

# PROTECTING SCHOOL AGE ATHLETES FROM SPORTS-RELATED CONCUSSION INJURY

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## HEARING BEFORE THE SUBCOMMITTEE ON HEALTH OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES ONE HUNDRED ELEVENTH CONGRESS SECOND SESSION

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## **PROTECTING SCHOOL AGE ATHLETES FROM SPORTS-RELATED CONCUSSION INJURY**

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**WEDNESDAY, SEPTEMBER 8, 2010**

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON HEALTH,  
COMMITTEE ON ENERGY AND COMMERCE,  
*Washington, DC.*

The subcommittee met, pursuant to call, at 1:00 p.m., at the Fire Lounge, Prudential Center, Newark, New Jersey, Hon. Frank Pallone, Jr., [chairman of the subcommittee] presiding.

Present: Representatives Pallone and Pascrell.

### **OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY**

Mr. PALLONE. I call the meeting of the Health Subcommittee to order, and today we're having a hearing on Protecting School-Aged Athletes from Sports-Related Concussion Injury.

Before we proceed I do want to ask the unanimous consent to have Congressman Bill Pascrell participate as a member of the Subcommittee for this hearing. Without objection so ordered. There's no one to object but me, so we don't really have a problem.

I'll initially recognize myself for an opening statement.

Today, as I said, the Health Subcommittee will be having a hearing on Protecting School-Aged Athletes from the Sports-Related Concussion Injury. Obviously, we're bringing our work to a field hearing in my home state of New Jersey here at the Prudential Center, which is the home of the New Jersey Devils. I would like to point out, and I'm saying this for Bill's purpose as well, this is the first and only field hearing that the Health Subcommittee has had in this Congress, just so you know.

The hearing will include testimony on Mr. Pascrell's Bill, H.R. 1347, the Concussion Treatment and Care Tools act of 2009. I'd like to briefly thank our witnesses for being here today. We're going to have two panels. Dr. Vikas Kapil will be on the first panel and then we'll have a second one. I know that some of the panels have traveled quite a distance and had to battle New Jersey traffic, which is not an easy feat. I only had to battle getting into the building. I was actually here on time, but we had to go to the other end of the building to get in. But regardless, I want to thank you and I appreciate the fact that the witnesses are here and, obviously, we look forward to your testimony.

I wanted to especially recognize Nikki Popyer, I hope I pronounced it right, who is a senior at Marlboro High School in my

district. Nikki will share her personal story in dealing with sports concussions. In addition, I want to welcome former New York Giants offensive tackle Roman Oben, I hope I'm pronouncing it properly, who I know is a friend of Bill Pascrell's and who brings a unique perspective to this discussion.

A concussion, as we know, is a type of brain injury that changes the way the brain normally works. It doesn't take a medical degree to know that this type of injury can be a serious one for young people whose brains are still developing. I think all the witnesses before us today will discuss in different ways how concussions have the potential to cause a host of physical and emotional burdens, affecting child's developmental, social and academic life.

Concussions are one of the most commonly reported injuries among the nearly 38 million children and adolescents that engage in organized youth sports and recreation activities in the United States. In fact according to the Center for Disease and Prevention, CDC, each year U.S. Emergency departments treat an estimated 135,000 sports-and-recreation related traumatic-brain injuries among children ages 5 to 18. Furthermore there is an increased risk for subsequent concussions among athletes that experienced a previous concussion.

Of the sport-related concussion injuries seen in the emergency rooms, approximately 65 percent occur among youth aged 5 to 18—a significant statistic that demonstrates the importance of today's hearing. What's alarming, however, is a recent report conducted by Brown University Medical School that states emergency room visits by kids suffering from concussion while playing sports have more than doubled in recent years. The numbers, accordingly, immediately prompted an updated report by the American Academy of Pediatrics on concussion identification and treatment for children.

As a parent of children who play youth sports, I want assurances that when my kids are participating in their team sports that they have the best medical care and training from the school and its coaches. Yet, across the nation, only 42 percent have access to an athletic trainer. Meanwhile, states have implemented a myriad of guidelines for schools and coaches to follow.

I think we can agree that recreational and competitive sports are great activities for young athletes, but we need to protect against the potentially-serious impact of concussions. We must aim to provide our schools administrators, coaches and athletic directors with the information and tools needed to protect youth athletes from the dangers of repeated head injuries and developing long lasting cognitive issues. Young people are resilient and don't want to get sidelined by bumps and bruises, but head injuries shouldn't be ignored.

I look forward to today's testimony. I'm going to recognize my colleague Mr. Pascrell, but I do want to say, first of all, I commend him for taking such an interest in this issue. I know that Bill has been involved in a number of issues related to brain injury that I think we passed in the previous Congress, the legislation relative to veterans and others, and I will assure you there is no one who is more aggressive, and I say that in a positive way, in trying to move legislation. And that's why we're here today, because he's so aggressive he insisted we have this hearing. I recognize my colleague and friend Mr. Pascrell.



**OPENING STATEMENT OF HON. BILL PASCRELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY**

Mr. PASCRELL. Thank you, Chairman Pallone, for holding what I think is a very friendly hearing and welcome you all today.

This is a great location for the hearing. I appreciate the hospitality of the Jersey Devils as well as the Prudential Center for allowing us to use their facility.

Before I start I want to take a moment to thank the Center for Disease Control and Prevention. They've done a fantastic job over the past several years in spreading awareness of concussions in school sports through their Heads Up Program. I want to commend them. It's a great program.

Nikki, you know what I think about you, your parents. You're a brave young woman. I've worked with you over the last year on the CONTACT Act making it a better Act because of you and your input. You greatly increased your fellow students awareness of concussion, God knows you've saved lives. I thank you for speaking on behalf of students who have been affected.

Joanna Boyd, where are you, from the Brain Injury Association of New Jersey. You worked tirelessly over the last several years. I want to thank you and your organization's dedication to this issue. In 2006 we worked together to get grants to New Jersey schools for testing technology, to get the right technology to provide baselines so we know what we're talking about so that we can make comparisons and see before and after situations. I look forward to continuing to work with the organization.

Michael Prybicien. Where are you, Michael? Thank you for coming from Passaic, I was just in Passaic earlier this morning, to help us see how athletic trainers are in intrical part of the solution. Thank you for coming here today.

Dr. Joel Brenner. Where are you? Dr. Brenner, thank for you making the trip all the way from Virginia to lend us your medical expertise as we work to protect our children's health.

And finally, Roman Oben. Where do I start with Roman. Super Bowl champ, NFL Pro, making the transition from success on the gridiron to success after the NFL. I can remember Oben ten years ago as an intern in my office. You've come a long way. All of the NFL players I've talked over the last three, four years, we finally are doing something about that, about head injuries, about concussions. Guys who play for sometimes three, four years, sometimes ten years, almost throughout the line of being vegetables because the league would not address it. They are addressing it and they endorse our legislation. I thank you for being here, Oben. We're honored to have you.

So we're at the beginning of the school year. Congressman Jim Ringwood, welcome Congressman Jim Ringwood of Pennsylvania. We started the congressional brain injury task force with a number of us in the committee. Of course it does fit in a telephone booth 11 years ago. We had no idea, believe me, we did not, of how prevalent brain injuries would become over the years for school sports. But today the Center for Disease Control and Prevention estimates as many as 3.8 million sports and recreation-related brain injuries occur each year, that's a phenomenal number. And remember you

do not have to have a blow to the head to have a concussion, but a blow to the head and a concussion is brain damage, whatever degree.

You've already probably seen the news over the last month, concussions have become a growing problem for our schools. A study published this past September, in the September issue of *Pediatrics*, a journal of American Academy of Pediatrics found that between 1997 and 2007 a number of children—the number of children seeking emergency medical care for concussions is doubled. More troubling is that between 2001 and 2005, the beginning of this decade, approximately half of all emergency department visits were sports-related conclusions.

Many parents and students today do not realize how dangerous contact sports are until it's too late. In 2008 this difficult reality hit home in a high school student from my district Ryan Darrell. He died after returning to a football game without fully recovering from a previous concussion.

In discussing the dangers of repeat concussion, the biggest worry is a student suffering a second impact syndrome, a condition that is debilitating if not deadly. We know today that 41 percent of concuss athletes are returning to play too soon. That is a fact of life. Under guidelines set out by the American Academy of Neurology, again I repeat, I can't repeat it enough, concussions are a brain injury. For an athlete that has suffered a concussion, getting off the field can literally be the difference between life and death. Second impact syndrome is preventable. There's no excuse for our children having to face the life changing realities of this condition.

In Ryan's memory and to prevent this devastating injury from affecting other families, Congressman Tom Platts of Pennsylvania and I introduced the ConTACT Act, H.R. 1347. Our Bill does two essential things to protect students. First, it brings together a conference of stakeholders to establish concussion management guidelines which will be used to prevent injury, treat and manage concussions in school-age children. These are physicians, these are therapists, these are neurologists, et cetera. These are the professionals who will establish the guidelines, not the Congress. We need to establish our own guidelines for our own mental fitness. It then authorize grants to state for adopting and disseminating and implementing these guidelines and for the purchase of testing equipment to carry out baseline and post-injury neuropsychological testing for student athletes.

You can have a neurological psychological base test, it makes no sense unless we have a test of a student who has been injured so that we can make a comparison. This is exactly the mistake that the Department of Defense has made on a congressional directive of 2007 when the Department of Defense decided in November of 2008 that they weren't going to pay the attention to the exit neurological psychological test. They not only botched in not protecting our soldiers when they went on the field our sons and daughters, our neighbors, but they botched them being tested when they come off the field to see how severe the injury is. We do not want to submit to that same stupid mistake.

We know that some states have passed legislation requiring schools to implementing concussion guidelines. When a school dis-

strict attempts to crack concussion policies, it will find a range of varying guidelines. That's going to be confusing. To be clear, there are no federal guidelines at this time to help students adopt uniform policies. Therefore, in tackling the issue today and in reviewing the Bill, the ConTACT Act, we are taking action to make school sports safer for all children. In fact, we are considering expanding it beyond the middle school and the high school into specific organized sports for young folks within each community.

Support continues to build for the ConTACT Act. It is endorsed by the Brain Injury Association of America, the Easter Seals, the National Football League, the Players Association, the Parkinson's Action Network, the State Head Injury Administrators, American College of Rehabilitation and Medicine.

I look forward to working with the Committee on this important legislation. I want to thank you, again, Chairman Pallone. I know many things have come through the Health Subcommittee. It's been a momentous session, to say the least. For your leadership on this committee and in bringing this issue to the forefront. As you know, the Bill has been heard in a few other committees before coming to your committee, and I thank you for your time.

Mr. PALLONE. Thank you, thank you Congressman Pascrell.

That concludes our opening statement since it's just the two of us. We're now going to turn to our witnesses. As I said, we have two panels. Dr. Vikas Kapil is on the first panel by himself. Welcome and thank you for being here. I see Vikas somehow became Vick, I guess it doesn't matter to you.

Dr. KAPIL. Yes, sir. No, Vick is great.

Mr. PALLONE. Let me mention that you are a physician and Associate Director for Science of the Division of Injury Response from the National Center for Injury Control and Prevention at the Centers for Disease Control and Prevention. We normally have five minutes. I'm not going to hold you to it too much because we don't have that many witnesses today and your statement becomes part of the record. In the discretion of the committee you can submit additional briefs and pertinent statements and writings at the conclusion of the record afterwards if you'd like. I ask you now to begin with your statement. Thank you.

**STATEMENT OF VIKAS KAPIL, ASSOCIATE DIRECTOR FOR SCIENCE, DIVISION OF INJURY RESPONSE, NATIONAL CENTER FOR INJURY PREVENTION AND CONTROL, CENTERS FOR DISEASE CONTROL AND PREVENTION, UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES**

Dr. KAPIL. Thank you, sir.

Thank you and good afternoon, Chairman Pallone and Congressman Pascrell. My name is Dr. Vikas Kapil. I'm an emergency medicine and public health physician currently serving as the Associate Director of Science at the Division of Injury Response at CDC's injury center. It is an honor to be here on behalf of CDC.

I would like to highlight for you today some key facts about sports concussion among youth, described prevention and response efforts that are currently underway and also talk a little about some of the partnerships we're engaged in at CDC to address this critical problem among this nation's youth.

As you already touched on, traumatic brain injuries are a serious threat to the health and well-being of children and adolescents in the United States. A TBI is caused by a bump, a blow or even a jolt to the head or a penetrating head injury that disrupts the normal function of the brain. The majority of TBI that occur each year are concussions or other forms of mild TBI. While most athletes with a concussion recover quickly and fully, some will have symptoms that last for days, weeks or even much longer.

Signs and symptoms of concussion include but are not limited to headaches, nausea, vomiting, difficulty concentrating, irritability, sadness and sleep disturbance. Similarly, repeated mild TBIs occurring over an extended period of time, i.e., over months or years, can result in cumulative neurological and cognitive deficits. There are also case reports of catastrophic and fatal injuries among young athletes following repeat TBI occurring within a short period of time, such as hours, days or weeks while they were still symptomatic from a previous incident.

We know that children are more likely to sustain a concussion and take longer to recover than adults, and if they do sustain one concussion they're also at increased risk for subsequent incidents.

To help address this problem CDC has developed a Heads Up initiative to educate health care professionals, coaches, athletic directors, athletic trainers, parents, school professionals, clinicians and also athletes themselves about concussion to help improve prevention, recognition and response to this serious injury. Because coaches and parents are often the first line of defense against sports-related concussions among young athletes, the Heads Up material focus on providing practical information, such as an action plan, a list of concussion signs and symptoms that is readily available on a clipboard or in another easily reached place and can be used at all games and practices.

One example is CDC's new Heads Up on line training for youth sports coaches. This course provides coaches with what they need to know about concussions in less than 30 minutes so they can be prepared for the sports season.

Complementing the information included in our Heads Up initiative, a number of states have also undertaken efforts to address sports concussion among youth and high school students. As you know, several states have passed or are considering legislation on concussion in sports. CDC will be working in the coming years to evaluate these state laws and to assess their implementation successes and challenges as well as their intended and unintended impact.

CDC currently supports 30 state health departments to conduct TBI surveillance for all causes as well as to engage coalition, to promote strategy, to address critical problems such as TBI.

We have more than 60 partners on the Heads Up initiative. These partners play a crucial role in getting this information out to those who need it most. One example of this is CDC's partnership with the National Football League on concussion awareness and promoting the Heads Up initiative. In 2008 CDC partnered with the Seattle Seahawks and the Brain Injury Association of Washington to implement an education campaign based on CDC's Heads Up initiatives. This campaign, called Heads Up Washington,

helped create momentum in Washington for passage of the nation's first state-based sports concussion law, the Zackery Lystedt Law.

CDC has also worked with the NFL to disseminate the Heads Up information to 20,000 high school football coaches, and in the coming months CDC with support from the NFL will work on development of education tools for clinicians on return to play management for young athletes.

Although there are promising interventions and a number of strategies currently being employed to address this issue, there are still opportunities for improvement. We need to improve the ability to monitor and track the number of sports-related concussions that occur among young athletes, and get a better sense of the circumstances surrounding those injuries. These types of efforts can help inform and optimize prevention and response strategies.


Lastly, we need to ensure that future initiatives are developed with scientific integrity and are disseminated widely to ensure all those who work with children and teens in sports setting have the information they need to keep these young athletes safe. We also need to continually and systematically evaluate current and future strategies, including programs and policies, such as the state policies that I mentioned earlier.

In conclusion, we can reduce the dangers of sports-related concussions on our nation's youth by bringing prevention, recognition and response strategies to scale, and ensuring that they are accessible to sports teams, schools and youth sports programs as well as clinicians. Scaling up these approaches necessitates collaboration between the public health community as well the health care community and a broad range of partners and stakeholders, such as national organizations and those in education.

I would like to thank the Subcommittee for its continued support of CDC and its injury and violence programs. I would be happy to take any questions that you may have at this time. Thank you.

Mr. PALLONE. Thank you, Dr. Kapil. How do you pronounce it?  
Dr. KAPIL. Kapil.

[The prepared statement of Dr. Kapil follows:]

	<p><b>Testimony</b>  <b>Before the Subcommittee on Health</b>  <b>Committee on Energy and Commerce</b>  <b>United States House of Representatives</b></p>
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**Protecting School-age Athletes From Sports-Related Concussion Injury**

***Statement of***  
**Vikas Kapil, D.O., M.P.H., FACOEM**

***Associate Director for Science***  
***Division of Injury Response***  
***National Center for Injury Prevention & Control***  
***Centers for Disease Control and Prevention***  
***U.S. Department of Health and Human Services***

Good afternoon Chairman Pallone, Ranking Member Shimkus and other distinguished Members of the Subcommittee. My name is Dr. Vikas Kapil and I am an emergency medicine and public health physician. I serve as the Associate Director for Science in the Division of Injury Response (DIR), at the National Center for Injury Prevention and Control (NCIPC) within the Centers for Disease Control and Prevention (CDC). Thank you for the opportunity to appear before you on behalf of CDC to discuss our Agency's efforts to address school sports concussion. At CDC we work to ensure that all people live life to their fullest potential through the prevention and appropriate response to injuries such as concussion and other types of traumatic brain injuries (TBI).

Regardless of gender, race or economic status, injuries are a leading cause of death for young Americans. TBIs are a particularly serious threat to the health and well-being of children and adolescents age 0-19 in the United States, particularly children and adolescents playing sports, because of the danger of repeat concussion. In order to address the seriousness of this issue, CDC has taken a leading role in the nation's efforts to improve prevention, recognition, and response to concussion through the authority provided to us in the TBI Act of 1996 (Public Law 104-106). We collect data on TBIs to ensure an understanding of the problem and to measure the success of prevention efforts, educate the public and key stakeholders on how to respond appropriately when brain injuries occur, and conduct research to inform the evidence base for prevention, detection and response efforts.

I will begin my testimony today by providing an overview of TBIs, particularly in high school and middle school athletes, describing the signs and symptoms as well as who is affected. I will also describe the evidence base for prevention efforts, and I will close by highlighting some of the work we at CDC have undertaken in this area with a particular emphasis on work we have been doing in partnership with the National Football League (NFL).

#### **Overview, Signs and Symptoms of Concussion**

TBIs are caused by a bump, blow or jolt to the head, or a penetrating head injury that disrupts the normal function of the brain. Not all blows or jolts to the head result in a TBI. The severity of a TBI may range from "mild," with a brief change in mental status or level of consciousness, to "severe," with an extended period of unconsciousness or amnesia after the injury. The majority of TBIs that occur each year are concussions or other forms of mild TBI. In addition to a bump, blow or jolt to the head, concussions can also occur from a blow to the body that causes the head to move rapidly back and forth. Most concussions occur without loss of consciousness. Health care professionals may describe a concussion as a mild TBI because concussions are usually not life-threatening; however, they can cause significant and serious health consequences. This is particularly true for athletes who may be at risk for experiencing multiple concussions.

The most recent CDC data show that an estimated 1.7 million deaths, hospitalizations, and emergency department visits related to TBI occur in the United States each year.

TBI is a contributing factor in approximately one-third of all injury-related deaths for all ages. Children aged 0 to 4 years, and adolescents aged 15 to 19 years, are most likely to sustain a TBI. However, the magnitude of TBI is not easily determined and is likely underrepresented because many cases are not treated in hospitals or emergency departments.

Each year, U.S. emergency departments treat an estimated 135,000 sports-and-recreation related TBIs, including concussions, among children ages 5 to 18. There is also an increased risk for subsequent concussions among athletes who have had at least one previously. Repeated mild TBIs occurring over an extended period of time (*i.e.*, months, or years) can result in cumulative neurological and cognitive deficits. Repeated mild TBIs occurring within a short period of time (*i.e.*, hours, days, or weeks) can be catastrophic or fatal. In rare cases, repeat concussion can result in brain swelling, permanent brain damage, and even death.

In addition to the physical and emotional burden of TBIs, the economic burden is staggering. In 2000, CDC estimated that the cost of TBI in the United States totaled \$60 billion, including \$9.222 billion in lifetime medical costs and \$51.212 billion in productivity costs. (See Finkelstein EA, Corso PS, Miller TR. *The Incidence and Economic Burden of Injuries in the United States*. New York: Oxford University Press; 2006). This figure takes into account loss of productivity, loss of patient and caregiver time, non-medical expenditures, and a diminished quality of life and long term health consequences.

Most people with a concussion recover quickly and fully. Signs and symptoms of concussions fall into four categories, including: physical complaints (*e.g.*, headache, nausea, vomiting, balance or vision problems); cognitive or memory problems (*e.g.*, difficulty concentrating, feeling slowed down); emotional or mood related symptoms (*e.g.*, irritability, sadness); and, sleep disturbance (*e.g.*, sleeping more or less than usual or disturbed sleep). Some of these symptoms may appear right away, while others may not be noticed for days or months after the injury, or until the person starts resuming their regular activities and more demands are placed upon them. Sometimes, people do not recognize or admit that they are having problems. Others may not understand the nature of their problems, which can make them more nervous and upset, further exacerbating their condition. Early on, problems may be missed by the person with the concussion, family members, or doctors. It is critical to ensure that young athletes who sustain a concussion are not allowed to play through it, and graduated return to play or return to classroom programs may be needed. This type of progressive reentry can protect the health of the athlete and prevent further injury.

In addition to appropriate response, there are strategies that can be used to prevent concussions. Rules and policies on how sports should be played can be implemented to maximize safety. Appropriate protective equipment can be used to protect the brain, and improvements to existing protective equipment could be made to improve current technologies. Additionally, education of athletes, parents, coaches, clinicians, school



staff, and others is needed to ensure all adults who work with children and adolescents in sports settings or related environments can promote safe practices.

#### **Prevention Efforts: Evidence-Based and Promising Interventions**

CDC has identified a number of strategies and practices that can strengthen prevention and response for sports-related TBI and improve its management. The majority of these strategies have been tailored for various audiences through the CDC's Heads Up educational initiative. Heads Up was developed by CDC in partnership with other federal agencies, professional associations, and many national organizations. Heads Up consists of several specific versions of educational materials. "Heads Up: Concussion in Youth Sports" is designed for coaches of children participating in youth sports. "Heads Up: Concussion in High School Sports" was developed for high school coaches, as well as athletic trainers and directors. CDC also worked with organizations such as USA Football, to provide "Heads Up" fact sheets and awareness video to athletes and coaches. The "Heads Up: Brain Injury in Your Practice" version was designed to assist health care professionals in identifying and responding appropriately to sports related concussions among children and adolescents. Lastly, "Heads Up to Schools: Know Your Concussion ABCs" was released in May 2010 to help school professionals identify and respond to concussions in school settings.

The Heads Up initiative for youth and high school coaches provides tool kits that include practical and essential information such as easy-to-read fact sheets for coaches, parents and athletes; online training; videos; a clipboard; posters; magnets; and a quiz to test concussion knowledge. The tool kits were developed for coaches and administrators who work with athletes ages 5 to 18 in a broad range of sports activities. Consequently, the promotion of these programs has motivated parents, coaches/athletic trainers, athletes and medical professionals to change their behavior and increase their knowledge of how to recognize and respond to concussions. This enhanced knowledge and behavior change around concussion care giving practices allow youth affected by TBI to live their lives to the fullest potential. Since the beginning of the Heads Up initiative in 2005, more than 1.5 million print copies of the Heads Up materials have been disseminated.

Complementing the Heads Up initiative, a number of states have undertaken additional efforts to address sports concussion among youth and high school students. Several states have passed legislation requiring training of high school sports coaches and implementation of rules for schools to follow when athletes sustain concussions. These laws show great promise in addressing some of the key concerns related to sports associated concussions among young athletes. In FY 2010, CDC undertook an effort to begin evaluating these laws and to develop a framework to better assess their intended impact, their potential implementation successes and challenges, and their unintended consequences.

CDC's CORE State Injury Program (CORE Program) supports some of these efforts. CDC currently funds 30 states to conduct injury surveillance, develop strategic plans, and engage in coalition building work to broadly address injuries and violence. The CORE

Program collects information on injuries to ensure that data collection can inform our understanding of the circumstances surrounding injuries as well as to ensure that prevention efforts can be measured. The CORE Programs in several states have also been instrumental in providing technical assistance and data to inform states' efforts to implement TBI prevention legislation. While the CORE Program provides a strong basis for collection of broader injury data, TBI is an area that could benefit from a more specific and robust approach to ensure that the circumstances surrounding TBI are better understood and to better inform prevention efforts.

#### **CDC's Partnership with the NFL**

CDC is currently partnering with over 60 organizations on TBI issues. In the area of youth sports concussions, CDC and the NFL share a common goal to improve prevention, recognition, and response to sports-related concussion among youth. CDC and the NFL have partnered on a number of activities and have additional activities planned for the future to address this important public health problem. CDC also works with USA Football, an independent non-profit organization leading the development of youth, high school, and international amateur football. USA Football was endowed by the NFL and NFL Players Association in 2002. The NFL, USA Football, and CDC have worked together to ensure that young football players can play in an environment that is as safe as possible and that those who do sustain concussions are treated and reintegrated into their football practices and games appropriately.

For example, in 2008 CDC entered into a partnership with the Seattle Seahawks NFL team and the Brain Injury Association of Washington (BIAWA). This partnership was designed to raise awareness about concussion and improve prevention, recognition, and response to concussion among young athletes. Building upon CDC's "Heads Up: Concussion in High School" and "Heads Up: Concussion in Youth Sports" initiatives, these partners created the "Washington Heads Up: Concussion in Sports" campaign, which included training sessions, presentations, and public service announcements with widely-recognized football celebrities. The campaign built momentum for the adoption of the first state-based sports concussion law in the nation, the "Zackery Lystedt Law," enacted in May 2009. Named for Zackery Lystedt—a young athlete who was permanently disabled after sustaining a concussion in 2006—the law is the first of its kind in the nation. This law requires that athletes participating in school sports that exhibit signs and symptoms of a concussion be removed immediately from practice or play. In addition, parents and athletes must sign a concussion information sheet prior to the start of each sports season. The legislation passed in Washington is one example of the type of promising legislation that can help to ensure a desirable impact on high school sports practices related to concussion.

In addition to this specific partnership activity in Washington, CDC's concussion in youth sports materials are now integrated into every USA Football/NFL coaching clinic. These clinics reach more than 10,000 youth football coaches each year. The NFL also includes CDC's Heads Up information in the NFL's coaching planner, which is sent to 20,000 high school football coaches annually through the NFL's Player Development Program. CDC

assisted with the development of a poster and fact sheet on concussion for NFL players that was distributed to all NFL teams. This poster will be adapted for youth athletes playing all sports. Lastly, CDC provided significant content input into the public service announcement distributed by the NFL during the 2009-2010 NFL season. This announcement addressed the importance of detection and appropriate response to concussion among athletes.

### **Conclusion**

As you have heard, concussions are a significant threat to our nation's youth, particularly those participating in sports. There is a strong and growing scientific basis to support appropriate prevention, identification, detection, and response for sports related concussions. There is no doubt about it; sports are a great way for teens to stay healthy while learning important team building skills. But, there are risks to pushing the limits of speed, strength and endurance. Athletes who push the limits sometime do not recognize their own limitations, especially when they have had a concussion. Through CDC's efforts to improve data collection, the national distribution and promotion of the Heads Up educational initiative with key partners such as the NFL, and our efforts to evaluate promising policies such as the Zackery Lystedt Law in Washington, CDC is focused on protecting our nation's youth who participate in sports.

CDC is focusing existing investments to expand and improve state-based data collection efforts, support increasing evaluation of states' policy and program efforts, and to expand the reach and scope of initiatives such as Heads Up that can address this critical public health issue for our nation's youth where applicable. These efforts, designed to increase awareness of the importance of responding appropriately to concussions among youth in sports as well as improving the skills of those who oversee and work with young athletes to respond appropriately, will help our nation's children and adolescents live their lives to their fullest potential.

I would like to take this opportunity to thank the Subcommittee for its continued support of CDC and its TBI programs. I would be happy to answer any questions that you many have.

Mr. PALLONE. You know the way it works, we alternate. Five minutes questions for me and then Congressman Pascrell and we'll go back and forth. I wanted to ask though, I know you mentioned—you stated that—well, you mentioned CDC's partnership with the Seattle Seahawks NFL Team, the Brain Injury Association of Washington, and you stated that the Washington Heads Up Concussion and Sport Campaign provide a momentum for the Zackery Lystedt Law, and that was the first law in the nation that established return and play guidelines. Now, since that was enacted in 2009 many others states would follow suit and have enacted or are considering legislation. So my first question is, how do you foresee national concussion management guidelines and, again, I'm referencing Mr. Pascrell's Bill, how do you foresee those national concussion management guidelines interacting with current state efforts?

Dr. KAPIL. As you indicated, Chairman Pallone, many states are actively passing laws or contemplating similar legislation that dictates how youth athletes with concussions should be managed. It would helpful from our perspective for national guidelines to demonstrate consistency and compatibility with those state laws and ongoing implementation efforts from the states.

Mr. PALLONE. A second question along the lines of coordination but with respect to funding activities, in your testimony you highlighted several prevention efforts that CDC has adopted including the Heads Up Program and the Injury Program. How are the activities described, again, in Mr. Pascrell's Bill H.R. 1347, different from current CDC funded TBI activities? You know, I'm trying to, you know, Congressman Pascrell come up with a good Bill of federal guidelines or national guidelines, I should say, and grant programs, but, you know, the question all my colleagues ask every time, you know, do we need federal versus state laws and I think you've answered that, but then, you know, what would be different that we would be funding from what you're doing now.

Dr. KAPIL. The CDC's current TBI related activities are focused on all populations and all age groups regardless of etiology. These types of activities include surveillance, research, education, policy evaluation. For example, our 30 states programs that you mentioned receive funding under our CORE Injury Program to conduct broad injury surveillance kinds activities including TBI, developing partnerships and providing education for selected populations among other focused areas. CDC is also supporting work to disseminate clinical management guidelines for adult populations with mild TBI seen in emergency departments. We plan to expand this work to include guidelines for the pediatric population or general traumatic brain injury in the future.

Mr. PALLONE. I guess what I'm trying to get at, I now you've answered, you know, obviously Congressman Pascrell feels there are huge gaps here. Some states have guidelines, some do not, that's why we need federal. You're doing some programs but, you know, it still provides for a lot more grants. So I mean, I guess what I'm trying to get at is you feel that there are gaps that the federal guidelines or the national guidelines there's still a lot of states either don't have guidelines are they're not adequate and you feel that the grant programs that are provided under the legislation are

needed because you're not doing enough, that's essentially what I'm trying to find out.

Dr. KAPIL. Chairman Pallone, we don't have an official position on the Bill. We have provided some technical comments and we appreciate the opportunity to do that, to provide those comments to the Committee. If you'd like what we can do is provide some additional detail and specificity and follow-up.

Mr. PALLONE. Sure. I'll be happy to have any written follow-up to my questions, that would be good. We don't have the bell here, so I don't know how I'm doing time wise.

Mr. PASCRELL. You're doing fine.

Mr. PALLONE. I still have a couple minutes. Let me go to my second question. You touched on the issue of preseason, I think you said something about preseason baseline and post-injury testing. I went through this with my son, you know, that before he—and I have two daughters and a son and they all play different sports at different times, some more than others. And, you know, I notice that with my son before he started to play football that they had some kind of preseason testing. So, I guess my question is, if you could discuss the issue with these preseason baseline and post-injury testing in a little detail. What is the benefit of doing that type of testing and in your professional judgment should this type of testing be computerized, what factors might be taken into account with respect to computerized testing.

Dr. KAPIL. Yes, sir. So neurocognitive testing is a promising tool in the evaluation of people with TBI. It may provide more objective and consistent evaluation of baseline status offering health care providers the opportunity to compare post-injury findings with baseline results. In the past CDC had actually provided some funding for studies that have reviewed the effectiveness of some neurocognitive assessment tools in the evaluation and management of TBI. Computerized testing offers some potential advantages, particularly for screening large numbers of people. And it also means that future comparisons to baselines test results are somewhat easier to conduct and also effects of test learning by subjects can be minimized because the test is computerized.

However, CDC believes that the neurocognitive testing is only one part of a comprehensive strategy in the appropriate evaluation and management of TBI, and that should be conducted and interpreted by knowledgeable, experienced and qualified health professionals.

Mr. PALLONE. You know, I'm not that familiar with it, obviously, but in other words let's use football for example. Would normally this kind of preseason baseline testing be done, you know, at the high schools in my district before the kids play?

Dr. KAPIL. I can't speak, Chairman Pallone, I can't speak specifically to the circumstances in your district.

Mr. PALLONE. Let's say nationally.

Dr. KAPIL. Yes, sir. But it is widely used.

Mr. PALLONE. It is widely.

Dr. KAPIL. Yes, sir. The computerized testing is widely used both in professional sports, in high schools, in colleges, you know, wide variety of settings. So, it's certainly possible that in the high schools in your community it is being used. In some cases to con-

duct baseline testing which can then be compared in the future, and in other cases if baseline testing isn't available, you know, a post-injury test can be compared to normative values that are available that are gender specific and age specific.

Mr. PALLONE. And then like my last question, I'm sure my time is up, we can always come back. Is that only done for sports where there's a lot of contact like football, I don't know basketball, whatever, or would they do it for all sports, how does it work.

Dr. KAPIL. Well it certainly could be done for any sports in which there's risks for traumatic brain injury. And as you know, even though the rates do vary from sport to sport to some extent, the risk is not insignificant in sports even outside of the organized sport settings such as high school basketball and football for example in youth sports. In those kinds of the settings I suspect the use is probably much less frequent than it would be in organized settings.

Mr. PALLONE. And more likely in contact sports like football. I mean, obviously you wouldn't be doing it in like track, would you, I don't know or you would.

Dr. KAPIL. I'm hesitating only slightly because there are sports that are not traditionally thought of as contact sports which are associated with fairly significant risk for traumatic brain injury and cheerleading is an example and it comes to mind. So, certainly in some settings a sport like cheerleading it would perfectly appropriate to consider neuro-psych assessments or computerized neuropsych assessment. But again, it's part of a comprehensive strategy as opposed to using the test results in isolation, so it should be done at a comprehensive strategy in our opinion incorporating a whole host of other important aspects in terms of prevention recognition and management of TBI.

Mr. PALLONE. It's funny you mentioned cheerleading, because my eldest daughter always complained to me that they never paid much attention to the cheerleaders. Thank you.

Congressman Pascrell.

I think I went over, so now they're going to bring out the clock.

Mr. PASCRELL. Dr. Kapil, I'm glad that you mentioned—there are many myths circulating about which sports produce, according to the number of people proportionately in that sport, the most injury. We are way off in what we would think is a result. There are many, many female sports that are producing very serious situations. Many times because the proper equipment is not being used to protect, and we don't want wutzies out on the field, but we do want to protect our kids. I don't think the two things are incompatible, would you agree.

Dr. KAPIL. I would agree, sir.

Mr. PASCRELL. In the sports that we least think are going to produce these injuries, we're thinking of boxing, we thinking of football, but we know that girls soccer, girls polo, many of those sports provide a worse situation. Now, I'd like to know two things. Number one, what is the CDC doing to enunciate what is the difference between the female athlete and the male athlete in terms of who's more vulnerable to these violent acts.

Dr. KAPIL. I'm not aware that we've done any specific work in that area, Congressman Pascrell.

Mr. PASCRELL. There's been some studies done.

Dr. KAPIL. Yes, sir, there have. We may well have over the last, you know, since the inception of the injury center at CDC, we may have well supported some work in that area. Certainly it's a very, very important issue. And you've raised another very valid important point as well, is that we don't want these kinds of efforts to dissuade or discourage children from participating in healthy sports-related activities, which are very important for them for other reasons. In terms of the specifics of the kinds of studies that are related to female athletes and male athletes supported by CDC, I would have to get back to you on that and I'll be happy to do that.

Mr. PASCRELL. The culture may be prompting a parent or a student to say I can go back in there or to not even communicate his injury. I mean, that happens, doesn't it.

Dr. KAPIL. Yes.

Mr. PASCRELL. And either through peer pressure or parents who want to assimilate their own talent in their daughters or sons and want to play through their kids out there on the field. I don't care whether it's hockey or ping-pong, I don't care what it is. You would agree with me on that too.

Dr. KAPIL. Sir, I have three children of my own and they all participate in sports, a variety of sports, and I would wholeheartedly agree. The cornerstone of our efforts at CDC are prevention and recognition and then appropriate response. The prevention aspects, of course, involve the rules of play, things like the use of appropriate protective equipment, policies regarding play. The difficult part from my perspective, the real challenge is the awareness both among athletes, coaches, as well as parents, school professionals and even clinicians on the awareness of that even a relatively seemingly minor ding to the head could have significant and serious consequences. Absolutely right.

Mr. PASCRELL. You said that many times about a blow to the head. What I have researched, and correct if I'm wrong, you don't have to have a blow to the head to have a concussion, explain how that happens.

Dr. KAPIL. This is also correct. A jolt which doesn't involve necessarily a direct blow to the head. The brain is basically encased in the skull and there's some fluid and membranes around it, but just a sudden and violent movement of the head can move the brain around sufficiently inside the skull that it actually can strike the sides or the back or the front of the skull and actually cause a significant injury as well. So that's absolutely true.

Mr. PASCRELL. And that is what's happened to many of our soldiers who report after a situation that they did not receive a blow to the head in these road side bombs. There is a conscious statement when they're asked. No, I didn't get hit in the head, nothing happened to my head. And yet we know quite well that there was damage to the brain after the test. Let me just ask this about the test.

It doesn't make any sense to have an entry level test, be it neuropsychological or computerized, whatever, if you don't have an exit test, correct?

Dr. KAPIL. Certainly a baseline test is important for comparing.

Mr. PASCRELL. What do you compare it to.

Dr. KAPIL. Right. So, the most typical use of this would be that you would have a baseline test and then subsequently if an injury occurs, for example, that test result following an injury could be compared to the baseline. One of the challenges, of course, and maybe one of our next witnesses will touch on this, is that the baseline test isn't always available, which means in those cases then you are basically—a post-injury test result would need to be compared to some normative, expected normative data for that age and gender patient.

Mr. PASCRELL. Do you think every athlete that we're talking about in this legislation should be given a baseline test before they go out in to any field of combat or competitiveness.

Dr. KAPIL. Sir, we—again, we think that—our perspective is that neurocognitive testing is potentially a very important tool. However, it's part of a comprehensive strategy to be approached to TBI and the availability of baseline testing as a comparative tool for future would be potentially useful.

Mr. PASCRELL. The type of test is significant. You wouldn't give a questionnaire though, would you.

Dr. KAPIL. I'm sorry, sir.

Mr. PASCRELL. You don't think a baseline test is a questionnaire before and after, that's not a baseline test to you, is it.

Dr. KAPIL. And again, sir, I'm slightly out of my area of expertise in terms of neurocognitive assessment. The test should be conducted, whether it's computerized or not computerized should be conducted by an individual who is knowledgeable in the area, understands neurocognitive assessment and testing and can interpret the results appropriately.

Mr. PASCRELL. And who might that be.

Dr. KAPIL. It could be a variety of individuals under different circumstances. So, I would not label appropriate individuals with a particular degree or particular title. In some cases it may be appropriately trained physicians, it might be other clinicians such as advance practice nurses or nurses. It could be psychologists and neuropsychologists. So it could be a variety of different kinds of appropriately trained and qualified health care professionals.

Mr. PASCRELL. I hope we don't do what the Department of Defense did. They tested 550,000 of our soldiers, your sons and daughters, my sons and daughters and relatives and our neighbors before they went into the battlefield. You know how many they tested coming out of the battlefield.

Dr. KAPIL. No, sir.

Mr. PASCRELL. 3,000. You know why they tested only 3,000.

Dr. KAPIL. No, sir.

Mr. PASCRELL. Well, they tested 3,000 because they're the only ones they thought that got injured. You know what they gave them, a questionnaire. I have the questionnaire right here if you're interested.

The point I'm trying to make is this is serious, this is life or death in many instances. This determines who goes back out, who's redeployed, in our case who goes out in the field. Serious business.

I thank you for your testimony today.

Dr. KAPIL. Thank you.



Mr. PALLONE. Thank you. Thank you, Mr. Pascrell. Thank you, Dr. Kapil.

I think we're going to move to the second panel.

Dr. KAPIL. Great. Thank you very much.

Mr. PALLONE. I appreciate you coming here. I assume you came from where.

Dr. KAPIL. From Atlanta.

Mr. PALLONE. Thank you. We really appreciate you being here today, your testimony.

Dr. KAPIL. My pleasure and we appreciate the Committee's thoughts.

Mr. PALLONE. And any questions that you want to follow-up with in writing please do so.

Dr. KAPIL. Yes, sir. Thank you.

Mr. PALLONE. Thank you.

The next panel come forward now.

Welcome to all of you and thank you again for appearing today. Some of you had to come from a distance as well. Let me introduce each of you first. I'll start from my left is Ms. Nikki Popyer, who I mentioned previously, is a senior at Marlboro High School in Marlboro, New Jersey in my district. There is Ms. Joanna Boyd who is a Public Education Coordinator for the Brain Injury Association of New Jersey. Mr. Michael Prybicien who is Head Athletic Trainer at Passaic High School. Dr. Joel S. Brenner who is Medical Director of the Sports Medicine Program at the Children's Hospital of the King's Daughters. Where is that?

Dr. BRENNER. Norfolk, Virginia.

Mr. PALLONE. And then lastly is Mr. Roman Oben, who I met before and spoke to briefly, who is a former NFL player with the New York Giants, Cleveland Browns, Tampa Bay Buccaneers and the San Diego Chargers from 1996 to 2008. He's been involved in many community activities since then and has taken a special interest in this issue and is a friend of yours, right?

Mr. PASCRELL. Yes.

**STATEMENTS OF NIKKI POPYER, SENIOR, MARLBORO HIGH SCHOOL, MARLBORO, NEW JERSEY; JOANNA BOYD, PUBLIC EDUCATION COORDINATOR, BRAIN INJURY ASSOCIATION OF NEW JERSEY; MIKE PRYBICIEN, M.A., A.T.C., C.S.C.S., HEAD ATHLETIC TRAINER, PASSAIC HIGH SCHOOL, PASSAIC, NEW JERSEY; JOEL BRENNER, M.D., M.P.H., F.A.A.P., MEDICAL DIRECTOR, SPORTS MEDICINE PROGRAM, CHILDRENS HOSPITAL OF THE KINGS DAUGHTERS; AND ROMAN OBEN, NFL PLAYER FOR THE NEW YORK GIANTS, CLEVELAND BROWNS, TAMPA BAY BUCCANEERS, AND SAN DIEGO CHARGERS, 1996-2008**

Mr. PALLONE. Thank you very much being here today.

As I said, we try to keep to five minutes. They've actually given us the timer now so you can look at it. I'm not going to hold you to it completely, but just to try to keep it in mind as we proceed. And as I mentioned with our previous witness, that you can submit additional briefs and pertinent statements in writing. So if you can't answer a question, we'd like you to answer our questions, but if you can't and you want to follow-up in writing that's fine.

We'll start with Nikki Popyer. Thank you again.

I'm not actually sure if you're in my district or Congressman Holtz' district. We haven't determined that for sure because we split Marlboro. Thank you.

#### STATEMENT OF NIKKI POPYER

Ms. POPYER. Thank you. My name is Nikki Popyer and I'm a senior at Marlboro High School. Thank you for the opportunity to represent the many student athletes in schools all over the country who have suffered concussions.

I have been playing basketball since I was in kindergarten. I immediately fell in love with the sport and never passed up an opportunity to train and perfect my game. As a young child playing sports gave me something positive to fill my free time, taught me how to be part of the team, develop long lasting relationships based on common goals and rewarding me with healthy self-esteem that succeeding at something brought.

As I got older, I strove to work as hard as possible in order to attain the personal goals I had set for myself. Not once did I choose something over basketball. I grew to be competitive while still maintaining my humility. It was that competitive nature that drove me to play through the usual strains, sprains, broken bones, disappointment and achievement and ultimately a string of concussions that robbed me of my passion and my dream.

Today I speak to you with a stunning seven basketball related concussions and another half dozen or so since I had stopped playing. You see, at this point it doesn't take much to knock me out. A mere tap to my head from the instant hug for a picture has made me lose consciousness. The head injury started in seventh grade when an opponent and I dove for a loose ball and my head hit the floor. That was followed by a slide on the wrestling mats, a broken nose after I was flipped over by a defender, and just a series of unlucky moves. In many instances I was unconscious for several minutes and sometimes taken to the ER by ambulance. One especially malicious hit left me unable to see for moments following the impact. Each time I sat out a little longer, but what my parents didn't know was that I was already having symptoms of post-concussion syndrome, but my only thought was to get back on the court. I didn't tell them that I had constant headaches or that I couldn't stand bright lights or loud noises, that my hands tingled or that I was becoming unable to concentrate in school.

Ironically, my parents were doing the right thing and taking me to many doctors who either dismissed my injuries as just a bang on the head or grossly misinformed us about the danger of repeated head injury or the potential of developing long lasting cognitive and neurological issues that could derail not only my basketball career, but can affect my entire life.

We did as we were told. If they told me to sit out two days, I did. If they told me to stop playing until I was symptom free for the same duration as I had symptoms, I did. Unfortunately, none of them knew enough about concussions to treat me correctly. I was continually allowed to return to play, unaware that the concussions were cumulative and not the stand-alone events that they had led us to believe they were.

This is why I am here. It's not enough to assume administrators, coaches, athletic directors and health care professionals can arm themselves with the right information and tools needed to protect youth athletes from ending up in my predicament. There is a great need for a bill on concussion in school sports, like the Concussion Treatment and Care Tools Act. Without uniform guidelines and the money to implement them, it will take schools longer to help students understand the importance of addressing a concussion and delay applying the protective protection they need. I have spent a great deal of the last two years working to increase awareness, and I can promise you that not all the doctors and coaches are capable of handling students with head injuries, and only a handful of those students are capable of making decisions themselves.

Through the web I have had the opportunity to talk to dozens and dozens of kids who are just like me. Who either received the wrong diagnosis and treatment or chose to hide their symptoms. I urge them to be honest and take enough time off to truly heal before returning to play. Even in my school, where I am a very visible example going back too soon, my friends are still trying to cheat it. And I can tell you that all across the country student head injuries are not being taken seriously enough.

I am very fortunate that my school has an excellent computerized neuro-cognitive testing program in place, and certified athletic trainer Mark Brandle and athletic director Dave Reiden who advocate for and protect all of the students. Unfortunately, that's not what I am hearing from other areas. Especially in these times of severe cut-backs in school programs, it is imperative that those schools who have tools in place keep them, and those who do not are helped to get them.

I urge you to consider Congressman Bill Pascrell's legislation, the ConTACT Act, as another layer of protective gear for all the kids on fields and courts and gyms everywhere.

Thank you for allowing me this opportunity to speak for all those healthy aspiring youth athletes who we should help keep that way. Thank you.

[The prepared statement of Ms. Popyer follows:]

## Testimony for Congressman Pallone

My name is Niki Popyer and I am a senior at Marlboro High School. Thank you for the opportunity to represent the many student athletes in schools all over the country who have suffered concussions. I have been playing basketball since I was in kindergarten. I immediately fell in love with the sport and never passed up an opportunity to train and perfect my game. As a young child, playing sports gave me something positive to fill my free time, taught me how to be part of a team, develop lasting relationships based on a common goal, and rewarded me with the healthy self-esteem that succeeding at something brought.

As I got older, I strove to work as hard as possible in order to attain the personal goals I had set for myself. Not once did I choose something over basketball. I grew to be competitive, while still maintaining my humility. It was that competitive nature that drove me to play through the usual strains, sprains, broken bones, disappointments and achievements, and ultimately a string of concussions that robbed me of my passion and my dreams.

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implement them, it will take schools longer to help students understand the importance of addressing a concussion and delay applying the protection they need. I have spent a great deal of the last two years working to increase awareness and I can promise you that not all doctors and coaches are capable of handling students with head injuries, and only a handful of those students are capable of making the decisions themselves.

Through the web, I have had the opportunity to talk to dozens and dozens of kids just like me, who either received the wrong diagnosis and treatment, or chose to hide their symptoms. I urge them to be honest and take enough time off to truly heal before returning to play. Even in my school, where I am a very visible example of going back too soon, my friends are still trying to cheat it. And I can tell you that all across the country, student head injuries are not being taken seriously enough.

I am very fortunate that my school has an excellent computerized neuro-cognitive testing program in place, and a certified athletic trainer and athletic director who advocate for and protect all the athletes. Unfortunately, that's not what I am hearing from other areas. Especially in these times of severe cut-backs in school programs, it is imperative that those schools who have the tools in place keep them, and those that do not are helped to get them.

I urge you to consider Congressman Bill Pascrell's legislation, the ConTACT Act, as another layer of protective gear for all the kids on fields and courts and gyms everywhere. Thank you for allowing me this opportunity to speak for those healthy aspiring youth athletes who we should help keep that way.

Mr. PALLONE. Thank you, Nikki. And really thank you for not only being today but being an advocate on this subject because I think it's so important.

You remind me a little bit of my daughter. You said you're a senior, right?

Ms. POPYER. Yes.

Mr. PALLONE. She's a senior too and she has long hair like you, so you remind me of her. Thank you for being here.

Ms. POPYER. Thank you for having me.

Mr. PALLONE. Sure.

Ms. Boyd.

#### **STATEMENT OF JOANNA BOYD**

Ms. BOYD. Usually I don't need a microphone, however.

Chairman Pallone and Congressman Pascrell, thank you very much for having me here today. My name is Joanna Boyd. I'm the Public Education Coordinator for the Brain Injury Association of New Jersey. I am testifying on behalf of the Brain Injury Association of New Jersey and for the Brain Injury Association of America that is comprised of 43 state affiliates all working toward the common goal of elevating awareness, research, education and advocacy for people with brain injuries.

I'm testifying today because it is urgent that we address this public health crisis that concussions present to our youths. Athletes who return to play before their brains heal experience a slower recovery and they're at risk for a second impact syndrome that can cause severe damage to the brain and even death. Second impact syndrome can be prevented. At the present time we do not have education, protocols or policies in place that adequately protect our youth from not only second impact syndrome, but also from the cumulative nature of multiple concussions.

The Brain Injury Association of New Jersey began to address concussions in sports in 2004 by convening a committee of experts in the field of concussions who are also invested in the safety of our young athletes. The Concussion in Youth Sports Committee developed a consensus statement for New Jersey on concussions and we solicited endorsements from key groups in the state.

Then we held a Summit at Giants Stadium in 2006. Delegates from all these different groups that have this interest in the health and well-being of our youth were invited to come and learn the most current research base information about concussions. Another purpose of the Summit was to illicit support from these groups for a statewide campaign to address awareness, raise awareness about concussions in youth sports with the goal to lower the incidents to protect young athletes from cumulative effects of multiple concussions, and to prevent second impact syndrome.

At that time we also rolled out that matching fund grant program that Congressman Pascrell spoke about. And we made, as you said, Congressman, matching funds grants available to up to 100 high schools in New Jersey to purchase a three year subscription for computerized baseline testing. The subscription would allow for another 300 students year after year for the three years to become baseline, and then which, of course, is available for re-testing.

By the way, and as an aside, it took us almost four years in order to fill that grant capacity to 100 high schools.

Also the campaign developed material and disseminate these throughout New Jersey and we made posters. We had a tear off pad, basic information about concussions. We distributed these to First Responders at the First Aid Convention, at the Teachers Convention, to school nurses, everywhere that we could think of. This was a pad of information where if concussion was suspected, you could rip off a page and send it home with the child to hopefully educate parents about what was going on. We developed an electronic newsletter called Game Plan and a website Sports Concussion dot com as a portal for individuals, athletes, parents, teachers, coaches and others to access the most current information about concussion.

Our most recent funding is a result of collaboration among several groups, including a local philanthropic organization, the Mountanside Health Foundation, the NJSIAA, which is the New Jersey Interscholastic Athletic Association, one of the sports conferences in New Jersey, the Super Essex Conference, I believe they have over 30 schools participating, and the Brain Injury Association of New Jersey, of course. We came together to develop a curriculum that could become part of an agenda for the Sportsmanship Program that the NJSIAA encourages the sports conferences to hold annually.

This program is intended to be a pilot program which upon completion would be available to all New Jersey high schools, sports conferences through the NJSIAA. Part of this demonstration phase is to gather some information about what our student athletes know and what they don't know, so we have a little pre-post test. And we're trying to learn from the results of these tests where we are in our educational efforts with our young athletes.

We know that they know that a concussion is a brain injury, they can say those words and they can answer yes to that question. What we don't know is if they really have digested that information and if it will change their behavior. So the next phase of our campaign will move forward to emphasize that it is critical to rest the brain after a concussion and then even when symptom free, to follow a step-by-step return to play protocol.

In October 2008, as you mentioned, Congressman Pascrell, we lost a New Jersey student athlete to a tragedy on the field. This initiated a new awareness that concussion is definitely a brain injury and the consequences can be the most severe. After discussions about drafting legislation about concussions, the members of two of our committees, the Concussion Committee and the Advocacy of Political Affairs Committee, approached assemblyman Patrick J. Diegnan as a potential sponsor for legislation in New Jersey. Assemblyman Diegnan responded by holding a hearing, much like this, in March of 2010 to gather information about concussion in youth sports.

The result of the hearing was to introduce Assembly Bill Number 2743, which would require the development of a Student Athlete Awareness Program concerning the prevention, risk and treatment of sports-related brain injuries. With bipartisan support Assembly Bill Number 2743 was passed by at New Jersey Assembly on June

28, 2010. A companion Bill, Senate Bill Number 2106 sponsored by Senators Cody and Vitale is pending consideration by the Senate Education Committee.

Throughout our concussion campaign Congressman Bill Pascrell has been a long time devoted champion of this issue. He has stressed the importance of protecting student athletes for many years. The concussion treatment and Care Tools Act is an important step toward protecting our youth from the effect of multiple concussions and second impact syndrome.

At the federal level, we believe that the ConTACT Act could incentivize states that have not already made a commitment to drafting concussion legislation to make concussion law a priority and to provide states with a minimum guideline requirement to manage concussion issues in our schools. The Brain Injury Association of New Jersey believes that the minimum guidelines should be developed by a panel of stakeholders including athletes, advocate, medical personnel, including everyone who works with student athletes such as neuropsychologists and school nurses. Also, the Brain Injury Association of New Jersey believes that the grant to states for baseline and post-injury testing would be a great opportunity for schools who are trying to protect their students on a limited budget.

The ConTACT Act would give coaches, parents, athletic trainers and school administrators the tools to keep our children safe. The tools, one of the most important tools is that educational piece. We need the education desperately. This act would ensure that the coaches are trained in recognizing the symptoms of concussion and brain injuries and injuries that could lead, events that could lead to second impact syndrome. It is truly time to get serious about this. It's time to protect our youth from needless disability, protect parents from becoming life long caregivers for their children. We need to protect taxpayers from the cost of these long-term consequences of severe disabilities from brain injuries, because every system in our country is affected in dollars by these events.

So, the Brain Injury Association of New Jersey and the Brain Injury Association of America and all its affiliates want to applaud you, Congressman Pascrell, Chairman Pallone, for listening to this issue, for hearing our words and for bringing this legislation forth for this hearing. Thank you.

[The prepared statement of Ms. Boyd follows:]





**Testimony in Support of HR 1347, The Concussion  
Treatment and Care Tools Act  
"Protecting School-age Athletes from Sports-related  
Concussion Injury"  
September 8, 2010**

**Submitted To:** Committee on Energy and Commerce, Health Subcommittee

**Submitted By:** Joanna Boyd, Public Education Coordinator, Brain Injury Association of New Jersey

(Mr. Chairman/Madam Chair) and fellow subcommittee members, thank you for the opportunity to testify at this important hearing regarding the safety of our youth. My name is Joanna Boyd, and I am the Public Education Coordinator at the Brain Injury Association of New Jersey. I am testifying on behalf of the Brain Injury Association of New Jersey and the Brain Injury Association of America that is comprised of 43 state affiliates all working towards the common goal of elevating awareness, research, education and advocacy for people with brain injuries.

We're here today because the consequences of not addressing the public health crisis that concussions present to our youth 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.

The good news is that Second Impact Syndrome can be prevented.

The Brain Injury Association of New Jersey began to address concussion in youth sports in 2004 by convening a committee of experts in the field of concussion who are also invested in the safety of young athletes. The Concussion in Youth Sports Steering Committee (the Committee) developed a consensus statement on concussion in youth sports and solicited 23 endorsements from groups such as the Medical Society of New Jersey, the American Academy of Pediatrics, New Jersey Chapter and the New Jersey State Interscholastic Athletic Association. The consensus statement and complete list of endorsers are attached to this testimony.

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A Chartered State Affiliate of the Brain Injury Association of America

MICHAEL J. NIEMIEC  
CHAIRPERSON  
BARBARA GEIGER-PARKER  
PRESIDENT & CEO

The Committee then held a Summit at Giants Stadium in New Jersey and invited delegates from all groups that are interested in the health and well being of young athletes. The presenters included Dr. Robert Cantu, an international expert on concussion, a CDC Epidemiologist, and local experts in brain injury and concussion. The purpose of the Summit was to educate delegates about the most current research-based information about concussion and to enlist their support for a statewide campaign to raise awareness about concussion in youth sports with the goal to lower the incidence, protect young athletes from the cumulative effects of multiple concussions, and to prevent second impact syndrome.

A matching funds grant program was also announced at the summit. The program, funded by the New Jersey Department of Human Services, Division of Disability Services, TBI Trust Fund, was available to 100 New Jersey public and private high schools. It provided one-half of the cost of a three-year subscription for 300 high school athletes to be baseline tested each year using computerized baseline testing software.

Campaign materials were developed and disseminated throughout New Jersey with support from Concussion Committee Members, Consensus Statement Endorsers, and Brain Injury Association of New Jersey partners. Materials included a poster with the message that *"A Concussion is a Brain Injury. Take It Seriously!"* and a tear-off pad of basic information about concussion which was distributed to student athletes when a concussion was suspected. The Brain Injury Association of New Jersey developed a website [www.sportsconcussion.com](http://www.sportsconcussion.com) as a portal for individuals, parents, teachers, coaches and others to access current information about concussion as well as an electronic newsletter, GAME PLAN, to inform readers about current topics related to concussion.

The most recent development in the campaign is the result of collaboration among the Mountainside Health Foundation (a localized philanthropic organization), the New Jersey Interscholastic Athletic Association (NJSIAA), the Super Essex Conference (all Essex County, NJ High Schools athletic programs) and the Brain Injury Association of New Jersey. Together we developed a curriculum to be presented to approximately 500 student athletes who are leaders in their sport of choice. The curriculum is part of the agenda for the annual Sportsmanship Program which is held by all NJSIAA sports conferences. This program is intended to be a pilot project which, upon completion, will be available to all New Jersey high school sports conferences through the NJSIAA.

The program is presented three times during the school year prior to each sports season; the fall sports athletes received the program on August 25, 2010, the winter sports athletes will receive the program in November 2010 and the spring sports athletes will receive the program prior to the beginning of the spring sports season.

A pre-post test component of the program during the pilot demonstration phase is helping to guide the development of the curriculum and supporting materials. The original tear-off pad was updated (included in the attachments) and a new poster is being designed to emphasize the importance of resting the brain as it heals from a concussion and following a step-by-step return to play protocol. Initial results from the pre-post tests demonstrate that the message that a concussion is a brain injury and needs to be taken seriously has been heard by student athletes. The Brain Injury Association of New Jersey's concussion campaign is moving forward with the message that all concussions are serious and the brain needs time to rest and heal.

The Concussion Treatment and Care Tools Act (HR 1347, ConTACT Act), is an important step towards preventing second impact syndrome, the prospect of long-term disability and even death. Congressman Pascarella of New Jersey has been a long-time, devoted champion of this issue and has stressed the importance of protecting student athletes for many years.

In the past year, the issue of sports and concussion has gained awareness largely due to the concussions sustained by professional athletes such as Brian Westbrook, Clinton Portis and Jason Bey. The resulting increased awareness of concussions in young athletes prompted state-level advocates to push for enhanced safety legislation. Currently, legislation has been introduced or enacted in as many as 21 states. Typically, the legislation calls for youth and coach education, sideline evaluation, and medical authorization to return to play.

In October 2008, the tragic death of a young New Jersey student athlete, Ryne Dougherty, initiated a new awareness that a concussion is a brain injury and needs to be taken seriously. After discussions about drafting legislation addressing concussion issues among student athletes, members of the Brain Injury Association of New Jersey's Concussion in Youth Sports and Advocacy and Political Affairs committees approached Assemblyman Patrick J. Diegnan, Jr. as a potential sponsor of concussion legislation. Assemblyman Diegnan responded by holding a hearing in March 2010 to gather information about concussion in youth sports. Testimony was heard from representatives of numerous groups including the Brain Injury Association of New Jersey, New Jersey State Interscholastic Athletic Association, New Jersey Education Association, and American Academy of Pediatrics, New Jersey Chapter. Jill Brooks, Ph.D., a New Jersey neuropsychologist, gave testimony along with Nikki Popyer, a young woman who sustained eleven concussions before finding appropriate treatment. Tammy Plevretes told her son, Preston's story of the dangers of second impact syndrome.

The result of the hearing was the introduction of Assembly Bill No 2743 by Assemblyman Patrick J. Diegnan, Jr. which requires the development of student-athlete awareness program concerning the prevention, risk and treatment of sports-related brain injuries. Assemblymen Craig J. Coughlin, and Thomas P. Giblin along with Assemblywoman Mila M. Jasey are co-prime sponsors of the bill; Co-sponsors are Assemblywoman Joan Voss, Assemblyman David Wolfe, and Assemblywomen Eleese Evans and Mary Pat Angelini. With bipartisan support Assembly bill No. 2743 was passed by the New Jersey Assembly on June 28, 2010. A companion Senate Bill, No. 2106 sponsored by Senator Richard Codey and Joseph Vitale is pending consideration by the Senate Education Committee. We expect the committee to consider the bill in the very near future.

At the federal level, we believe that the ConTACT Act could incentivize states that have not yet made concussion law a priority and could supply them with a minimum guideline requirement. The Brain Injury Association of New Jersey believes that the minimum guidelines should be developed by a panel of stakeholders such as athletes, advocates and medical personnel. It is important to us that the federal legislation works cohesively with the state movement.

Also, the Brain Injury Association of New Jersey believes that grants to states for baseline and post-injury testing is a fantastic opportunity for schools who are trying to protect their students on a limited budget. We also believe that as improvements and innovations to technology flourish in the coming years, it is important that other tests that may not be computerized in nature be considered as qualifying for grant money as states see fit.

The bottom line is this:

The ConTACT Act would give coaches, parents, athletic trainers, and school administrators the tools to keep our children safe. It would ensure that coaches are trained in recognizing the symptoms of brain injuries, concussions, and injuries related to second impact syndrome.

It is time to get serious. It's time to protect our youth from needless disability. It's time to protect parents from the burden of care giving. It's time to protect taxpayers from the cost of long-term dependence on public programs.

The Brain Injury Association of New Jersey and Brain Injury Associations nationwide Applaud Congressman Pascarella and Congressman Platts, the co-chairmen of the Congressional Brain Injury Task Force, for bringing forth this legislation and we urge the Energy and Commerce Committee to consider HR 1347 as soon as possible.

Attachments: A) Consensus Statement  
B) List of Endorsers  
C) Updated Tear-off pad

Mr. PALLONE. Thank you, Ms. Boyd. Thank you for all that you've done in our state on this issue. It's really important. I appreciate your incentive.

Mr. Prybicien.

#### **STATEMENT OF MICHAEL PRYBICIEN**

Mr. PRYBICIEN. Thank you very much. Chairman Pallone, Representative Pascrell, I am Mike Prybicien, Head Athletic Trainer at Passaic High School in New Jersey, and I am the President of the Athletic Trainers Society of New Jersey. As a father and a health care professional practicing athletic training for the past 17 years, I am passionate about the safety in youth sports.

Thank you for allowing me the opportunity to speak on behalf of the National Athletic Trainers' Association and the Athletic Trainers of New Jersey about the athletic trainers role in concussion management and the important issue of youth sports safety.

As you may know, athletic trainers are health care professionals who collaborate with physicians to optimize activity and participation of its patients. Athletic training encompasses prevention, diagnosis, and intervention of emergency, acute and chronic medical conditions leading to impairment, functional limitations and/or disabilities.

All Athletic Trainers must pass a national certification examination, and 70 percent of our membership has a masters degree or higher. In most of the 47 states where they are licensed or otherwise regulated, the national certification exam is required for an athletic trainer, to maintain its certification with required continuing education.

Although the issue of concussions in sports has received a great deal of attention in the media in recent months, it's not a new problem. Athletic trainers have been carrying for concussed athletes and warning of the dangers posed by this unique injury for years. As athletic trainers and health care professionals specializing in team sports, we're the first line of defense in the prevention, diagnosis and emergency treatment of head traumas and other athletic injuries.

The NATA has a long history of working with research experts to explore the prevention and proper treatment of head injuries. In 2009 we issued a head impact during high school football, a vile mechanical assessment study. The study revealed that high school football players sustain greater head accelerations after impact than do college level football players, which can lead to concussions and serious cervical spine injuries as well. Further, the study urged high school coaches to teach proper tackling techniques in order to reduce the risk of head and neck injuries among its athlete.

While much focus has been given to players in the NFL, it is important to remember that high school athletes represent the single largest segment of football players in this country, and account for the majority of sports-related concussions. In a given year between four and six percent of high school football athletes sustain concussions. Corresponding to an estimated 43,000 to 67,000 injuries. In fact, there are five times as many catastrophic football injuries among high school athletes than college athletes. Estimates indicate, however, the true incidence of injury is likely even higher.

Some research suggests that more than half of high school athletes who get concussed do not report their symptoms. Even when faced with these disturbing trends and the fact that seven million students participate in high school sports in America, the NATA estimates that only 42 percent of public high schools in America have access supposed to an Athletic Trainer. In fact, the NATA estimates that across the country, the ratio of students athletes to Athletic Trainers is 2,678 to 1.

According to a New York Times article at least four American high school students died of football head injuries in 2009. Most suffered from the aforementioned second impact syndrome, a rare but catastrophic dysregulation of the brain activity that can occur when a young football player or athlete sustains another hit before the brain has recovered from their earlier concussion. In nearly all cases, such tragedies could have been prevented if the symptoms of concussions were recognized and heeded, giving the brain enough time to fully heal.

Further studies show 50 percent of second impact syndrome resulted in death.

Female high school soccer players suffered 40 percent more concussions than the male counterparts, according to a journal of athletic training study.

Female high school basketball athletes suffered 240 percent more concussions than males. Again, another journal on athletic trainers study.

The NATA has endorsed Representative Bill Pascrell's Concussion Treatment and Care Act and Senator Robert Menendez's companion Bill in the Senate. The Association applauds the creation of national guidelines to address prevention, identification, treatment and management of concussions of school-aged children.

The NATA stands ready to assist in development of national guidelines and offers to assist in any way possible. Ideally, the NATA would like to see that state athletic associations in conjunction high school sports associations and local brain injury association chapters, are implemented in the dissemination and implementation of these guidelines.

The ConTACT Act should be praised for recognizing the need for baseline testing in student athletes in addition to the post-injury testing. Furthermore, we applaud authorization for appropriations to ensure this measure.

In New Jersey all of our professional sports teams and New Jersey National—excuse me. In New Jersey all of our professional teams and collegiate athletic teams require the use of an Athletic Trainer, and 86 percent of the New Jersey State Interscholastic Athletic Association Schools employ the services of an Athletic Trainer.

The Athletic Trainers' Society of New Jersey is a professional association consisting over 1,000 members. We prided ourselves at being at the forefront of concussion education, not only for our patients, but the medical community as well. In August of 2010 we held a Concussion Summit, which consisted of a panel of nationally recognized speakers, as a means to education physicians and health care providers who play a role in the management of sports-related concussions. More than 200 health care providers attended

this event. In March of 2010, we co-sponsored a concussion support group meeting for parents and students athletes who have been the victim of a concussion.

The ATSNJ applauds the efforts of our state legislators, in particularly Assemblyman Patrick Diegnan, Senator Richard Codey and Senator Paul Sarlo who have introduced legislation with regard to either concussions and/or student athlete safety. The ATSNJ is thankful that the New Jersey legislators have included and valued the input of the ATSNJ and its members through the development of such important legislation.

The NATA has developed recommendations on addressing head injuries in football. These recommendations include a Graded Symptom Checklist, which is distributed through the NATA's position statement Management of Sports-Related Concussion.

In addition to the national youth sports crisis in America, the NATA has spearheaded the youth Sports Safety Alliance, and initiative to raise awareness, advance legislation, and improve medical care of young athletes. This call to action includes the following.

Ensuring that youth athletes have access to health care professionals who are qualified to make assessments and return to play decisions.

Two, ensuring pre-participation physicals before play begins.

Three, recognizing the difference in an injury and working toward the elimination of the culture of playing through pain without assessment.

In addition to these items, NATA strongly supports the recognition of athletic trainers under the Medicare and Medicaid programs. This would encourage private insurance companies to reimburse athletic trainers for physical medicine and rehabilitation. This legislative action is important, as it will assist more athletic trainers being available to high schools, local youth sports and medical facilities to treat those injured individuals suffering from head trauma or other sports-related injuries.

I would once again like to thank Chairman Pallone and Representative Pascrell for inviting me here today. I greatly appreciate the opportunity to participate in this hearing and offer myself and the National Athletic Trainers' Association as a resource to you and the other members of the Subcommittee as you work toward addressing this important issue facing the youth in our nation. Thank you.

Mr. PALLONE. Thank you very much.

[The prepared statement of Mr. Prybicien follows:]



House Energy and Commerce Committee

Subcommittee on Health

Field Hearing on

"Protecting School-age Athletes From Sports-related Concussion Injury"

Wednesday, September 8, 2010, 1:00 P.M.

Prudential Center

165 Mulberry Street

Newark, NJ

Submitted by: Michael Prybicien, MA, ATC, CSCS

Head Athletic Trainer

Passaic High School



Chairman Pallone, Representative Pascrell, I am Mike Prybicien, head athletic trainer at Passaic High School in Clifton, New Jersey and President of the Athletic Trainer Society of New Jersey. As a father, and health care professional practicing athletic training for the past 17 years, I am passionate about safety in youth sports.

Thank you for allowing me the opportunity to speak on behalf of the National Athletic Trainers' Association (NATA) about the athletic trainer's role in concussion management.

As you may know, ATs are health care professionals who collaborate with physicians to optimize activity and participation of patients. Athletic training encompasses prevention, diagnosis, and intervention of emergency, acute, and chronic medical conditions leading to impairment, functional limitations, and disabilities.

All ATs have at least a bachelor's degree in athletic training from an accredited college or university, and 70% of our membership has a master's degree or higher. Certified ATs must pass a national certification exam. In most of the 47 states where they are licensed or otherwise regulated, the national certification is required for licensure. ATs maintain this certification with required continuing medical education. They work under a medical scope of practice and under the direction of physicians and adhere to a national code of ethics.

Although the issue of concussions in sports has received a great deal of attention in the media in recent months, it is not a new problem. Athletic trainers have been caring for concussed athletes and warning of the dangers posed by this unique injury for years.

The NATA represents over 35,000 athletic trainers (ATs). As athletic trainers and health care professionals specializing in team sports, we are the first line of defense in the prevention, diagnosis and emergency treatment of head traumas and other athletic injuries.

NATA has a long history of working with research experts to explore the prevention and proper treatment of head injuries. In July 2009, NATA released a study in the *Journal of Athletic Training* entitled *Head Impacts During High School Football: A Biomechanical Assessment*. The study revealed that high school football players sustain greater head accelerations after impact than do college-level football players, which can lead to concussions and serious cervical spine injuries. Further, the study urged high school coaches to teach proper tackling techniques in order to reduce the risk of head and neck injuries among athletes.

While much focus has been given to players in the National Football League (NFL), it is important to remember that high school athletes represent the single largest segment of football players in the country and account for the majority of sport-related concussions. In a given year, between four and six percent of high school football athletes sustain concussions, corresponding to an estimated 43,200 to 67,200 injuries annually. In fact, there are five times as many catastrophic football injuries among high school athletes as college athletes. Estimates indicate, however, the true incidence of injury is likely much higher. Some research suggests that more than half of high school athletes who get concussions do not report their injuries to medical personnel. Even when faced with

these disturbing trends and the fact that 7 million students participate in high school sports in America, the NATA estimates that only 42 percent of public high schools in America have access to an athletic trainer. In fact, NATA estimates that across the country, the ratio of students to athletic trainers is 2,678 to 1.

According to a *New York Times* article, (Sports Imperative: Protecting Young Brains, August 24, 2009) "at least four American high school students died last year from football head injuries. Most suffered from what is called second-impact syndrome, a rare but catastrophic dysregulation of brain activity that can occur when a young player sustains another hit before the brain has recovered from an earlier concussion. In nearly all cases, such tragedies can be prevented if the symptoms of concussion are recognized and heeded, giving the injured brain time to fully heal."

Furthermore, studies also show that fifty percent of second impact syndrome incidents result in death. Other startling statistics include:

- Female high school soccer athletes suffer almost 40% more concussions than males (29,000 annually). *Journal of Athletic Training, July – September 2003*
- Female high school basketball athletes suffer 240% more concussions than males (13,000 annually). *Journal of Athletic Training, July – September 2003*
- 400,000 brain injuries (concussions) occurred in high school athletics during the 2008-09 school year. *Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008*
- Concussion symptoms such as headache and disorientation may disappear in fifteen minutes, but 75% of those tested 36 hours later still had problems with memory and cognition. *Journal of Athletic Training, July – September 2003*
- 15.8% of football players who sustain a concussion severe enough to cause loss of consciousness return to play the same day. *Center for Injury Research and Policy, The Research Institute at Nationwide Children's Hospital, Dr. Dawn Comstock*

#### NATA's Position on ConTACT Act

The NATA has endorsed Representative Bill Pascrell's Concussion Treatment and Care Tools (ConTACT) Act (H.R. 1347) and Senator Robert Menendez's companion bill in the Senate (S. 2840). The Association applauds the creation of national guidelines to address the prevention, identification, treatment, and management of concussions in school-aged children, including return to play decisions included in the bill.

The NATA stands ready to assist in the development of the national guidelines and offers its assistance to the Secretary and any advisory team. Ideally, the NATA would like to see the Secretary include state athletic training associations, in conjunction with high school sports associations and local brain injury chapters, in the dissemination and implementation of the guidelines.

The ConTACT Act should be praised for recognizing the need for baseline testing of student athletes in addition to post-injury testing. Furthermore, we applaud authorization of appropriations to ensure the proper implementation.

### Addressing the Issue in New Jersey

All of the New Jersey professional sports teams and the New Jersey National Collegiate Athletic Association (NCAA) member colleges and universities and 86% of New Jersey State Interscholastic Athletic Association schools employ the services of an athletic trainer.

The Athletic Trainers' Society of New Jersey (ATSNJ), a professional society consisting of more than 1,000 members, has prided itself at being at the forefront of concussion education for its patients, as well as the medical community. On August 2, 2010 the ATSNJ held a Concussion Summit, which consisted of a panel of nationally recognized speakers, as a means to educate physicians and health care providers who play a role in the management of sports related concussions. More than 200 health care providers attended this event.

The ATSNJ applauds the efforts of our state legislators, in particularly Assemblyman Patrick Diegnan, Senator Richard Codey and Senator Paul Sarlo who have introduced legislation with regards to either concussions and/or student-athlete safety. The ATSNJ is thankful that the New Jersey legislature has included and values the input of the ATSNJ and its members in the development of such important legislation.

### NATA's Recommendations on Addressing Head Injuries in Football

The NATA has developed recommendations on addressing head injuries in football. Those recommendations include using the "Graded Symptom Checklist," which is distributed within NATA's position statement "Management of Sport-Related Concussion." This treatment tool can help determine whether a concussion has occurred, the severity of the injury, and whether a player is fit to return to play. Athletic trainers or physicians who suspect that an athlete has suffered a concussion can use the checklist to evaluate a player both at rest and during physical exertion.

In response to the national youth sports safety crisis in America, the NATA has spearheaded the *Youth Sports Safety Alliance*, an initiative to raise awareness, advance legislation, and improve medical care for young athletes. This call to action includes the following:

- Ensuring that youth athletes have access to health care professionals who are qualified to make assessments and return to play decisions;
- Ensuring pre-participation physicals before play begins; and
- Recognizing the difference in pain and injury and working toward the elimination of the culture of "playing through pain" without assessment.

In addition to these items, the NATA strongly supports the recognition of athletic trainers as health care providers under the Medicare and Medicaid programs. This would encourage private insurance companies to reimburse athletic trainers for the physical medicine and rehabilitation services they provide. This legislative action would assist in making more athletic trainers available in high schools and local medical facilities to treat those individuals suffering from head trauma or other sports related injuries where they occur.

I greatly appreciate the opportunity to participate in this hearing and offer myself and the National Athletic Trainers' Association as a resource to you and other members of the Subcommittee as you work to address this important issue facing the youth in our nation. Thank you.

Mr. PALLONE. Dr. Brenner.

**STATEMENT OF JOEL BRENNER, M.D.**

Dr. BRENNER. Good afternoon, Chairman Pallone and Representative Pascarella. I appreciate the opportunity to testify today at this field hearing regarding the sports-related concussions in children and adolescents. My name is Joel Brenner and I am proud to represent the American Academy of Pediatrics. I'm currently the Chair Elect at AAP consult for sports medicine and fitness. As a pediatrician and board certified in primary care sports medicine, adolescent medicine and pediatrics, I am intimately aware of the dangers sports-related concussions have on our youth.

In my clinical practice I often see 10 to 12 new contusion cases among school athletes each week. This fall as student athletes return to the playing fields, we must remember the unique medical needs of children and take appropriate action to minimize the harmful impact of concussions on our nation's youth.

Sports-related concussions pose a unique risk to the pediatric population. Children and adolescents are still undergoing a significant period of brain development, and thus are even more susceptible to the damaging effect of a concussion.

Children and adolescents are also particularly high risk of experiencing second impact syndrome, a condition that occurs when an athlete who has sustained an initial head injury sustains a second head injury before the symptoms associated with the first have fully cleared.

While sports-related concussions are increasingly common in youth and high school sports, the long-term effects of this traumatic brain injury are still relatively unknown. We are certain, however, that concussion is not a condition that can just be toughed out, but rather a serious medical injury of unique concerns to child and adolescents. Age-appropriate concussion prevention and management techniques are vital to reducing the risk of serious long-term injury and complications among athletes.

The number of children visiting the emergency departments for concussion is on the rise. A study published this month in AAP's professional journal *Pediatrics* found that 50 percent of pediatric concussions seen in the ER were sports-related. Younger children between the ages of 8 and 13-years accounting for 40 percent of this sports-related concussion.

Concussions represent as estimated 8.9 percent of all high school athletic injuries. However, data are significantly lacking on concussions in grade school and middle school athletes.

Concussions can cause symptoms that interfere with children's school performance, social and family relationships and participation in sports. Signs and symptoms of concussions typically resolve in seven to ten days in a majority of cases. However, for some athletes recovery may take weeks or months or longer.

Identifying and diagnosing the signs and symptoms of concussion may involve several different tools and approaches depending on the nature of injury. There is no single best method for diagnosing; rather a comprehensive evaluation may require a range of approaches from a sidelines physical exam and comprehensive history to neuropsychological testing.

Any pediatric or adolescent athlete who is suspected of sustaining a concussion should be evaluated by a health care professional. A neurological exam, inquiring into the symptoms and assessment of cognitive functions should be performed. If a concussion is identified the athlete should be removed from the remainder of the practice or game on that day.

Neuropsychologic testing has become commonplace in the evaluation of an athlete with a concussion. Such testing provides a means to an objective measure of brain function. Neuropsychological testing is one of several tools in the concussion assessment, but does not independently determine whether an athlete has experienced a concussion or when the athlete may safely return to play. The goal of managing a young athlete with a concussion is to hasten recovery by ensuring that the athlete is aware of and avoids activities and situations that may slow recovery.

The American Academy of Pediatrics supports the establishment of federal guidelines for concussion management, and believes that prevention, identification, treatment, and management of concussions in children and adolescents is of the utmost importance. We commend Representative Pascrell for introducing the H.R. 1347.

The lack of comprehensive national concussion management guidelines jeopardizes children's health and has prompted the AAP to take action to address this deficiency. AAP's Council on Sports Medicine and Fitness has devised a comprehensive clinical report on sports-related concussion in children and adolescents. This is the first and only clinical report on sports-related concussion that addresses solely to children and adolescents, and this was just released last week. It is our expectation that this clinical report and these recommendations can serve as starting points for the development of federal standards and contribute to the national dialogue on pediatric concussion management. The top four recommendations are:

Number one, pediatric and adolescent athletes should never return to play while symptomatic at rest or with exertion. Athletes also should not be returned to play on the same day of concussion, even if they become asymptomatic.

Two, any pediatric or adolescent athlete sustaining a concussion should be evaluated by a health care professional, ideally a physician, with experience in concussion management and should receive medical clearance before returning to play.

Three, athletes with a concussion should rest, both physically and cognitively, until their symptoms have resolved both at rest and with exertion. Teachers and school administrators should work with students to modify workloads to avoid exacerbation of symptoms.

Four, neuropsychological testing objective data to athletes and their families following a concussion. Neuropsychological testing is only one tool in the complete management of a sports-related concussion. It does not alone make a diagnosis or determine when return to play is appropriate.

The American Academy of Pediatrics believes these recommendations and guidance should be included in any federal action on this issue. It should also be noted that timely medical attention for any athlete suspected of sustaining a concussion is important, and the

presence of an Athletic Trainer for sideline evaluation is ideal. Even with the promising advances of computerized neuropsychological testing and recent investments in prevention, early diagnosis, and treatment of concussions in young athletes, requiring all schools and other organizations that sponsor or conduct high risk activities to have an Athletic Trainer on site, would not only improve concussion management but also help decrease other morbidities at the same time.

AAP is grateful for the Committee's continued commitment to child health, and we hope that you will consider us a partner in efforts to reduce the occurrence of sport-related concussions in our nation's youth.

I thank you for the opportunity to testify.

Mr. PALLONE. Thank you, Dr. Brenner.

[The prepared statement of Dr. Brenner follows:]



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**TESTIMONY OF JOEL S. BRENNER, MD, MPH, FAAP  
ON BEHALF OF THE AMERICAN ACADEMY OF PEDIATRICS**

**“Protecting School-Age Athletes from Sport-Related Concussion Injury”**

**COMMITTEE ON ENERGY AND COMMERCE HEALTH SUBCOMMITTEE  
U.S. HOUSE OF REPRESENTATIVES**

**September 8, 2010**

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Good afternoon. Chairman Pallone, Representative Pascrell, I appreciate the opportunity to testify today at this field hearing before the House Energy and Commerce Subcommittee on Health regarding sport-related concussions in children and adolescents. My name is Joel Brenner, MD, MPH, FAAP, and I am proud to represent the American Academy of Pediatrics (AAP), a non-profit professional organization of 60,000 primary care pediatricians, pediatric medical sub-specialists, and pediatric surgical specialists dedicated to the optimal physical, mental, and social health and well-being for all infants, children, adolescents, and young adults.

I currently am the Medical Director of the Sports Medicine Program at The Children's Hospital of The King's Daughters in Norfolk, Virginia, as well as Associate Professor of Pediatrics at Eastern Virginia Medical School. I am an active member of the Virginia High School League's Sports Medicine Advisory Committee, for which I was acutely involved in the creation, passage and implementation of a new concussion law protecting student athletes in the Commonwealth of Virginia. I also am a member, and current chair-elect, of the American Academy of Pediatrics' Council on Sports Medicine and Fitness.

As a pediatrician board certified in primary care sports medicine, adolescent medicine and pediatrics, I am intimately aware of the dangers sport-related concussions have on our youth. In my clinical practice I often see 10 to 12 new concussion cases among school-aged athletes each week. This fall as student-athletes return to the playing fields we must remember the unique medical needs of children and take appropriate action to minimize the harmful impact of concussions on our nation's youth.

#### *Unique Impact of Concussion on Children*

Sport-related concussions pose a unique risk to the pediatric population. Children and adolescents are still undergoing a significant period of brain development and thus are even more susceptible to the damaging effects of a concussion. The young athlete's immediate job is to go to school to learn and form new memories. However, a young athlete suffering from a concussion is often not able to attend school or function normally due to the brain injury.

The long-term effects of concussions in athletes of all ages are cause for considerable concern. Children's developing brains are exceptionally vulnerable. Three months after a concussion, children 8 to 16 years of age have been found to experience persistent deficits in processing complex visual stimuli.<sup>1</sup> Further, athletes with two or more concussions demonstrate statistically significant lower grade-point averages compared with similar students without a history of concussion.<sup>2</sup>

Children and adolescent athletes are also at particularly high risk of experiencing second-impact syndrome, a condition that occurs when an athlete who has sustained an initial head injury sustains a second head injury before the symptoms associated with the first have fully cleared.<sup>3</sup> Second impact syndrome can result in diffuse cerebral swelling and death.<sup>4</sup> All reported cases of second-impact syndrome have been in athletes younger than 20 years of age.<sup>5</sup>

While sport-related concussions are increasingly common in youth and high school sports, the long-term effects of this traumatic brain injury are still relatively unknown. More research is needed to better understand the impact of concussions in children across the life-course. A current lack of longitudinal studies that track high school and younger athletes who sustained concussions leaves us with more questions than conclusive answers.

We are certain however that concussion is not a condition that can just be "toughed out" but rather a serious medical injury of unique concern to children and adolescents. Age-appropriate concussion prevention and management techniques are vital to reducing the risk of serious long-term injury and complications among young athletes.

#### ***Current Data on Concussions in the United States***

It is commonly reported that 300,000 sport-related concussions occur each year; however, a recent review estimates that in fact as many as 3.8 million recreation- and sport-related concussions occur annually in the United States.<sup>6,7</sup> This marked discrepancy highlights the difficulty in accurately accounting for concussions and the current gaps in evidence.

Underreporting of concussions and the lack of systematic, widespread injury surveillance in youth sports both contribute to the challenging task of accurately capturing the scope of concussions in the United States.<sup>8, 9</sup>

The number of children visiting the emergency department (ED) for concussion is on the rise. A study published this month in AAP's professional journal *Pediatrics* found that 50 percent of pediatric concussions seen in the ED were sport-related, and younger children, between the ages of 8 and 13 years, accounted for 40 percent of the sport-related concussions in the ED. Another striking finding from this report was that between 1997 and 2007 the number of visits to the ED for sport-related concussions in organized team sports increased significantly despite an overall decrease in sport participation among youth ages 7 to 17 years. Specifically, ED visits for sport-related concussions doubled among 8 to 13 year-old children and increased by more than 200 percent among the 14 to 19 year-old group.<sup>10</sup>

Concussions represent an estimated 8.9 percent of all high school athletic injuries.<sup>11</sup> Data are significantly lacking on concussions in grade school and middle school athletes, highlighting the need for more research about concussions in this younger age group.

The catastrophic nature of concussion in children and adolescents must also not be overlooked. Since 1945, more than 90 percent of the head injury-related fatalities from sports recorded by the National Center for Catastrophic Sports Injury Research occurred in athletes in high school or younger.<sup>12</sup>

In short, concussions are a very real concern for athletes of all ages, and especially so for the child and adolescent population.

#### ***Clinical Perspective: Signs and Symptoms***

Concussions can cause symptoms that interfere with children's school performance, social and family relationships, and participation in sports. The traditional signs and symptoms of

concussion fall into four broad categories: physical, cognitive, emotional, and sleep.<sup>13</sup> Headache is the most frequently reported concussion symptom.<sup>14</sup> While not as common, loss of consciousness and amnesia may both be important indicators of more serious injury.<sup>15</sup> Immediate motor symptoms, such as convulsive movements or tonic posturing, are rare yet they can accompany a concussion.<sup>16</sup> It is possible that symptoms of concussion may not appear until several hours after initial injury.<sup>17</sup>

The signs and symptoms of a concussion typically resolve in 7 to 10 days in the majority of cases, however for some athletes recovery may take weeks or months. Unresolved symptoms lasting for an extended period of time could be concern for complications, including the previously mentioned second-impact syndrome as well as postconcussion syndrome. Postconcussion syndrome was most recently defined as the presence of cognitive, physical, or emotional symptoms of a concussion lasting longer than expected, with a threshold of 1 to 6 weeks of persistent symptoms following a concussion to make the diagnosis.<sup>18</sup> Such severe cases emphasize the importance of evaluating and monitoring young athletes following a concussion.

Many factors can complicate the recognition of concussion in children. Concussions have many signs and symptoms, many of which may overlap with other medical conditions. For example, some concussion symptoms are similar to depression, anxiety, and attention-deficit disorders and for children with pre-existing mental health disorders concussions may exacerbate those symptoms. Athletes may not recognize that they have concussion symptoms because of poor understanding of the condition or from cognitive impairment due to the injury itself. Additionally, young athletes may not be forthcoming with their concussion symptoms for fear of being restricted from further sports participation.<sup>19</sup>

### ***Diagnostic Tools***

Identifying and diagnosing the signs and symptoms of concussion may involve several different tools and approaches depending on the nature of injury. There is no single best method for

diagnosis; rather a comprehensive evaluation may require a range of approaches from a sideline physical exam and comprehensive history to neuropsychological testing.

Any pediatric or adolescent athlete who is suspected of sustaining a concussion should be evaluated by a health care professional. Whether the athlete is initially evaluated on the athletic field sideline, in a physician office, or in the emergency department, a neurologic exam, inquiry into symptoms, and assessment of cognitive function should be performed. If a concussion is identified, the athlete should be removed from the remainder of the practice or game(s) on that day.<sup>20</sup> The athlete should continue to be monitored for several hours after the injury to evaluate for any deterioration of his or her condition. Even if an athlete's symptoms clear on the same day of the concussion and the assessment in the office or emergency department is normal, the athlete should not be allowed to return to play that same day.

If there is concern for a structural brain abnormality, neuroimaging should be considered, though the results of conventional neuroimaging typically come back normal following a concussive injury. Evidence exist that routine imaging using computed tomography (CT) or magnetic resonance imaging (MRI) contributes little to the evaluation and management of concussion.<sup>21</sup>

Instead, neuropsychological testing has become more commonplace in the evaluation of an athlete with a concussion. Such testing provides a means to an objective measure of brain function. Neuropsychological testing is one of several tools in the concussion assessment but does not independently determine whether an athlete has experienced a concussion or when the athlete may safely return to play.<sup>22, 23</sup>

At this time, there are no evidence-based guidelines or validated protocols that address when to administer the computerized neuropsychological test following a concussion. The optimum timeframe for repeating baseline neuropsychological testing, if conducted, is still not well-established, especially for the developing brain. A study that evaluated high school athletes with pencil-and-paper neuropsychological testing found stabilization of baseline scores between the 9<sup>th</sup> and 10<sup>th</sup> grades.<sup>24</sup> It is also important to consider that there is a lack of published baseline data in athletes younger than 12 years. There is currently no established, validated computerized

neuropsychological test for the grade school athlete, although at this time a computerized test for use in athletes younger than 12 years is being developed.<sup>25</sup>

### ***Concussion Management and Return to Play***

The goal of managing a young athlete with a concussion is to hasten recovery by ensuring that the athlete is aware of and avoids activities and situations that may slow recovery. Treating young athletes with a concussion is uniquely challenging, because their brains are still developing. Unfortunately, the lack of published data on the preadolescent athlete hinders evidence-based decision making in this age group.<sup>26</sup> It is important to stress to children and adolescent athletes as well as their parents to allow adequate time for full physical and cognitive recovery. To prevent exacerbation of symptoms and allow for continued recovery, both physical and cognitive rest is recommended.

Athletes with concussion often have difficulty attending school and focusing on schoolwork, taking tests, and trying to keep up with assignments, especially in math, science, and foreign language classes. Reading, even for leisure, commonly worsens symptoms. Teachers and school administrators should also be notified of the injury and asked to work with students to modify workloads to avoid exacerbation of concussion symptoms.

Following a concussion, all athletes should be withheld from physical exertion until they are asymptomatic at rest. With the proposed injury to the brain, increased energy demand in the brain from physical activity may exacerbate symptoms and has the potential to prolong recovery.<sup>27</sup> An athlete in the acute phase of a concussion should be restricted from physical activity. Special consideration must be given to when children return to physical activities and play. Given that the recovery course is longer for younger athletes,<sup>28</sup> a more conservative approach to return to play should be adopted for this group. When considering young athletes' return to physical activity, coaches, parents, and trainers should remember the important phrase, "when in doubt, sit them out."

### ***Legislative Action***

The American Academy of Pediatrics supports the establishment of federal guidelines for concussion management, and believes the prevention, identification, treatment, and management of concussions in children and adolescents is of the utmost importance. We commend Representative Pascrell (D-NJ) for introducing H.R. 1347, Concussion Treatment and Care Tools, or ConTACT, Act of 2009, and drawing attention to the important issue of sport-related concussion among school-aged children. The adoption of federal concussion management guidelines and standards for when student athletes should return to play following a concussion are important steps in protecting the health and safety of America's children.

The lack of comprehensive national concussion management guidelines jeopardizes children's health and has prompted the AAP to take action to address this deficiency. AAP's Council on Sports Medicine and Fitness has combined its professional expertise with current medical literature to devise a list of recommendations for the management of sport-related concussion in children and adolescents. It is our expectation that this clinical report and these recommendations can serve as starting points for the development of federal standards and contribute to the national dialogue on pediatric concussion management.

### ***AAP Recommendations***

The American Academy of Pediatrics' Council on Sports Medicine and Fitness has devised a comprehensive clinical report on sport-related concussion in children and adolescents. The full report and recommendations can be found in this month's journal of *Pediatrics*, and I would like to share the most important points with you today:

1. Pediatric and adolescent athletes should never return to play while symptomatic at rest or with exertion. Athletes also should not be returned to play on the same day of the concussion, even if they become asymptomatic. The recovery course is longer for younger athletes than for college

and professional athletes, and a more conservative approach to return to play is warranted for this age group.

2. Any pediatric or adolescent athlete sustaining a concussion should be evaluated by a health care professional, ideally a physician, with experience in concussion management and should receive medical clearance before returning to play.
3. Athletes with a concussion should rest, both physically and cognitively, until their symptoms have resolved both at rest and with exertion. Teachers and school administrators should work with students to modify workloads to avoid exacerbation of symptoms.
4. Neuropsychological testing can be helpful to provide objective data to athletes and their families following a concussion. Neuropsychological testing is only one tool in the complete management of a sport-related concussion and does not alone make a diagnosis or determine when return to play is appropriate.
5. Retirement from contact or collision sports may be necessary for the athlete with a history of multiple concussions or with long symptomatic courses following his or her concussion.

The American Academy of Pediatrics believes these recommendations and guidance should be included in any federal action on this issue. It should also be noted that timely medical attention for any athlete suspected of sustaining a concussion is important, and the presence of an athletic trainer or similarly-qualified professional for sideline evaluation is ideal. Even with the promising advances of computerized neuropsychological testing and recent investments in prevention, early diagnosis, and treatment of concussions in young athletes, requiring all schools and other organizations that sponsor or conduct high risk activities to have an athletic trainer or similarly-qualified professional on site would not only improve concussion management but also help decrease other morbidities at the same time.



### ***Conclusion***

The American Academy of Pediatrics applauds Chairman Pallone and Representative Pascrell for convening this hearing today to bring added attention to the important issues surrounding concussions in school-aged children. As another school year is upon us and children of all ages are returning to athletic fields and playgrounds across the country, education on sport-related concussion is integral to improving awareness, recognition, and management. Thank you for the opportunity to share my clinical perspective with you today.

AAP is grateful for the Committee's continued commitment to child health, and we hope that you will consider us a partner in efforts to reduce the occurrence of sport-related concussions in our nation's youth.

I thank you for this opportunity to testify and look forward to your questions.

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Mr. PALLONE. Mr. Oben.

**STATEMENT OF ROMAN OBEN**

Mr. OBEN. Good afternoon. Representative Pascrell, Chairman Pallone. I like to thank you guys for your time in inviting me to share my testimony today.

I'm currently an Account Executive for CBS Outdoor. I co-host the Giants pre- and post-game radio show on WFAM, as well as the Big East Game of the week on SNY Network and I'm an adjunct professor at Fairly Dickinson University sports administration department.

I like to thank you guys again and thank the panel, the second panel for your expert testimony and witnesses.

I want to talk about my career briefly that began in West Africa where I was born and started as a 14-year-old playing football for the first time at Gonzaga High School in Washington, DC where I grew up. I was considered what you would call a late bloomer. I was 5'11", 190 as a freshman. Two years later I was 6'4" 230 pounds, so I think God was good to me by giving me great size. But I eventually became a heavily recruited individual and collegiate athlete, and I accepted an academic athletic scholarship at the University of Louisville.

Now, many are familiar with the recent movie the Blind Side. I was moved to the left tackle position and I played the blind side well in college, became an all American and played for 12 years in the NFL and also won—was a starting left tackle for the Super Bowl Champion Tampa Bay Buccaneers in 2002. Along with the highs of winning and competition in the NFL, unfortunately have seen many peers and teammates alike, suffer the physical and emotional damages caused by multiple concussions. These stories range from waking up to finding yourself in an examination room and forgetting how you got there, to not remembering your home address and your cell phone number.

Now, while I may not have an expert degree in any scientific field, I do consider myself an expert at what it takes to play at the highest level. I had seven knee surgeries, two reconstructive foot surgeries, and at 35 being told that you have the physical body of someone 30 years your age, I do consider myself an expert participant in sports.

Now, I believe that football is the greatest game in the world because it's the greatest team sport in all sports. One person can't score 40 points and carry the team. Everyone has to do everything right on every play for a play to be successful. We also learn how to exert our physical limitations pass normal human capacity. Playing with a monster of no pain no gain and toughing it out.

Now a father of two elementary age children who are very active in sports, Tae Kwon Do, flag football, soccer, wrestling, lacrosse, basketball, and this is all in the same season, by the way. I've seen children train their bodies physically at an earlier age, and play at the youth sports level at a much higher degree of competition than the backyard ball that we all grew up playing. For example, my 9-year-old son can do 30 push-ups. I don't think I could do 30 until I was at least a sophomore in high school. So athletes have gotten bigger, faster and stronger at earlier ages. Unfortunately, this big-

ger, faster, stronger youth athlete creates a situation where the physical impact and the trauma is much more severe than it was when I grew up.

I must add that one thing you cannot physically develop is the brain, the skull that protects it. The spine, the joints and the ligaments.

Now, I don't speak for the NFL as a whole, but we're well aware that the NFL has worked tirelessly and has done an excellent job in partnering with the CDC to improve the awareness, diagnosis and treatment of concussions. For example, if a person suffers a concussion or what's deemed as an injury, if the doctor isn't clear you can go back and play no matter what the coach says, no matter how you feel or your assistant coach, you're not going back to play. That wasn't the case my last year in the NFL, and for a lot of the many men that I saw and played with, peers, teammates who proudly carried the NFL shield.

Now, we're on the wake of another anniversary of 9/11. And I remember that year the NFL was the first organization to step up and say that we weren't going to play the game because of the tragedy that happened to the lives that affected our nation.

Now, some of these trends in professional sports in a whole are followed by colleges, high schools and youth sports. I think the same trend and necessary education on the youth level of competitive sports will help eliminate the long history of poor education and information on the concussion issue. The ConTACT Act H.R. 1347 is a necessary legislation that is needed to educate and set guidelines for concussion management for all school sponsored supporting events so that we can create a safe environment for youth sports.

I want to thank again the Subcommittee. I would openly welcome any questions that you guys may have for me at this time. Thank you.

Mr. PALLONE. Thank you very much and thank you also for being here today and for your long involvement with this issue. We're going to go right to the questions. As I said, we go back and forth between myself and Congressman Pascrell. I'll start.

I have to ask everyone of you something, but I don't know if we have time for that. Let me start with Nikki Popyer.

You talked about at one point, you referenced, I couldn't help but emphasize, you know, given the economic climate that we face today that there have been so many cutbacks at the state and local level in school programs, you know, in funding. I don't know that that is necessarily true of Marlboro, I'm not trying to suggest it with the situation in Marlboro. You know, I think that that's a very good point because, you know, when we talk about this federal legislation that my colleague Congressman Pascrell introduced, one of the questions is, you know, he proposed these various grant programs and, you know, one question comes up is do we need this, do we need these additional things, and I think that that's a very important point, which is right now we're in a situation where a lot of schools are cutting back. If they start eliminating, you know, prevention programs for concussion, then it may very well be that the federal government needs to step in, particularly now given that. I don't know how, you know, wide spread your knowledge is

about that, but I mean, is that happening, do you see that happening at all?

Ms. POPYER. Well, I mean I think making the grant to have the impact test or any kind of those neuro cognitive testing is like—you need to have them. It's like sending a football player without a helmet, sending a soccer player without shin guards. I think it's just another piece of equipment protective gear for the kids. And I think that if there's enough money to get a grant for this, then I think it's definitely necessary and that it's going to help people and protect them from becoming like me.

Mr. PALLONE. I mean, I know that some schools are actually eliminating athletic programs altogether, but I mean, it might even be worse if they have the programs but they eliminate all the prevention, you know, type activities that you're talking about in the process, which I guess is something that could do. Anybody else want to comment on that, if you would. I mean, I don't know that we know that it's necessarily happening, but I think it's a fear.

Mr. PRYBICIEN. I mean, you bring up some very good points. I think there's a combination of things going on. I'll speak specifically of New Jersey. A combination of athletic programs being eliminated, freshman programs being eliminated, athletic trainer positions being cut as well as, you know, some things called where there's like pay to play, which are paying for services to be able to play in sports. But, you know, the point that you bring up that is very good, is the fact of, you know, if sports aren't eliminated, eliminating some of the tools, whether it be concussion education, baseline testing, removal of an athletic trainer, any of those things that are viable assets to the prevention of concussions or other sports-related injuries, you know, is probably worse than eliminating sports altogether.

Mr. PALLONE. Well, you know, we passed a Bill and, you know, I know this is a much larger level, but we passed a Bill as Congressman Pascarell knows, we went back in August to just pass that Bill and gave money back to the state so they can rehire teachers. And I think that is what we're going to see more and more, the federal government has to step in and help on some of these programs whether it's what we're talking about today or other things because the state and local cutback significantly.

Let me go back to you Mr. Prybicien. Both Ms. Boyd and you, I think almost everyone of you talked about the—well, actually maybe let me ask Ms. Boyd this, but every one of you brought up this issue of the second impact syndrome and the cumulative impact. I think one of you actually said that there are a significant number of deaths that occur from second impact, you know, with brain injury. I didn't hear, maybe you can tell us a little bit more about specifically what we can do with that. I know in Mr. Pascarell's Bill he talked about different grant programs, the baseline testing, you know, post-injury testing. What's the best way to deal with the second impact? I mean, that's kind of been the most disturbing thing to me today to hear you talk about that.

Ms. BOYD. The second impact syndrome can result in catastrophic brain injury. What that translates into, if you're talking about a high school student who survives a second impact syndrome, you're talking about a young person who is in the process

of developing his own identity, making plans for the future, moving on to college or to a training, and all of that instantaneously ends with that onset of a significant severe brain injury that causes life long difficulties.

Mr. PALLONE. But what I'm saying is, what can we do with these training programs and other testing to try and prevent that, is that where the trainer comes in.

Ms. BOYD. Well, the trainer but it's everyone else. The trainers are the best educating staff in the school when it comes to these kinds of injuries. They are at, you know, the top of the game when it comes to who knows what's going on with concussions in that school environment. School nurses take a close second. But my point is that the results of second impact syndrome need to be known. People don't recognize that brain injury is a number one killer and disabler of youth in America. People do not know that. Just like we didn't know how significant concussions were and how much they affected our youth. This is critical.

I mean, the personal side of it for a family and an individual who has a life long disability is one thing, but our entire country pays the price for this. It's not just one individual's quality of life or their future. We know that kids experience concussions differently, but we respond to children with concussion differently. If you have a 7-year-old who has a concussion and it's out is sorts and wants to sleep all the time and is acting out because the lights are bothering them and the sound is bothering them and they can't focus in school, they're probably sent for time out instead of for cognitive rehabilitation. And this the issue, is that we needs to understand what a brain injury is. We need to know what a concussions. Parents needs to know.

One of the things that concerns me are parents and families who have no health insurance. They have no health insurance and the coach sends them out of the game, and now you have a family who sees that their child, their athlete is not themselves. Is there the presence of a concussion or isn't there, and they go to the family doctor and the family doctor evaluates to the best of their knowledge base and clears them to play in a week. How do we know that that student is still safe. Well, baseline testing certainly will help with that. It does not diagnose a concussion. It tells you when there's a reliable change in the baseline score, that's what baseline testing will do. It will tell you watch out, keep your eye on this child. You don't know how significant a concussion is until that child is healed. There is no way to say this is a grade one concussion or a mild concussion until all of the symptoms are gone.

Mr. PALLONE. Let's do this. Bill, I'm going to yield to you and then maybe we'll have a second round.

Mr. PASCRELL. Mr. Oben, I wanted to ask you this, from the beginning of going into the National Football League to the time—and after your 12 years were up and you decided that you were going to go do something else, did you see any appreciable change in how the league addressed the issue of concussion, could you be as specific as possible.

Mr. OBEN. I think what I noticed in my last season there was definitely one thing, there was a change of philosophy. We had a lot more old school coaches, quote unquote, tough it out, grind it

out, no pain no gain, what I said earlier. As I got further in my career a lot of the younger coaches were of a different philosophy and there are a lot of players that I knew about, I'm sure you guys have known, Wayne Gwebeck, for example. And there's a guy like that on every team, there's two or three guys like that on every team. You play hard and you go out and play with game because you know if you don't go in there's somebody to replace you. They're always asking guys to replace you. But I think as a whole the players, the players union they got a lot smarter and they put a lot more on the NFL to do a little bit more than what they were doing when concussions.

Mr. PASCRELL. When you see the players and what's happened with to them in their late 40s and early 50s and when you talk to these guys it's pitiful how this was able to go on. I mean, this didn't just happen with one blow. This did not just happen in one particular situation. This was, to go back to what Nikki just talked about, a cumulative situation. And these things all add up, don't they Nikki.

Ms. POPYER. Yes.

Mr. PASCRELL. When we say a cumulative, what do you mean by that.

Ms. POPYER. Well, when I started getting concussions in seventh grade, I didn't really know what was going on and it was just a little headache and then I was fine in a few days. But as I got more of them everything seemed worse and it's because my brain wasn't completely healed from the first time I got a concussion. So, each one builds it up and makes it all worse, and now I'm stuck with a 24, 7 headache and these problems in school and in life in general.

Mr. PASCRELL. But we've listened to doctors today and they say that when you're younger you're more vulnerable, and yet when you see what's happened to NFL players, some of them played three, four years, some of them played ten years, 12 years, and they can't control themselves. I mean, I'm not exaggerating, am I.

Mr. OBEN. Not at all.

Mr. PASCRELL. It's sad, it really is. And I played football, all kinds of sports. In my neighborhood if you came out when you were hurt you were a sissy, which was pretty stupid, wasn't it.

Ms. POPYER. Definitely. I know as an athlete that I wanted to get on the court no matter what. I loved basketball and I would risk anything for it until we actually found the right doctor, that's Dr. Jill Brooks who's a neuropsychologist. She was the first one to shut me down. But hearing that as an athlete, we just want to get back on the court and do what we love and I mean it's hard, but it's the better thing to do.

Mr. PASCRELL. Why did you listen to her and there were other folks who told you before that to see what kind of—

Ms. POPYER. I mean, I went to plenty doctors and no doctor ever told me to stop playing, no one told me the effect that I'll have. I went to the same doctor at the emergency room several times and almost every time he said sit out one to two days, you're fine, you got your bell rung, just go back in there, you're fine. No one ever told me that once you get another one it's going to be worse and

it's going to be harder to recover, but. I mean, the knowledge we have now definitely will help a lot of people.

Mr. PASCRELL. Did any doctor or professional ever tell you, Nikki, that every time you get a concussion, and there's all different kinds of concussions, some are very mild, some are very severe, did any doctor ever tell you that a concussion is brain damage.

Ms. POPYER. No, not one until Dr. Jill Brooks had ever said anything about a concussion really being serious.

Mr. PASCRELL. What is your response to that, Dr. Brenner.

Dr. BRENNER. I think it's very unfortunate and that's something that we've been targeting. Every time I see an athlete the very first thing that I ask them is do they know what a concussion is, that's the very first thing that we talk about is that a concussion is a brain injury. Often times the parents and the athletes are not aware of that. Luckily as we get more education out there more and more ascribe. I think it's important for people to understand there have been studies that looked at youth and the term concussion versus mild traumatic brain injury. People were admitted to the hospital with the term concussion were released sooner than those releases from a minor traumatic brain injury. So, it's important for people to understand that a concussion is a brain injury versus none.

Mr. PASCRELL. Thank you.

Ms. BOYD, we talked about this before. What is your take, I want you to just start? I mean, you talk about education a lot and how parents need to be educated. Let me tell you something, congressmen needed to be educated. They didn't know what I was talking about ten years ago. I just about knew what I was talking about. How do we get to the next level so that people can make sense of what they're hearing and perform?

Ms. BOYD. You know, education begins when it's initiated sometimes, you know, in the neighborhood and sometimes from our legislators. So, I think that initiating legislation certainly brings awareness right up. Just like the media has done and the NFL. We have them to thank for so much more awareness about concussion. The education needs to go—we need to get a complete education, just like we did with seat belts. Seat belts came about when I was a kid. My mother went out there and she cut them right out of car because nobody was going to tell her to wear a seat belt or what to do in the car. Well, we have that same mind set with people who are working with our young athletes and working with children who fall down off their—or ride their scooters without a helmet. So, the education needs to be comprehensive. We need to understand what concussion is, we need to know how to recognize it and then we need to know what to do about it.

At the Brain Injury Association we have information and family help lines. People will call and say my son was diagnosed with a concussion, where do you go, what do you do for treatment. We need to know as a society, we need to understand that the concussion is a brain injury. If you have a concussion you need to see a specialist, your concussion needs to be monitored. So, our family physicians, our pediatricians need to know how to do that. They need to know the questions to ask. They need to get involved in



these kids lives. If there's a significant concussion that is not healing, the symptoms continue and continue, then as in Nikki's story it's probably necessary to see a specialist.

A neuropsychologist is a specialist who specializes in brain behavior relationships. Rather than doing a quick neuropsychological testing, would probably do a more extensive battery of tests to understand how the brain is working.

Mr. PASCRELL. Let me ask the question, Mr. Prybicien, you see these kids everyday and you deal with them, you deal with the students, you deal with their parents, the trainer, what is your take on what you just heard and how do you address it; and B of that is, does the school ever talk to you about liability.

Mr. PRYBICIEN. Well, the school hasn't talked about liability, okay, that's number one. How do I address it, one thing from hearing everybody today I want to say concussions can take many forms, okay. Concussion education to me consists of proper handouts to parents, it could be watching a DVD or video. When we talk about that is, all my athletes, you know, the great initiative in New Jersey, all of our student athletes see a video. It doesn't matter what sport their playing. You know, my tennis team, my cross country team, they all so a video on concussions, science and physical and education because, you know, you can have a tennis player, which we just saw in the U.S. Open recently, who slipped and had a fall earlier in the day and then suffered concussion type like symptoms during the match. So, concussion doesn't have to occur specifically during this sporting activity. So, you're educating as many people as you can.

If you're educating a student, athlete on concussion once they've had a concussion, you're educating them too late. The education needs to be out there at the forefront prior to them ever getting a concussion.

The same thing goes on with me and my parents. We've heard the word, you know, mild concussion. I never use that word mild when I'm discussing a concussion with parents. They'll say, well, is it grade one, grade two, grade three, is it mild, is it severe. I said, we'll have that discussion when your son and daughter's signs and symptoms are gone because you can't discuss those things. So, you know, to me education takes the form of all the things I talked about, whether it be mass media, whether it be DVD, videotape, handouts. Conversations go a long way. And still in the world that we live in today with blogs and internet, you still can't replace the face-to-face contact in talking to parents. Getting them the proper referral to the proper physicians, which are concussion specialists just like—or pediatricians who are going through the proper education with concussion management. All those things are important in the overall education of concussions.

Mr. PASCRELL. Thank you.

Mr. PALLONE. I just have brief follow-up on Mr. Prybicien and then I'll go back to you, Bill. I think a lot of the questions I had were answered with Mr. Pascrell.

Mr. Prybicien, you mentioned that the state of New Jersey seemed to be pretty good with—did they actually mandate athletic trainers, how does it work in New Jersey?

Mr. PRYBICIEN. We don't mandate. Probably about 10 to 15 years ago the Department of Education in New Jersey recognized athletic training as one of its certificate degrees within the school system which helped tremendously with that high percentage. I will say—

Mr. PALLONE. The percentage was like 80, 90 percent.

Mr. PRYBICIEN. 86 percent of all of our high schools which conduct an interscholastic athletic—and have an athletic trainer and 93 percent of our public schools. That's from 2009 the Athletic Trainers Society of New Jersey took a survey and that's where we came up with those numbers. We're trying to maintain those numbers. As we talked about here we're in unexpected economic times, like unprecedented economic times, so athletic trainers are, you know, feeling the crunch just like a lot of professionals are in the school system.

Senator Paul Sarlo in New Jersey is actually trying to do a requirement for any school that has an interscholastic sport in New Jersey has an athletic trainer at the school. He introduced that legislation on the New Jersey Senate side about a year ago. So, we're trying to stay active. We're trying to keep that number as high as possible. But, I guess to go back to your question, it's just with the Department of Education certificate that helps us keep our numbers so high.

Mr. PALLONE. So, it's not mandated now.

Mr. PRYBICIEN. It's not mandated, no.

Mr. PALLONE. And then if they have somebody at the school, are they necessarily participating in all the sports or just some schools.

Mr. PRYBICIEN. Well, for myself, for example, it's a crossover, you know, most athletes play multiple sports.

Mr. PALLONE. It's part of like their health curriculum or—

Mr. PRYBICIEN. What we do is, I am at the school, I provide injury evaluation, injury rehabilitation, I'm at practices, I'm on site. So if, you know, I watch for a mechanism of injury, that's where we may be a little bit different from a physician. We're on the sidelines, so we see a certain hit maybe take place in a game or certain fall. We can go over and request the coach take that athlete out, we can take a look at them, you know, when they come to the sideline. You know, a lot of times I'll just walk back and forth on the sidelines. You're looking for a certain look in somebody's eyes, you're looking for a disorientation. We are a health care provider that probably, you know, we have our education, but we also develop relationships, you know. Maybe Roman could speak of it, of his relationship with his athletic trainers on the next level. We develop relationships with our patients and that develops a trust where a lot of times, you know, we may be the only person that they feel comfortable coming to and telling us about their signs and symptoms.

Mr. PALLONE. Maybe I'll go to Mr. Oben. I guess what I'm trying to say is, you talk about this play through the pain and, you know, how we had to reverse that culture. So I mean, are we going to do it by, you know, putting something in the health curriculum, are we going to do it by having more athletic trainers, how are we going to do it.

Mr. OBEN. I think definitely on the youth level I can speak with the—I'm very anti, I call the volunteer dad area, where you have a lot of dads who just want to coach their kids. In all the sports I named in my testimony I didn't name tackle football because I don't trust the system that exist. So, I think we have to streamline the process of the type of education they're getting. There has to be one way to give them this education and make sure it's equally balanced across the board for just this education on concussions and how it's treated. If one kid is tough and the other kid out there wants to play, all of that has to be the same, it all has to be the same, so. I won't let my kids play football until probably junior high school because there's a reason why they play sports. Learning to nurture your skills, your ability to have fun, to set goals, and that's why we play sports.

Million dollar contracts are not at stake when you're 11-years-old. I think when you're on the professional athlete level it's a different protocol I think you have to go through, but the NFL is just taking the charge. Like I said, I remember after 9/11 just for an example, the NFL taking charge, when you can go back and play and when you can't, and I think that definitely has to trickle down to the youth level as well.

Mr. PALLONE. Did you want to add something.

Mr. PRYBICIEN. One other thing that I always say to my student athletes as well my parents. You know, we live in a society where we're very, you know, we want to push, we want to get to the next level, we want to do everything we can either as a parent for our children or if you're a student athlete you want to compete. You know, Nikki mentioned quite a few times in her testimony today how she wanted to compete. When I work with student athletes, that's who I want to treat too. I want to treat that athlete that wants to get back on the field because, you know, different from concussions when I deal with a lot of other injuries that I'm rehabilitating, that person who wants to get back on the field is coming in, they're doing their rehabilitation, they're doing everything, but when I get to concussions I always use a different line with my student athletes. And I say, you have to understand we're doing what's best for you. I don't expect you to like my decision of not returning to play or the doctor's decision of not returning to play, but all I ask is you respect it and to understand that we're doing what's best for you for your entire life, not necessarily for a game or championship or anything like that.

Mr. PALLONE. Dr. Brenner.

Dr. BRENNER. I just wanted to point out, you know, I think New Jersey has to be commended that they have such high involvement of athletic trainers, having close to 90 percent, but it's really more of anomaly nationwide with 42 percent nationwide of schools having athletic trainers. There are high school athletes right now and middle school athletes who are playing football on Friday nights without any health care providers on the sidelines. And so, you know, I think one thing that has to be addressed is having an athletic trainer, someone on the sidelines for all these events.

The other thing that has to be addressed is we've been talking about school athletes, but from the study that came out last week, 75 percent of 8- to 13-year-olds who had a sports-related concus-

sion, 75 percent were from recreational athletes, 50 percent of the 14- to 19-year-olds who were recreational athletes. So we have to do something positive for the recreational athletes. So that needs to be included in any type of mandate.

Mr. PALLONE. I appreciate this. I don't like to bring in my—sometimes I don't like to bring in my own kids when I talk about these things because it gets personal, but I can't help in this case because, you know, my son was all excited as a freshman that he was going to play football, and I never played football and I wasn't much of an encouragement at all, I have to be honest with you. Then he was injured, and it wasn't a concussion though, but he was injured and the doctor recommended he not play anymore. He was devastated. The doctor didn't say absolutely, but that was his recommendation, but to me I said no, you're not going to do it. So then, the coaches asked him if he wanted to be a manager and he ended up managing the JV team last year and now this year he's managing the varsity team, he's a sophomore. You know, what you were saying, I think Mr. Oben said or Mr. Prybicien, you know, he just loves it, he loves managing the team. It's the whole idea of a team sport and being involved even though he can't play he is getting just as much out of it. Maybe I say that. He probably would disagree with me.

But, you know, I really—I don't know exactly how to say this. But I just really appreciate the fact that all of you not only take an interest in this issue and deal with student athletes, but also appreciate kind of the psychology of kids because I think that even as a parent I don't necessarily understand but I think you do, and that's really great.

My colleague.

Mr. PASCRELL. Thank you, Mr. Chairman. I hope you leave today with a better understanding of the legislation is secondary, but a better understanding of what the culture is about viewing these kinds of injuries and how we may be changing, and that's because we've seen changes in any one state or in professional football.

Several weeks ago, Mr. Chairman, there was a large meeting at Bloomfield High School. Ms. Boyd was there. We had about 600 students, student athletes, coaches, trainers, some doctors. There's such a hunger for information about this. It reminded me of what happened in 2003 and 2004, 2005 when a group of us returned from Iraq and Afghanistan several times and viewed our soldiers at a time when the military did not have a very sound protocol of dealing with TBI or posttraumatic stress disorders. It was disheartening. It was disheartening to see how they were treated back here in the states as well throughout. Not that it was any conscious effort to make things difficult, but people didn't know what to do, literally did not know what to do. They were not prepared for this kind of injury. Preparation. We heard that word mentioned many, many times today. So, the preparation is significant.

And what's happened since 2004, 2005 there was no money in the budget. I mean, we didn't pay for the war but we didn't pay for the aftermath either. What happened was that a few of us on both sides, all sides, so some good, I think, came out of this war, believe it or not. And that is we stroke the fire to get more money into research and development. And more has been done on the de-

velopment of the brain in the last five years that I've seen because we are saving soldiers lives that would have been dead five years ago. No question in my mind about that.

So, I mean, you may say this is apples and oranges, we're talking about kids. We're basically talking about the same thing, that is preparing them, training them, making sure we know what to do. God forbid if there's an injury, a concussion. So, I am very hopeful, I'm very hopeful. I'm an eternal optimist that we can do much better now that we brought the military and the civilians together to respond. And all of these organizations that I talked to you about are doing a hell of a job day in and day out, they're on the case. We had a great panel, I don't say that often. I usually tell people exactly how I think. We had a great panel. You've been very, very helpful, hopefully to the Chairman as well. I know that he listened very carefully. I want to get this legislation passed before we get out of here. I'm going to do the best that we can, right, Frank. That is my closing comment.

Mr. PALLONE. I will say that we are going to try. And I know that, you know, we don't have a lot of time left, but we're certainly going to try. And certainly I agree with Congressman Pascrell, this has been a very good hearing and it's a very important issue and I want to commend him, you know, for taking such an interest in the issue.

Now, you said that you're the eternal optimist. I didn't know that, that's kind of interesting. And then I forget what the other thing was that you said you were.

Mr. PASCRELL. I'm a lot of things.

Mr. PALLONE. You definitely were very aggressive in making sure that we had this hearing today, and I'm sure you'll be equally aggressive in trying to get the Bill passed.

I want to thank you, all of you for coming here today. I thought it was a very worthwhile hearing on a very important issue.

Let me just in closing I just want to remind everybody that we could submit additional questions to you in writing, which we would, obviously, like you to answer, and that could even come from, you know, other members of the Subcommittee that are not here today. Usually within ten days the clerk submits those to you, so if you don't get them within ten days you probably won't get them. I just want you to be aware that there is additional written questions that could come forward. And, again, thank you again.

[Whereupon, at 3:15 p.m., the subcommittee was adjourned.]