FRED UPTON, MICHIGAN
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

ONE HUNDRED FOURTEENTH CONGRESS

Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE

2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115

Majority (202) 225-2927
Minority (202) 225-3641

MEMORANDUM

May 11, 2016

To: Subcommittee on Oversight and Investigations Democratic Members and Staff

Fr: Committee on Energy and Commerce Democratic Staff

Re: Hearing on "Concussions in Youth Sports: Evaluating Prevention and Research."

On **Friday, May 13, 2016 at 9:30 a.m. in room 2123 of the Rayburn House Office Building**, the Subcommittee on Oversight and Investigations will be holding a hearing titled "Concussions in Youth Sports: Evaluating Prevention and Research." The hearing will focus on the scientific understanding of the prevalence and risks of brain injuries in youth. The hearing will also examine efforts to prevent and address concussions and other head trauma in youth sports.

I. BACKGROUND

On March 14, 2016, the Committee on Energy and Commerce held a roundtable on the state of concussion research and its implications for public health.[1] The roundtable convened experts across the research community and representatives from government agencies and athletic associations, to discuss the state of the science on concussions and head trauma as well as actions to mitigate the risks of concussive and subconcussive hits. The panelists identified head injuries in youth sports as an area requiring further attention. Additionally, the panelists considered the need for more data on youth populations, changes to play, better training for coaches, and improved access to medical care.

For additional background, please see the memo from that roundtable.

[1] Committee on Energy and Commerce, *Roundtable on Evaluating the State of Concussion Research and Implications for Public Health*, 114th Cong. (Mar. 14, 2016).

II. RISKS AND PREVALENCE OF CONCUSSIONS IN YOUTH SPORTS

While much of the public focus on concussions has been on professional and collegiate athletes, brain injuries are of particular concern in youth sports. Children and teens may be more vulnerable to brain trauma than adults and take longer to recover.[2] More than 70 percent of emergency room (ER) visits for sports and recreation-related traumatic brain injuries (TBI) occurred in youths from 10 to 19 years old, and ER visits for children and teens increased nearly 60 percent over the last decade.[3]

Evidence is mounting that injuries sustained in youth contact sports could present serious risks to long-term neurological health. For example, the Mayo Clinic recently published a report finding that close to one-third of the donated brains to the Mayo Clinic Brain Bank, coming from young males who had participated in contact sports during youth, had chronic traumatic encephalopathy (CTE), a neurodegenerative brain disease.[4] According to its author, this is the first study to use CTE neuropathologic criteria established by the National Institute of Neurological Disorders and Stroke (NINDS) to look for the occurrence of the disease in nonprofessional athletes.[5]

Research also appears to suggest that subconcussive trauma, which are repeated hits to the head that present no immediate clinical symptoms, may have cumulative adverse effects on brain physiology and function.[6] Youth sports players may be at particular risk of lasting neurological damage due to repetitive hits.[7] Studies have shown that young athletes who did not experience a diagnosed concussion but did experience repetitive hits to the head exhibited

---

[2] Centers for Disease Control and Prevention, *Get a Heads Up on Concussion in Sports Policies* (online at www.cdc.gov/headsup/pdfs/policy/headsuponconcussioninsportspolicies-a.pdf) (accessed May 9, 2016).

[3] Centers for Disease Control and Prevention, *Nonfatal Traumatic Brain Injuries Related to Sports and Recreation Activities Among Persons Aged ≤19 Years --- United States, 2001—2009* (Oct. 7, 2011).

[4] *Evidence Suggests Amateur Contact Sports Increase Risk of Degenerative Disorder*, Mayo Clinic News Network (Dec. 2, 2015) (online at newsnetwork.mayoclinic.org/discussion/mayo-clinic-cte-fl-release/); *Brain Damage Study Shows Student-Athletes May Risk Same Injuries as NFL Players*, Bloomberg Business (Dec. 1, 2015) (online at www.bloomberg.com/news/articles/2015-12-01/brain-damage-found-in-one-third-of-former-student-athletes).

[5] *Id.*

[6] Christine M. Baugh et al., *Chronic traumatic encephalopathy: degeneration following repetitive concussive and subconcussive brain trauma*, Brain Imaging and Behavior (May 3, 2012).

[7] Mallika Marar et al., *Epidemiology of Concussions Among United States High School Athletes in 20 Sports*, American Journal of Sports Medicine (Jan. 27, 2012).

neurological impairment over the course of a single athletic season.[8] This suggests that there are likely many more players suffering neurological injury than are being detected using traditional concussion protocols. Additionally, a 2012 study found that the average second-grade football player sustained more than 100 head impacts during the course of ten practices and five games, with some of those hits exceeding the force exerted during a college football game.[9]

In a recent study, Boston University researchers reported evidence, using some of the most rigorous testing methods to date, that overall exposure to contact is linked to the likelihood of players experiencing problems like depression, apathy, or memory loss years later. The researchers used data from helmet accelerometer studies to estimate the average number of hits sustained per season by high school and college football players. They concluded that the greater the numbers of hits in a career, the higher the likelihood of later-life impairments, regardless of the number of concussions sustained. [10]

The NCAA Injury Surveillance System and the National High School Sports-Related Injury Surveillance Study currently provide surveillance data for collegiate and high school athletes in select sports. According to some experts, however, there is currently insufficient data to estimate the prevalence of concussions in youth sports.[11] For example, a 2013 study from the Institute of Medicine (IOM) and the National Research Council (NRC) found that "there is limited data on the incidence of sports-related concussions among pre-high-school-age youth and among those playing in youth clubs and recreational sports."[12] The researchers further reported that because insufficient data has been collected, this has contributed to a lack of understanding of the incidence of sports-related concussions in youth. The study concluded that collecting better data would enable researchers to better assess the effectiveness of youth sports-related legislation and other measures to make youth sports safer. The study also recommended that the Centers for Disease Control and Prevention (CDC) establish a national surveillance system to determine the incidence of sports-related concussions, including categories for younger

---

[8] Thomas M. Talavage et al., *Functionally-Detected Cognitive Impairment in High School Football Players Without Clinically-Diagnosed Concussion*, Journal of Neurotrauma, 30:1-12 (2013).

[9] Ray W. Daniel et al., *Head Impact Exposure in Youth Football*, Annals of Biomedical Engineering (2012).

[10] Philip Montenigro et. al, *Cumulative Head Impact Exposure Predicts Later-Life Depression, Apathy, Executive Dysfunction, and Cognitive Impairment in Former High School and College Football Players*, Journal of Neurotrauma (Mar. 30, 2016).

[11] Program for Injury Prevention, Education & Research (PIPER), Colorado School of Public Health, *High School RIO: Reporting Information Online* (online at www.ucdenver.edu/academics/colleges/PublicHealth/research/ResearchProjects/piper/projects/RIO/Pages/default.aspx) (accessed May 9, 2016).

[12] Robert Graham et al., *Sports-Related Concussions in Youth, Improving the Science, Changing the Culture*, Institute of Medicine and National Research Council (Oct. 30, 2013) (online at www.nap.edu/read/18377/chapter/1).

participants.[13] The CDC has requested funding in the FY2017 budget to establish and oversee a National Concussion Surveillance System.[14]

III. YOUTH SPORTS INITIATIVES TO PREVENT CONCUSSIONS

A number of youth sports leagues and state and national organizing bodies have proposed and implemented rule changes to prevent and reduce concussions and other brain injuries in contact sports. There is little uniformity in how the rules have been changed, and significant variation remains across sports, levels of play, and states.

Football receives the most attention for the risks posed by contact, and rule changes in the sport have received significant public attention. Organizations across many levels of play have reduced the number of contact practices during the regular season. The National Football League (NFL) allows 14 contact practices over the 18-week regular season.[15] The NCAA guidelines allow full contact football practices four times a week during the preseason and twice a week during the regular season.[16] Some NCAA teams, including all football teams in the Ivy League, have eliminated full contact practices during the regular season.[17] USA Football, the national governing body for amateur football, recommends youth teams conduct no more than four contact practices per week during the preseason and three contact practices during the regular season.[18] Pop Warner, which operates youth football programs, limits contact drills to one-third of practice time.[19]

Youth football organizations have also made changes to the rules governing contact during play. USA Football has created and implemented an education program, known as "Heads Up Football," to educate players on tackling techniques designed to avoid head impact and reduce the incidence of concussions.[20] Pop Warner instituted a change to its rules in 2012 regarding head-on blocking, setting a maximum distance of three yards from which players could be apart during full-speed tackling drills.[21]

---

[13] *Id.*

[14] Centers for Disease Control and Prevention, *National Concussion Surveillance System* (Feb. 26, 2016) (online at www.cdc.gov/traumaticbraininjury/ncss/index.html).

[15] *Ivy League Moves to Eliminate Tackling at Football Practices*, New York Times (Mar. 1, 2016).

[16] NCAA, *Football Practice Guidelines* (online at www.ncaa.org/health-and-safety/football-practice-guidelines).

[17] *Id.*

[18] USA Football, *Youth Practice Guidelines: Set Limits on Practice Time, Amount of Full Contact* (Mar. 12, 2015).

[19] *Pop Warner to Limit Practice Contact*, ESPN (Jun. 15, 2012).

[20] *Questions about Heads Up Tackling*, ESPN (Jan. 13, 2014).

[21] *Pop Warner to Limit Practice Contact*, ESPN (Jun. 15, 2012).

Other youth sports leagues have also made changes to limit contact or make contact safer for their athletes. In November 2015, the United States Soccer Federation prohibited heading for players age 10 and under and limited headers in practice for players age 11 to 13.[22] USA Hockey increased the age limit for when body checking is allowed from age 11 to 13 before the 2011-2012 season.[23] Following the release of the IOM report on sports-related concussion in 2013, US Lacrosse made rule changes to limit body contact in youth boys' lacrosse.[24] The CDC has partnered with a number of national organizing bodies, including US Soccer, USA Baseball, and USA Cheer, to develop concussion materials specific to each sport.[25]

IV. STATE CONCUSSION LAWS

The National Conference of State Legislatures has recognized TBI among youth athletes as a serious public health concern in the United States.[26] They report that in 2011, more than 55,000 high school football players and nearly 30,000 youth soccer players sustained a concussion during a competition or a practice. Since 2009, state legislatures in all 50 states, including the District of Columbia, have enacted laws to address youth sports-related concussion.[27]

Most of these state laws attempt to make play safer and reduce head injury. These laws generally require that coaches remove a youth athlete from play or practice if the coach suspects a concussion has occurred. Some of the laws include provisions on the need for medical evaluations and clearances by a designated health care provider before returning to play. They also mandate education and training on head injuries and concussion-recognition and -response for coaches, school personnel, and health care professionals.[28]

---

[22] *U.S. Soccer, Resolving Lawsuit, Will Limit Headers for Youth Players*, New York Times (Nov. 9, 2015).

[23] *Youth Hockey Players and Body Checking May Not Be a Match, Some Say*, Capital News Service (Dec. 19, 2014).

[24] US Lacrosse, *USL Safety Initiatives Consistent with Concussion Report Recommendations* (Nov. 16, 2013).

[25] Centers for Disease Control and Prevention, *Sport-Specific Concussion Information* (Dec. 24, 2015) (online at www.cdc.gov/headsup/highschoolsports/sport-specific.html).

[26] National Conference of State Legislatures, *Traumatic Brain Injuries Among Youth Athletes* (Nov. 18, 2015) (online at www.ncsl.org/research/health/traumatic-brain-injuries-among-youth-athletes.aspx).

[27] *Id.*; Moms Team, *Concussion Safety Laws in Place in Every State* (Apr. 3, 2015) (online at www.momsteam.com/health-safety/every-state-has-youth-sports-concussion-safety-law).

[28] National Conference of State Legislatures, *Traumatic Brain Injuries Among Youth Athletes* (Nov. 18, 2015) (online at www.ncsl.org/research/health/traumatic-brain-injuries-among-youth-athletes.aspx).

V. WITNESSES

Panel I

Kelli Jantz
Parent

Karen Zegel
Parent

Panel II

Buddy Teevens
Robert L. Blackman Head Football Coach
Dartmouth College

Terry O'Neil
Founder
Practice Like Pros

Tom Talavage, PhD
Professor
Founding Co-Director, Purdue MRI Facility
Purdue University

Dawn Comstock, PhD
Associate Professor of Epidemiology
Principal Investigator, High School RIO
Colorado School of Public Health

Dr. Andrew Gregory
Medical Advisory Committee
USA Football

Mr. Kevin Margarucci
Manager, Player Safety
USA Hockey

Mr. Steve Stenersen
President and CEO
US Lacrosse