**Chen L, Duan X, Huang X, et al. Effectiveness and safety of endoscopic versus open carpal tunnel decompression. Arch Orthop Trauma Surg. 2014;134(4);585-93.**

**PMID: 24414237**

Design: meta-analysis of randomized clinical trials

Purpose of study: to compare the effectiveness of endoscopic (ECTR) versus open (OCTR) carpal tunnel release in patients with carpal tunnel syndrome (CTS)

PICOS:

* Patient population: patients with a clinical diagnosis of CTS undergoing carpal tunnel release
  + Studies of CTS associated with pregnancy or hypothyroidism were excluded
* Intervention: ECTR by single-portal or by double-portal technique
* Comparison intervention: standard OCTR
  + Studies of OCTR using other instruments such as mini-incision with the Knife-light instrument, limited OCTR using Strickland’s instrument, and limited incision open technique release were excluded
* Outcomes: primary outcome was recovery of function (grip strength and pinch strength) at 3 months
  + Secondary outcomes included symptom relief (pain and paresthesias) before or after 3 months, time to return to work, reoperation rate, and complications
  + Complications included nerve damage (reversible and irreversible), wound problems, and reflex sympathetic dystrophy
* Study types: Randomized controlled trials

Study selection and assessment:

* Search databases included PubMed, EMBASE, and the Cochrane Central Register of Clinical trials through December 2012
* Two authors independently extracted data and assessed studies for inclusion
* 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

Results:

* 15 trials, with 1596 hands, were included in the analysis, but only two studies reported on the primary outcome of interest
  + Functional outcomes at 3 months were pooled from two studies with 297 patients
    - There was no statistical difference between ECTR and OCTR in recovery of grip strength
    - ECTR resulted in significantly better recovery of pinch strength than OCTR (0.83 kg, 95% confidence interval 0.31 to 1.35)
* Secondary outcomes (symptom relief, return to work, reoperation rate, complications) were reported by a larger number of studies
* Four studies with 470 hands indicated no statistical difference between ECTR and OCTR in pain relief at or before 3 months after surgery

Reasons not to cite as evidence:

* There are major errors in some forest plots
  + Figure 3, pooling pain outcomes, cites Agee 1992 with sample sizes of 85 and 89 for OCTR and ECTR respectively
  + However, Agee 1992 reports a Table IV, where pain data are given; the figures of 85 and 89 are not the numbers of patients, but the percentages of patients in each group which reported pain at baseline
* There is a much better reported current Cochrane meta-analysis of the same topic (Vasiliadis 2014) which is more accurate in constructing its analyses of the pertinent data

Reference:

Agee JM, McCarroll HR, et al. Endoscopic release of the carpal tunnel: a randomized prospective multicenter study. J Hand Surg Am 1992;17A:987-95

Vasiliadis, H. S., Georgoulas, P., Shrier, I. et al. Endoscopic release for carpal tunnel syndrome. Cochrane Database Syst Rev. 2014;1;CD008265.