The Epidemiology and Impact of Prior Musculoskeletal Injury and Orthopaedic Surgery on Draft Position, Availability, and Short-Term Performance in Major League Baseball: A Summative Analysis and Matched Cohort of 1,890 Predraft Players

INTRODUCTION

- Little is currently known about the epidemiology of musculoskeletal injuries in predraft MLB players. Knowledge of these injuries and their effect on players’ careers may provide value for franchises, medical personnel, and prospective athletes.

PURPOSE:
- To determine the epidemiology of all musculoskeletal injuries and surgeries for predraft MLB players.
- To determine the risk of injury or surgery on future draft position, availability within the first two MLB years, and performance.

METHODS

- A total of 1,890 medical records conducted by MLB team physicians prior to the draft were retrospectively reviewed from 2014 to 2018.
- Player-specific statistics, including draft position, availability, and performance were obtained from the official MLB database.
- Availability for position players was defined using an “availability index” by calculating the average rank of total games played to at-bats, normalized to the 50th percentile across all players.
- Players were divided into three groups • non-injured (no musculoskeletal history)
• non-operative (previously injured but treated non-operatively)
• operative (previous injury requiring surgery)
- Athletes were matched based on age and position (pitcher vs. position player) in a 1:1:1 fashion.
- Differences in draft position, short-term availability, and performance between the three groups were assessed with ANOVA analysis.

RESULTS

- Draft Position - No difference for the non-injured and non-operative groups with respect to the operative group in terms of position and draft round (p=0.41, p=0.61).
- Availability - No difference in availability for non-injured, non-operative, and operative management with relative availability indices of 64.4, 62.9, and 63.3 (p=0.821).
- Performance • Pitchers – No statistically significant difference in ERA (p = 0.285)
• Position Players – No significant difference in mean batting average (p = 0.518)

INJURIES

Elbow tendinitis
UCL tear / sprain
Shoulder labral tear
Subacromial Bursitis
Elbow fracture
Metacarpal Fracture
Ankle sprain
ACL Tear
Spondylolysis
Wrist fracture
Metatarsal Fracture
Phalanx fracture
Meniscus tear
Foot fracture
Hamate fracture
Knee contusion
Ulnar neuritis
Ankle fracture
Hamstring strain
Lower back strain
Shoulder instability
Rotator cuff tendinitis
GIRD
Thumb sprain
Clavicule Fracture
Spondylolysis\nFacial fracture
Scaphoid fracture
AC Joint Sprain
Other injuries
Grand Total

Summary of most common musculoskeletal interventions and surgeries among predraft MLB players

CONCLUSIONS

- More than half of players entering MLB report a musculoskeletal injury requiring treatment, most commonly involving the shoulder and elbow.
- Findings suggest prior musculoskeletal history of injury or surgery did not affect the player’s draft position, availability, or performance within the first two years.
- Players eligible for the MLB draft do not carry any differential proclivity for injury or performance after accounting for age, draft round, and position.
- This contrasts NFL athletes from the NFL Scouting Combine who demonstrated a significant reduction in performance following injury, particularly in defensive players.

REFERENCES