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Concussion laws decrease litigation and brain injuries

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Abstract

The most common injury from high school sports is a concussion. Many previous studies addressed the importance and prevention of concussions. However, many studies haven't addressed how schools, parents, and athletes get involved in concussion lawsuits from academic accommodation, healthcare providers, and concussion education. Therefore, this study aims to discuss legal issues of concussion law to decrease litigation and brain injuries in high school athletics. This study can provide government officials, student-athletes, educators, parents, and athletic personnel with useful information on concussion law.

Keywords Concussion laws decrease litigation, brain injuries, academic accommodation

Introduction

Mild traumatic brain injuries (MTBI), otherwise known as concussions, have become a popular topic in the sports world. A concussion is a brain injury caused by a blow to the head; as well as an aggressive shake (Lowrey, 2015) ^[11]. Concussion signs and symptoms vary amongst every athlete. The most common concussion symptoms are nausea, confusion, headache, and tinnitus. Some noticeable concussion signs are unusual behavior, loss of consciousness, drowsiness, memory challenges and balance problems. An untreated concussion can cause a more severe and permanent brain injury.

In high school contact sports, one of the most common head injuries is a concussion. Athletes who do not participate in contact sports can still suffer a concussion from an object to the head or a violent shake to the body. Young athletes are more vulnerable to concussions and may continue to play without knowing the risks. Rivara *et al.* (2014) ^[16] reported that at least 69% of high school athletes who suffered a concussion, did not report any symptoms to coaches and continued to play.

Athletes' safety is one of the main priorities for interscholastic athletics. When the concussion rate increased among athletes, schools, and leagues-initiated risk management strategies to protect the athletes and prevent further harm to the participants. Some of the risk management strategies included pre-participation physicals, rule changes, equipment upgrades, and assumption of risk waivers. In response to schools' and leagues' approaches, many state legislatures created a concussion law. The first concussion law was enacted in the State of Washington and named Lystedt Law, in honor of Zachary Lystedt. When Zachary Lystedt played football in middle school, he suffered a severe brain injury and continued to play, which caused him to develop a permanent brain injury. Although concussion law provides concussion management for young athletes, many coaches agreed that the law should include recreational, community, and church leagues (Lowrey & Morain, 2014) ^[12]. Researchers did not find any opposition to states' concussion laws, but a common suggestion to certain states was revision (Kim *et al.*, 2017) ^[10]. However, other researchers found that some states' concussion laws had undefined terms and did not specify which athletes or sports the law applied to (Lowrey & Morain, 2014) ^[12]. The purpose of this study is to examine concussion law's ability to reduce litigation and brain injuries in high school athletics. The study will provide state officials, athletes, parents, and athletic personnel with useful data on concussion law. The concussion law requirements are legal issues because some schools, leagues, and organizations are not adherent to the law, which puts student athletes' lives at risk. The study is significant because of the new concussion prevention and management methods states have added to the law.

Review of Literature

Academic Accommodation

An academic accommodation is sometimes called academic adjustment or classroom accommodation. An example of academic accommodation is when a school provides a quiet study room and extended time on tests or homework for a student with a disability. Other examples are frequent breaks and note-takers. The accommodations are necessary for students with disability, so everyone who attends the school receives an equal opportunity. States such as Nebraska and Virginia have initiated a return to learn theme in the concussion law, which requires student-athletes to receive academic adjustments (Lowrey, 2015)^[11].

A concussed student-athlete needs academic accommodation because a concussion affects brain function. An affected brain causes learning challenges, cognitive problems, and physical and emotional stress. There are many types of academic accommodations schools provide to students with disabilities such as environmental, physical, and curriculum.

Environmental accommodation refers to the school setting. Some schools provide a private classroom, appropriate seating arrangement, a classroom with proper lighting, and a counselor to accompany the student throughout the school hours. Also, physical accommodation refers to any physical activity such as practice/games and physical education classes. Physical accommodation encourages cognitive and physical rest. Physical activity may cause symptoms to increase or cause the athlete to be at risk for another concussion. For example, when Wellman, a high school student, participated in a physical education class, he suffered a head injury. Wellman was later diagnosed with a concussion by his physician. The physician wrote a medical letter for the school and the parents that informed both parties that Wellman needs academic accommodations. The parents notified the football coach about the injury and the medical note. However, the coach asked Wellman to slightly help on the sideline since he was injured. While Wellman helped on the sideline, a player ran into him, which caused another concussion. Wellman was later diagnosed with Second Impact Syndrome (SIS), and he later filed a lawsuit against the Butler Area School District (*Wellman v. Butler Area School District*, 2017). A SIS is when cerebral edema develops after a person suffers a second concussion before the previous concussion heals. Although SIS is rare, it causes more severe brain injuries and fatalities.

Additionally, curriculum accommodation is a modification made to students' workload that helps suit the students' needs. For instance, the accommodation offers less workload, more time to complete assignments, and study hall opportunities. The curriculum accommodation is critical for student-athletes to remain competent in school. The less workload and extra time will help concussed student-athletes stay on the same academic level as other students. The study halls are convenient places for concussed student-athletes to complete makeup assignments and tests. Davies *et al.* (2021)^[5] suggested that academic performance may decline for student-athletes who do not receive curriculum accommodations as well as an increase in their concussion symptoms. When accommodation is not provided, student-athletes may want to switch to another learning environment like homeschooling. For example, when Zachary, a high school student, suffered a head injury from a helmet-to-

helmet collision, his physician wrote a letter instructing the school to provide academic accommodation. When Zachary returned to school, he was not provided with any of the recommended accommodations. Since he did not receive any adjustment, his symptoms increased, and his classwork performance declined. Zachary's parents asked the principal and the school district to consider the academic accommodation, but both parties did not. As his symptoms exacerbated, his parents withdrew him from the semester. Zachary's parents decided to homeschool him every other year until his senior year. In his senior year, Zachary and his parents filed a lawsuit against the coach, athletic trainer, principal, and Highlands School District. The defendants settled with Zachary and his parents by paying the family attorney fee and \$20,000 (*Alt v. Shirey*, 2012)^[11].

Finally, academic accommodation prevents more concussion symptoms and other brain injuries from occurring. According to Davies *et al.* (2021)^[5], academic adjustment reduces distraction and protects students from a loud learning environment. Davies *et al.* (2021)^[5] believed that student-athletes should get physical rest and extra classwork time for a healthy recovery. Not every state added academic accommodation to the concussion law. However, a physician's medical note to school does advise teachers to accommodate student-athletes who are diagnosed with a concussion. Since academic accommodation is not a law but a recommendation from physicians, schools are still likely to receive a lawsuit. Therefore, concussion laws that include academic accommodation can reduce litigation and additional brain injury.

Healthcare Provider

As concussion becomes a regular topic among student-athletes, so does the need for healthcare providers in high schools. In most high schools, the healthcare providers are school nurses and athletic trainers. Many states' concussion laws require a healthcare provider to medically clear a concussed student-athlete and attend athletic events. At least 46 out of 51 states selected a healthcare provider to be responsible for the medical clearance of a concussed athlete (Kim *et al.*, 2017)^[10]. Although the term healthcare provider refers to any individual who works in the health profession, only a specific health professional can medically clear a concussed student-athlete. Kim *et al.* (2017)^[10] found that the only healthcare providers who sign medical clearance for student-athletes are neuropsychologists, athletic trainers, physical therapists, and medical doctors. In some states, the athletic trainer does not have a license like the other health professionals. However, an athletic trainer works under the direction of a physician who signs and supervises the athletic trainer's standing orders. These individuals are significant because student-athletes who return to play without medical clearance may suffer long-term brain injury or even death.

The presence of a healthcare provider at a high school practice, game, or competition is necessary. At the high school level, there are usually multiple athletic events on the same day. This scheduling conflict causes athletic trainers to attend mostly male-contact sports. Researchers found that healthcare providers are less likely to be present at girls' sports and the time of a concussion for girls' sports (Haarbauer-Krupa *et al.*, 2018)^[8]. The absence of a Healthcare Provider for girls' sports can cause misdiagnoses and undocumented concussions. Jingzhen *et al.* (2017)^[9]

discovered that the concussion rate is high in football, but in other sports, girls' concussion rate is twice as much. In some districts, the Board of Education does not have the budget to provide high schools with a full-time healthcare provider such as an athletic trainer. Therefore, schools that hire full-time athletic trainers are more likely to comply with state concussion law (Doucette *et al.*, 2016) [7]. The researchers believed that a full-time athletic trainer has a better rapport with student-athletes to help promote athlete's honesty and social awareness about concussions.

Similarly, the other Healthcare Providers that are beneficial for athletic events are team physicians and Emergency Medical Services (EMS). Most high schools require a team physician or a medical doctor to attend every football game because of the likelihood of severe or catastrophic injuries. Severe and catastrophic injuries need proper evaluation and transportation to the hospital. No law requires schools' athletic programs to have an EMS on standby. High schools located in communities with a volunteer ambulance usually ask the township EMS for standby at football games. De Biase Jr. (2019) [6] reported that local ambulances at football games are great because the games are played on the busiest days which causes a wait time of over 45 minutes when someone calls 911. Unfortunately, some schools do not have access to volunteer ambulances or the budget to pay for a private EMS company.

Lastly, the presence and medical clearance of Healthcare Providers help to prevent and manage severe injuries including brain injuries. When a Healthcare Provider is present at athletic events, student-athletes can receive immediate diagnosis and treatment. Medical clearance is critical because student-athletes who return too fast are at risk for more brain injuries. The states that included Healthcare Providers as the responsible individuals for medical clearance helped reduce lawsuits against high schools. High schools that adhere to the state's concussion law have a better chance to dismiss suits. For example, Ripple, a football player from Texas, suffered a concussion after a tackle. Ripple's physician medically cleared him when his symptoms subsided. When his symptoms returned, he followed up with his physician again. Ripple's physician recommended Ripple to follow up with a neurologist. The following football season, Ripple's physician cleared him to play football with no restrictions. Ripple later filed a lawsuit against the school district, football coach, and the athletic director for his injuries. The judge dismissed the case because Ripple's physician provided the school with a medical clearance every season (*Ripple v. Marble Falls Independent School District*, 2012). The case highlighted the significance of the Healthcare Provider requirement in concussion law.

Concussion Education

Many concussion educational courses are available for healthcare providers, coaches, parents, and athletes. The concussion courses provide an overview of the definition and signs/symptoms of concussion. Fortunately, some concussion courses offer certification to individuals who complete a concussion program. Before every state enacted a concussion law, researchers found that at least 43 states had mandated a concussion education requirement (Kim *et al.*, 2017) [10]. There are a wide variety of educational resources to educate coaches, parents, and athletes on concussions. The majority of states required additional

concussion safety training for coaches, athletic trainers, and game officials. Concussion education courses review concussion management, evaluation, and recognition. Over 80% of states that enacted a concussion law required parental and student-athlete concussion education (Carroll-Alfano, 2017; Kim *et al.*, 2017) [4, 10].

The two most popular teaching methods are online videos and concussion fact sheets. Researchers discovered that 32% of states mandated an educational concussion fact sheet (Kim *et al.*, 2017) [10]. The concussion fact sheets are administered to student-athletes and parents for signature. Then, the concussion fact sheets are returned to the school's athletic program. The concussion fact sheet is similar to an assumption of risk waiver. For instance, when Pierscionek was a high school student, he suffered a brain injury at football practice that caused him to get airlifted to a nearby hospital. After Pierscionek graduated high school, he filed a lawsuit against the league the school participated in the Illinois High School Association (IHSA). He argued that the IHSA should provide medical professionals with concussion backgrounds at all football games and offer medical monitoring for former players. IHSA argued that Pierscionek's suggestions might cause issues for the league. IHSA argued that Pierscionek and his father signed a concussion information sheet in pre-season with information about football participation risk. The judge dismissed the case because the Judiciary did not make the law, and Pierscionek and his father signed a concussion fact sheet about football participation risk (*Pierscionek v. IHSA*, 2014) [14].

Also, one of the states that implemented an online concussion educational requirement is Massachusetts. The department in Massachusetts responsible for online concussion videos is the Department of Public Health. The law requires the Department of Public Health to approve all online videos for school personnel, parents, and student-athletes (Doucette *et al.*, 2016) [7]. Also, researchers revealed that coaches who failed to complete concussion educational courses in Connecticut and Pennsylvania face disciplinary action such as suspension and revoked coaching permits (Kim *et al.*, 2017) [10].

Furthermore, concussion education helps all individuals to understand the importance of evaluation and management. The states that mandated a concussion education requirement provide all individuals with preventative measures for brain injuries. Concussion fact sheets are a comprehensive waiver to aid risk management and prevent litigation. Evidently, the signed waiver acknowledges that students and parents are aware of the danger of concussion.

Return to Play and Removal from Play

The return to play and removal from the play are fundamental components of the concussion law. One of the most common requirements from all states is that any athlete with signs and symptoms of concussion is removed from participation until a medical clearance. However, the person who is responsible for the removal of a concussed athlete varies. Many states require coaches, referees/officials, and healthcare providers to do the removal. Although the healthcare providers are the only individuals with a medical background, the coaches and officials completed concussion recognition courses. The removal from play is critical to an athlete's health and safety because a concussion can cause severe injury or death.

Also, the return to play protocol is as significant as the removal from play. Many states required student-athletes to be asymptomatic before the start of the return to play protocol. The return-to-play protocol is conducted daily when an athlete is asymptomatic. States vary on the number of days a return-to-play protocol lasts. Researchers found that an average amount of states use a 5-day mandatory exercise progression return to play protocol before an athlete can return to play (Valovich-McLeod *et al.*, 2017) [18]. The same states require any athlete who experiences concussion symptoms during the progression to immediately stop and return a step back when asymptomatic. Researchers found that states with a return-to-play protocol required a healthcare provider to make the return-to-play decision (Kim *et al.*, 2017) [10]. The student-athletes who are more likely to adhere to the return-to-play guidelines are student-athletes with frequent concussion symptoms, participate in a contact sport, and are treated by a physician (Haarbauer-Krupa *et al.*, 2018) [8]. In conclusion, the return to play and removal from play help schools reduce brain injury to student-athletes. The return-to-play protocol requires student-athletes to engage in a slow recovery. This slow progression gets student-athletes physically and mentally ready to play again. The removal from play is vital for the athlete's safety because, for student-athletes who continue to play with a concussion, symptoms may increase. The states with the return to play and removal from play help schools avoid lawsuits regarding student-athlete safety.

Baseline Neurocognitive Test

The baseline neurocognitive test is a test that examines student-athlete reaction time, memory, and cognitive abilities. The test is administered to student-athletes to help diagnose concussions and determine decisions for return to play. Another neurocognitive test school used to evaluate a brain injury is a Sports Concussion Assessment Tool (SCAT). However, the SCAT is effective in determining a concussed athlete on the sideline (McKeithan *et al.*, 2019) [13]. The baseline neurocognitive program is administered to students in the preseason and post-concussion. The student-athletes take the test in the preseason so the school can have a neurocognitive score. This pre-concussion score is needed to compare to a post-concussion score. The post-concussion score is examined to determine the neurocognitive abilities that are affected. Although the baseline neurocognitive test is a familiar concussion diagnosis tool, the price exceeds some school's budget. The high price of baseline neurocognitive testing programs causes only a few states to include the program in the concussion laws. Researchers advise states to have specific grants and funds to help institutions that do not have the budget to afford a baseline neurocognitive testing program (Kim *et al.*, 2017) [10]. One of the states that included the baseline neurocognitive test in the concussion law is Massachusetts (Doucette *et al.*, 2016) [7]. According to Campbell *et al.*, (2020) [3], Massachusetts requires all schools to be resourceful enough to purchase a baseline neurocognitive testing program. Also, the qualified personnel who administer the test must have administration experience. The neurocognitive test helps healthcare providers to identify and manage concussed student-athletes. The student-athletes' scores on the test help teachers and Healthcare Providers know the affected

neurocognitive abilities (McKeithan *et al.*, 2019) [13]. This knowledge will aid in recovery and prevent more injuries.

Conclusions

Sport-related concussions are one of the most common brain injuries in interscholastic athletics. The literature review identified requirements of the state's concussion law that reduce litigation and brain injuries. The reason for the requirements is for better evaluation and recognition (Trojian *et al.*, 2015) [17]. The requirements of concussion laws that may reduce litigation and brain injuries are academic accommodation, healthcare providers, concussion education, return to play/removal from play, and baseline neurocognitive programs.

First, academic accommodation provides athletes with an appropriate environment, a physical break, and a suitable curriculum. The environment accommodation gives athletes a setting that does not aggravate the athlete's injury. Also, the decreased workload administered to concussed athletes assists with cognitive and physical rest. These parts of academic accommodation reduce concussion symptoms and avoid lawsuits from students who need the adjustment.

Secondly, the healthcare provider's presence and medical clearance are a common requirement for most concussion laws. A healthcare provider's presence at athletics events leads to better concussion recognition and treatment. Medical clearance is essential to the return to play protocol. When an athlete returns before medical clearance, the chances of severe injuries increase. The healthcare provider requirement manages concussion symptoms and protects schools from medical clearance lawsuits.

Thirdly, concussion educational methods such as online videos and concussion fact sheets promote concussion awareness among high school athletic programs. The online videos are courses that highlight the importance of concussion recognition and management. The concussion fact sheets are waivers with the definition, symptoms, and treatment for a concussion. Schools use concussion fact sheets as a risk management tool to prevent legal actions from parents and athletes.

Fourthly, both return to play and removal from the play are equally valuable to the athlete's safety. The return to play protocol is usually a 5-day exercise progression before an athlete returns to practice. The removal from the play prevents concussed athletes from more injuries. The two protocols diminish further injuries to concussed athletes who may file lawsuits against athletic programs.

Lastly, a baseline neurocognitive testing program is a diagnostic tool for sport-related concussions. The program conducts a neurocognitive test for athletes in the preseason. At the end of the examination, athletes received a score for each section. When an athlete suffers a concussion, the athlete retakes the test, and the previous score compared to the current score determines a concussion diagnosis. The program can reduce legal claims against schools because the program provides accurate diagnoses and reports on brain function.

In conclusion, the rise of state concussion laws created a need to investigate their effectiveness. The literature review provides state legislatures and athletic programs with relevant information on concussion laws. The literature review suggests that some concussion laws need revision and more requirements. However, the existing requirements for many states' concussion laws are helpful for compliance.

Although some states face implementation obstacles, other states' concussion laws led to a decrease in the recurrent concussion rate (Jingzhen *et al.*, 2017)^[9]. Athletic programs and league compliance with state law are necessary to increase concussion recognition and decrease recurrent concussions. Although the literature review highlighted concussion law's effectiveness on brain injuries and litigation, additional research is needed. The studies and legal cases used for the literature review covered high school athletes. Further research should explore other states and school settings for more information on concussion law.

References

1. Alt Shirey V. 2:11cv468 (W.D. Pennsylvania 2012). <https://casetext.com/case/alt-v-shirey>
2. Bell JM, Master CL, Lionbarger MR. The clinical implications of youth sports concussion laws: A review. *American Journal of Lifestyle Medicine*. 2019;13(2):172-181. <https://doi.org/10.1177/1559827616688883>
3. Campbell J, Howland J, Hess C, Nelson K, Stern R, Torres A, *et al.* Disparities in baseline neurocognitive testing for student concussion management in Massachusetts high schools. *BMJ Open Sport & Exercise Medicine*, 2020, 6(1), e000752–e000752. Retrieved from <https://doi.org/10.1136/bmjsem-2020-000752>.
4. Carroll-Alfano M. Mandated high school concussion education and collegiate athletes' understanding of concussion. *Journal of Athletic Training*. 2017;52(7):689-697. <https://doi.org/10.4085/1062-6050-52.3.08>
5. Davies S, Gioia G, Gordon W, Halstead M, McAvoy K, Rossen E. Returning to school after a concussion. CDC, 2021. Retrieved from https://www.cdc.gov/headsup/pdfs/schools/tbi_returning_to_school-a.pdf
6. De Biase C. Free EMS services arranged for NY high school football season. EMS1, 2019. <https://www.ems1.com/ambulances-emergency-vehicles/articles/free-ems-services-arranged-for-ny-high-school-football-season-d9JUzvR29HMNIrNI/>
7. Doucette L, Bulzacchelli T, Gillum L, Whitehill M. The Massachusetts school sports concussions law: A qualitative study of local implementation experiences. *Journal of Law, Medicine and Ethics*. 2016;44(3):503-513. <https://doi.org/10.1177/1073110516667946>
8. Haarbauer-Krupa K, Comstock D, Lionbarger M, Hirsch S, Kavee A, Lowe B. Healthcare professional involvement and RTP compliance in high school athletes with concussion. *Brain Injury*. 2018;32(11):1337-1344. <https://doi.org/10.1080/02699052.2018.1482426>
9. Jingzhen Y, Comstock D, Honggang Y, Harvey H, Pengcheng X. New and recurrent concussions in high-school athletes before and after traumatic brain injury laws, 2005–2016. *American Journal of Public Health*. 2017;107(12):1916-1922. Retrieved from <https://doi-org.ezproxy.montclair.edu/10.2105/AJPH.2017.304056>
10. Kim S, Connaughton P, Spengler J, Lee H. Legislative efforts to reduce concussions in youth sports: An analysis of state concussion statutes. *Journal of Legal Aspects of Sport*. 2017;27(2):162-186. <https://doi.org/10.1123/jlas.2016-0007>
11. Lowrey M. State laws addressing youth sports-related traumatic brain injury and the future of concussion law and policy. *Journal of Business & Technology Law*. 2015;10(1):61-72. <https://digitalcommons.law.umaryland.edu/jbtl/vol10/iss1/5/>
12. Lowrey M, Morain R. State experiences implementing youth sports concussion laws: Challenges, successes, and lessons for evaluating impact. *Journal of Law, Medicine and Ethics*. 2014;42(3):290-299. <https://doi.org/10.1111/jlme.12146>
13. McKeithan L, Hibshman N, Yengo-Kahn AM, Solomon GS, Zuckerman SL. Sport-related concussion: Evaluation, treatment, and future directions. *Medical Science*. 2019;7(3):44. <https://doi.org/10.3390/medsci7030044>.
14. Pierscionek V. Illinois High School Association., U.S. Dist. 2015 WL 6550826 2014. <http://levinsonstefani.com/wp-content/uploads/2015/11/Pierscionek-v.-Illinois-High-School.pdf>
15. Ripple V. Marble Falls Independent School District, 99 F. Supp. 3d 662, 2015. <https://casetext.com/case/ripple-v-marble-falls-indep-sch-dist>
16. Rivara P, Schiff A, Chrisman P, Chung K, Ellenbogen G, Herring A. The effect of coach education on reporting of concussions among high school athletes after passage of a concussion law. *American Journal of Sports Medicine*. 2014;42(5):1197-1203. <https://doi.org/10.1177/0363546514521774>
17. Trojian T, Violano P, Hall M, Duncan C. The effects of a state concussion law on the frequency of sport-related concussions as seen in two emergency departments. *Injury Epidemiology*. 2015;2(1):1-7. <http://dx.doi.org/10.1186/s40621-015-0034-7>
18. Valovich-McLeod C, Lewis H, Whelihan K, Welch-Bacon E. Rest and return to activity after sport-related concussion: A systematic review of the literature. *Journal of Athletic Training*. 2017;52(3):262-287. <https://doi.org/10.4085/1052-6050-51.6.06>
19. Wellman V. Butler Area Sch. Dist., 877 F.3d 125, 2017. <https://casetext.com/case/wellman-v-butler-area-sch-dist-2>