

Performance and Return to Sport Following Medial Ulnar Collateral Ligament Repair with Internal Brace Augmentation in Professional Baseball Players

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INTRODUCTION: Medial ulnar collateral ligament (UCL) reconstruction (UCLR) has been the gold standard treatment for symptomatic UCL injuries in throwing athletes. Recently, a novel technique of UCL repair with suture augmentation has been described and shown promising biomechanical as well as clinical results in a few small series of nonprofessional athletes. An added advantage of this technique over UCLR is that it affords the potential ability to return to competitive throwing with an accelerated timeline of 6-7 months as opposed to 12-18 months. No prior work has described the outcomes of this technique in professional athletes. This study aimed to evaluate the frequency and rate of return to prior level of sport as well as athletic performance of professional baseball players following UCL repair with Internal Brace augmentation.

METHODS: This study included all professional Major League Baseball (MLB) and Minor League Baseball (MiLB) players who underwent primary UCL repair with Internal Brace from January 2016 to June 2021. Demographic and performance data were recorded for each player. Performance metrics were then compared from one year pre-injury against one year postoperative metrics. The return to play date was recorded. Univariate statistical analysis was performed to compare pre-injury to postoperative performance ($p < 0.05$ considered statistically significant).

RESULTS: Fifteen players met inclusion criteria (8 MLB and 7 MiLB). Mean age was 28.2 +/- 4.06 years at time of surgery. There were 10 pitchers and 5 position players. All injuries were to the dominant extremity. No players underwent revision surgery during the study period. 93.3% (14/15) of players returned to sport and eventually prior level of competition. Average time to return to sport was 11.5 +/- 4.27 months and average time to prior level of competition was 12.1 +/- 4.61 months. When comparing competitive performance of players that returned successfully, one year pre-injury to one year postoperatively, there was no statistically significant difference observed in performance [Table 1].

DISCUSSION AND CONCLUSION: This study demonstrates promising early results of UCL repair with Internal Brace augmentation in professional baseball players. 93.3% of players were able to return to sport in under 12 months. All players, pitcher and position, that returned to sport were able to return to their prior level of play. No statistically significant drop in performance was observed in players that were able to return to play. Further clinical evaluation of UCL repair with Internal Brace augmentation and direct comparison of this procedure with UCL reconstruction is warranted.

Table 1. Comparison of competitive performance one year pre-injury to one year postoperatively. Univariate analysis was utilized ($p < 0.05$ considered significant). Abbreviations: ER, earned runs; ERA, earned run average; GP, games played; GR, games relieved; GS, games started; HR, home runs; IP, innings pitched; Post, postoperative; Pre, preoperative; WHIP, walks and hits per innings pitched.

	Pre-injury	Postoperatively	p-value
Pitchers			
GP	55.07	24.64	0.06
GS	5.56	5.13	0.47
GR	3.11	2	0.61
IP	66.42	38.9	0.38
Wins	4.33	2	0.24
Strike Outs	63	37.5	0.43
Walks	26.11	16.5	0.41
ER	30.3	17.4	0.33
ERA	3.70	6.24	0.19
WHIP	1.36	2.08	0.15
Position players			
Singles	73.6	30.2	0.22
Doubles	16.6	7.2	0.28
Triples	3	0.2	0.07
Home Runs	13.4	7	0.46