Objectives

- It has been shown that early sport-specialization may lead to increased injury risk and decreased performance in athletes.
- However, the effect of sport-specialization has not been studied in Major League Baseball (MLB) players.
- The purpose of this investigation is to determine if single-sport athletes that specialize in baseball at a young age have a greater predisposition to overuse injury, burnout, and decreased performance compared to multiple-sport athletes.
- We hypothesized that MLB players who played multiple sports in high school would experience fewer injuries necessitating time on the Disabled List (DL), play more games, and have a longer career compared to athletes that played only baseball in high school.

Methods

- First and second-round MLB draft picks from 2008 to 2016 that played in at least one minor league game were included in this study.
- Athletes who participated in one or more sports in high school in addition to baseball were considered multi-sport athletes, and athletes who participated in only baseball were considered single-sport athletes.
- For each athlete, participation in high school sports, injuries sustained in MLB and MiLB, number of days on the Disabled List (DL) for each injury, number of games played in MLB and MiLB, and whether the athlete was still active were collected from publicly available records.

Results

- Seven hundred forty-seven athletes were included in this study, of which 240 (32%) were multi-sport and 506 (68%) were single-sport athletes.
- Multi-sport athletes played in significantly more total games on average (382.8 vs. 300.8, p < 0.01) as well as more major league games (95.0 vs. 71.6, p = 0.04) than single-sport athletes.
- Meanwhile, single-sport athletes had a significantly higher number of upper extremity injuries than multi-sport athletes (136 vs. 55, p < 0.01, Table 1).
- Single-sport pitchers also had a higher number of shoulder and elbow injuries than multi-sport pitchers and, once injured, were more likely to have recurrent elbow injuries (86 vs. 27, p < 0.01; 33% vs. 17% recurrence).

Discussion

- In recent years we have seen both an increase in the number of young athletes participating in organized sports as well as an increase in the percentage of these athletes choosing to specialize in one sport.
- Despite recommendations put forth by the American Academy of Pediatrics and American Orthopaedic Society for Sports Medicine that warn parents and coaches of the effects associated with sports specialization, we have continued to see young athletes pressured to specialize in order to feel competitive in their chosen sport.
- Sport specialization at an early age has been associated with burnout, overuse injuries, and psychological stress.
- Our results concur as MLB and MiLB players with early specialization had significantly higher rates of upper extremity (shoulder, elbow, forearm, wrist and hand) as well as lower extremity (knee and ankle) injuries.
- Our findings may be due to an increased training and throwing volume of single-sport athletes, with many single-sport athletes playing Baseball for more months per year than their multi-sport counterparts.
- In addition, it is possible that multi-sport athletes benefit from neuromuscular training through sports other than baseball, causing a protective effect against future injury.

Conclusions

- Professional baseball players who participated in multiple sports during high school played in more MLB games and sustained fewer upper extremity injuries than players who specialized in baseball before high school.
- Pitchers who specialized by the time they were in high school had a significantly higher chance of sustaining upper extremity injuries as well as recurrent elbow injuries compared to pitchers who were multi-sport athletes in high school.
- MLB players with a history of multi-sport participation in high school were more likely to avoid overuse injuries and had greater longevity and level of performance compared to those that limited their sport participation to baseball during high school.