**Buchbinder R, Johnston RV, et al. Surgery for lateral elbow pain (Review). Cochrane Database of Systematic Reviews 2011, #3, Art # CD003525.**

**PMID: 21412883**

Design: Systematic review of clinical trials

Purpose of study: to determine the benefits and safety of surgery for lateral elbow pain

PICOS:

* Patient populations were those with lateral elbow pain, which included designations such as tennis elbow, lateral epicondylitis, rowing elbow, tendonitis of the common extensor origin, and peritendinitis of the elbow
  + Pain should be maximal over the lateral epicondyle and made worse by pressure over the lateral epicondyle, exacerbated by resisted extension of the wrist, or both and without a history of trauma or systemic inflammatory conditions
* Interventions: Operative procedures such as release of the extensor carpi radialis brevis (ECRB), release of the posterior interosseous nerve, denervation of the radiohumeral joint, percutaneous release of the lateral epicondyle muscle attachments, debridement of articular damage, and excision of the radiohumeral bursa
* Comparisons: no treatment, sham surgery, a different surgical procedure, or a nonoperative modality
* Outcomes: main outcomes of interest were pain, function or disability, and adverse effects; secondary outcomes included range of motion, grip strength, and perceptions of overall effect
* Study types: both randomized and quasi-randomized trials (such as allocation by birth date or hospital record number)

Study selection:

* The final search was dated December 2010, from databases including MEDLINE, EMBASE, CINAHL, and the Cochrane Central Register
* Two authors independently examined articles to assess whether they met the inclusin criteria
* The Cochrane Risk of Bias tool was used to assess the quality of studies, with criteria such as random sequence generation, allocation concealment, level of blinding, incomplete outcome data, and selective outcome reporting

Principal results:

* Five trials were included in the final review
* All five trials were considered by the authors to be at risk of bias, with failure to report adequate randomization and allocation concealment
* One study at high risk of bias with 24 patients compared open ECRB release versus radiofrequency microtenotomy and reported pain reductions in both groups at 3, 6, and 12 weeks, at 10 and 18 months, and reported no group differences at any time point
  + However, the authors re-analyzed the data and found that microtenotomy had significantly lower pain (2.8 points on a 10 point scale) at the three week mark
  + Function and return to work did not differ between groups at any time point
* Other high-risk of bias comparisons included open ECRB release versus percutaneous tenotomy, open ECRB lengthening versus posterior interosseous nerve decompression, open ECRB release versus botulinum toxin, and percutaneous tenotomy versus extracorporeal shock wave therapy
  + The authors could not draw conclusions from these comparisons due to lack of adequate outcome reporting or due to the high risk of bias in the studies

Authors’ conclusions:

* There is a paucity of high quality evidence to support surgical interventions for lateral elbow pain
* Adequately designed and conducted randomized trials will be required in the future, which need to report outcomes in terms of means and standard deviations for continuous measures or numbers of events and numbers analyzed for dichotomous outcomes

Comments:

* The re-analysis of pain at 3 weeks alone for open ECRB release versus radiofrequency microtenotomy lacks credibility as evidence due to the fact that pain was compared five time points between 3 weeks and 18 months
* The high risk of bias in all studies precluded the authors from drawing conclusions for any of the comparisons; the methods used by the authors were satisfactory but the current state of the evidence sheds little light on the effect of surgical treatment of lateral elbow pain

Assessment: high quality systematic review which shows that there is currently a lack of evidence concerning the effectiveness of any surgical intervention for lateral elbow pain