



P. MICHAEL STURLA
CHAIRMAN

MAJORITY POLICY COMMITTEE

HOUSE OF REPRESENTATIVES
COMMONWEALTH OF PENNSYLVANIA
HARRISBURG

HOUSE MAJORITY POLICY COMMITTEE HEARING
Topic: Proper Concussion Management in Youth Sports
The Children's Hospital of Philadelphia – Philadelphia, PA
February 11, 2010

AGENDA

- 1:00 p.m. Welcome and Opening Remarks
- Roosevelt Hairston, Jr., Senior Vice President of Government Affairs, Community Relations and Advocacy, The Children's Hospital of Philadelphia
 - Representative Mike Sturla, Chairman of House Majority Policy Committee
 - Representative Tim Briggs, 149th Legislative District
- 1:10 p.m. Keith Primeau
Former Captain of Philadelphia Flyers
Director of Player Development, Las Vegas Wranglers
- 1:30 p.m. Panel from the Brain Injury Association of Pennsylvania (BIAPA)
- Tracy Yatsko, former high school athlete who sustained a brain injury
 - Monica Vaccaro, Program Manager
 - Drew Nagele, Psy.D., Board Secretary
- 2:00 p.m. Rick Burkholder
Head Athletic Trainer, Philadelphia Eagles
- 2:20 p.m. Matthew Grady, M.D.
Pediatric Sports Medicine Specialist, The Children's Hospital of Philadelphia
- 2:40 p.m. Closing Remarks

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Keith Primeau
Former Captain, Philadelphia Flyers
Director of Player Development, Las Vegas Wranglers
Spokesperson, Play It Cool

- We need our young athletes and their parents to be more aware of the seriousness and dangers of concussions and brain injury.
- The impetus must be placed on the education and awareness of both the parents and the athletes.
- First, in regards to prevention. Two, in regards to recognition of the severity of head injuries. Three, the visibility of the perils of head injury or multiple concussions and four, the education process. How do we teach those who need a better understanding?
- Athletes should know that if they think they've had a concussion, not to hide it but to report it. They need to take time to recover because it's better to miss one game than the whole season. The impulse is to brave through it or play through it, but that is more ignorance than it is bravado. My own experiences have taught me that being courageous is not always being smart.
- Strongest sentiment towards this bill is the return to active play.
- Players, athletes, students want to play and parents want to see their child play, therefore allow them return before they are ready, and maybe they are ready, but that needs to be decided by a professional, whose position will be unbiased to the competition, but rational of the best outcome.
- Re-iterating that increased awareness is the biggest key to preventing catastrophic and lifelong injuries along with safe return to play standards we will be doing a huge justice to our children and if we don't we are doing an even greater injustice.

Brain Injury Association of Pennsylvania, Inc.



**PA House of Representatives
Policy Hearing on Concussion
February 11, 2010**

**Submitted To: PA Representative Tim Briggs
Submitted By: Drew A. Nagele, PsyD, Secretary, Brain Injury Association of Pennsylvania**

Mr. Chairman, thank you for the opportunity to testify at this important hearing regarding the Concussion in Youth Sports. My name is Drew Nagele and I am the Secretary of the Brain Injury Association of Pennsylvania, and I also serve on the Board of the Brain Injury Association of America. Pennsylvania's Association is one of 44 state affiliates chartered by the Brain Injury Association of America working to elevate awareness, research, education and advocacy for people with brain injuries.

We're here today because a concussion is a brain injury. According to the Centers for Disease Control (CDC), as many as 3.8 million sports and recreation-related concussions occur in the United States each year. For Pennsylvania the figure could be as high as 156,000 concussions per year. Because a young, developing brain is more sensitive to trauma and because children have weaker necks than adults, making brain trauma more damaging, we have a responsibility to protect our youth from returning to play too soon after sustaining a concussion.

The consequences of not addressing this public health crisis could be catastrophic. Athletes who return to play before their brains heal experience a slower recovery and are at risk for long term brain impairments. Repeated concussions cause Second Impact Syndrome, which is characterized by brain swelling, permanent brain damage and even death.

We believe coaches of every school athletic team and every extracurricular athletic activity should be trained to recognize the signs and symptoms of brain injury, including concussions and second impact syndrome. We believe young athletes who appear to have sustained a concussion should have written authorization by a health care professional with training in brain injury before returning to play.

A Few Quick Facts about Concussion:

- Most concussions occur without a loss of consciousness.

- Recognition and proper response to concussions when they first occur can help prevent further injury or even death.
- Athletes who have ever had a concussion are at increased risk for another concussion.
- Children and teens are more likely to get a concussion and take longer to recover than adults.

What is a concussion?

Concussions are caused by a bump, blow, or jolt to the head. A concussion can also occur from a blow to the body that causes the head to move rapidly back and forth. They can range from mild to severe and can disrupt the way the brain normally works. Even a “ding” or a bump on the head can be serious and result in a long-term or lifelong disability.

What needs to be done about Concussion?

Accurate recognition of concussion - we need to give coaches, parents, athletic trainers, and school administrators the tools to keep our children safe. Guidelines need to be implemented for how to recognize concussion, evaluate the student, and make informed choices about returning a player to the sport

Baseline assessment for those participating in high risk youth sports – in order to know if a young person is suffering effects of a concussion, we can give every youth player a pre-season baseline assessment, against which they can be evaluated after a concussion, in a serial fashion, in order to give the player the appropriate time for recovery, and to help protect against further injury

We need to follow kids with concussion to know which ones recover fully and which ones may need more help – system of care with professionals trained in brain injury need to be developed in every community, so that when additional rehabilitation services are indicated, they are made readily available, and so that teachers and others in the school can be brought into the loop about what will best meet the student’s needs after concussion

For kids who need more help, we have BrainSTEPS – a program that works within all of the schools in PA. BrainSTEPS works to make sure **Brain STEPS** is working to make sure that those who provide educational support to children with brain injury have a good understanding of the effects of the injury, the resulting challenges, and supports and interventions that will help these students achieve educational success through graduation. Research shows that 28% of kids referred to this program are kids with concussion. **Brain STEPS teams will provide:**

**Brain Injury Association
of Pennsylvania, Inc.** 

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**Submitted to: PA Representative Tim Briggs
Submitted by: Monica Vaccaro, Program Manager, Brain Injury Association of Pennsylvania; Tracy Yatsko, student athlete who sustained a concussion during play**

Mr. Chairman, thank you for the opportunity to participate in these hearings and to bring the issues of student athletes dealing with the effects of concussion to light. My name is Monica Vaccaro and I am the Program Manager for the Brain Injury Association of Pennsylvania. I am here today to introduce you to Tracy Yatsko, a student athlete from Pennsylvania who sustained a concussion during a high school basketball game. Tracy's brain injury had a serious impact on her athletic as well as her academic career, and five years later she continues to deal with its effects. Tracy is using her experience to promote awareness of concussion in youth sports, and was featured in the Centers for Disease Control and Prevention's *Heads Up: Concussion in Youth Sports* initiative to provide information to coaches, parents, and athletes involved in youth sports on preventing, recognizing, and responding to a concussion. (1)

This is Tracy's Story:

January 10th 2005...a day that will live in my memory forever. With the clock ticking down to the last minute in the first half of one of my high school varsity basketball games, a hit to the head changed my life forever. I was going up for a rebound and when I came down, the base of my brain smashed with the top of another girls head. For the next couple of days I had all the signs and symptoms of a concussion. I knew I had a concussion and my coaches knew I had a concussion, but unfortunately I "sucked it up" like all athletes are trained to do, and played another game...which turned out to be the last game of my athletic career.

How has my life been affected since the hit? Well, finishing high school was very difficult. I wasn't able to return to school, and received my schooling at home for the whole second half of my junior year and most of my senior year. I missed out on the great memories a high school student should have. I attempted to attend an amazing college but could only handle one half of a semester. If it took the average freshman 3 hours to do an assignment, it took me about 9 hours, because I had a hard time

focusing on the words in the books and dealing with the glare from the computer screens. And I'm just talking about one assignment for one subject. My college counselors did try to help me, like having other students taking notes in my class, because at the time I couldn't sit up straight for a two hour time period because of my neck and back being so tender and sore from the hit two years prior. I did try to go out with my friends but I honestly can't remember one night not lying in bed wanting to cry and give up from the pain from my head and body. College is supposed to be the time where you learn about life and grow up to become the person you strive to be, and unfortunately I couldn't handle that. I had to learn from age 17 to grow up, take responsibility for myself, and respect life more than the other kids my age, which was very hard to do.

For the past five years, I've suffered from migraines that excluded me from having a normal life. I lost most if not all of my friends because they could not handle the pain I went through. I spent my days and nights curled up on my couch, with an icepack wrapped tightly around my head, all lights off, dark sheets over the windows, everything silenced, and my mom sitting with me trying anything and everything she could to make me smile. That was my life. Everyone else my age was living their life at college and I was stuck on the couch dealing with pain I couldn't bear.

What two things were even worse? Guilt and suicidal thoughts. I can't even begin to describe the guilt I feel for what I thought was ruining my family. My mother had to take off months and months of work, and my sister took off a whole semester just so they could help me walk to the bathroom, and drive me to the hundreds of doctor's appointments. It scares me to this day to even admit that I have been suicidal. But I really did believe that the horrible pain I was going through would never go away. Fortunately, I never acted on those hateful thoughts. Something needs to change. Today! I can't bear to think that another child can go through the same thing as me, especially if it can be prevented.

Reference

1. Department of Health and Human Services (US), Centers for Disease Control and Prevention. Heads Up: Concussion in Youth Sports. 2009. <http://www.cdc.gov/concussion/HeadsUp/youth.html>

Rick Burkholder Head Athletic Trainer Philadelphia Eagles

My name is Rick Burkholder and I am the Head Athletic Trainer for the Philadelphia Eagles. I have 23 years experience of athletic training at the college and professional levels. I have a BS degree in Athletic Training from the University of Pittsburgh and a MS degree in Athletic Training from the University of Arizona. I have also been employed by those two institutions as well as The Pittsburgh Steelers and currently the Philadelphia Eagles. I serve as a member on the Mild Traumatic Brain Injury Committee for the National Football League and have spoken at their NFL MTBI Conference in June of 2007. I am also a former Division I college soccer player who has suffered three concussions in my life with no post concussive symptoms. This is because my concussions were handled appropriately by a certified athletic trainer in the Commonwealth, my father, a 50 year veteran of high school athletic training.

As a member of MTBI at the highest level of football I have been instrumental in helping the NFL institute mandates for their athletic training staffs, physicians, coaches and players. Some of these mandates include:

- All players must have neuropsychological baseline testing.

Neuropsychological testing is one tool a physician can use to assist in the

management of MTBI. We also require mandatory testing of all players following removal of players from a game or practice due to a concussion.

-Any player that is deemed unconscious during a practice or game may not return to that practice or game until being cleared by the team's medical staff and an independent neurological consultant.

-Penalties for blows to the head of defenseless players and quarterbacks.

-Penalties for players not having chin straps buckled.

-A brochure was developed that is distributed to all NFL players to help educate players and their families about concussions, including how to recognize the symptoms of a concussion and recommended treatment procedures.

-A "whistle blower" system was developed so that anyone may anonymously report any incident in which a doctor is pressured to return a player to play from a concussion or that a player with a concussion is pressured to play.

As a committee we have encouraged high schools and colleges to develop similar standards and that is why I am here today to support House Bill 2060.

It is extremely interesting to me that my athletes that are generally in their 20's and 30's have stricter mandates and better health care than more susceptible younger athletes in the high schools of Pennsylvania. It is known that younger athletes

need more time to recover from these concussive injuries than do our older professional athletes. It is also interesting to me that Mark Lovell, director of the University of Pittsburgh Medical Center's Sports Medicine Concussion Program and also a member of our committee, believes that only 3 of 10 high school athletes suffering a concussion are evaluated by neuropsychological testing, whereas 100% of our athletes are evaluated with this tool. It seems that our health care model for athletes is inverted. The athletes that need the most attention get the least amount.

The issue of concussion in sports has become so big globally that there has been three meetings of the world's experts in handling concussions in sport. The first meeting was in November 2001 in Vienna Austria, the 2nd was in November 2004 in Prague in the Czech Republic, and the third was in October 2008 in Zurich Switzerland. At all three of these International Conferences on Concussion in Sport, it was determined that younger athletes need more time to recover and should never play in the same contest or practice after suffering a concussion. It was also determined that all athletes should pass cognitive testing and well as an exercise challenge before returning to play. This would include passing a neuropsychological exam as well as doing athletic activities without symptoms before returning to play. If you asked the majority of parents and coaches in

Pennsylvania what has to happen for their child or athlete to be safe to return to play they would probably not come close to answering either of these criteria.

Most of the parents and coaches would discuss things like headache, blurred vision, dilated pupils, etc. In my 23 years as an athletic trainer I have never seen an athlete who has had a concussion have dilated pupils. Many of the athletes that I have seen clear all symptoms at rest within three days but still cannot pass our criteria for return to play until 7 days or later.

As an athletic trainer, I feel that I am the second line of defense in the diagnosis and return to play following a concussion. The first line of defense is the players themselves. We must educate the players, their families and coaches that these injuries are very serious and must be reported and handled correctly. We must drop the idea of “shake it off, you just got your bell rung”. We must encourage players, coaches and parents to report these concussions to the health care provider in charge of their team or sport.

With all of these parameters in mind, it is why I support HB 2060 to include signed documents that parents and athletes have been educated on concussions. Also I support that HB 2060 mandates that no athlete be put back into a game or practice without first being evaluated and cleared by a trained health care provider and this clearance must be in writing.

It would be my hope for the safety of all athletes in the Commonwealth that the House of Representatives would consider investigating the mandate of an athletic trainer in all high schools. That would be the first step and the biggest step in increasing awareness and preventing these catastrophic and lifelong injuries. Until that idea can be further investigated it is my hope that you take the first step and that would be to pass HB2060.

Let's protect our future.

Matthew Grady MD FAAP
CAQ Sports Medicine
Pediatric and Adolescent Sports Medicine
Department of Orthopedic Surgery
Children's Hospital of Philadelphia

Concussion in Youth Sports:

Definitions: "a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces" - 3rd International Conference on Concussion in Sport (Zurich)

- Concussion is a brain injury
- The injury affects the function of the brain. In layman's terms, the brain is not working right. The structure of the brain is normal- MRI, CT scans are normal
- Forces transmitted to the brain cause the injury. This can be either a direct blow to the head or it can be a blow to the body with forces transmitted to the head. A passenger in a motor vehicle accident can suffer a whiplash injury and get a concussion, even if his/her head never hit anything
- You do not have to lose consciousness to get a concussion. In fact only 10% of concussions cause a loss of consciousness

High School Sports and Concussions:

Concussions are a common injury in high school athletics. A study published in 2007 J Athl Train, 2007 Oct-Dec; 42(4):495-503: Concussions represented 8.9% (n = 396) of all high school athletic injuries in nine studied sports (boys football, soccer, basketball, wrestling, baseball and girls soccer, basketball, softball and volleyball)

In high school football, concussions occur in about 6% of the players per season. On a team of 60 players, 3 will get a concussion per season. Ice hockey has reported similar numbers. Concussions are also common injuries in girls sports, especially soccer.

Often high school students hide their symptoms so the numbers above are documented concussions and may be a little low.

In a study published in 2004 (McCrea et al Clin J Sport Med 14 (1) Jan 2004) 15 % of high school football players reported having concussion symptoms during the football season. However, only 47% of the players with concussion symptoms during the season reported those symptoms to a school/team official (athletic trainer, coach, team doctor, etc)

Pathophysiology:

Concussions in high school sports are different than concussions in college and professional sports. Healing time is slower in younger athletes. Studies from the University of Pittsburgh have demonstrated that average healing time for an adolescent with a concussion is close to two weeks (McClincy et al Brain Injury 20(1) 33-39 Jan 2006) and that more than 10% of concussions take longer than one month to heal

During the healing phase, the brain is more vulnerable to re-injury. Most repeat concussions within the same season take place within 10 days of the initial injury (McCrea Neurosurgery 65(5) Nov 2009).

Preliminary data suggests that it does not take as much force to re-injure the brain.

Inappropriate early return to play places the athlete at risk for re-injury.

Most of the time, re-injury will mean a longer healing time. This can have a significant impact on school function.

Rarely, something more deadly can occur. In immature brains, rarely a second concussion causes massive brain swelling. The swelling brain is encased in a rigid shell, the skull. As the brain swells, critical parts of the brain do not get adequate blood flow. Either massive brain injury or death results. Each year a few high school students die from a concussion injury. In our area, Ryne Dougherty, a high school linebacker from of Montclair NJ died Oct 15, 2008 from massive brain swelling following a second concussion sustained Oct 13, 2008.

Concussion Symptoms

- Confusion
- Amnesia
- Headache
- Nausea or vomiting
- Sensitivity to light and noise
- Dizziness
- Ringing in the ears
- Slurred speech

- Fatigue
- Memory or concentration problems
- Sleep disturbances
- Irritability
- Anxiety
- Depression

Treatment:

Brain rest is the current treatment.

No medications have been found to speed up healing. Medications are used to reduce the symptoms, usually headaches.

Limiting brain activity includes not only limiting video game playing etc but also limiting school work until most of the symptoms have resolved. This can be a big problem in the high school student, especially when symptoms last for more than 4 weeks.

Clearance:

Clearance should be a graded process.

Recommendations from Zurich Concussion Group

1. Rest until asymptomatic
2. Low levels of physical exertion as tolerated (symptoms do not get worse or come back during or after the activity). This includes walking, light jogging, light stationary biking, light weightlifting(lower weight, higher reps, no bench, no squat)
3. Moderate levels of physical exertion as tolerated. This includes moderate jogging/brief running, moderate-intensity stationary biking, moderate-intensity weightlifting(reduced time and/or reduced weight from your typical routine)
4. Heavy non-contact physical exertion as tolerated. This includes sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills
5. Full play

Full Clearance is generally given when the athlete has achieved **ALL** of the below:

No symptoms at rest.

No symptoms with sustained concentration (school).

No symptoms with sustained hard aerobic exertion.

Normal physical exam including balance.

Normal neuropsychological tests if testing was done