

## 2013 Nebraska Sports Concussion Survey Results:

## **Youth Survey**

September 2013











NEBRASKA SCHOOL ACTIVITIES ASSOCIATION



Nebraska State Athletic Trainers Association, Inc.

#### 2013 Nebraska Sports Concussion Youth Survey Results

Brain Injury Association of Nebraska

Nebraska School Activities Association

Nebraska State Athletic Trainers Association, Inc.

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#### Background: evaluating the effectiveness and impact of Nebraska's Concussion Awareness Act (LB260)

In an attempt to reduce the long-lasting consequences of second-impact concussions, the Nebraska State Legislature enacted the Concussion Awareness Act (LB260) in 2012. There are four <u>essential</u> <u>components of LB260</u>, which are:

- Concussion education training must be made available to all coaches on how to recognize symptoms of a concussion, and how to seek proper medical treatment.
- Athletes and parents must be provided with information about concussions prior to an athlete's participation in school sanctioned sports on an annual basis.
- An athlete suspected of having a concussion must be removed from participation and may not return until evaluated by an appropriate licensed health care professional.
- An athlete removed from participation for a suspected concussion must receive written and signed clearance from an appropriate licensed health care professional and from the athlete's parents prior to returning to play.

In order to evaluate the effectiveness and impact of this new law, the Concussion Evaluation Work Group was formed from individuals participating in the Nebraska Department of Health and Human Services Injury Prevention Program Injury Community Planning Group (ICPG). The work group created three separate surveys to answer a broad array of evaluation questions. Head coaches of organized high school sports, athletic directors and/or activities coordinators at high schools, and youth who received a concussion as a result of participation in an organized sport were surveyed. **This report presents the results of the Youth Survey.** 

#### Survey sample

- 94 surveys were collected from youth (and their parents) who sustained a sports related concussion while participating in an organized school or club/league/community sport and received medical treatment from a doctor.
- There was a near even distribution between urban respondents (47.1%) and rural (52.9%).
- 40.7% of respondents were 11 to 14 years old and 52.7% were 15 to 18.
- 82.4% of the respondents were male.

#### **Survey Results**

*I. Most schools and community organizations are compliant with Nebraska's Concussion Awareness Act (LB260), however there is some room for improvement in the areas of providing information about concussions to athletes and immediate removal from play.* 

- **77.4%** reported that they received information about the signs and symptoms of concussions before practice for the sport began.
- **84.9%** reported that they were removed from play when they sustained their concussion, but just **69.9%** reported being removed from play immediately (15.1% reported being removed at some stopping point in play and another 15.1% reported not being removed from play at all).

- **86.8%** reported that their parents/legal guardians were notified when they initially were suspected of sustaining a concussion.
- Note: evaluation and clearance by a doctor, an important aspect of the law, cannot be accurately determined from these survey results, as survey respondents had to see a doctor in order to be included in the survey sample.

## *II. There may be a need to educate youth participants in organized sports, their families, and coaches about the importance of taking concussions seriously and the dire consequence of second impact concussions.*

- As noted above, 15.1% reported not being removed from play after sustaining a concussion, and an additional 15.1% were removed at some stopping point in play. Therefore, three-in-ten (30.2%) of respondents were at risk for a potentially traumatic and life-altering second impact concussion.
- **7.5%** reported that no one evaluated them during the game/practice in which they sustained a concussion.
- **3.2%** reported playing in other sports while they were sitting out from the sport in which they sustained a concussion.
- **10.8%** reported not feeling fully recovered from their concussion before returning to athletics.
- 21.7% reported instances when they experienced the symptoms of a concussion, but did not report them to a coach or athletic trainer in order to continue playing in the past year. Reasons given for not reporting concussion-like symptoms among those who did not report them include not thinking it was serious enough (68.4%), not wanting to be pulled from the game/practice (36.8%), not knowing it was a concussion (31.8%), and not wanting to let teammates down (15.8%).
- **14.1%** reported not feeling confident that their coach or athletic trainer will appropriately manage a student with a suspected concussion (e.g., remove them from play and refer for further evaluation).

## *III.* Youth returning to the classroom after a suspected concussion may not be receiving the assistance they need.

• **57.6%** reported that their teachers and school did not provide extra assistance in the classroom when they returned to school and were still recovering from their concussion.

## 2012-2013 Nebraska Sports Concussion Youth Survey Results

#### Introduction

The Centers for Disease Control and Prevention (CDC) define a concussion as a "type of traumatic brain injury, or TBI, caused by a bump, blow, or jolt to the head that can change the way your brain normally works" (www.cdc.gov/concussion/sports). From 2009-2011, there were 1,089 sports-related concussions that required medical attention (emergency department visit, inpatient hospitalization, visit to physician's clinic, etc.) among those ages 5 to 19 in Nebraska (Nebraska Hospital Discharge Data).

In an attempt to reduce the long-lasting consequences of second-impact concussions, the Nebraska State Legislature enacted the Concussion Awareness Act (LB260) in 2012. There are four <u>essential</u> <u>components of LB260</u>, which are:

- Concussion education training must be made available to all coaches on how to recognize symptoms of a concussion, and how to seek proper medical treatment.
- Athletes and parents must be provided with information about concussions prior to an athlete's participation in school sanctioned sports on an annual basis.
- An athlete suspected of having a concussion must be removed from participation and may not return until evaluated by an appropriate licensed health care professional.
- An athlete removed from participation for a suspected concussion must receive written and signed clearance from an appropriate licensed health care professional and from the athlete's parents prior to returning to play.

In order to evaluate the effectiveness of this new law, the Concussion Evaluation Work Group was formed from individuals participating in the Injury Community Planning Group (ICPG). The work group designed three surveys to answer the following <u>evaluation questions</u>:

- Do coaches and athletic trainers have concussion training available? Are they aware of the signs and symptoms of concussions?
- Do youth and parents receive education on concussions before the start of practice?
- Are youth athletes with a suspected concussion as a result of a school related activity removed from play? Are their parents given notification? Are they offered post-concussion assistance when returning to school? Are they cleared by a licensed medical professional and parent before returning to play?
- Do schools and youth sport organizations have a policy in place for removal, clearance, and return to play?
- Do schools and organizations have a policy for paperwork and record keeping when a youth receives a concussion?
- Are second impact concussions being prevented?

Three surveys were developed to gather feedback from each of the following groups: (1) head coaches of Nebraska high school organized sports, (2) athletic directors and activities coordinators at Nebraska high schools, and (3) youth who received a concussion as a result of participation in an organized sport.

**This report presents the results from the Youth Survey**. A paper survey (with an option to take the survey online) was administered in July-August 2013 to youth who had sustained a sports-related concussion and were on the traumatic brain injury registry due to seeking medical attention.

#### Survey Response and Respondent Characteristics

The State of Nebraska maintains a Traumatic Brain Injury Registry, whose purpose is to provide educational materials and support to individuals recovering from and living with a traumatic brain injury. Individuals who have suffered a concussion and have received medical treatment are included in the registry.

Parents of youth who suffered a sports-related concussion and were ages 18 and under at the time of the concussion were sent the Youth Sports Concussion Survey in July 2013. Parents and youth were advised to complete the survey together. Only those youth who suffered a concussion during an organized sports activity, such as school sport or club/league/community sport were asked to complete the survey.

Because youth who suffered a sports-related concussion that did not occur during an organized sporting activity were included in the mailing, and would therefore have been advised not to complete the survey, a response rate is unable to be calculated. Only those youth who suffered a concussion as a result of an organized sporting activity were asked to complete the survey because the purpose of the survey is to assess organizational policies and compliance with Nebraska's Concussion Awareness Act (LB260).

A total of 94 surveys were completed by youth and their parents. Respondents were given the option to complete the survey online in place of completing and mailing back the paper survey that was sent to their home. Of the 94 total participants, 14 completed the survey online and 80 completed the paper survey.

There was a near even split between urban and rural respondents (Table 1).

Table 1	Urbanicity of Respondents (n=87)	
Urbar	n Rural	
47.1%	52.9%	

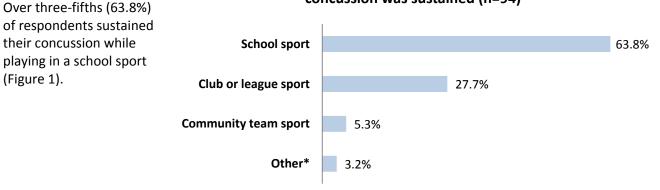
Over half (52.7%) of respondents were 15 to 18 years old, and two-fifths (40.7%) were 11 to 14 years old (Table 2).

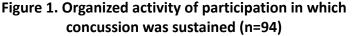
Table 2	Age of Respondents (n=91)			
6 and unde	er 7 to 10	11 to 14	15 to 18	19 and over
1.1%	4.3%	40.7%	52.7%	1.1%

Over four-fifths (82.4%) of respondents were male (Table 3).

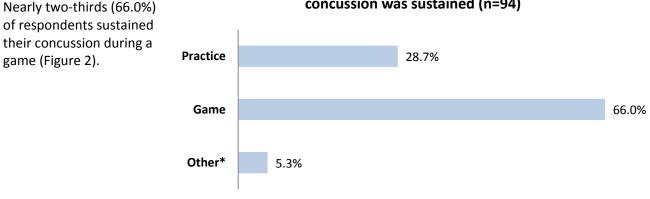
Table 3	Gender of Respondents (n=91)	
Male	Female	
82.4%	5 17.6%	

#### Occurrence of Respondents' Concussions





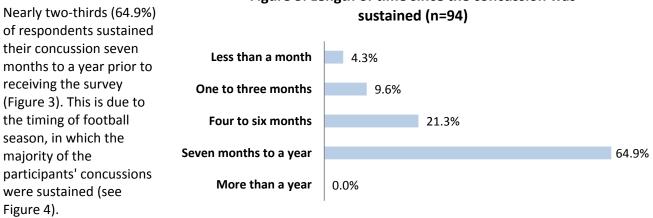
\*The three other responses were from respondents who sustained a concussion in P.E. class.



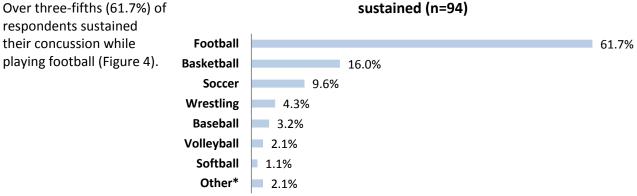
#### Figure 2. Type of activity of participation in which concussion was sustained (n=94)

their concussion during a game (Figure 2).

\*Other responses include P.E. class (3.2%) and pre-game practice/warm up (2.1%).



## Figure 3. Length of time since the concussion was

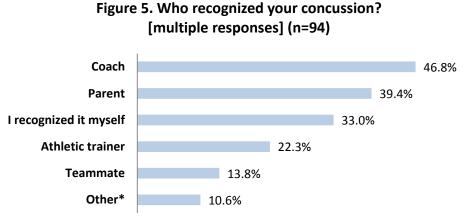


## Figure 4. Sport of participation in which concussion was sustained (n=94)

\*Other responses include hockey (1.1%) and rugby (1.1%).

#### Removal from Play

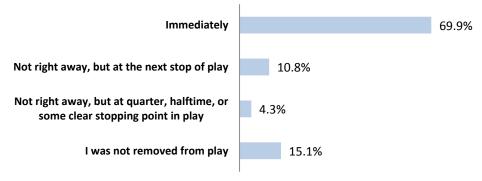
Respondents identified various and, in certain cases, numerous individuals who recognized their concussion. Coach was the most common (46.8%), followed by parent (39.4%), and the youths themselves (33.0%) (Figure 5).

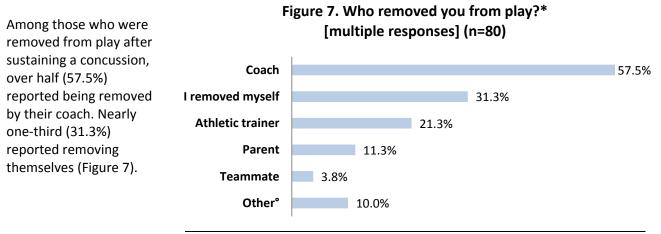


\*Other responses include EMT/paramedic (3.2%), referee/umpire (2.1%), medical doctor in stands (1.1%), fans (1.1%), students on the other side of the field (1.1%), principal (1.1%), friend (1.1%).

The majority (69.9%) of respondents reported being removed from play immediately. However, 15.1% reported being removed from play at some stopping point in play (at the next stop or at another clear stop in play), and 15.1% reported not being removed from play at all. Therefore, three-inten (30.2%) respondents were at risk for a second impact concussion (Figure 6).

#### Figure 6. When were you removed from play? (n=93)





\*Among those who were removed from play.

<sup>o</sup>Other responses include EMT/paramedic (3.8%), referee (2.5%), medical doctor at game (1.3%), principal (1.3%).

#### Evaluation, Parental Notification, and Medical Clearance

**Other**°

Among those who were removed from play after sustaining a concussion, nearly half (48.8%) reported being evaluated by a coach and three-ineight (37.5%) reported being evaluated by an athletic trainer during the game/practice. Six respondents (7.5%) reported that no one evaluated them during the game or practice (Figure 8).

# Figure 8. Who evaluated you during the game/practice?\* [multiple responses] (n=80) Coach 48.8% Athletic Trainer 37.5%

\*Among those who were removed from play.

°Other responses include parent (11.3%), EMT/paramedic (8.8%), no one (7.5%), doctor (3.8%), a parent who works in medical field (2.5%), another parent (1.3%), assistant coach (1.3%), team members (1.3%), principal (1.3%), team doctor (1.3%), left game (1.3%), self (1.3%).

38.8%

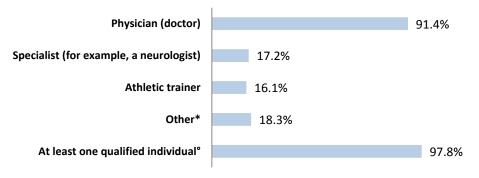
All respondents would have been evaluated by a medical professional in order to be on the registry, but two reportedly were not: one respondent reported that no one evaluated him/her after the game and another reported that his/her mother did the evaluation (it is unknown if the mother was a qualified individual). The vast majority of respondents were evaluated by a physician (91.4%) (Figure 9).

A strong majority (86.8%) of respondents indicated that their parents/legal guardians were notified when they were initially suspected of sustaining a concussion (Figure 10).

All but five respondents

11).

#### Figure 9. Who evaluated you <u>after</u> the game/practice? [multiple responses] (n=93)



\*Other responses include emergency room doctor (5.4%), parent (5.4%), principal/teacher (2.1%), school nurse (1.1%), coach (1.1%), EMT (1.1%), hospitalized overnight (1.1%), no one (1.1%).

°Qualified individuals include physician (doctor), specialist (for example, a neurologist), and athletic trainer.

> Figure 10. Were your parents/legal guardians notified when you were initially suspected of this concussion?

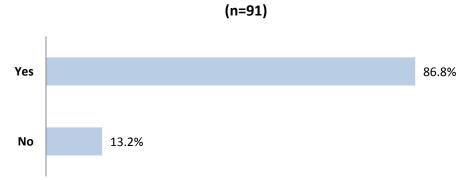
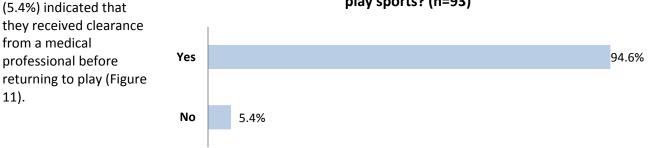
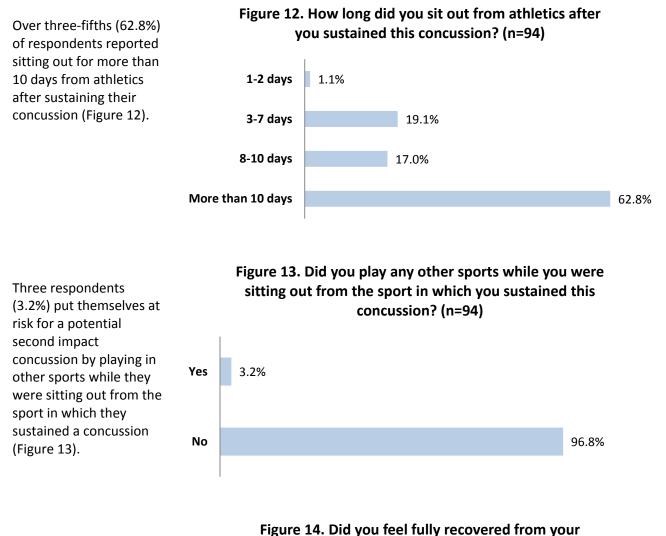
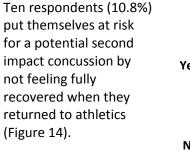
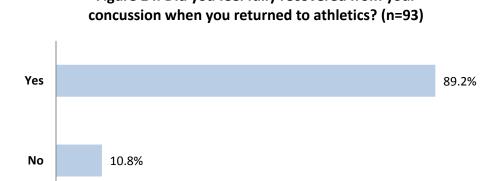


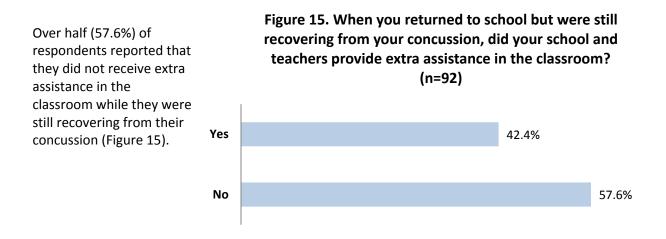
Figure 11. Before you returned to play sports, did a medical professional (such as a doctor, neurologist, or other specialist) provide you with a medical clearance to play sports? (n=93)





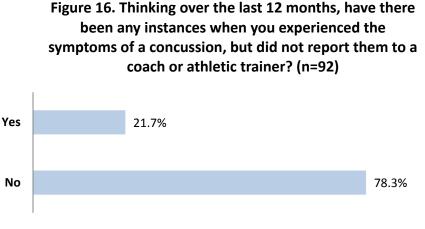


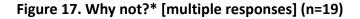




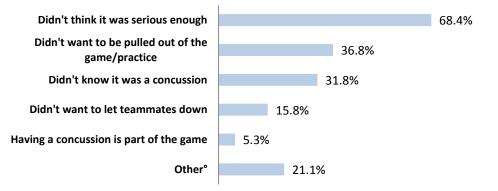
#### **Recognition and Proper Handling of Concussions**

Approximately one-in-five (21.7%) respondents reported instances in the past 12 months when they experienced the symptoms of a concussion, but did not report them to a coach or athletic trainer (Figure 15). This may in part explain the somewhat alarming percentage of youth who were not removed from play when they sustained their concussion (see Figure 6 above).





Among those respondents who indicated not reporting the symptoms of a concussion in the past year, various reasons were given, including not thinking it was serious enough (68.4%), not wanting to be pulled from the game/practice (36.8%), and not knowing it was a concussion (31.8%). Note the small sample size on this survey item (Figure 17).



\*Among those who indicated not reporting concussion-like symptoms to a coach or athletic trainer in the past 12 months (note the small sample size).

<sup>o</sup>Other responses include wanted to get back to playing sports (5.3%), continued in weight room before clearance - didn't want to lose what I had gained in the pre-season (5.3%), headaches are an after affect (5.3%), mood swings and headaches for no apparent reason, but not as severe as after concussion (5.3%).

Approximately one-fourth (27.8%) of respondents reported that they have recognized the symptoms of a concussion in a teammate (Figure 18). Among those who have (n=25), 84.0% reported telling a coach or athletic trainer.

A strong majority (85.9%) of respondents reported feeling confident that their coach or athletic trainer will appropriately manage a student with a suspected concussion. Yet, the fact that 14.1% reported no confidence is a cause for concern (Figure 19).

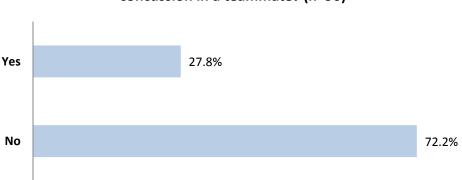
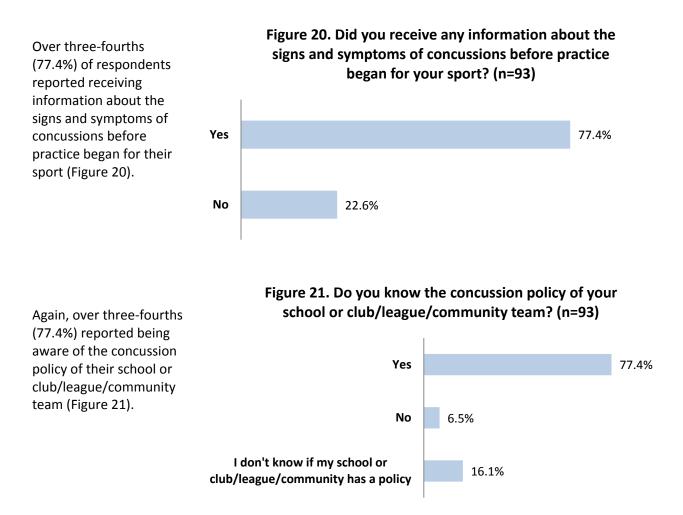


Figure 19. Are you confident that your coach or athletic trainer will appropriately manage a student with a suspected concussion (e.g., remove them from play and refer for further evaluation)? (n=92)



## Figure 18. Have you ever recognized the symptoms of a concussion in a teammate? (n=90)

#### Knowledge of Concussions and Related Policies



Survey respondents were asked to identify which of the statements in Table 4 were true. The vast majority (over 93%) identified each statement as correctly pertaining to concussions.

Table 4	Recognition of concussions		
		True	False
A concussion is a type of traumatic brain injury or TBI. (n=92)		98.9%	1.1%
All concussion	s are serious. (n=92)	94.6%	5.4%
Concussions c	an occur even without a loss of consciousness. (n=93)	95.7%	4.3%
Recognition and proper response to concussions when they first98.9%1appear may prevent further injury or even death. (n=93)1			1.1%
Concussions are caused by a bump, blow, or jolt to the head and can change the way your brain normally works. (n=93)		98.9%	1.1%
	an occur from a blow to the body that causes the head ly back and forth. (n=92)	93.5%	6.5%
Even a "ding", "getting your bell rung" or what seems to be a mild bump or blow to the head can be serious. (n=92)		97.8%	2.2%
Concussions can occur in any sport or recreational activity. (n=93)		96.8%	3.2%
•	ussion that occurs before the brain recovers from the the recovery or increase the likelihood of having long- s. (n=93)	98.9%	1.1%

#### Parent/Legal Guardian Perception of Concussions

Parents were given a set of scenarios in which their son or daughter exhibits certain signs or symptoms after a bump, blow, or jolt to the head. Parents were asked whether the child should be kept out from play, return, or if it was too close to call given a specific sign or symptom. For most signs or symptoms over 93% acknowledged that a child should be kept out. However, less than 85% reported "keep out" in response to the signs or symptoms of feeling feverish and not "feeling right" or "feeling down" (Table 5).

Table 5	Your son or daughter reports the signs and symptoms listed below after a bump, blow or jolt to the head or body. Which are sufficient reasons to keep them out of play?*				
		Keep Out	Return	Too Close	
Headaches or	"pressure" in the head (n=93)	94.6%	0.0%	5.4%	
Nausea or vomiting (n=93)		97.8%	0.0%	2.2%	
Reports feeling feverish (n=90)		84.4%	2.2%	13.3%	
Double or blurry vision (n=93)		100%	0.0%	0.0%	
Sensitivity to light (n=93)		96.8%	0.0%	3.2%	
Sensitivity to	noise (n=93)	92.5%	0.0%	7.5%	
Numbness in hands or toes (n=93)		100%	0.0%	0.0%	
Feeling sluggish, hazy, foggy or groggy (n=93)		94.6%	0.0%	5.4%	
Concentration or memory problems (n=93)		97.8%	0.0%	2.2%	
Confusion (n=93)		96.8%	1.1%	2.2%	
Does not "fee	l right" or is "feeling down" (n=92)	81.5%	3.2%	15.2%	
Balance probl	ems or dizziness (n=93)	98.9%	0.0%	1.1%	
•	ems or dizziness (n=93)	98.9%	0.0%	1.1%	

\*Survey item answered by the parent/legal guardian.

#### Conclusion

Although the size of the sample (n=94) invites caution before any major conclusions are taken away from the results of the Youth Sports Concussion Survey, there appear to be opportunities for education around concussions to youth, families, coaches, and school/community organizations.

Regarding compliance with the Nebraska Concussion Awareness Act (LB260), most school/community organizations appear to be compliant with the requirement that information be given about the signs and symptoms of concussions before the start of practice to athletes and their families, judging from the fact that three-fourths (77.4%) of respondents indicated that such an occurrence took place. Yet, a clear opportunity lies open to provide education to athletes and their families regarding concussions. Perhaps the most important aspect of LB260 is the removal from play of athletes with a suspected concussion. Although 84.9% of respondents reported that they were removed from play when they sustained their concussion, just 69.9% reported being removed from play right away, with 15.1% reporting being removed from play at a stopping point in the game, and another 15.1% reporting not being removed from play at all, thus three-in-ten (30.2%) were at risk for a second impact concussion.

Some youth, albeit a minority, are engaging in behaviors that put them at risk for a potentially lifechanging second-impact concussion. For example, 10.8% reported not feeling fully recovered from their concussion before returning to athletics and 3.2% reported playing in other sports while they were sitting out from the sport in which they sustained a concussion. More than one-in-five (21.7%) reported instances when they experienced the symptoms of a concussion, but did not report them to a coach or athletic trainer in order to continue playing. Reasons given for not reporting concussion-like symptoms among those who did not report them include not thinking it was serious enough (68.4%), not wanting to be pulled from the game/practice (36.8%), not knowing it was a concussion (31.8%), and not wanting to let teammates down (15.8%).

Coaches, when an athletic trainer is not present, often shoulder the bulk of the responsibility for carefully handling an athlete with a suspected concussion, judging from the fact that nearly three-fifths (57.5%) of respondents identified a coach as the individual responsible for removing them from play. A strong majority of coaches appear to be handling their athletes with care and caution when a concussion is suspected. However 14.1% of respondents reported not feeling confident that their coach or athletic trainer will appropriately manage a student with a suspected concussion (e.g., remove them from play and refer for further evaluation).

Lastly, youth returning to the classroom after a suspected concussion may require some assistance. "Return-to-learn" policies are not stipulated by LB260, however it is fair to suspect that a youth returning to school after a concussion will require a certain amount of time before being up to speed. The majority of schools do not appear to be offering assistance to such youth, judging from the fact that 57.6% of respondents reported that their teachers and schools did not provide extra assistance in the classroom when they returned to school but were still recovering from their concussion.

To conclude, the main design of LB260 is to prevent the severe trauma from second-impact concussions, which are concussions that occur before an individual has completely recovered from an initial concussion. The majority of school and community organizations appear to be taking the proper steps to prevent this from happening to young athletes. However, there are some barriers to properly managing concussions among the youth themselves, such as not reporting the symptoms of a concussion in order to continue playing and returning to play before feeling fully recovered from a concussion.