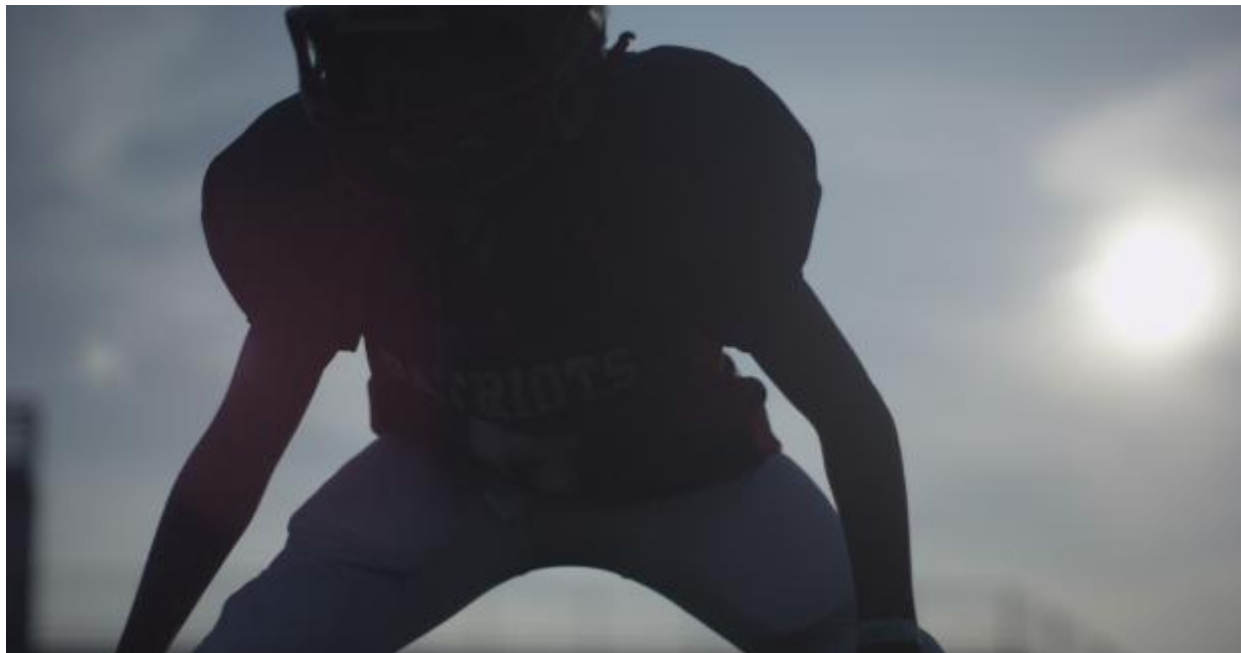


## University of Pittsburgh study shows 153 cases of CTE in medical history

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By Joe Frollo



A [recent University of Pittsburgh study](#) reviewed all known cases of confirmed chronic traumatic encephalopathy (CTE) from the first published event in 1954 through August 2013. CTE is a neurodegenerative disease associated with head trauma that has been found in military veterans and athletes across multiple sports, including boxing, wrestling, football, hockey, soccer and baseball.

And though CTE has been associated with numerous factors – including substance abuse – the study found that the overwhelming amount of media reports center on football even though “the incidence of CTE remains unknown due to the lack of large, longitudinal studies.”



Lead author Dr. Joseph Maroon is a neurosurgeon and sports medicine expert as well as a professor and vice chairman of the Department of Neurological Surgery and Heindl Scholar in Neuroscience at the University of Pittsburgh Medical Center. The



team neurosurgeon for the Pittsburgh Steelers, he also is co-founder of the [Immediate Post-Concussion Assessment and Cognitive Testing \(Impact Test\)](#).

As Maroon and Dr. Julian Bailes wrote in a Washington Times editorial: “The incidence and severity of brain injury is one of the hottest topics in sports media today, and it is creating a storm of near-panic in youth sports – especially football. We worry that the public’s misunderstanding of the available medical research is the gravest threat facing organized contact sport at the youth and high school levels.”

Maroon recently spoke to USA Football. Here is what he shared.

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### **Can you describe your study and what it found?**

We reviewed the medical literature on CTE from 1954 to 2013, finding a total of 153 cases during that time frame. We also found that those 153 cases were culled from a group of about 243, but 43 percent of the cases were reported multiple times, which inflated the actual number – even though the larger number is one typically reported.

Out of the 153 cases, there have been 63 documented accounts of CTE related to football, all since 2002 and virtually all with players who reached the NFL level. If you figure during that time frame of 11 years there have been approximately 30 to 40 million football participants – from youth to the pros – so we don’t see any epidemic of CTE and football as postulated by some.

In essence, we have seen flagrantly poor journalism that just gets re-reported throughout the media.

### **What do you propose high schools and youth football organizations can do to help reduce the risk of concussions?**

Dr. Julian Bailes and I recently testified in front of the New York City council, which was considering a medical mandate for youth and high school football players similar to the one at the NFL. We support that, and with modern technology it can be done in a way that is economically feasible.

A version of the Impact Test that can provide neurocognitive baseline testing to children ages 6 to 12 will be available this spring. Further, with head sensors, the location, number of hits and magnitude of hits can now be calculated in real time and saved for future cumulative data in terms of measuring the number of subconcussive blows. Furthermore, via telemedicine it is now possible using services like MD Live to beam in a physician to the sidelines of any youth football game or practice.

### **How important is education in this process?**

It's vital. With what's available at [usafootball.com](http://usafootball.com) and online, anyone can access information through their handheld devices. I liken it to the Gutenberg printing press and what it did for literacy in the Middle Ages. We are already starting to see the start of an explosion of increased knowledge on the topic within the general public.

Not long ago, we knew very little about concussions and how to treat them. The most important advancement we can make is the proper management of concussions that occur. The worst thing you can do is send a player back out there when the brain is already malfunctioning.

Now, information is shared to take the individual out, sit him or her down and consult a medical professional. In a very short span of time, this has become common knowledge for many.

Honestly, it is revolutionizing health and safety in youth sports.

### **Where is medical science with understanding concussion?**

It's growing, but we need prospective studies. I put it this way: Just as we're not going to eliminate car accidents, children falling off of bikes or kids hurting themselves on playgrounds, we still can manage them better and do everything we can to help prevent the injuries from happening – newer helmets, safer environments, better techniques to make football safer.

In youth football, the [Datalys Center \(for Sports Injury Research and Prevention\) study](#) showed Heads Up Football is educating people and is creating positive results.

**For parents considering whether to sign their children up for football, what should they know?**

Athletics and activity are vital to societal health. There are so many more cases of dementia and neurological diseases related to diabetes, inactivity and cardiovascular disease than ever occur from CTE.

The qualities of leadership, teamwork and character development that football players learn – along with the physical exercise – far outweigh the risk of injury.

If you look at incidence of concussion in youth football, then at incidents in skateboarding, skiing, playgrounds and bicycles, there is no comparison. People who want to ban youth football are throwing the baby out with bath water in terms of the good that sports can do.

### **How does educating parents, coaches and players about proper concussion response help player health and safety?**

We have seven neuropsychologists at the University of Pittsburgh who do nothing but see 10,000 concussion patients a year for proper management. We estimate that there are 8 million concussion occurrences nationwide each year. The biggest danger is returning a concussed person to activity before the brain has fully healed.

Think about what happens when you get a splinter under your fingernail. It gets inflamed, hot, tender and red. That's what the body does to contain the problem. If you poke that finger or smack it while the splinter is still in there, it can irritate the injury.

The same basic things happen in the brain following a concussion. Cells called microglia release agents that cause neuroinflammation. If you get hit in the head while the inflammation is still going on, it can be like a brush fire in a dry forest. That's why it's so important to identify concussions and to treat them for what they are – injuries. Let them heal before returning the athlete to play.

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