

The Nefarious Injury: Traumatic Brain Injury in Football and its Potential Impact on the NFL Brand

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Introduction

The problem of traumatic brain injury in football is a complex, multifaceted problem that not only involves the players, but also the industry behind the game and our society as a whole. It is important to approach each individual issue surrounding this problem with the understanding that all components are interconnected in some way, shape, or form.

Before we begin our discussion, let's look at the story of Steve Gleason, a retired NFL player who is facing a 'fourth down and long' situation. Steve played for the New Orleans Saints for most of his career including the tumultuous time proceeding Hurricane Katrina. When the Saints did return home to the Superdome on September 9th 2006, excitement consumed the city. People needed something to cheer for.

The atmosphere was electric that night in the sold-out Superdome. In the first possession of the game, the relentless Saints defense gave no ground to the visiting Atlanta Falcons, forcing them to punt the ball from their own 16-yard line. What happened next elevated the spirits of an entire city.

The ball was snapped to the punter and a hole opened up in the middle of the field, Steve Gleason of the Saints charging through it. Flinging out his arms and sacrificing his body, the ball ricocheted off the numbers on his chest and bounced into the end zone where the Saints recovered it for a touchdown. Pandemonium ensued.

That play, immortalized by a statue outside the entrance of the Superdome, was the highest high for Steve Gleason, but now he is living through the lowest low. He is now 37 years old, retired, and living with

Amyotrophic Lateral Sclerosis (ALS or better known as Lou Gehrig's disease). The neurological disease has taken over most of his physical abilities; he can no longer eat, speak, or perform simple daily activities. Eventually it will claim his life.

Everyday is a battle for Steve and his family. Not only do they deal with the challenges imposed by his condition, but also the uncertainty of how exactly Steve got ALS. Was his disease brought upon by the hits he received playing football? He might never know.

Steve Gleason is one of many retired National Football League players who are suffering from neurological and degenerative brain diseases. Across America there are 66,000 college football players and over one million high school football players (Keating 2012) and everyday, every down, those players are being exposed to substantial hits to the body and head, each carrying the potential to cause traumatic brain injury.

Tragic stories of former NFL heroes suffering from degenerative brain and neurological diseases are being connected to traumatic brain injury through new medical findings. It is no surprise then that media attention on the topic has largely increased. The complex problem has now made its way out into the public and is causing many parents to be hesitant in signing their kids up for football, affecting not only youth leagues but also the NFL. But to begin our understanding, let's start at the source of the problem, traumatic brain injury.

Understanding Traumatic Brain Injury

Traumatic brain injury, synonymous with the more commonly used term concussion, is

outlined by the Sports Concussion Institute as a complex pathophysiological process that affects the brain due to a direct blow to the head or an indirect blow to the body. The brain basically floats inside the cranium with cerebral spinal fluid acting as a “shock absorber” for minor impacts. However a concussion is a major impact and one that cause damage to the brain. (Sports Concussion Institute, 2012).

In a 2008 interview by Brainline, Dr. James Kelly outlined some of the most common concussions and how they affected each part of the brain.

One of those most common concussions is caused by a direct blow to ones head, for example a boxer taking a punch directly to the forehead. The impact caused by the punch rapidly accelerates the head backward. As previously stated, the brain is not connected to the cranium and as the head accelerates backward, the frontal and temporal lobes of the brain crash into the rigid bone of the anterior of the cranium causing what is referred to the “coup” (French for blow) concussion (Brainline, 2008).

The countercoup concussion is similar to the coup concussion but it is different that the area affected is opposite the blow. This causes injury to the brain in twofold. This type of concussion typically occurs when someone falls backward and strikes their head on the ground. The floating brain tissue crashes up against the back of the skull causing a compression injury while instantaneously there occurs a depression injury in the front of the brain. The compression injury in the posterior end of the brain affects the cerebellum and occipital lobe causing a loss in balance and sometimes blurred vision. That is coupled with the injury to the anterior end of the brain that causes memory loss and personality changes. Many people can relate to this if they have ever fallen backward and hit their head but have a massive headache at the front of their head (Brainline, 2008).

Another common concussion scenario is a rotational concussion. Imagine a receiver being hit as he catches a ball while turning his head from left to right and then being struck from an angle on that right side that causes his head to whip back to the left. In an occurrence like this the head violently rotates from side to side. The brain is connected to the spinal cord in the posterior of the skull very much like a spinning noisemaker. The posterior part of the brain does not move so violently but it is the prefrontal part of the brain that is whipped back and fourth causing shearing and straining of brain tissues especially those in the temporal lobes. The front of the brain travels greater distances than the rest of the brain (Brainline 2008).

The most common areas of the brain affected by traumatic brain injuries are the frontal and temporal lobes. The frontal lobes control personality, planning, creating, and other functions that are considered to be high-level cognitive functions. The temporal lobes retain memory functions and certain language functions. Memory function and some communicating function can be injured permanently if the injury is severe enough (Brainline, 2008).

The Link to TBI and Irreparable Injury

If given proper time and treatment, a single traumatic brain injury will heal 100% or close to it. The danger lies in a new concept of mild traumatic brain injury, the subconcussion. Bales states in his 2013 study that “Subconcussion is a cranial impact that does not result in known or diagnosed concussion on clinical grounds.” (Bailes, 2013) It is these smaller blows to the head, hits that are unavoidable due to football’s physical nature that can be the most harmful.

They almost always go unnoticed by medical personnel and players alike because they occur with such frequency. For example at the beginning of each play, linemen start from a three-point stance before crashing up

against each other, often leading headfirst. This happens every play in every game at every ability level.

The result is many professional football players experiencing early onset of Alzheimer's disease, dementia, Parkinson's disease, and in extreme cases like Steve Gleason, ALS. Of these diseases, the pattern of a buildup in tau protein and neuron damage is clearly evident. Neuron damage stems from the "breakdown in the cellular recycling systems of the spinal cord and brain, resulting in the nervous system slowly losing its ability to carry brain signals to the body's muscular system." (Mullen, 2011).

The link between mTBI and tau proteins occurs similarly to that of neuron breakdown, at the molecular level. mTBI disturbs cellular metabolism, damages a cell's structure, and may alter biochemical and vascular autoregulation. Overall, this injures a cell's axonal membranes, thus interrupting axonal transport through a progressive process leading to neuron damage and buildup of tau protein (Bailes, 2013). This idea is backed up by recent autopsy findings and studies on retired NFL players.

Dr. Gary Small and his team at UCLA found that in the brains of retired NFL players older than the age of 45 there was a higher occurrence of abnormal tau proteins than the normal population. According to Dr. Small "Early detection of tau proteins may help us to understand what is happening sooner in the brains of these injured athletes. Our findings may also guide us in developing strategies and interventions to protect those with early symptoms, rather than try to repair damage once it becomes extensive." (Audiology Online 2013)

For some people that damage is beyond repair. While Steve Gleason cannot be completely convinced that his condition was brought upon him by playing professional football, there have been 27 cases of NFL

players being diagnosed with ALS, (USA Today, 2011) a number much higher than that in any other professional sport and exponentially higher than the normal prevalence rate which is about six to eight cases per 100,000 people. (ALS Association, 2004)

Professional Football Industry in America

The National Football League has a rich history filled with stories of game winning plays, players who are now legends, and cities cheering on their teams to victory. If baseball can stake its claim to be America's pastime, then football is most definitely America's primetime. Every week fans show up by the thousands, and tune in by the millions to watch their teams do battle.

And at the center of all the excitement is the physical nature that is fundamental to the game. Violence and physicality are major parts of the identity of the NFL and it has only recently started to shy away from its glorified physicality. From 1986 until 2009 the opening sequence for every Monday Night Football game was the helmets of the respective teams crashing together and exploding (Thomas, 2010). Touchdowns win the games just as the speed and athleticism of the players capture our imaginations, but nothing makes the games as fun to watch as the hard hits and personal sacrifice the game requires on each play.

NFL games are exciting to watch. Last year's Super Bowl broke its own television rating record from 2012 with 111.5 million people tuning in to see the Seattle Seahawks blowout the Denver Broncos. 115.3 million people watched Bruno Mars and the Red Hot Chili Peppers during the halftime show, beating out previous years that featured Beyoncé and Madonna (Patten, 2014). Besides the spectacle of the Super Bowl, even regular season football games outdraw most sports. The week-to-week excitement and

unpredictability can be attributed to the parity of the teams in the league.

The concept of parity is very important to the NFL's product on the field. Parity among the teams provides closer scoring and more exciting games, therefore maximizing revenue, and resulting in an overall healthier league. It is parity, and the cooperation amongst the franchises to reach this parity, that results in the best product for the fans but also the greatest profit for each franchise in the league. In a study done in 2007, two economists conclude that, "From the players' perspective, the parity increases the pool of funds available for salaries. From an owner's perspective, team parity enlarges the fan base and increases profit." (Pantuoso & Stone, 2007)

The NFL achieves parity by schedule adjusting, establishing a draft so that the lesser competitive teams get to draft the better players, salary caps (and floors) to insure every team has equal financial leverage to acquire the same amount of marquee players, and different sorts of revenue sharing through the league's Collective Bargaining Agreement. These efforts by the league have resulted in eight different teams winning the last ten Super Bowls.

Today, professional football in America is a very sound and profitable industry. Many would argue that the NFL is the best professional sporting league in the world. However, this did not just come about through fortune. The NFL has invested much of its resources, especially in the past twenty years, on developing its overall brand and turning a game on a field into a national spectacle.

The NFL as a Brand

As the NFL grew throughout the 1970's and 1980's, it faced a large brand problem centered on its image. NFL Films and other ways of marketing were not only failing to

effectively engage its own fans, but also the potential new fans that could be attracted to the sport. The league was seen as too traditional and masculine making it hard to attract women and other groups of people. The powerful appeal of the game alone was not bringing in enough new fans and the league risked potentially losing a new generation of football fans (Oriard, 2007).

The NFL responded in 1994 by hiring former MTV co-president Sara Levinson as the new president of NFL Properties. Levinson completely changed how the NFL was marketed to the American public. Before Levinson, the NFL's main focus was public relations and how the game of football sold itself and thus could be used to sell other products. Levinson more or less abandoned that idea and began to promote the NFL itself more aggressively. The result was a dramatic increase in overall popularity, which included people from all ages and genders, and a dramatic increase in revenue from bigger TV contracts to more merchandise sold (Oriard, 2007).

First, Levinson conducted a "brand audit" to evaluate who the fans of the NFL actually were. The audit identified three distinct and targetable groups of people: hard-core fans, women and children, and casual fans. Marketing efforts mainly consisted of promoting the sport and the league to women and children as well as casual fans while at the same time not alienating its hard-core fans.

Of chief importance, Levinson and her team wanted to attract more women and children to football. The "Play Football" campaign encouraged children, both boys and girls aging from six to fifteen, to participate in flag football leagues around the country. The overall purpose of this initiative was "to turn kids into NFL consumers" and it had a profound effect with flag football programs around the country growing from 350,000 total participants in 1994 to 5 million in 1999.

The “Football for Her” product line targeted the women in the group (Oriard, 2007).

Levinson and her team also marketed the NFL itself to its fans, both casual and hard-core. The “Feel the Power” campaign aimed to make football more intriguing to casual fans such as women and teenagers by using humor and hyperbole to humanize the league’s players. The “Pledge Allegiance” campaign targeted those hard-core face painting, beer drinking fans that loved watching their team play on Sundays (Oriard, 2007).

This all had a profound effect on sports fans across the country. Professional football first passed Major League Baseball as America’s most favorite spectator sport by a narrow margin in 1965, but nearly two generations later in 2005, the margin was almost two to one (Oriard, 2007). In a 2003 poll, 59 percent of Americans claimed that they “followed” professional football.

Now, the league is faced with a public relations problem much more grim and much larger than the problem it faced in the 1980’s. That problem of course is traumatic brain injury. The growth of football, which now seems to be relatively inelastic, depends on the solution to this problem.

Society and a Change in Perception

Ten to twenty years ago, when players took the field they knew that they were putting themselves in danger of breaking bones or dislocating joints. Although some of these injuries are very serious and can be devastating on a player’s body, most can be easily diagnosed, treated, and healed. What these players did not know however was how they were at risk of a “nefarious injury”, one that they could not feel or be diagnosed with until it was too late (PBS, 2013).

Just this past summer, the NFL recently settled with the NFL Player’s Union in a \$765 million settlement over concussions. In the settlement, the NFL allocated \$675 million

dollars to be used as compensation to the retired players and their families, \$10 million for education and research, and other funds for appropriate expenses (Alternative Dispute Resolution Center, 2014).

Settlements like this, coupled with new medical findings, are making parents much more apprehensive about putting their children on the field. This apprehension is starting to become a trend across the country and is no more evident than in youth football participation rates.

Participation in Pop Warner Football nationwide has fallen 9.5% from 2010-2012 and is continuing to follow this pattern (Fainaru, 2013). Julian Bailes, the medical director of Pop Warner football and a neurosurgeon, told ESPN’s *Outside the Lines* that parental concern about head injuries is “the No. 1 cause” for the large percent drop in Pop Warner players since 2010 (Doyel, 2013).

The National Federation of State High School Associations, the governing body of high school sports in America, is also trying to save high school football by creating new rules to make football safer. In October, they passed a set of recommendations and guidelines aimed at reducing the time players are exposed to full contact in practices. The recommendations suggest that players should be exposed to no more than thirty minutes of full contact per day and not having full contact practices on consecutive days (National Federation of State High School Associations, 2014).

But recent participation rates suggest that action now is too late for some young athletes and parents. David Leonhardt of the New York Times states that “The number of boys playing high school football has fallen 15 percent over the last six years in both Minnesota and Wisconsin, according to the National Federation of State High School Associations. The decline in Colorado has

been 14 percent. It has been 8 percent in Massachusetts and Maryland, 7 percent in New York and 4 percent in California.” (Leonhardt, 2014)

Declining participation rates don’t directly point to the conclusion that parents are preventing their kids from playing football, but it must be more than a coincidence. A recent poll conducted by the RAND Corporation stated that only 56.5 percent of parents in America say are comfortable with letting their child play football compared to 91.4 percent in baseball and 95.3 percent in basketball (Carman & Pollard, 2014).

So what does this mean to the NFL? This decline in participation echoes the same problem the NFL hired Sara Levinson to fix twenty years ago. If the next generation does not play football, they are much less likely to become consumers of the NFL. Instead they will play other sports and have a greater chance of becoming consumers of those other sports.

Putting the Pieces Together

In a sense, the problem has almost made its way full circle from the injury on the playing

field, to the coroner’s office, into the media, into parents’ decision making, and ultimately back to football by declining youth involvement.

Traumatic brain injury is repairable but multiple instances of TBI can cause severe damage possibly leading to neurological diseases. This has some parents worried about sending their kids out to play football when many other sports are received as less violent and just as worthwhile.

This problem of traumatic brain injury is paramount to the growth of the game and the National Football League. The decisions the league makes today will ultimately have greater effects twenty years from now.

But there is a silver lining to this story. The NFL is a league of immense resources and medical advancements in both technology and understanding can perhaps lead us to ways to make football safer. As the great Green Bay Packers coach Vince Lombardi once said, “People who work together will win, whether it be against complex football defenses, or the problems of modern society.”

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