Examining the Role of Parents in Concussion Legislation Across the United States

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Examining the Role of Parents in Concussion Legislation Across the United States

By

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Professional Paper

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Examining the Role of Parents in Concussion Legislation Across the United States

Context: Since the enactment of the Zachary Lystedt Law in 2009, all 50 states now have concussion legislation in place. Recent investigations reveal that although legislation exists in each state, actual compliance and implementation varies significantly. Variance also occurs with stakeholders (coaches, athletes, parents/guardians, and health care providers) identified in each law and their individual roles and responsibilities. With parents/guardians ultimately serving as the authority figure on medical decisions for his/her child, it is critical to understand what role they play in concussion legislation. Purpose: The purpose of this study was to determine what roles and responsibilities are placed upon parents in concussion legislation. Design: A mixed method web based approach was utilized for this study. Methods: All 50 states’ concussion laws were retrieved online and thematically analyzed by 3 independent researchers examining parental roles and responsibilities. Once the themes were identified and verified by each researcher, frequency counts were completed. Results: Six different themes emerged relative to parental responsibilities including: receiving education about concussions, annually signing a document recognizing their understanding of concussion, reporting concussions, receiving notification of their child sustaining a concussion, notifying the school of their child’s concussion, and removing their child from play when a concussion is suspected. Every state except Arkansas, Oregon, and Vermont identified parental roles in their laws. Eighty-six percent of the states (43/50) require parents to receive concussion education whether it be electronic or paper. Of those 43 states, 39 require a signature from parents and athletes acknowledging receipt of this information. Two states (4%) include parents as a stakeholder that should remove their child with a suspected concussion from play, whereas five states (10%) require parents to report to school administrators and/or health care providers that their child suffered a concussion. Only four states (8%) require parental notification once an athlete sustains a suspected concussion. Conclusion: The results of this study indicate a lack of consistency in regards to identifiable parental roles and responsibilities in concussion legislation across all 50 states. In most states, parents are required to receive education about concussion signs and symptoms, as well as risks of concussion, but have no specific obligation to report whether his/her child has sustained a concussion. Rather, the responsibility is placed on coaches, officials and/or health care providers to make these decisions. This can be problematic as these stakeholders may not be as familiar with the athlete’s typical physical, cognitive, and emotional behaviors. Further investigation in legislative development is necessary to create consistent guidelines for parents’ roles and responsibilities.
Acknowledgements

I want to thank everyone who has supported me especially through the times when I wanted to give up. I especially want to thank my parents for always supporting me to reach my goals, my sister, Danielle, for always hearing about my questions and concerns in life, and my boyfriend, Alex, for always staying positive especially when I was so negative. Also, I want to thank my mentor, Valerie Moody, for always challenging me and for making me work outside of my comfort zone. I wouldn’t be where I am today without that push.
Introduction

Background

According to the Centers for Disease Control and Prevention (CDC), approximately 248,418 children, aged 19 or younger, were treated in the emergency department within the U.S. for sports related injuries including diagnosis of traumatic brain injury (TBI) in 2009.\textsuperscript{1,2} The most common occurrence of TBIs is due to falls especially in children 14 years and younger, while the second leading cause is associated to “unintentional blunt trauma” such as being hit by an object.\textsuperscript{2} There are 7 sports-related TBI fatalities from football alone at the high school level reported in 2016.\textsuperscript{2} The CDC reported 138 people in the United States die from injuries involving TBI every day, yet those who survive a TBI may have lasting effects including impaired thinking or memory, movement, sensation, or emotional functioning.\textsuperscript{2} Such statistics for youth athletes participating in contact sports poses a concern for their cognitive development and well-being.

Caring for athletes is a meticulous occupation performed by coaches, athletic trainers, parents, and physicians. For years each one of the aforementioned parties have taken it upon themselves to develop greater knowledge on the best techniques to prevent traumatic brain injuries. Through research, technology, and education it can be argued that we now know the most we have ever known about how to deal with TBIs.

Every state in the United States has enacted some sort of legislation in order to help protect athletes who are suspected victims of traumatic brain injuries. Washington became the first state in the country to openly tackle concussions in youth athletes in 2009.\textsuperscript{3} In 2006 while Zackery Lystedt was playing football, he suffered from a catastrophic brain injury after a pair of hits to his head.\textsuperscript{3} During his recovery Zackery was forced to remain on life support for a week.
Furthermore, Zackery was restricted to eating from a feeding tube, for nine months he lost the use of speech, and was faced with restricted movement in all four limbs for four years.³

Three years after Zackery’s injury Representative Jay Rodney and Victor and Mercedes Lystedt, Zackery's parents, brought forth a piece of legislation that would spread awareness about the dangers of concussions. The purpose behind creating the legislation was to warrant coaches, parents, and athletes to complete concussion training prior to practice and competition, as well as giving informed consent acknowledging the training and also to remove athletes who are exhibiting concussion symptoms. Finally, the legislation enacts that athletes should be barred from participating until receiving clearance from a medical professional. This law was appropriately named the Zackery Lystedt Law. Passing of this law was a major breakthrough for other states considering their own concussion legislation.⁴

Soon after the Zackery Lystedt Law, Oregon dedicated concussion legislation to a former athlete Max Conradt after he sustained recurrent blows to the head following a concussion injury.⁵ In order to save his life due to massive bleeding in his brain, Max received three critical brain surgeries as well as being subjected to a coma for three months.⁵ After rigorous rehabilitation from multiple institutions, Max now lives in a group home for individuals with brain injuries.⁵ Then in 2011, an athlete by the name of Natasha Helmick from Texas was forced to forfeit a college scholarship to play for her school's soccer team after her life was made more difficult due to injuries. Natasha’s life was affected by concussions and it was made clear to her when she was having trouble with her school work as a result of sustaining five concussions over five years.⁶ With nine other states adopting the rules similar to the Lystedt Law, Arkansas passed its concussion law in 2011 as well but instead empowering the state to use money from its General Improvement Fund on concussion management. Colorado, the thirteenth state to sign a
concussion law, and North Carolina, the twenty-first state concussion law, and Montana, the forty-seventh enacted concussion law, soon followed dedicating their laws to athletes who died unexpectedly from second impact syndrome. It wasn’t until 2014 that all 50 states enacted concussion safety laws.

Significance

After each state enacted concussion legislation, researchers developed studies to measure the impact of the states’ concussion legislation on the parents, coaches, etc. In Washington, Shenouda et al.\textsuperscript{7} tried to measure awareness of concussions and return-to-play protocols of youth soccer parents, coaches, and officials. With the majority of the respondents being parents, the results showed high awareness of the Lystedt Law and certain occurrences relating to the law such as delaying return to play in the presence of neurological symptoms and players must receive written clearance to return to play.\textsuperscript{7} In another study, Bloodgood et al.\textsuperscript{8} researched how much knowledge a general group of parents and their child participating in some sort of sport had about concussions. Again, the results concluded high awareness of concussions. Yet, other recent studies concluded that implementing these new concussion laws to be inconsistent and identified barriers to implementation.\textsuperscript{9} One study described that parents do not follow the school’s policy rather they “doctor shop” in order for their child to get cleared to play, also parents are advocating for their child to return too soon following a concussion.\textsuperscript{9} Specifically, a study done in Idaho determined how all schools within the state are in compliance with their new concussion law that was enacted in 2012.\textsuperscript{10} The results again determined that parents are not cooperative with concussion compliance noted by several athletic directors. Due to these barriers, numerous lawsuits are popping up across the country.
In New Mexico this past fall, a junior star running back was diagnosed with a concussion during one of the playoff games that would lead the team to the state championship game.\textsuperscript{11} New Mexico’s concussion law states that a student athlete who has been prohibited to participate due to exhibiting signs, symptoms or behaviors consistent with a brain injury “can participate in a school athletic activity no sooner than one week after the student athlete has received a brain injury”.\textsuperscript{11,12} The athlete and his parents went to fight the law in court, arguing the school athletic trainer’s assessment and a private doctor couldn’t find signs or symptoms of a brain injury.\textsuperscript{11} The court ruled in favor of the athlete to play in the state championship in which the final call was left up to the coach.\textsuperscript{11} The morning of the game, the physician who had examined the athlete sent a letter to the school director stating that she revoked her opinion based on the family’s misleading information on the extent of the athlete’s injury.\textsuperscript{11} Numerous people have argued that the parents should not have pushed it that far in the first place and the risk of further injury isn’t worth it.\textsuperscript{11}

Another case has recently emerged in the state of Montana regarding an athlete who collapsed on the sidelines of a football game. Court records indicate that the athlete was taken to the emergency room after waking up with severe headache and nausea symptoms.\textsuperscript{13} The athlete was diagnosed with a concussion due to the fact he had played in a football game the previous night and he was to stay home from school and practice for a couple of days.\textsuperscript{13} During mid-week, the athlete went to see a doctor who again evaluated him with a concussion and was ordered to stay out of practice until Monday the following week.\textsuperscript{13} On Wednesday, the athlete was given the ImPACT test in which the athletic trainer determined that he had passed the test.\textsuperscript{13} The athlete was cleared to play on Friday in which after halftime, collapsed on the sideline and rushed to undergo an emergency craniotomy.\textsuperscript{13} Today, the athlete suffers from severe
neurological and brain deficits. Many questions have risen about the communication between the parents, healthcare professionals, and coaches. Montana youth concussion law states that “Each school district offering organized youth athletic activities shall adopt policies and procedures to inform athletic trainers, coaches, officials, youth athletes, and parents or guardians of the nature and risk of brain injuries, including the effects of continuing to play after a concussion.” Due to limited verbiage of the law, instances such as these could be eliminated with clear written responsibilities of all parties.

**Purpose**

The purpose of this study was to determine what roles and responsibilities are placed upon parents in concussion legislation in the United States. As the parents are the primary decision maker for the health and well-being of their children, clear written guidelines are necessary to provide the best healthcare possible.

**Methodology**

**Research Design**

This study investigated what roles and responsibilities are outlined for parents in each states’ youth concussion legislation. A qualitative research design was used incorporating a historical research paradigm. Historical research examines what has happened in the past to gain an understanding of the stages of development of implementing youth concussion legislation across the country.

**Procedures**

All 50 states concussion legislative acts were gathered from the internet and read by three independent researchers highlighting parental roles and responsibilities. During investigation of every piece of legislation, each researcher reported their findings within a table using Microsoft
Frequency counts were calculated and compared among each researcher. External criticism refers to the authenticity of the sources used in which case each state’s legislation had that state’s governor’s signature associated with that law and the date it was enacted. The accuracy of information contained within each piece of concussion legislation was skewed due to inconsistencies between each written law regardless of how many states claimed to follow the basis behind the Zachary Lystedt Law.

**Analysis**

Six topics were collectively identified: 1) school districts must give each parent/guardian an informational sheet regarding to signs, symptoms and management of concussions, 2) parents must annually sign confirming their understanding about the information they received regarding concussions, 3) parents must receive formal concussion education, 4) parents must remove their child from participation if they suspect their child is exuding neurological signs or symptoms, 5) the school district must notify the parent/guardian if their child sustained a concussion, and 6) the parent must notify the school if they suspect their child sustained a concussion.
References


Examining the Role of Parents in Concussion Legislation Across the United States

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INTRODUCTION
Since the enactment of the Zachary Lystedt Law in 2009, all 50 states now have concussion legislation in place. Yet, compliance and implementation of these laws is shown to vary significantly in recent investigations. Discrepancies are also revealed in the roles and responsibilities of stakeholders including coaches, athletes, parents or guardians, and health care providers. With parents or guardians ultimately serving as the authority figure on medical decisions for their child, it is critical to understand what role they play in concussion legislation.

Significance
With the development of concussion policies across the country, the focus has been on educating stakeholders, removing the athlete from play when a concussion is suspected and requiring medical clearance to return to sport following a concussion; however, a recent study examining compliance of school districts with current concussion legislation identified parents as barriers to full implementation of the law. It is reported that parents do not follow the school’s policy; they “doctor shop” to find someone to clear their child, and parents are advocating for their child to return too soon following a concussion. As a result, numerous lawsuits are popping up across the country.

PURPOSE
The purpose of this study was to determine what roles and responsibilities are placed upon parents in concussion legislation in the United States.

METHODS
All 50 states concussion laws were retrieved online and thematically analyzed by 3 independent researchers examining parental roles and responsibilities. Once the themes were identified and verified by each researcher, frequency counts were completed.

RESULTS
Parents or guardians are the sole medical decision maker for their child. The results of this study illustrated a significant discrepancy across all 50 states’ policy on the roles and responsibilities for parents. In fact, Arizona, Indiana, Oregon, and Vermont do not mention parents in their current concussion legislation.

Moving forward, ensuring that there is consistency across states will facilitate concussion education across the country to minimize barriers to fully implementing concussion law. Educating and requiring parents to play an active role in concussion recognition and management in youth athletes, will hopefully minimize the potential for catastrophic injuries on the playing field.

CONCLUSIONS
The results of this study indicate a lack of consistency as regards to identifiable parental roles and responsibilities in concussion legislation across all 50 states. In most states, parents are required to receive education about concussion signs and symptoms, as well as risks of concussion, but have no specific obligation to report whether their child has sustained a concussion. Rather, the responsibility is placed on coaches, officials, and/or health care providers to make these decisions. This can be problematic as these stakeholders may not be as familiar with the athlete's typical physical, cognitive, and emotional behaviors. Further investigation on legislative development is necessary to create consistent guidelines for parent's roles and responsibilities.
Provisions

The preceding pages contain the Professional Paper Proposal, and do not reflect any changes made to the design or execution of the study. The subsequent pages contain the final manuscript for submission, and are inclusive of the changes to the study, and reflect the updated methods, analysis, and execution of the study.
Introduction

Background

When considering the states of child development, we generally consider them completing maturation after going through “the changes.” Yet, what a lot of people don’t consider is the continuing development of their brain. Not only is a youth’s brain different than an adult brain physiologically, but also, and more importantly, neuropsychologically.¹ Thus, during pubescence the maturing brain may be more vulnerable to injury due to head impact.²,³ The most common occurrence of traumatic brain injuries (TBIs) is due to falls, especially in children 14 years and younger, while the second leading cause is associated with “unintentional blunt trauma” such as being hit by an object.⁴ The estimated incidence rate of traumatic brain injury is 180 per 100,000 children aged 15 years or younger per year.¹,⁵ Of this population, 85% are categorized as mild injuries (concussions) resulting in 1 million children sustaining a concussion annually.¹ A majority of these concussions result directly from participating in a sport, accounting for 30% of all concussions in developing youths aged 5-19 years old.¹,⁶ There were 5 sports-related TBI fatalities from football alone at the high school level reported in 2015.²,⁷ The statistics previously stated for youth athletes participating in contact sports pose a concern for their cognitive development and well-being.

Caring for athletes is the responsibility of coaches, athletic trainers, parents, and physicians. For years each one of the aforementioned parties have attempted to acquire greater knowledge on the best techniques to prevent TBI. Through research, technology, and education it can be argued that we now know the most we have ever known about how to appropriately identify and treat TBIs.
By 2014, every state in the United States had enacted some sort of legislation in order to help protect athletes who are suspected victims of traumatic brain injuries. Washington became the first state in the country to openly tackle concussions by enacting legislative policy to protect youth athletes in 2009, due in part to Zackery Lystedt.\textsuperscript{8} In 2006 while Zackery was playing football, he suffered from a catastrophic brain injury after a pair of hits to his head.\textsuperscript{8} During his recovery Zackery was forced to remain on life support for a week. Furthermore, Zackery was restricted to eating from a feeding tube, for nine months he lost the use of speech, and limited movement in all four limbs for four years.\textsuperscript{8}

Three years after Zackery’s injury Representative Jay Rodney and Victor and Mercedes Lystedt, Zackery's parents, introduced new legislation to spread awareness about the dangers of concussions. The purpose behind creating this legislation was to mandate that coaches, parents, and athletes complete concussion training prior to practice and competition, give informed consent acknowledging the training and to remove athletes from participation who are exhibiting concussion symptoms. Finally, the legislation enacts that athletes should be barred from participating until receiving clearance from a medical professional. This law was appropriately named the Zackery Lystedt Law. Passage of this law was a major breakthrough for other states considering their own concussion legislation.\textsuperscript{9}

Soon after the Zackery Lystedt Law was passed, Oregon dedicated concussion legislation to a former high school athlete Max Conradt after he sustained recurrent blows to the head following an unresolved concussion injury.\textsuperscript{10} As a result of the injury, he suffered from massive bleeding in his brain. In order to save his life, Max received three critical brain surgeries as well as being subjected to a coma for three months.\textsuperscript{10} After rigorous rehabilitation from multiple institutions, Max now lives in a group home for individuals with brain injuries.\textsuperscript{10}
In 2011, an athlete by the name of Natasha Helmick from Texas was forced to forfeit a college scholarship to play for her school's soccer team after her life was made more difficult due to head injuries. Natasha’s life was affected by concussions and it was made clear to her when she was having trouble with her school work as a result of sustaining five concussions over five years.11

With nine other states adopting the rules similar to the Lystedt Law in Washington, Arkansas passed its concussion law in 2011, by empowering the state to use money from its General Improvement Fund toward concussion management. Colorado, the thirteenth state to enact concussion legislation, and North Carolina, the twenty-first state to enact concussion legislation, and Montana, the forty-seventh state to enact concussion legislation, soon followed dedicating their laws to athletes who died unexpectedly from second impact syndrome. It wasn’t until 2014 that all 50 states enacted concussion safety laws.12

Significance

After each state enacted a piece of concussion legislation, researchers developed studies to measure the impact of each state’s concussion legislation on parents, coaches, and other stakeholders. In Washington, Shenouda et al.13 tried to assess awareness of concussions and return-to-play protocols of youth soccer parents, coaches, and officials. With a majority of the respondents being parents, the results showed high awareness of the Lystedt Law and specific circumstances relating to the law, such as delaying return to play in the presence of neurological symptoms and requiring players to obtain written clearance to return to play.13 Another study researched how much knowledge a general group of parents and their child participating in a sport had about concussions.14 Again, the results indicated higher level of awareness about concussions. Yet, other recent studies concluded that implementing these new concussion laws
were inconsistent and identified barriers to implementation. One study identified parents as barriers to full implementation of concussion policy and described that parents do not follow the school’s policy, rather they “doctor shop” in order for their child to get cleared to play. In addition, some parents are also advocating for their child to return to play too soon following a concussion. Another study conducted in Idaho looked to determine if all schools within the state were compliant with their new concussion law that was enacted in 2012. The results again suggest that many parents are not cooperating with concussion compliance, as noted by several athletic directors. Due to these barriers to implementation it is not surprising that numerous lawsuits are popping up across the country.

In New Mexico on November 29th, 2015, a junior star running back was diagnosed with a concussion by the school’s athletic trainer during the second half of the semifinal playoff game that would lead the team to the state championship game. New Mexico’s concussion law states that a student athlete who has been prohibited to participate due to exhibiting signs, symptoms or behaviors consistent with a brain injury can participate in a school athletic activity no sooner than one week after the student athlete has received a brain injury. The athlete and his parents challenged the law in court arguing the school athletic traine’r assessment and a private doctor couldn’t find signs or symptoms of a brain injury. The court ruled in favor of the athlete to play in the state championship in which the final call was left up to the coach. The morning of the game, the physician who had examined the athlete sent a letter to the school director stating that she revoked her initial diagnosis that the athlete did not have a concussion based on the family’s misleading information on the extent of the athlete’s injury. Although the team had won the state championship title, the athlete’s contribution mostly came from
cheering his team on the sideline. Numerous people have argued that the parents should not have pushed it that far in the first place and the risk of further injury isn’t worth it.17

Another case recently emerged in the state of Montana regarding an athlete who collapsed on the sidelines of a football game. Court records indicate that the athlete was taken to the emergency room after waking up with a severe headache and nausea symptoms.20 The athlete was diagnosed with a concussion due to the fact he had played in a football game the previous night and he was to stay home from school and practice for a couple of days.20 During mid-week, the athlete went to see a doctor who evaluated him and again diagnosed him with a concussion and was ordered to stay out of practice until Monday the following week.20 On Wednesday, the athlete was given the ImPACT test in which the athletic trainer determined that he had passed the test.20 The athlete stated he was cleared to play on Friday, and after halftime collapsed on the sideline and was rushed to the hospital to undergo an emergency craniotomy.20 Today, the athlete suffers from severe neurological and brain deficits.20 In light of the many recent litigations, many questions have risen about the communication between the parents, healthcare professionals, and coaches. The breakdown of communication between each party stated in the article could be eliminated with clear written responsibilities of all parties.

Purpose

Recently all 50 states have created policies on concussion in youth and high school sports. Most of these sports laws include three action steps including education of coaches, parents, and athletes through training and/or a concussion information sheet; removing an athlete from play if it is believed they have a concussion; and obtaining permission to return to play from a health care professional.5 Recent research and concussion lawsuits have uncovered inconsistencies within state concussion legislation and a lack of implementation practices and
enforcement protocols. As the parents are the primary decision maker for the health and well-being of their children, clear written guidelines are necessary to provide the best healthcare possible. The purpose of this study was to determine what roles and responsibilities are placed upon parents in concussion legislation in the United States.

**Methodology**

*Research Design*

This study investigated what roles and responsibilities are outlined for parents in each state’s youth concussion legislation. Thus, a dominant-status concurrent design was used incorporating a historical research paradigm. The first phase of data analysis was conducted using qualitative inquiry incorporating a historical research approach. A historical research approach was used to help provide perspective for current decision making and to understand how the past has influenced the present. The second phase of the study was quantitative. During data collection, the qualitative paradigm was used to understand the responsibility placed on parents in concussion legislation.

In this study, more emphasis (dominant status) was placed on the qualitative paradigm to better understand the historical nature of concussion legislative acts. Qualitative analysis (thematic analysis) was conducted prior to the quantitative analysis (calculating frequencies and percentages) of the qualitative results. In this phase, qualitative themes are numerically represented to interpret the parents’ roles and responsibilities in concussion law. The purpose of this design was complementarity, which helps illustrate the results of the qualitative portion of this study with results from the quantitative portion of this study.

*Procedures*
All 50 states concussion legislations were gathered from the internet and read by the primary researcher, highlighting parental roles and responsibilities. Specifically, any time the word “parent” appeared in the law, it was highlighted by the researcher. Using the previous criteria identified as critical components in concussion policy by the CDC\(^5\), this provided a framework as to the roles of parents in concussion law. Additional roles and responsibilities were identified and documented by reporting it within a table using Microsoft Excel (2010).

Analysis

Qualitative data analysis involved the following steps: 1) reading each concussion law to understand parent’s roles and responsibilities, 2) coding significant pieces of information or phrases (relating to parents) from each law, 3) developing themes, and 4) verifying the themes with two other researchers. Upon completion of the qualitative analysis, identified themes were quantized which translates qualitative data to numerical form.\(^2\) Frequencies and percentages were calculated for each theme to clearly illustrate the prevalence of each theme. Trustworthiness of data was established by having two independent researchers verify the coding scheme.\(^2\)

Results

Six themes relating to parental roles and responsibilities were collectively identified: 1) school districts must give each parent/guardian an informational sheet regarding to signs, symptoms and management of concussions; 2) parents must annually sign confirming their understanding about the information they received regarding concussions; 3) parents must receive formal concussion education; 4) parents must remove their child from participation if they suspect their child is exuding neurological signs or symptoms; 5) the school district must
notify the parent/guardian if their child sustained a concussion; and 6) the parent must notify the school if they suspect their child sustained a concussion.

Figure 1 demonstrates how many of the themes each state met. Four states (8%), Arkansas, Indiana, Oregon, and Vermont, did not meet any of the six criteria. Figure 2 represents that only two states (4%) requiring parents to remove their child from play if they suspect their child sustained a concussion; four states (8%) require that the parent must be notified by the school if their child sustains a concussion; and five states (10%) require parents to report to the school if they notice their child exhibiting signs or symptoms of a concussion. Figure 3 shows that out of the 50 states, only 43 states (86%) require school districts to send out concussion informational sheets to parents each year, whether it is a hard copy or on the computer. Of those 43 states that require parents to receive concussion information each year, 39 states (78%) require the parents to annually sign acknowledging they received their concussion information and understand the signs, symptoms, and management of concussions. There are only 26 states (52%) that require parents to complete formal education training.

**Discussion**

The CDC defines public health law as “any laws that have important consequences for the health of defined populations.” Youth concussion laws are a perfect example of public health laws, as their main goal is to reduce head injuries from sports. Yet, many of the concussion legislations set in place are not enforced or regulated by any governmental body. Because concussions are more dangerous for children, they should have the best safety precautions available to prevent tragic events. Lowrey and Morain researched the means of implementation of each state concussion legislation through voluntary phone interviews with the agencies or organizations with the primary responsibility for the implementation of their state’s
concussion law. What they determined is that although there were no enforcement consequences the state had in place for non-compliance of the law, some states did identify sports-related penalties outside the realm of those agencies/organizations for coaches or athletes. Such consequences included probation or expulsion from the athletic association, loss of eligibility, disqualification from tournaments, or revocation of licensure. One of the interviews conducted on October 17, 2012 stated, “we’re finding that our biggest problem is the parents – they want their kids to go back in before the coaches do. We had someone introduce a bill to add mandatory education for parents.”

The National Center for Catastrophic Sport Injury Research (NCCSIR) has collected data on the number of head and neck fatalities since 1931, and within the past 10 years (2006-2015) they have reported low numbers compared to when they began. Although this is really encouraging, one can only wonder whether this decrease in fatalities is caused from a rule change in 1976 eliminating the head as the initial contact point in blocking and tackling or an increase in concussion knowledge to parents, athletes, coaches, and officials. The initial rule change has been transformed in the previous years detailing the illegal use of the helmet and face mask with the most recent change in 2015 further defining spearing as “an act by any player who initiates contact against an opponent at the shoulders or below with the crown (top portion) of his helmet.”

It has been argued that concussion fatalities have decreased due to the tremendous increase of education over the years. This is hard to believe due to the fact that some states merely require parents receive an informational sheet, such as the example in Figure 4, discussing the signs, symptoms, and management of concussions annually, whether it be in paper form or on the computer. For example, states like Delaware do not require parents to receive
formal education but to annually sign a document, shown in Figure 5, of their understanding of concussions. States that do require formal training only require individuals such as coaches, athletic trainers, parent volunteers, school athletic directors, and school nurses to participate in the training.\textsuperscript{27} Formal education is deemed as the gold standard in any setting. Everyone involved is required to pay attention and listen to the information rather than a child bringing home a piece of paper for the parent to sign so the child can participate in sports. In Connecticut, parents are required to receive education and an informational sheet annually. Figure 6 represents the Connecticut informational sheet parents must read and sign annually in order for their child to play sports. Parent concussion education is available via online training or videos, or attending an in-person training regarding the school district’s concussion education plan provided by the local or regional board of education.\textsuperscript{28}

Reporting concussions is absolutely necessary when considering the treatment of a youth athlete suffering from a head injury.\textsuperscript{21} This is especially important when youth are at a higher risk of sustaining an injury because of their maturing brains and can quickly suffer debilitating injuries or fatality if not reported and treated correctly. Collectively all of this information suggests that including education to all stakeholders in care of a youth athlete would be deemed most effective.\textsuperscript{27} Yet, current legislation as of now leaves concussion policy up to each individual state resulting in inconsistencies and confusion relating to who is responsible to take care of a child after incurring an injury.

As of right now it is up to individual states and the schools to adopt policies and procedures regarding the safety of children playing in organized school or league sports.\textsuperscript{29} Yet, according to data from the National Athletic Trainers’ Association most states and schools have not implemented safety measures.\textsuperscript{29,30} Incorporating a designated organization to implement a
congruent concussion policy for all states and schools would help eliminate the inconsistency between stakeholders’ responsibilities. Future policy should incorporate well-defined responsibilities for parents including formal concussion education, removing their child from play if they suspect a concussion injury, and reporting their child’s injury to proper school and medical staff to ensure a healthy recovery. Failure to follow the aforementioned policy requirements would require consequences such as eliminating the child from the sport for the remainder of the year.

Conclusion

All parents would agree that they want what is best for their children. Sometimes their idea of what’s best is being the best athlete on the field and brushing off all of their bumps and bruises in order to stay on the field. A lot of parents who have suffered the damaging consequences of mismanaged concussions have advocated for the implementation of youth concussion laws. Yet, the potential of these laws cannot be reached without enforcement, thus, proving the law as ineffective.25

Parents can prove as a beneficial resource for a safe sports environment for their children by playing an active role. Encouraging their child to properly tackle or move in a way that will best provide another athlete’s safety or their own can reinforce a coach’s lessons in practice and open up communication lines between the parent and coach.31 Also, it is in the best interest of the athlete’s health for continued reminders of concussion symptoms throughout the season31. Supplementing parents with an outline of detailed roles and responsibilities they need to be aware of if their child sustains a concussion will better the youth athlete of their brain and overall health.
References


Figure 1. Number of Criteria Met Outlining Parental Roles and Responsibilities in Concussion Law by Each State.
Parents must report if their child sustained a concussion

Parents must be notified by the school if their child sustains a concussion

Parents must remove their child from play if they suspect a concussion

Number of States Requiring the Criteria

0 1 2 3 4 5 6

5

4

2

Figure 2. Parent’s Roles and Responsibilities Once their child Sustains a Concussion
Figure 3. Parent’s Roles and Responsibilities in Concussion Education

- Parents must complete concussion education training: 26 states
- Parents must annually sign acknowledging receipt of materials: 39 states
- Parents must receive concussion materials: 43 states

Number of States Requiring the Criteria
Figure 4. Concussion Informational Sheet

Delaware Interscholastic Athletic Association  
Parent/Player Concussion Information Form

A concussion is a brain injury and all brain injuries are serious. They are caused by a bump, blow, or jolt to the head, or by a blow to another part of the body with the force transmitted to the head. They can range from mild to severe and can disrupt the way the brain normally works. Even though most concussions are mild, all concussions are potentially serious and may result in complications including prolonged brain damage and death if not recognized and managed properly. In other words, even a “ding” or a bump on the head can be serious. You can’t see a concussion and most sports concussions occur without loss of consciousness. Signs and symptoms of concussion may show up right after the injury or can take hours or days to fully appear. If your child reports any symptoms of concussion, or if you notice the symptoms or signs of concussion yourself, seek medical attention right away.

<table>
<thead>
<tr>
<th>Symptoms may include one or more of the following:</th>
<th>Signs observed by teammates, parents and coaches may include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches</td>
<td>Pressure in head</td>
</tr>
<tr>
<td>Neck pain</td>
<td>Balance problems</td>
</tr>
<tr>
<td>Disturbed vision</td>
<td>Light/noise sensitivity</td>
</tr>
<tr>
<td>Feeling foggy</td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Amnesia</td>
<td>“Don’t feel right”</td>
</tr>
<tr>
<td>Sadness</td>
<td>Nervousness</td>
</tr>
<tr>
<td>Confusion</td>
<td>Repeating questions</td>
</tr>
</tbody>
</table>

**What can happen if my child keeps on playing with a concussion or returns to soon?**

Athletes with the signs and symptoms of concussion should be removed from play immediately. Continuing to play with the signs and symptoms of a concussion leaves the young athlete especially vulnerable to greater injury. There is an increased risk of significant damage from a concussion for a period of time after that concussion occurs, particularly if the athlete suffers another concussion before completely recovering from the first one (second impact syndrome). This can lead to prolonged recovery, or even to severe brain swelling with devastating and even fatal consequences. It is well known that adolescent or teenage athletes will often underreport symptoms of injuries, and concussions are no different. As a result, education of administrators, coaches, parents and students is the key for the student-athlete’s safety.

**If you think your child has suffered a concussion**

Any athlete even suspected of suffering a concussion should be removed from the game or practice immediately. No athlete may return to activity after an apparent head injury or concussion, regardless of how mild it seems or how quickly symptoms clear, without medical clearance. Close observation of the athlete should continue for several hours. You should also inform your child’s coach if you think that your child may have a concussion. Remember it is better to miss one game than miss the whole season. And when in doubt, the athlete sits out.

For current and up-to-date information from the CDC on concussions you can go to:

http://www.cdc.gov/concussion/HeadsUp/youth.html

For a current update of DIAA policies and procedures on concussions you can go to:

http://www.doc.k12.de.us/diia

For a free online training video on concussions you can go to:

http://nfhsearn.com/

*All parents and players must sign the signature portion of the PPE indicating they have read and understand the above.*

Adapted from the KHSAA, CDC and 3rd International Conference on Concussion in Sport, 4/2011
Figure 5. Delaware Concussion Consent

DELAWARE INTERSCHOLASTIC ATHLETIC ASSOCIATION

Parents/Guardian: The DIAA pre-participation physical evaluation and consents form is seven pages. One, two and four require your signature while pages five, six and seven are reference for you to keep. This physical evaluation must be completed after April 1 of the current year playing sports and runs through June 30 of the following year.

<table>
<thead>
<tr>
<th>Athlete:</th>
<th>Phone:</th>
<th>School:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age:</th>
<th>Gender:</th>
<th>Date of Birth:</th>
<th>Grade:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Parent/Guardian Name: (Please Print:)

PARENT/GUARDIAN/STUDENT CONSENTS

I have my permission to participate in all interscholastic sports not checked below.

(Name of Athlete)

If you check any sport in this box it means the athlete will not be permitted to participate in that sport.

<table>
<thead>
<tr>
<th>Baseball</th>
<th>Basketball</th>
<th>Cheerleading</th>
<th>Cross Country</th>
<th>Crew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Hockey</td>
<td>Football</td>
<td>Golf</td>
<td>Ice Hockey</td>
<td>Lacrosse (B)</td>
</tr>
<tr>
<td>Lacrosse (G)</td>
<td>Soccer</td>
<td>Softball</td>
<td>Squash</td>
<td>Swimming</td>
</tr>
<tr>
<td>Tennis</td>
<td>Track</td>
<td>Volleyball</td>
<td>Wrestling</td>
<td></td>
</tr>
</tbody>
</table>

1. My permission extends to all interscholastic activities whether conducted on or off school premises. I have read and discussed the Parent/Player Concussion Information Form: Symptoms and Risk Factor for Sudden Cardiac Arrest form; and the list of items that protect against the loss of athletic eligibility, with said participant and I will retain those pages for my reference. I have also discussed with him/her and understand that physical injury, including paralysis, coma or death can occur as a result of participation in interscholastic athletics. I waive any claim for injury or damage incurred by said participant while participating in the activities not checked above.

   Parent Signature: ___________________________ Date: ____________

   Student Signature: ___________________________ Date: ____________

2. To enable DIAA and its full and associate member schools to determine whether herein named student is eligible to participate in interscholastic athletics, I hereby consent to the release of any and all portions of school record files, beginning with the sixth grade, of the herein named student, including but not limited to, birth and age records, name and residence of student’s parent(s), guardian(s) or Relative Care Giver, residence of student, health records, academic work completed, grades received and attendance records.

   Parent Signature: ___________________________ Date: ____________

3. I further consent to DIAA’s and its full and associate member schools use of the herein named student’s name, likeness, and athletically related information in reports of interscholastic practices, scrimmages or contests, promotional literature of the association, and other materials and releases related to interscholastic athletics.

   Parent Signature: ___________________________ Date: ____________

4. By this signature, I hereby consent to allow the physician(s) and other health care provider(s) selected by myself or the schools to perform a pre-participation examination on my child and to provide treatment for any injury received while participating in or training for athletics for his/her school. I further consent to allow said physician(s) or health care provider(s) to share appropriate information concerning my child that is relevant to participation, with coaches, medical staff, Delaware Interscholastic Athletic Association, and other school personnel as deemed necessary. Such information may be used for injury surveillance purposes.

   Parent Signature: ___________________________ Date: ____________
Figure 6. Connecticut Concussion Consent Form

This consent form was developed to provide students, parents and legal guardians with current and relevant information regarding concussions and to comply with Connecticut General Statutes (C.G.S.) Chapter 163, Section 149b: Concussions: Training courses for coaches. Education plan. Informed consent form. Development or approval by State Board of Education. Revocation of coaching permit; and Section 16-140c: Student athletes and concussions. Removal from athletic activities. Notification of parent or legal guardian. Revocation of coaching permit.

What is a Concussion?
National Athletic Trainers Association (NATA) - A concussion is a "trauma induced alteration in mental status that may or may not involve loss of consciousness."

Centers for Disease Control and Prevention (CDC) - "A concussion is a type of traumatic brain injury, or TBI, caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move rapidly back and forth. This sudden movement can cause the brain to bounce around or twist in the skull, stretching and damaging the brain cells and creating chemical changes in the brain." - CDC, Heads Up: Concussion. http://www.cdc.gov/traumaticbraininjury/concussion_whatsthats.html

Even a "ding," "getting your bell rung," or what seems to be a mild bump or blow to the head can be serious." - CDC, Heads Up: Concussion Fact Sheet for Coaches. http://www.cdc.gov/traumaticbraininjury/concussion_fact_sheet_coaches.pdf

Section 1. Concussion Education Plan Summary
The Concussion Education Plan and Guidelines for Connecticut Schools was approved by the Connecticut State Board of Education in January 2015. Below is an outline of the requirements of the Plan. The complete document is accessible on the CSDC Web site: http://www.ids.cst.edu/ide/ideview.asp?x=2663&y=33572

State law requires that each local and regional board of education must approve and then implement a concussion education plan by using written materials, online training or videos, or in-person training that addresses, at a minimum, the following:
1. The recognition of signs or symptoms of a concussion.
2. The means of obtaining proper medical treatment for a person suspected of sustaining a concussion.
3. The nature and risks of concussions, including the danger of continuing to engage in athletic activity after sustaining a concussion.
4. The proper procedures for allowing a student-athlete who has sustained a concussion to return to athletic activity.

Section 2. Signs and Symptoms of a Concussion: Overview
A concussion should be suspected if any one or more of the following signs or symptoms are present, or if the coach/evaluator is unsure, following an impact or suspected impact as described in the CDC definition above.

Signs of a concussion may include (i.e. what the athlete displays/looks like to an observer):
- Acts silly, combative or aggressive
- Repeatedly asks the same questions
- Dazed appearance
- Restless/irritable
- Incomplete/blurry vision
- Slow/numb movements
- Loss of consciousness
- Amnesia/memory problems

Symptoms of a concussion may include (i.e. what the athlete reports):
- Headache or dizziness
- Nausea or vomiting
- Blurred or double vision
- Oversensitivity to sound/light/touch
- Ringing in ears
- Feeling foggy or groggy

State law requires that a coach MUST immediately remove a student-athlete from participating in any intramural or interscholastic athletic activity who:
- a) is observed to exhibit signs, symptoms or behaviors consistent with a concussion following a suspected blow to the head or body, or
- b) is diagnosed with a concussion, regardless of when such concussion or head injury may have occurred. Upon removal of the athlete, a qualified school employee must notify the parent or legal guardian within 24 hours that the student athlete has exhibited signs and symptoms of a concussion.

I authorize my child to participate in ____________________ for school year ____________

Parent/Guardian name: ________________________________ Date: ____________ Signature: ________________________________

References:

Resources:

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