

Trapeziometacarpal Arthrodesis or Trapeziectomy with Ligament Reconstruction in Primary Trapeziometacarpal Osteoarthritis: A 5-Year Follow-Up

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Purpose To compare the long-term outcomes of trapeziectomy with ligament reconstruction and tendon interposition (LRTI) with trapeziometacarpal arthrodesis for osteoarthritis (OA) of the basal thumb joint.

Methods Patients were evaluated for pain, daily functioning, strength, and complications after a mean follow-up of 5.3 years. Generalized estimating equations statistics were used to compare repeated measurements over time in both groups.

Results After 5 years, patients who had trapeziectomy with LRTI had significantly better pain reduction and function than the arthrodesis group. Pain and function in the LRTI group continued to improve compared with the results 1 year after surgery, whereas the arthrodesis group did not change. Grip and pinch strength were higher than 1 year after surgery but were not different between groups. In the arthrodesis group, 1 patient was reoperated for nonunion between 1 year and a mean of 5 years after surgery, resulting in a total of 18% nonunion. Another patient underwent reoperation for hardware-related pain. One patient from each group required reoperation because of pain due to scaphotrapeziotrapezoid OA.

Conclusions Trapeziectomy with LRTI leads to better pain reduction and functional outcome after between 1 and 5 years compared with trapeziometacarpal arthrodesis in women over 40 years old with OA stages II to III. (*J Hand Surg Am.* 2016;41(9):910–916. Copyright © 2016 by the American Society for Surgery of the Hand. All rights reserved.)

Type of study/level of evidence Therapeutic IV.

Key words LRTI, arthrodesis, trapeziometacarpal, osteoarthritis, thumb.

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LITERATURE SUPPORTING THE USE OF trapeziometacarpal (TMC) arthrodesis in the treatment of osteoarthritis (OA) of this joint is unclear.¹ In 2011, a systematic review by Vermeulen et al¹ concluded that the studies regarding TMC arthrodesis are of poor methodological quality. Therefore, we performed a randomized clinical trial comparing trapeziectomy, with ligament reconstruction and tendon interposition (LRTI) using the Weilby surgical technique (Fig. 1),^{2,3} with TMC arthrodesis (Fig. 2), 3 and 12 months after surgery.⁴ This trial

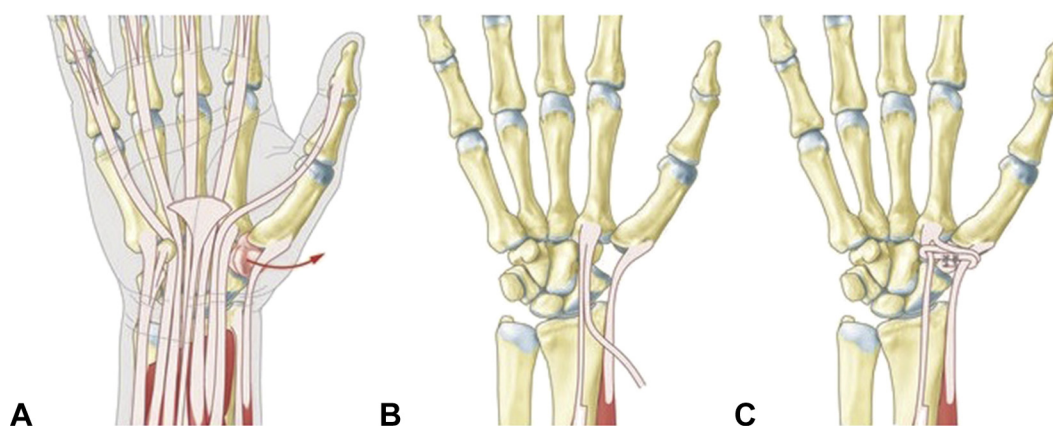


FIGURE 1: Trapeziectomy and LRTI according to the Weilby technique. **A** The trapezium is removed, **B** a split of the flexor carpi radialis is taken, and **C** it is woven in a figure-of-eight construction between the abductor pollicis longus and itself.

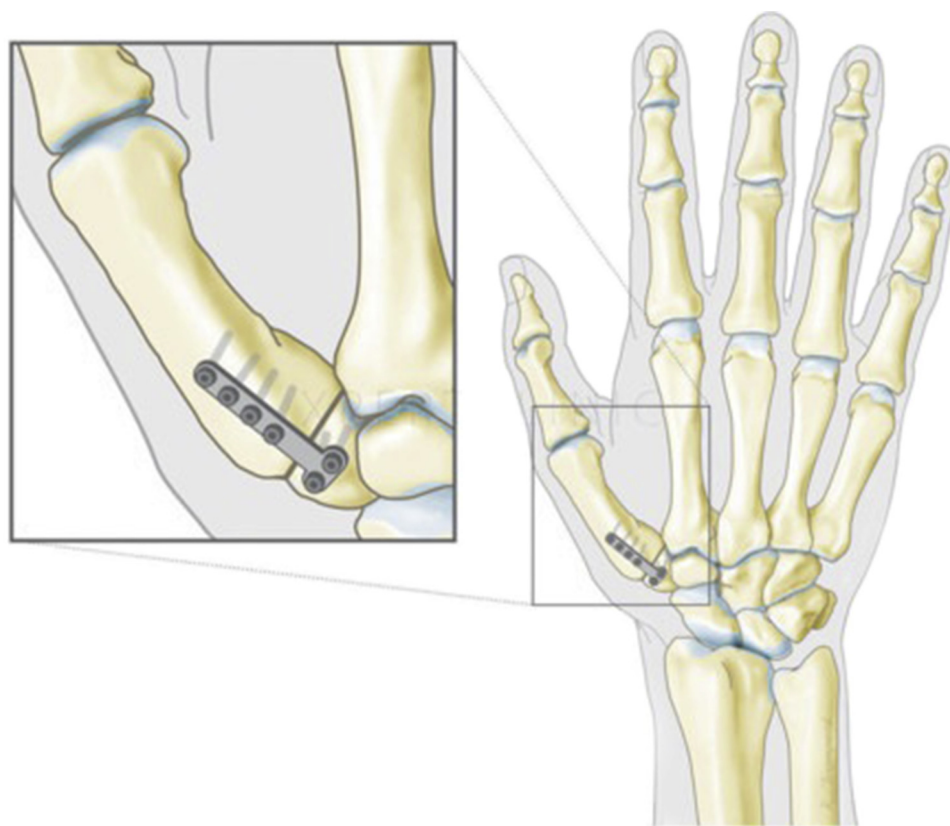


FIGURE 2: After denuding the joint surfaces of the first metacarpal and trapezium, the joint was stabilized and compressed using 2.3 mm screws and a T plate.

was terminated before completion because of a significantly higher complication rate in the arthrodesis group. Other outcomes were not significantly different between the groups but tended toward showing a better recovery in the LRTI group. However, it was unclear whether these differences between the groups would change over time. In addition, we saw 2 more complications in the

arthrodesis group, within 24 months after surgery, which further emphasized the importance of a longer-term follow-up of this study. We hypothesized that the better results of the trapeziectomy with LRTI, although not significant, would increase after 12 months compared with the TMC arthrodesis. Therefore, we reevaluated the patients at a mean follow-up of 5 years after surgery.

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