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# OUTCOMES OF REVERSE TOTAL SHOULDER ARTHROPLASTY WITH LATISSIMUS DORSI TENDON TRANSFER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Background:** For patients undergoing reverse shoulder arthroplasty (RSA) with preoperative loss of forward elevation (FE) and external rotation (ER), latissimus dorsi transfer (LDT) has been a purported option to restore motion. This systematic review sought to summarize range of motion (ROM) and outcome scores after RSA with LDT, both with and without concurrent teres major transfer (TM), as well as discuss the findings in the context of prosthesis design.

**Methods:** A systematic review was performed per PRISMA guidelines. We queried PubMed, MEDLINE, Embase, and Cochrane databases to identify articles on tendon transfer (TT) with RSA. Our primary outcome was postoperative ER. Secondly, we evaluated FE, Constant score, and complications. We included studies that reported ROM in patients undergoing RSA with concomitant LDT to restore ER and FE. Subanalyses were performed to compare outcomes based on whether the teres major was also transferred and by prosthesis lateralization.

**Results:** We included 19 articles reporting on 300 shoulders (65% female, mean age=68.7 years, mean follow-up=50.6 months). There were 127 LDT and 173 LDT-TM transfers. The surgical indication was most commonly cuff tear arthropathy and massive irreparable rotator cuff tear. Mean ER was -8.1° preoperatively and 23.6° postoperatively, FE was 72.5° preoperatively and 138.7° postoperatively. Mean postoperative Constant score was 64.8. Sub-analysis comparing lateralized versus medialized implants, classified based on previous literature, revealed no difference for postoperative ER (25.1[19.3-30.8] vs. 20.4[13.8-27.0], P=0.294), FE (136.9[129.0-144.9] vs. 145.9[137.1-154.6], P=0.139) or the Constant score (63.6[60.4-66.9] vs. 66.7[63.6-69.9], P=0.185). Similarly, there were no differences for LDT-only versus LDT-TM (22.9[17.5-28.3] vs. 23.4[17.3-29.5], P=0.893), FE (141.0[132.1-150.0] vs. 140.1[135.0-145.2], P=0.855), or Constant score (65.6[61.8-69.5] vs. 64.8[62.7-66.9], P=0.701). The complication rate was 19.3%, reported in 228 shoulders, including tear in the TT(n=3), revision tendon repair(n=1), glenoid/baseplate loosening(n=5), complication related to polyethylene insert(n=2), peri-prosthetic fracture(n=6), transient neuropraxia(n=5), nerve injury(n=2), dislocation(n=10), and infection(n=10). Humeral cortical erosion at the TT site was identified in 34%(41/121).

**Conclusions:** RSA with LDT in the setting of loss of ER and FE is a reliable option to restore postoperative motion, with comparable complication rates to standard RSA. Lateralization and addition of TM transfer do not appear to affect outcomes.