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## Subacromial Injection of Tranexamic Acid Improves Early Postoperative Range of Motion Without Compromising Tendon Healing in Arthroscopic Rotator Cuff Repair: A Randomized Controlled Trial

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### Introduction and Background

The purpose of this study is to determine whether subacromial injection of tranexamic acid improves early postoperative range of motion of the shoulder and to assess tendon healing and functions following arthroscopic rotator cuff repair at 2-year postoperative.

### Material and Method

In this prospective randomized controlled trial (Nov 2019–Dec 2020), patients undergoing arthroscopic rotator cuff repair were assigned to either a subacromial TXA injection or control group. Shoulder ROM was assessed preoperatively and at 2, 6, and 12 weeks postoperatively. Pain was evaluated at 24 hours using a visual analog scale. At 2 years, tendon healing was assessed via MRI using the Sugaya classification, and functional outcomes were measured with ASES and Constant scores.

### Results

Sixty-two patients were randomized (31 per group). The TXA group demonstrated statistically significant improvements in forward flexion, glenohumeral abduction, and external rotation at 2, 6, and 12 weeks postoperatively, as well as reduced pain scores at 24 hours ( $P < 0.05$  for all). At 2 years, there were no significant differences between groups in tendon healing on MRI ( $n = 39$ ), ASES, or Constant scores. Subgroup analysis by tear type also showed no significant differences.

### Conclusions

Subacromial injection of tranexamic acid improved early shoulder ROM up to 12 weeks postoperatively, reduced postoperative pain at 24 hours, and demonstrated no impairment in tendon healing or function following arthroscopic rotator cuff repair at 2 years postoperative.

