



Apr 24th, 12:00 AM

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RETURN TO PLAY AFTER ULNAR COLLATERAL LIGAMENT INJURIES IN BASEBALL PLAYERS

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PURPOSE

Ulnar collateral ligament injuries are one of the most common injuries among baseball players, specifically pitchers. Levels of play in this research include Major League Baseball (MLB), Minor League Baseball (MiLB), collegiate, high school, and recreational. Differing treatment plans are examined throughout this review to determine which have the greatest RTP outcome. Some of the treatment plans include reconstruction, repair, revision, and nonoperative interventions. It is important for healthcare providers as well as athletes to know the best treatments plans for their goals. The main research in this review is divided into five categories: level of play statistics, pitcher statistics, location of tear, nonsurgical treatment, and surgical treatment. The purpose of this review of literature is to examine the return to play (RTP) outcomes after ulnar collateral ligament (UCL) injuries among different levels and positions of baseball players.

INJURY MECHANISMS

- Ford et al. (2016) found that 56% of UCL injuries were proximal tears. 79% of those with proximal tears returned to play at the previous level or higher (RTSP) and 89% of those with distal tears RTSP.
- Frangiamore et al. (2017) found that 82% of those that fail nonsurgical treatment had distal tears. 81% of those that succeeded had proximal tears.
- Grade one tears had a RTSP rate of 100%, grade 2A had a RTSP rate of 83%, and grade 2B had a RTSP rate of 94% (Cascia et al., 2019).
- Complete tears are immediately recommended for surgery.
- 44% of complete tears RTP (Chauhan et al., 2019).

TREATMENT

Surgical Treatment

- 83% returned to play at the previous level or higher (RTSP) after reconstruction surgery (Cain et al., 2010).
- Peters et al. (2018) also found that 83% return to play at the previous level after reconstruction surgery. They also found that 60% RTSP after revision surgery and 96% RTSP after UCL repair.

Nonsurgical Treatment

- Cascia et al. (2019) and Ford et al. (2016) found that 93% return to play at the previous level or higher after the use of modalities and/or rehabilitation for six to eight weeks.
- Chauhan et al. (2019) studied the effects of platelet-rich plasma injections. Those that received the injections before rehabilitation took two weeks longer to begin throwing, which ultimately, took them longer to return to play.
- 34% returned to play at the previous level or higher and 39% returned to a lower level after platelet-rich plasma injections, ice, rest, stretching, and a strengthening program (Cascia et al., 2019).
- 50% failed nonoperative treatment (Chauhan et al., 2019). 34% failed nonoperative treatment in Frangiamore et al. (2017) research.

RETURN TO PLAY

- After reconstruction surgery, throwing can begin at four months, with the average time to return to play (RTP) being 11.6 months (Cain et al., 2010).
- Complete tears take longer to RTP after surgery (Dugas et al., 2019).
- An interval throwing program should begin at week ten and an interval hitting program should begin at week eleven, with the average RTP being 6.7 months after UCL reconstruction and repair (Dugas et al., 2019).
- Return to play for nonsurgical treatment is four months (Cascia et al., 2019).

PITCHERS

- 94% of pitchers return to play at the previous level or higher (Cascia et al., 2019).
- 63% return to play at the previous level or higher after a complete UCL tear (Ford et al., 2016).
- 66% succeeded in nonoperative treatment (Frangiamore et al., 2017).
- Pitchers have a lower return to play rate and a higher surgery rate compared to position players (Chauhan et al., 2019).
- Out of eight pitchers who had a complete UCL tear, 63% RTSP (Ford et al., 2016). No position players had a complete tear.
- 52% of pitchers with an UCL injury pitched using the $\frac{3}{4}$ style, 44% pitched overhead, and 4% pitched sidearm (Cain et al., 2010).
- There was a significant increase in earned run average (ERA), increase in walks per nine innings, increase in walks and hits per inning pitched (WHIP), and decrease in innings pitched, but no difference in strikeouts (Peters et al., 2018).

REFERENCES

- Cain, E. L., Andrews, J. R., Dugas, J. R., Wilk, K. E., McMichael, C. S., Walter, J. C., Riley, R. S., & Arthur, S. T. (2010). Outcome of ulnar collateral ligament reconstruction of the elbow in 1281 athletes; results in 743 athletes with minimum 2-year follow-up. *American Journal of Sports Medicine*, 38(12), 2426-2434.
- Cascia, N., Uhl, T. L., & Hettrich, C. M. (2019). Return to play following nonoperative treatment of partial ulnar collateral ligament injuries in professional baseball players: a critically appraised topic. *Journal of Sport Rehabilitation*, 28(6), 660-664.
- Chauhan, A., McQueen, P., Chalmers, P. N., Ciccotti, M. G., Camp, C. L., D'Angelo, J., Potter, H. G., Fealy, S. A., Erickson, B. J., Hoenecke, H. R., Keefe, D., & Fronek, J. (2019). Nonoperative treatment of elbow ulnar collateral ligament injuries with and without platelet-rich plasma in professional baseball players. *The American Journal of Sports Medicine*, 47(13), 3107-3119.
- Dugas, J. R., Looze, C. A., Capogna, B., Walters, B. L., Jones, C. M., Rothermich, M. A., Fleisig, G. S., Aune, K. T., Drogosz, M., Wilk, K. E., Emblom, B. A., & Cain, E. L. (2019). Ulnar collateral ligament repair with collagen-dipped FiberTape augmentation in overhead-throwing athletes. *American Journal of Sports Medicine*, 47(5), 1096-1102.
- Ford, G. M., Genuario, J., Kinkartz, J., Githens, T., & Noonan, T. (2016). Return-to-play outcomes in professional baseball players after medial ulnar collateral ligament injuries. *American Journal of Sports Medicine*, 44(3), 723-728.
- Frangiamore, S. J., Lynch, T. S., Vaughn, M. D., Soloff, L., Forney, M., Styron, J. F., & Schickendantz, M. S. (2017). Magnetic resonance imaging predictors of failure in the nonoperative management of ulnar collateral ligament injuries in professional baseball pitchers. *American Journal of Sports Medicine*, 45(8), 1783-1789.
- Peters, S. D., Bullock, G. S., Goode, A. P., Garrigues, G. E., Ruch, D. S., & Reiman, M. P. (2018). The success of return to sport after ulnar collateral ligament injury in baseball: a systematic review and meta-analysis. *Journal of Shoulder and Elbow Surgery*, 27(3), 561-571.