

# Platelet-Rich Plasma Injections for High-Grade Intrasubstance Partial Rotator Cuff Tears: A Retrospective Study

## Abstract

**Background:** Platelet-rich plasma (PRP) injections have been shown to have a number of useful applications in various musculoskeletal pathologies. Research pertaining to the use of PRP for intrasubstance rotator cuff tears is lacking, although these tears have unique properties that may increase the efficacy of PRP injections.

**Purpose:** To perform retrospective cohort analyses of treatment groups who either received ultrasound-guided PRP injections into the tear or surgical repair for intrasubstance rotator cuff tears. To compare the clinical effectiveness for both treatment options.

**Methods:** Patients with MRI-confirmed intrasubstance rotator cuff tears were first asked to fill out an American Shoulder and Elbow Society (ASES) questionnaire to determine their baseline score determined from ratings of pain and functionality. Patients were then sent to a non-operative sports medicine physician for ultrasound-guided PRP injection and began a rehabilitation protocol. They were clinically evaluated at 6 weeks, 3 months and 1 year at which time they completed additional ASES surveys. Additionally, data on patients who had received rotator cuff repair (RCR) for intrasubstance rotator cuff tears was retrospectively analyzed, and ASES scores from pre-op appointments as well as 1 year follow-up were obtained for comparison.

**Results:** A total of 25 patients received PRP injections, compared to 20 patients who had RCR for intrasubstance tears in the last 3 years. The mean ASES score pre-injection for the PRP group was 53.2, and improved by an average of 38.6 points over the course of a year, resulting in an average ASES score of 91.8 at the one year mark. Patients in the RCR group had an average pre-op ASES score of 51.9 and an average ASES score of 92.9 at one year, yielding an average increase of 41.0. Both groups had clinically and statistically significant improvement, but there was no statistically significant difference in speed of improvement or overall ASES difference for the 2 groups.

**Conclusion:** Injection of LP-PRP provided substantial clinical improvement for patients with intrasubstance rotator cuff tears comparable to that of arthroscopic rotator cuff repair. This suggests that PRP could serve as an alternative treatment option to arthroscopic repair in limited pathologies. Further investigation could aim to examine efficacy of PRP injections in different tear sizes as well as examining the effect of leukocyte concentration on clinical outcomes.