QuickPitch

Less Violent Sports Aren't Exempt: Evidence of Brain Trauma Disease CTE Found in Baseball

by Eddie Comeaux

Over the past few decades, sport-related brain injuries have been generally linked to violent collision sports like football, field hockey, and boxing. But surprisingly, the risk for brain injuries is not limited to your typical contact sports. Researchers at Boston University School of Medicine recently found evidence of chronic traumatic encephalopathy (CTE) in former Major League Baseball player, Ryan Freel.

According to medical experts, CTE are most commonly found in individuals with a history of repetitive brain trauma or concussions caused either by a direct or indirect blow to the head or elsewhere on the body that is transmitted to the head.

Freel reported that he suffered at least 10 concussive injuries as a MLB player.

In CTE, abnormal proteins called tau accumulate in the brain that can lead, over time, to such symptoms as impaired memory and judgment, reduced motor function, confusion, depression, aggression, and suicidal behavior.

Like other neurodegenerative diseases, CTE can only be definitively diagnosed with a brain autopsy test, which makes it challenging for researchers to determine how the progressive disease is associated with players' cognitive and/or behavioral symptoms.

How have baseball officials attempted to mitigate concussive injury risks?

In February 2014, the MLB approved a major rule change that bans collisions at home plate. This new rule will likely increase the level of protection for both the runner and catcher, and more importantly, reduce the number of 'high-impact' situations.

CTE experts should also encourage MLB to eliminate the retaliatory "beanball," or intentionally throwing at the opposing batter to cause harm. Several MLB players' careers have been shortened due to head trauma.

At the collegiate level, the NCAA has come under scrutiny because of an increasing number of traumatic brain injuries. According to the National Collegiate Athletic Association Injury Surveillance System data, concussive injuries represent 5 to 18 percent of the total reported injuries depending on the sport, and more specifically, college athletes suffered a total of 29,255 concussions—16,277 of which were experienced by football players between 2004 and 2009. These numbers may be understated because athletes may play through concussive injuries, or may not report symptoms to avoid interruption in their playing time.

Relatedly, in a study of injuries in high school and college baseball players, Boden and colleagues (2004) found that the most frequent injuries were a collision of fielders or of a base runner and a fielder, a pitcher hit by a batted ball, and a player hit by a thrown ball.

In 2011, the NCAA, through extensive research, changed its bat standard for Division I players to ensure that the batted ball speeds of non-wood bats are similar to that of a wood bat. The new standards will certainly help to address some of the safety concerns that have become prevalent in college baseball.

Despite growing research in this area, much remains unknown about CTE in baseball and precisely how athletics stakeholders should manage it. The NCAA should indeed commission studies to test helmet design to understand whether they can reduce the risk of head trauma. Additional studies on the relationship between bat standards and batted-ball injuries are warranted. Likewise, studies are required to better understand the neurological effects of both concussions and repeated "sub-concussive" head impacts of players and their influence on short and long-term cognitive function. And future studies are needed to explore effective interventions strategies such as educational training, as well as rule and policy changes that might help to reduce head trauma.

Such empirical studies would advance our understanding of the causes, effects, prevention, and management of sport-related brain injuries in baseball. **IP**

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