Title: Early Postoperative Physical Therapy Is Associated With Reduced Retear and Reverse Shoulder Arthroplasty After Rotator Cuff Repair: A Multiyear Matched Cohort Study

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Abstract:

Introduction:
The timing of physical therapy (PT) initiation following rotator cuff repair remains controversial. Early PT may aid recovery and tendon healing but has raised concerns about compromising repair integrity. This study evaluates whether initiating PT within the first 6 weeks postoperatively affects long-term outcomes, including retear, revision surgery, and conversion to reverse shoulder arthroplasty.

Methods:
A retrospective cohort study was conducted using a large, multi-institutional electronic health record database. Adult patients undergoing rotator cuff repair were stratified into two cohorts: those who initiated physical therapy within 6 weeks postoperatively (Cohort 1, n=12,069) and those who did not (Cohort 2, n=3,815). Propensity score matching was used to adjust for baseline differences, resulting in two balanced cohorts of 2,634 patients each. Primary outcomes included rotator cuff retear, revision surgery, and conversion to reverse shoulder arthroplasty at 1, 3, and 5 years postoperatively. Hazard ratios (HR) with 95% confidence intervals (CI) were calculated. Statistical significance was defined as $p < 0.05$.

Results:
At 1-year follow-up, early PT was associated with a significantly lower risk of rotator cuff retear (HR 0.92, 95% CI 0.86–0.98, p=0.014) and reverse shoulder arthroplasty (HR 0.25, 95% CI 0.14–0.44, p<0.001). Revision rates were not significantly different.
At 3 years, early PT remained associated with a lower risk of retear (HR 0.91, 95% CI 0.85–0.97, p=0.005) and reverse arthroplasty (HR 0.25, 95% CI 0.15–0.39, p<0.001), with no difference in revision rates.
At 5 years, early PT continued to be associated with reduced retear risk (HR 0.91, 95% CI 0.85–0.97, p=0.003) and reverse arthroplasty (HR 0.25, 95% CI 0.16–0.38, p<0.001), with revision rates still not significantly different.

Conclusion:
Initiating physical therapy within 6 weeks following rotator cuff repair is associated with significantly lower long-term rates of rotator cuff retear and conversion to reverse shoulder arthroplasty without increasing the risk of revision surgery. These findings support early postoperative rehabilitation as a safe and effective strategy to enhance long-term surgical outcomes.