Ulnar collateral ligament reconstruction: a systematic review
Purcell D B, Matava M J, Wright R W

CRD summary
This review aimed to assess an overhead throwing athlete's ability to return to competition after ulnar collateral ligament reconstruction. It was concluded that the figure-of-eight and docking techniques in particular provide excellent results. These conclusions are supported by the evidence presented but need to be confirmed by further higher quality studies.

Authors' objectives
To assess an athlete's ability to return to competition after ulnar collateral ligament reconstruction.

Searching
MEDLINE, EMBASE and the Cochrane Library were searched from inception to 31 August 2005; the search terms were reported. The reference lists of included studies were also checked for potentially relevant reports. Unpublished material and conference abstracts were excluded.

Study selection
Study designs of evaluations included in the review
All types of studies with a cohort of patients that had a minimum of 1 year follow-up were eligible for inclusion. The duration of follow-up ranged from 3 to 6 years.

Specific interventions included in the review
Studies that assessed ulnar collateral ligament reconstruction were eligible for inclusion. Post-operative rehabilitation was similar in all studies: athletes began range of motion exercises after 7 to 10 days, a throwing programme was initiated at 4 months, pitching was initiated after 6 to 7 months, and patients were allowed to return to competition after 9 to 12 months.

Participants included in the review
Eligibility criteria for the patients were not clearly specified. It appears that studies of overhead throwing athletes were eligible for inclusion. The mean age in the included studies ranged from 21 to 24 years. There was, at most, one female patient per study. Most of the patients were baseball players at the professional or collegiate level. Fourteen to 16% of the patients had previously undergone elbow surgery.

Outcomes assessed in the review
Studies that reported on ability to return to competition were eligible for inclusion. The outcomes of interest were ability to return to play level (i.e. to overhead throwing activities) and complications. The outcome categories for return to play level were ‘excellent’ (return to same or higher level of play), ‘good’ (return to competition at lower level), ‘fair’ (return to recreational play) and ‘poor’ (inability to return to play).

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The studies were assessed for selection, performance, attrition and detection biases.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Data were extracted on the type of study, number of patients, number of patients with previous surgery, number of patients at final follow-up, percentage of patients at final follow-up, average length of follow-up, graft used, surgical technique, number of surgeons, additional procedures performed at surgery, complications, rehabilitation protocol and outcomes (ability to return to competition).
Methods of synthesis
How were the studies combined?
The studies were combined in a narrative, with accompanying tables.

How were differences between studies investigated?
Differences between the studies were discussed in the text.

Results of the review
Four retrospective cohort studies (281 patients, 253 ligament reconstructions) were included.

Excellent results were reported in 68 to 92% of the cases (55 to 92% with previous surgery and 74 to 93% without) using figure-of-eight and docking techniques; good results were reported in 0 to 13% of cases. The most commonly reported complication was transient ulnar neuropathy.

All studies had a follow-up rate of at least 70%. The authors reported evidence of selection bias and performance bias, as well as minimal attrition bias.

Authors' conclusions
Ulnar collateral ligament reconstruction can return the athlete to previous or higher levels of play. In particular, the figure-of-eight and docking techniques provide excellent results.

CRD commentary
The research question was defined in terms of the intervention, outcome and study design, but was less clear in relation to the participants. Several relevant sources were searched, although the exclusion of unpublished material means there is the potential for publication bias, which might have affected the results. The validity of the studies was assessed and taken into account, although this was based on a general discussion of potential biases rather than a formal quality assessment. It was stated that all the included studies were retrospective cohort studies, but no indication of the control groups was given in the review article; it therefore appears more appropriate to categorise the studies as case series. In addition, more detailed information about complications would have been desirable. Overall, the evidence presented supports the authors’ conclusions, but needs to be confirmed by further studies of higher quality.

Implications of the review for practice and research
The authors did not state any implications for practice or further research.

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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.