supports some evidence that in the setting of patellar tendinopathy, a home program beginning with eccentric exercise is as effective as one beginning with referral to surgery, although referral to surgery in the first six months may be necessary for some patients.

There is no evidence that ESWT is effective for patellar tendinopathy. There is no evidence that steroid injections are more effective than eccentric exercise. Sclerosing injections have not been compared with exercise and there is no evidence to support their use.

Although heavy slow resistance training may be an acceptable alternative to eccentric exercise, it requires special equipment, and has no advantage over eccentric exercise which can be done at home with a simple 25° decline squat board.

References:

Bahr R, Fossan B, et al. Surgical treatment compared with eccentric training for patellar tendinopathy (jumper's knee). A randomized, controlled trial. *JBJS Am.* 2006; 88:1689-98.

Kongsgaard M, Kovanen V, et al. Corticosteroid injections eccentric decline squat training and heavy slow resistance training in patellar tendinopathy. *Scand. J. Med. Sci. Sports.* 2009; 19:790-802.