

CONCUSSION KNOWLEDGE OF PARENTAL GUARDIANS
OF HIGH SCHOOL FOOTBALL PLAYERS

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CONCUSSION KNOWLEDGE OF PARENTAL GUARDIANS

OF HIGH SCHOOL FOOTBALL PLAYERS

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CHAPTER ONE

INTRODUCTION

“The [concussion] law and NFL policy help remove the stigma attached to a player receiving what might appear to be a minor injury not going back in to finish the game,” said former Green Bay Packers offensive lineman Mark Tauscher. “The problem is that a player suffering even a minor concussion is susceptible to life-altering damage if subjected to additional head injuries before the minor concussion heals” (Wilson, 2012). Prevention of concussions is the first step in avoiding serious brain injuries. Prevention of brain injuries is two fold: first, one must educate those involved with athletes on the seriousness of concussions and, second, one must recognize a concussion when it occurs and properly manage its signs and symptoms.

Since many high schools cannot afford an athletic trainer, a medical person trained in the evaluation and management of sports related injuries including concussions, it is crucial that high school coaches and parents of high school athletes understand the risks of concussions and how to recognize and manage this type of injury when it occurs. There are two purposes of this research study, to research how different states across the country are currently promoting the education of concussions to high school student athletes, parents and coaches, and research will aid in collection of educational material to be used by high school administration to educate and promote knowledge of sports related concussions.

Statement of the Problem

Parents of high school student athletes are not well educated on the danger of brain-related injuries and concussions that may occur while participating in high school athletics. Because of this lack of concussion education in the high school setting, concussions are going unreported and mismanaged.

Purpose of the Study

First, this research is intended to provide a better understanding of the concussion background and knowledge of those directly related to high school athletic programs (i.e. coaches, student athletes and parents). Second, research will assemble current United States legislation on brain-related injuries and concussions in high school athletics. Based on research discoveries, different educational approaches will be formulated to aid in the education of concussions in high schools. Last, this paper will offer material to survey parents of student athletes on their knowledge of concussions.

Significance of the Study

In 2003, in Milwaukee, Wisconsin, a survey studying unreported concussions was distributed to 20 different high schools in the area. The survey was given to only football players at the end of their season, questioning them about concussions they sustained during the season. The researchers concluded that just over half of the concussions reported on the survey went unreported when they occurred. Students were also questioned on why they did not report the concussion when it occurred and nearly 40% responded that they were unaware the injury was a possible concussion (McCrea, Hammeke, Olsen, Leo & Guskiewicz, 2004).

With the increase of concussions occurring in high school sports, it is important that all parties involved be well educated on the signs and symptoms of concussions. The McCrea et al study proves that student athletes lack knowledge about concussions. Not only is it important that the student athlete be educated about concussions, but it is also important the parental guardians of these athletes be informed about the effects and symptoms of concussions. Limited research exists confirming the educational knowledge base of concussions of parents of high school athletes. By effectively educating parents on concussions, they should be able to

recognize the physical and emotional changes of their child if they have received a concussion. Due to the lack of athletic trainers in high schools, it becomes the responsibility of coaches, parental guardians and student athletes to recognize the signs and symptoms of a concussion.

Definition of Terms

The following terms are used based on the definitions identified below:

Concussion: A clinical syndrome characterized by immediate and transient impairment of neural functions, such as alteration of consciousness, disturbance of vision, equilibrium, etc. due to mechanical forces (Patel, Shivdasani, & Baker, 2005).

Second Impact Syndrome: SIS occurs when an athlete suffers a mild head injury, returns to play too soon, and subsequently suffers what may be a relatively minor second hit before the brain has fully healed. If the second injury occurs while the individual still has symptoms from the first impact, the result can be a rapid, catastrophic increase in pressure within the brain (Tyler & Nelson, 2000).

Post-Concussion Symptoms: A cluster of symptoms that frequently occur following mild traumatic brain injury. PCS consist of a number of commonly self-reported physical, cognitive, and emotional/behavioral symptoms including: headache, dizziness, irritability, difficulty concentrating, memory problems, fatigue, visual disturbances, sensitivity to noise, judgment problems, depression and anxiety (Ryan & Warden, 2003).

Delimitations of Research

This research has been collected over several months time, while legislative activity on concussions remains in discussion. The legislation is still developing and evolving across the United States today as the awareness of concussions grows. Therefore, information should not be referenced as the most up-to-date. In general, the research is specific to high school football

athletes, and as such, should not be compared with other sports. Since football tends to be a male dominant sport, this research should also not be compared to high school female athletes.

CHAPTER TWO

REVIEW OF LITERATURE

Sports-related concussions are becoming an ever-growing health concern. Second to motor vehicle accidents, sports are the leading cause of traumatic brain injuries in people ages 15 to 24 (Gessel, Fields, Collins, Dick, & Comstock, 2007). In fact, an estimated 300,000 sports-related traumatic brain injuries occur every year, in the United States (Gessel et al., 2007), with over 62,000 brain injuries occurring in high school football (McClincy, Lovell, Pardini, Collins, & Spore, 2006). Of all sports, American football and soccer pose the greatest risk of head injury (Gessel et al., 2007).

Since concussions present with no obvious or physical indications, like a broken arm or a swollen ankle, it is important that everyone involved with athletics be educated about the seriousness of head injuries sustained while participating in sports. The heightened attention to sports-related concussions is due to the increased occurrence and lack of understanding and management of head related injuries (McClincy et al., 2006). Health care providers must follow specific guidelines for the management of concussions and student-athlete return to play. Safely returning a student-athlete to participation is important in the prevention of second impact syndrome and post-concussion symptoms (McClincy et al., 2006).

Zackery Lystedt Traumatic Brain Injury

Within the last three years, traumatic brain injuries have caught the attention of law makers across the country. In February of 2011, only eleven states had passed laws pertaining to

concussions and head related injuries (Toporek, 2011). As of November 2011, 35 states have passed concussion laws to prevent traumatic brain injuries of minors, eleven states have pending concussion laws, and six states have no concussion legislation at all (Anonymous, 2010).

In 2009, Washington was the first state to introduce a concussion law into legislation. The law was proposed after Zackery Lystedt suffered a traumatic brain injury while playing football (Anonymous, 2010). Zackery was playing Junior High football when he suffered a blow to the head. After the hit, although Zackery appeared to be in pain, he got up and stumbled to the sidelines. Zackery sat out for about 15 minutes before returning to the game, where he continued to take hits on both offense and defense. Following the game, Zackery screamed at his father that he could not see, and then collapsed (Foreman, 2010). Because Zackery returned to the game after receiving his first concussion and took more blows to the head, he suffered second-impact syndrome. The multiple blows to his head led to a traumatic brain injury requiring the removal of both halves of his cranium and nearly three months of a coma (Foreman, 2010). Second-impact syndrome caused hemorrhaging of Zackery's brain, which left him paralyzed and permanently disabled, restricted to a wheelchair with a speech impairment (Foreman, 2010).

The Lystedt family was adamant about trying to prevent this type of traumatic brain injury from occurring to other young athletes (Foreman, 2010). They pushed Zachery's story into Washington's Governor Christine Gregoire's office. With much success, the state of Washington was the first state to pass a concussion law, referred to as the Zackery Lystedt Law. The law has three main criteria:

- a) educate coaches, youth athletes, and their parents and guardians on the nature and risk of concussion and head injuries, including continuing to play after concussion, and on a yearly basis, concussion and head injury information sheet shall be signed and returned

by the youth athlete and the athlete's parent and guardian prior to participation (Appendix A),

- b) the youth athlete who is suspected of sustaining a concussion or head injury in practice or game must be removed from play,
- c) the youth athlete who has been removed from play may not return to play until evaluated by a licensed healthcare provider trained in the evaluation and management of concussions; the athlete must obtain written clearance to return to play from the healthcare provider (Zackery Lystedt Law of 2009).

Current State Legislation on Concussions in United States

The first aspect of the Lystedt Law is based solely on education. Currently all of the 35 states with a concussion law include an educational component. However, the legislation allows for each school district within each state to develop its own concussion guidelines, informational forms and educational training as long as they meet the minimum requirement of the state law. Most states provide education for parents and student-athletes through a concussion and head injury informational sheet. Many states use the educational hand-outs the Center of Disease and Control has created for their "Heads Up!" program, (Appendix B) (Sarmiento, Mitchko, Klein, Wong, 2010). All of these states require the concussion informational sheet be signed annually, by parents, before the athlete can begin participation, except Colorado, Connecticut, Idaho, Nebraska, Oregon, Wyoming (Toporek, 2011). About half of the states also require that coaches receive formal training on the nature and management of concussions (Toporek, 2011). The National Federation of State High School Associations offers a free training course that these states require for their coaching staff (Sarmiento et al., 2010). The course can be accessed online at: <http://www.nfhslearn.com/electiveDetail.aspx?courseID=15000>. According to Safekids.org

the states listed below either lack educational components for students, parents, and coaches or have different educational requirements or additions:

Arizona – lacks student concussion education and educational training for coaches

Colorado, Oregon, Texas – lacks parent and student concussion education

California, District of Columbia, Nevada – lacks educational training for coaches

Connecticut – requires that coaches take an initial concussion training course and a refresher course every five years

Illinois – lacks parent and student concussion education and educational training for coaches

Louisiana – requires concussion education training for officials and volunteers

Massachusetts – requires concussion education training for athletic trainers, volunteers, and school physicians

North Dakota – lacks parent and student concussion education; requires biennial concussion education training for officials, coaches and athletic trainers

North Carolina – requires concussion education training for school nurses, athletic directors, and volunteers (Sport Safety, 2011)

The last two components of the Lystedt Law pertain to the management of concussions after a head injury has occurred. The second aspect states that an athlete suspected of having a concussion, must be immediately removed from participation. The third aspect requires that a concussed athlete must receive written medical clearance before he or she may return to play (Zackery Lystedt Law of 2009). Idaho, Vermont and Wyoming are the only states that do not have these two components in their concussion legislation (Toporek, 2011). In addition to the

Lystedt Law, New Mexico, New York and Oregon require that student-athletes remain symptom free before returning to play (Toporek, 2011).

According to state legislation and Safekids.org there are several states that also have additional requirements. Minnesota requires that once an athlete receives written clearance to return to play, their healthcare provider must work with them and develop a rehabilitation program that allows them to return to athletics and academics safely. Nebraska requires that if an athlete is suspected of sustaining a concussion, the parents or guardian are to be notified right away, with information regarding the date and time the injury occurred as well as signs and symptoms, and any actions that were taken to care for the student-athlete. New Mexico not only requires the student-athlete to remain symptom free before medical clearance, but a student-athlete who has sustained a concussion is also prohibited from athletic participation for at least one week.

As states begin to mandate concussion laws for youth athletes, collegiate and professional sports are also encouraging concussion awareness. In fact, the National Football League is a big supporter of the Lystedt Law and has encouraged all 50 states to adopt a youth athlete concussion law (NFL Health & Safety, 2011). They consider the Lystedt Law to be “model legislation” that requires parents or guardians to sign a concussion-information form, removes student-athletes suspected of concussions from play, and makes concussed student-athletes obtain medical clearance before returning. (Toporek, 2011).

Of the 35 states that currently have concussion laws, 29 states and the District of Columbia follow the “model legislation” that the National Football League has encouraged. There are eight states with pending legislation who also follow the “model legislation.” Colorado

is one of the states that follows this model, however they have extended their law to include private schools and club sports as well (Toporek, 2011).

Although each state has its own law on concussion, they all address the seriousness of concussions. All of the laws that include the education component require that each school district implement some form of education on concussions. This alone allows the public some degree of education on the nature of concussions and their severity. Some of the laws are so new they have not even been implemented. As we learn more and more about concussions, these laws will continuously need to be amended.

Wisconsin's Current Concussion Protocols

As stated previously, concussion law is evolving across the United States. When this research began, the State of Wisconsin was only talking about a concussion law, like many other states at that time. Although Wisconsin is not a frontrunner in concussion law, Governor Scott Walker signed a bipartisan bill ensuring the safety of student athletes suffering from concussions. On April 2, 2012, the bill was signed at Lambeau Field in Green Bay, Wisconsin with the support of the Green Bay Packers (Wilson, 2012). The bill follows the same guidelines as the Lystedt Law. The Department of Public Instruction and the Wisconsin Interscholastic Athletic Association will work together to develop guidelines to aid in the education of coaches, student athletes and parents (Stein & Walker, 2012). The bill also includes measures to remove an athlete from participation if they are suspected of suffering a concussion and requiring they be evaluated by a trained health care provider before returning to play with written clearance. Wisconsin Senator Alberta Darling, who pushed for the concussion bill, stated “concussions don’t just keep kids out of sports, they can keep them out of the classroom and affect their studies, this legislation will go a long way in raising awareness and making sure kids’ brains get

the time they need to heal” (Stein & Walker, 2012). It is unknown at this time, when the concussion law will take effect in Wisconsin.

Parents’ Concussion Knowledge

During May 2010, C.S. Mott Children’s Hospital at the University of Michigan surveyed parents of children age 12 to 17, who play school sports (C.S., 2010). Overall, the survey concluded that parents lack awareness of concussions and do not understand the management of concussions. Several interesting statistics emerged from the results of the survey, “only 8% [of parents] have read or heard a lot about the risks of repeat concussions in school sports, more than 50% [of parents] do not know if their children’s school has a policy about returning to sports after a concussion, 62% [of parents] know of a parent who would have his or her child return to school sports too soon after a concussion, 84% strongly support a requirement that athletes be cleared by a doctor before returning to play after a concussion” (C.S., 2010). These statistics provide proof that the majority of parents are uninformed about concussions and are unaware of the management and return to play of an athlete following a concussion injury. Although, a study from Canada regarding athletes of a minor hockey league concluded that mothers of children who have suffered a concussion are more likely to recognize true signs and symptoms of a concussion than their fathers (Coghlin, Myles, & Howitt, 2009). Research on concussion knowledge is limited and therefore needs to further study.

CHAPTER THREE

SUMMARY AND CONCLUSIONS

As concern mounts related to student-athletes and concussions, the government has taken the proper educational approaches in the prevention of concussions and brain related injuries. From an athletic trainer’s point of view, the concussion management component of the

Lystedt Law identifies what prevents a concussion from becoming a traumatic brain injury. The educational component makes people aware of concussion, therefore they are less likely to overlook the concussion management components of the law. Concussions cannot be completely prevented while playing sports, but if the proper precautions are taken, such as education, the number and severity of concussions can be limited in sports. In conclusion, as these laws begin to take affect, parental knowledge of concussions will increase and optimally decrease the occurrence and severity of concussions over time. More research needs to be done on the awareness and knowledge of concussions in all sports, especially youth and high school sports.

Educational Recommendations

It is hard to determine what the best educational approach would be for educating adults on concussions. From my own personal experience on educating parents about concussion, it has been very effective if they first learn about the worst case scenario. Most parents or guardians do not want to see their child in a wheelchair or eating through a feeding tube. They tend to think of concussions more seriously if they know the consequences of a concussion, and have heard a story that hits home rather than just “reading” a form they have to sign. Although it will take some time for these laws to take effect, when they do, we will see beneficial results from the educational component. I believe that within the next two years, every state will have some sort of a concussion law.

Suggested Sample Survey for Southwest Wisconsin

Participants

Parental guardians of high school (Grades 9-12) student athletes who participate in football will be asked to complete a survey on concussions (Appendix C). Eight rural high schools from Southwest Wisconsin will be asked to participate in this research. Wisconsin High

School football is divided into seven divisions, based on school enrollment. The Division 1 programs have the largest enrollment and the Division 7 programs have the smallest enrollment. The schools selected for this study will represent Divisions 4-7. Each division will be represented by two schools. Between all divisions an estimated 180 parental guardians will be surveyed.

Recruitment

Once approval is granted from Institutional Review Board, permission from the administration and athletic department from all eight high schools will be requested. The survey will be administered via conventional mail, though pre-season athletic packets to all parental guardians of each high school. The surveys will be for parental guardians to complete and return with the rest of the pre-season required information. Once the surveys are returned, researcher will compile the information for analysis.

The survey was created using a partial survey from Rosenbaum and Arnett's concussion survey of high school athletes. Section 1 of their survey has been used to gather knowledge of concussions from parental guardians (Rosenbaum & Arnett, 2010). The remaining portion of the survey asks questions about the parental guardian and their child, including questions that addressed whether the parental guardians would be interested in education about concussions and how they would like to receive that information.

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APPENDIX A

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. A concussion 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.

Symptoms may include one or more of the following:	
<ul style="list-style-type: none">• Headaches• “Pressure in head”• Nausea or vomiting• Neck pain• Balance problems or dizziness• Blurred, double, or fuzzy vision• Sensitivity to light or noise• Feeling sluggish or slowed down• Feeling foggy or groggy• Drowsiness• Change in sleep patterns	<ul style="list-style-type: none">• Amnesia• “Don’t feel right”• Fatigue or low energy• Sadness• Nervousness or anxiety• Irritability• More emotional• Confusion• Concentration or memory problems (forgetting game plays)• Repeating the same question/comment

Signs observed by teammates, parents and coaches include:
<ul style="list-style-type: none">• Appears dazed• Vacant facial expression• Confused about assignment• Forgets plays• Is unsure of game, score, or opponent• Moves clumsily or displays uncoordination• Answers questions slowly• Slurred speech• Shows behavior or personality changes• Can’t recall events prior to hit• Can’t recall events after hit <p style="text-align: right;">(Continued next page)</p>

(Continued)

- Seizures or convulsions
- Any change in typical behavior or personality
- Loses consciousness

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. This can lead to prolonged recovery, or even to severe brain swelling (second impact syndrome) with devastating and even fatal consequences. It is well known that adolescent or teenage athletes will often under-report symptoms of injuries. And concussions are no different. As a result, education of administrators, coaches, parents and students is the key to student athletes' 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. The new "Zackery Lystedt Law" in Washington now requires the consistent and uniform implementation of long and well-established return to play concussion guidelines that have been recommended for several years:

"A youth athlete who is suspected of sustaining a concussion or head injury in a practice or game shall be removed from competition at that time"

and

"...may not return to play until the athlete is evaluated by a licensed health care provider trained in the evaluation and management of concussion and received written clearance to return to play from that health care provider."

You should also inform your child's coach if you think that your child may have a concussion Remember that 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 on concussions you can go to:
<http://www.cdc.gov/ConcussionInYouthSports/>

Please sign this form acknowledging that you have read this information and turn it in to the Athletics Department on the first day of the season. The department must have the form before an athlete may begin practice.

Student-athlete Name Printed
Date

Student-athlete Signature

Parent or Legal Guardian Printed
Date

Parent or Legal Guardian Signature

APPENDIX B

HEADS UP CONCUSSION IN HIGH SCHOOL SPORTS

A FACT SHEET FOR **PARENTS**

What is a concussion?

A concussion is a brain injury. Concussions are caused by a bump, blow, or jolt to the head or body. Even a “ding,” “getting your bell rung,” or what seems to be a mild bump or blow to the head can be serious.

What are the signs and symptoms?

You can't see a concussion. Signs and symptoms of concussion can show up right after the injury or may not appear or be noticed until days after the injury. If your teen reports **one or more** symptoms of concussion listed below, or if you notice the symptoms yourself, keep your teen out of play and seek medical attention right away.

Signs Observed by Parents or Guardians	Symptoms Reported by Athlete
<ul style="list-style-type: none"> • Appears dazed or stunned • Is confused about assignment or position • Forgets an instruction • Is unsure of game, score, or opponent • Moves clumsily • Answers questions slowly • Loses consciousness (<i>even briefly</i>) • Shows mood, behavior, or personality changes • Can't recall events <i>prior</i> to hit or fall • Can't recall events <i>after</i> hit or fall 	<ul style="list-style-type: none"> • Headache or “pressure” in head • Nausea or vomiting • Balance problems or dizziness • Double or blurry vision • Sensitivity to light or noise • Feeling sluggish, hazy, foggy, or groggy • Concentration or memory problems • Confusion • Just not “feeling right” or is “feeling down”

How can you help your teen prevent a concussion?

Every sport is different, but there are steps your teens can take to protect themselves from concussion and other injuries.

- Make sure they wear the right protective equipment for their activity. It should fit properly, be well maintained, and be worn consistently and correctly.

- Ensure that they follow their coaches' rules for safety and the rules of the sport.
- Encourage them to practice good sportsmanship at all times.

What should you do if you think your teen has a concussion?

1. **Keep your teen out of play.** If your teen has a concussion, her/his brain needs time to heal. Don't let your teen return to play the day of the injury and until a health care professional, experienced in evaluating for concussion, says your teen is symptom-free and it's OK to return to play. A repeat concussion that occurs before the brain recovers from the first—usually within a short period of time (hours, days, or weeks)—can slow recovery or increase the likelihood of having long-term problems. In rare cases, repeat concussions can result in edema (brain swelling), permanent brain damage, and even death.
2. **Seek medical attention right away.** A health care professional experienced in evaluating for concussion will be able to decide how serious the concussion is and when it is safe for your teen to return to sports.
3. **Teach your teen that it's not smart to play with a concussion.** Rest is key after a concussion. Sometimes athletes wrongly believe that it shows strength and courage to play injured. Discourage others from pressuring injured athletes to play. Don't let your teen convince you that s/he's “just fine.”
4. **Tell all of your teen's coaches and the student's school nurse about ANY concussion.** Coaches, school nurses, and other school staff should know if your teen has ever had a concussion. Your teen may need to limit activities while s/he is recovering from a concussion. Things such as studying, driving, working on a computer, playing video games, or exercising may cause concussion symptoms to reappear or get worse. Talk to your health care professional, as well as your teen's coaches, school nurse, and teachers. If needed, they can help adjust your teen's school activities during her/his recovery.

If you think your teen has a concussion:

Don't assess it yourself. Take him/her out of play. Seek the advice of a health care professional.

It's better to miss one game than the whole season.

For more information and to order additional materials *free-of-charge*, visit: www.cdc.gov/Concussion.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION



APPENDIX C

Concussion Survey

The following questions (1-18) are from a Concussion Survey created by Aaron Rosenbaum and Peter Arnett of The Pennsylvania State University.

Directions: Please read the following statement and circle TRUE or FALSE for each questions.

1. There is a possible risk of death if a second concussion occurs before the first one has healed.
TRUE FALSE
2. Running everyday does little to improve cardiovascular health.
TRUE FALSE
3. People who have one concussion are more likely to have another concussion.
TRUE FALSE
4. Cleats help athletes' feet grip the playing surface.
TRUE FALSE
5. In order to be diagnosed with a concussion, you have to be knocked out.
TRUE FALSE
6. A concussion can only occur if there is a direct hit to the head.
TRUE FALSE
7. Being knocked unconscious always causes permanent damage to the brain.
TRUE FALSE
8. Symptoms of a concussion can last for several weeks.
TRUE FALSE
9. Sometimes a second concussion can help a person remember things that were forgotten after the first concussion.
TRUE FALSE
10. Weightlifting helps to tone and/or build muscle.
TRUE FALSE
11. After a concussion occurs, brain imaging (e.g., CAT Scan, MRI, X-Ray etc.) typically shows visible physical damage (e.g., bruise, blood clot) to the brain.)
TRUE FALSE
12. If you receive one concussion and you have never had a concussion before, you will become less intelligent.
TRUE FALSE
13. After 10 days, symptoms of a concussion are usually completely gone.
TRUE FALSE
14. After a concussion, people can forget who they are and not recognize others but be perfect in every other way.
TRUE FALSE
15. High-school freshmen and college freshmen tend to be the same age.
TRUE FALSE
16. Concussions can sometimes lead to emotional disruptions.
TRUE FALSE

17. An athlete who gets knocked out after getting a concussion is experiencing a coma.
TRUE FALSE
18. There is rarely a risk to long-term health and well-being from multiple concussions.
TRUE FALSE

Directions: Please read the following questions and choose the appropriate response.

19. Current age range of parental guardian of high school athlete.
- a. 30-39 years old
 - b. 40-49 years old
 - c. 50-59 years old
 - d. 60-69 years old
 - e. 70-79 years old
20. Gender of child participating in sport?
- a. Male
 - b. Female
21. Has your child ever suffered from a sports-related head injury or concussion? If yes, please explain.
22. Have you ever had any education in concussions? If yes, please explain.
23. Would you be interested in learning more about concussions?
24. What form of education would you be interested in? Choose all that apply.
- a. Power Point
 - b. Pamphlet
 - c. Informational meeting with health care professional
 - d. Letter with required parental guardian signature for child to participate in sports