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Concussions Pose a Real Threat to the NFL's Future: An Interview with Andrea Kremer



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In a one-on-one interview with Andrea Kremer, Chief Correspondent for Player Health and Safety Issues for the NFL Network, Kremer and sports journalist Daniel Lewis discuss concussions in the NFL, the league's response to them, and the future of the NFL.

Player concussions have been a hot topic in the NFL over the past several years. In fact, the issue was a primary reason for the NFL Network's pursuit of Andrea Kremer, who joined the network in October 2012 as the Chief Correspondent for Player Health and Safety Issues.

"Concussions are the buzzword right now," Kremer explains. "My new position is an opportunity for the network to bring some substantive programming on the issue."

Science behind Concussions

Concussions are the subject of increasing attention among NFL fans and players alike because, simply put, they are dangerous.

NFL players experience a wide palette of injuries. But why are concussions any different from knee or leg injuries? What makes a concussion so particularly dangerous?

A concussion is so fundamentally different from any other type of NFL injury. A concussion is not a bruise. It is not a tear. It is not a sprain. There is no real metaphor apt to describe what occurs inside a player's head when the brain's jelly-like cortex slams suddenly into the skull.

The brain is surrounded by cerebrospinal fluid, but a severe blow to the head can nevertheless push the brain through this layer of protective fluid, causing it accelerate into the cranium.

Though the metabolic processes following a concussion are reversible in the majority of affected brain cells, a fraction of cells usually die immediately. [The effects resulting from the cascade of events](#) unleashed in the brain include impaired neurotransmission, loss of regulation of ions that integral to brain signaling, and a reduction in cerebral blood flow.

After a concussion, billions of neurons in the brain, in essence, [turn themselves on](#) as they suddenly and simultaneously begin to release neurotransmitters in excessive amounts. This frenzy of chemical activity leads to an unleashing of the charged ions stored within brain cells, causing a surge of electricity. In effect, it is almost as if the brain is pouring out its power.

The worst part of the concussion comes after this electric surge. The neurons seek to recover, and this process takes time, although it can range from hours to years. As the brain works to restore its fragile self, victims suffer from a long list of side effects such as memory loss.

This healing process must be uninterrupted, or else even a minor "secondary impact" can set off a devastating molecular cascade. Facing an energy crisis due to restricted blood flow, brain cells that were attempting to recover begin to commit suicide after a secondary impact. The end result is a massive-as well as permanent-loss of neurons called "[second-impact syndrome](#)."

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Therein lies the reason why concussions are so dangerous: they can lead to these massive cellular suicides. Concussions are also likely to affect areas such as the frontal lobes, which are responsible for many higher cognitive functions. In a worst-case scenario, if the brain is repeatedly smashed into the skull, players can experience chronic traumatic encephalopathy (CTE), a degenerative disease with symptoms similar to those of Alzheimer's disease.

Concussions vs. NFL Culture

"Shake it off." "Take a hit for the team." "Toughen up." For decades, these phrases have been uttered on the sidelines if a player sustained a concussion. Hardly anyone paid close attention to the brain-crushing injuries that were occurring all along.

As concussions increasingly receive more attention, Kremer believes that the players' "athletic mentality" is working against themselves as they bash heads with other players.

"One of the biggest challenges is that [the NFL] cannot legislate the player's mindset. When they're playing in a game, the adrenaline is flowing...and if they get hurt, they will do anything to stay in the game. Players have to be protected from themselves."

"What makes NFL players so great may also lead to their downfall."

More than half of NFL players who were interviewed by The Associated Press---23 of 44 NFL players---stated that they would [attempt to conceal a possible concussion](#) rather than pull themselves out of a game. Some even admitted that they already have.

"I would venture to say that a number of players who are still in the NFL found themselves in a position in which they were hurt, they knew they 'weren't right,' but they stayed in the game because they got their way," Kremer speculates. "It's just part of the culture that exists."

This conflict between the NFL culture and concussions has only magnified over the past year as former [San Diego Chargers](#) linebacker Junior Seau committed suicide with a gunshot to the chest last April. If Seau's death was not enough, ex-Atlanta Falcons safety Ray Easterling also took his own life that same month. Then in the summer, former [Chicago Bears](#) safety Dave Duerson followed suit. [All three were found to have CTE](#), the aforementioned debilitating disease.

These tragic events are the ones that make Commissioner Roger Goodell and team owners uneasy, but they leave these leaders with no choice but to acknowledge these issues. Seau was a larger than life, future Hall-of-Fame player, and the league will not escape his death unscathed.

These incidents paint a bleak outlook for NFL players, past and present, as they grow older, and now the NFL's biggest adversary is its former players and their lawyers.

More than 1500 former footballers [have filed concussion lawsuits](#) against the NFL, claiming that the league failed to reveal the dangers of concussions to them. Regardless of whether these former employees could simply be trying to claim their stake in the ever-growing NFL pool of money, these lawsuits are likely to have serious consequences moving forward.

A Concussion-Conscious NFL

If the NFL is to survive, the league must learn how to protect the players. So far, the NFL has followed a two-pronged strategy in an effort to make the game safer, enforcing rule changes as well as investigating improved technology to protect the players more effectively.

The NFL's increased focus on guarding against long-term effects of brain injuries "have indeed made the game safer, without question," according to Kremer. The league has moved up the kickoff line, instituted penalties for hits to the heads of defenseless receivers and quarterbacks, and worked to diagnose concussions on the sidelines more quickly.

"I think that the NFL is clearly aware and proactive. It is what Roger Goodell has really hung his hat on in terms of wanting to enact these changes and really make a mark with them."

One possible solution that has yet to be implemented, though, is retiring player helmets.

"Helmets do not protect players from concussions," Kremer reminds the NFL community. "They only guard against skull fractures."

Forcing players to turn in their helmets would remove the aura of invulnerability that many current players feel. Defenders would no longer be allowed to act as guided missiles and would have to lead with their shoulder instead of their head, a tackling technique far less injurious.

Aside from taking the helmet away altogether, the league has explored a number of improvements in helmet technology.

The league also could soon introduce the [Head Impact Telemetry \(HIT\) system](#), which records the extreme physical forces at work during a football game on a computer along the sidelines. The HIT system can assess the force and impact of a hit to a player's head in real time.

Aside from the HIT system, one Pennsylvania firm has developed a helmet liner, described as a "seatbelt for the helmet," that reduces the energy of jolts to the head. [Pittsburgh Steelers](#) linebacker James Harrison, once a notable target of NFL discipline for helmet-to-helmet hits, [insists that the thin insert has helped him](#) avoid concussion-like symptoms of his own.

Rule changes and improved technology notwithstanding, Kremer recognizes that the NFL's work in protecting players from concussions is more of a process than it is an attainable goal.

"Will the game ever be safe? As one NFL player told me, 'You can talk all you want about injuries, but every player in the NFL is injured 100% of the time. You're never not hurt during a football season...and that includes head injuries.'"

NFL's Doomsday Scenario

Despite the league's best efforts, concussions could very well be the NFL's tragic flaw. The deaths of Seau, Easterling, and Duerson last year have left a huge footprint on the league.

The short-term future of the NFL rides on the current concussion lawsuits. Players claim that, in the past, the league allegedly covered up information about brain damage as they suffered debilitating concussions leading to permanent brain damage, dementia, and death.

Did the NFL do enough over the years to stay ahead of the curve to protect players from concussions? Did it keep them informed? If the answers are "no" to both questions, then the lawsuits will be the least of the issues facing what will be a doomed billion dollar corporation.

In the long term, if football ever perishes, it will perish from the outside inward. It will not be undone by a labor standstill a la 2011 or a faulty business model; after all, football owners are billionaires who know their way with money.

Instead, the end will begin with the individuals furthest from the money—the young athletes on the gridiron. It will begin with teenagers and their parents learning more and growing nervous about concussions and brain trauma, a process that Kremer has found has already begun.

In November, Kremer interviewed five boys in the aftermath of a Pop Warner football game in which each one of them suffered concussions. Her biggest finding?

"The kids were scared. They were flat-out scared to play the game."

NFL players receive too much financial compensation to let any fear make them consider leaving the game. The economics is far different, though, for the young footballers who play for free.

At some point, the fear will grow too large and the damage too serious, and the teenagers who don a helmet and hit their peers will be forced to abandon the sport. The pipeline of young football talent will go dry, leading to what Kremer believes will be a "domino effect."

"Kids are scared to play the game, so parents do not want to put them out there if the kids are scared. Then, eventually, coaches will not have enough kids to field a team, and before you know it, the team is going to start to dwindle."

"If teams dwindle and you don't have a 'feeder track,' then this outcome is going to affect high school football, college football, and ultimately the NFL."

The NFL is clearly at a crossroads in this concussion crisis, and a possible doomsday lingers in the distance.

"Do I think the end is imminent? No. Do I think we could see that in our lifetimes?" Kremer posits. "Sure, I definitely think that we could."

As the dark clouds begin to hover over the NFL, Kremer has learned to re-appreciate the beauty and appeal of the game, despite the violence and concussions, while it is still around to watch.

"It is an inherently violent game. It is also incredibly athletic and beautiful, and there's nothing like it. In a world in which people love reality TV, this is the ultimate in reality TV. It is also extremely dangerous...yet I don't think anyone wants to see it go away."

1. ["Beware of 'Second-Impact Syndrome' After Concussions"](#), US News Health.
2. Anne Stein. ["Devices help alert teams to potential concussions on the field"](#), *Chicago Tribune*.
3. Associated Press. ["Players still willing to hide head injuries"](#), ESPN
4. Barry Wilner. ["Junior Seau Had CTE, NIH Study Finds"](#), *The Huffington Post*.
5. Doug Farrar. ["James Harrison says that new helmet padding protects him after 'double-digit concussions.'"](#), Yahoo! Sports.
6. Jonah Lehrer. ["The Fragile Teenage Brain"](#), Grantland.
7. Nadia Kounang. ["More players file concussion lawsuits against the NFL"](#), CNN.
8. Stefano Signoretti. ["The pathophysiology of concussion."](#) *PM & R*.

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