

ISSUES

## This Is Your Brain on Football: Will ‘Concussion’ Change Minds?

By JAY A. FERNANDEZ

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“God did not intend for us to play football.”

This is the sensible conclusion drawn by Dr. Bennet Omalu, the Nigerian-American neuropathologist played by Will Smith in the new fact-based drama “Concussion,” opening in theaters Christmas Day. He delivers the line at the end of a persuasive presentation on anatomical evolution that highlights how other animals known for engaging in excessive head-cracking — rams and certain birds, for instance — have a cushion or shock absorber built into their brain architecture that humans definitively lack. Omalu points out that a helmet is mostly irrelevant since the human brain essentially floats loose in the skull, like a piece of fruit in a thin layer of fluid getting sloshed around inside a glass jar every time a player bonks his noggin. With nothing but science on his mind, Omalu feels sure that he has discovered a new brain disease, Chronic Traumatic Encephalopathy (CTE), that explains why retired star football players — Andre Waters, Justin Strzelczyk, Terry Long — who are otherwise healthy are going crazy and killing themselves before they hit middle age, a result of the tens of thousands of blows to the head they routinely suffer in the course of pursuing their lifelong dream of playing professional sports. No joke: by age fifty, Hall of Famer “Iron Mike” Webster was sleeping in his truck, tasing himself to fall asleep, and yanking out his teeth only to Super Glue them back in. Pittsburgh’s one-time favorite Sunday son deserves better than derisive snickers and a medical community that abandons him, Omalu argues.

**"Brains may be elastic and reparable, but minds are still the hardest things to change."**

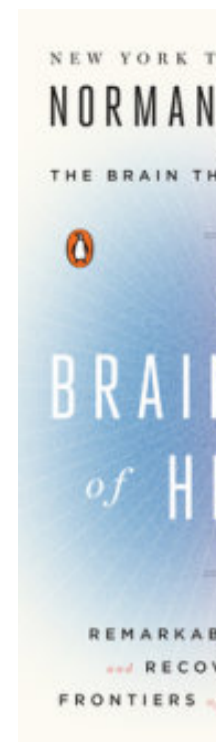
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The men on the receiving end of Omalu’s passionate pitch are also doctors, and they absorb the truth of it. But unlike Omalu they understand that while the men most likely to benefit from his discovery are hard-working, banged-up athletes and their families, the men most likely to be *adversely* affected by it are those who profit from the insanely popular game of football, namely the billion-dollar corporation known as the National Football League and its massive army of rabid fans/customers. According to the Nielsen Company’s data, more than two hundred million unique viewers tuned in to the regular season in 2014, so that NFL games accounted for 45 of the 50 most-watched TV shows last fall. (By contrast, only about 126 million Americans voted for president in 2012.) According to *Forbes*’s most recent study, the average NFL team is now worth two billion dollars, an increase of 38% over 2014 (which had just jumped 23% from 2013’s value). We’ve all seen how quickly a major city’s inhabitants will pony up taxes for an unnecessary new \$700-million stadium while haggling over comparable health care or education costs. You don’t need a highly functioning Ph.D. brain to do the speculative math: broken arms and legs are one thing, but fewer young boys (and their mothers) willing to risk catastrophic brain injury and madness means fewer college breakouts, fewer professional players, fewer teams, broadcasts, fans, ticket and merchandise sales — and a lot less money.

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This story may sound dry, or of interest only to those who unselfconsciously shout at their TV sets every fall weekend, but in the hands of writer-director Peter Landesman (“Kill the Messenger”) it turns out to be equally gripping for the casual observer, a satisfying medical mystery at the heart of an infuriating Man-vs.-The-System narrative. It’s the equivalent of an off-the-field Super Bowl match-up between Truth and Money. (For the season’s other great movie in this mold, check out “The Big Short,” which may be even more enraging.) What brought this whole thing into the public eye is a lengthy piece journalist Jeanne Marie Laskas wrote for *GQ* in 2009 called “Game Brain,” which details Omalu’s struggle to overcome the League’s efforts to discredit his findings. Despite the predictable pushback, concussions are now a regular part of on-air conversation, the League’s pension board is covering more of this



The Brain's  
Healing  
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type of disability, and players have begun preemptively donating their brains for study. Using the article as a starting point, Landesman, a former investigative journalist (*The Atlantic*, *The New York Times Magazine*, *The New Yorker*), did a fair amount of firsthand reporting to inform his screenplay, though he claims he's had zero interaction with the NFL.

Regardless of one's interest in the football angle, Omalu's brain work is unquestionably fascinating in its own right. What he uncovered with CTE was that repetitive brain trauma was causing a certain protein to surge that ultimately began clogging portions of the brain like concrete poured into piping. Dementia, depression, hearing voices, and violence could result. He's diagnosed many more cases in deceased football players since making the initial discovery in 2002, when most of "Concussion" takes place. Anyone looking to do his or her own armchair research into the complexities of the human brain could start with a pair of books written by psychiatrist Norman Doidge M.D. — *The Brain That Changes Itself: Stories of Personal Triumph From the Frontiers of Brain Science* (2007) and *The Brain's Way of Healing: Remarkable Discoveries and Recoveries From the Frontiers of Neuroplasticity* (2015). In his academic-journalistic travels, Doidge focuses on the front-edge science of neuroplasticity, which posits that the brain is much more flexible than originally thought. With mind-boggling case studies that recall some of Oliver Sacks's work, Doidge shows how parts of the brain thought to be assigned to one specific function are actually capable of taking on the duties of another, damaged, function. The upshot is that certain injuries and conditions once thought "untreatable" may have a creative solution after all. Clark Elliott, an associate professor of artificial intelligence, takes a personal approach to similar territory with his recent book *The Ghost in My Brain: How a Concussion Stole My Life and How the New Science of Brain Plasticity Helped Me Get It Back*.

Of course, it's hard to beat Sacks for eyebrow-raising tales of the unfathomable capacity of the human brain to astound and adapt. Any number of the famous neurologist's profoundly humanistic books, such as *The Man Who Mistook His Wife for a Hat* (1985), *An Anthropologist on Mars* (1995), and *Musicophilia: Tales of Music and the Brain* (2007), address the bizarre and often counterintuitive workings of the brain with empathy and insight. For a deeply personal account, there's neuroanatomist Jill Bolte Taylor's bestselling 2006 memoir *My Stroke of Insight: A Brain Scientist's Personal Journey*, which she later adapted to one of the most popular TED talks ever recorded, delivered in 2008. It describes the stroke she suffered in 1996 and the eight years it took her to recover, a life-changing incident that granted her the unique experience of witnessing her own brain's accelerating failures and the boundary-breaking potential hidden behind our left-brain machinery.

For readers equally invested in the David-vs.-Goliath nature of the issue, which echoes the battle with Big Tobacco to get that billion-dollar industry to drop its nonsensical denials that cigarettes are damaging and addictive, there's *League of Denial: The NFL, Concussions, and the Battle for Truth*, written by ESPN investigative reporters Steve Fainaru and Mark Fainaru-Wada. The 2013 book is a companion piece to a two-hour, Peabody Award-winning Frontline documentary called "League of Denial: The NFL's Concussion Crisis" that ran that year. And Laskas has expanded her original *GQ* article to include a more comprehensive biography of Omalu and updated developments in the NFL story for her book *Concussion*, just published in sync with the release of the movie. Whether more fundamental adjustments to the game will result from the increasing exposure (and pressure) brought on by her journalism and Landesman's new movie is far from certain. After all, brains may be elastic and reparable in ways nearly unimaginable even twenty years ago, but minds are still the hardest things to change.

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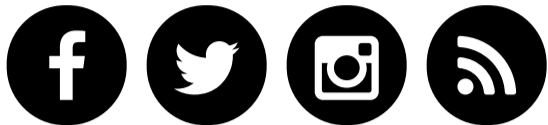
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