

## Concussion business is booming, but players are still taking a hit

Public awareness about the dangers of head injuries to athletes is growing. But so far, the greatest beneficiaries of that awareness may be helmet manufacturers and private health clinics.



New York Rangers enforcer Derek Boogaard, right, fights during a 2010 NHL game in Philadelphia. Boogaard died of an accidental drug and alcohol overdose in 2011, five months after a concussion ended his hockey career. A posthumous examination of his brain found he suffered from chronic traumatic encephalopathy. (MATT SLOCUM / THE ASSOCIATED PRESS FILE PHOTO)



The Chicago Blackhawks' Brandon Bollig, left, dukes it out with Dwight King of the Los Angeles Kings during Game 7 of the Western Conference finals in the Stanley Cup playoffs in 2014. As NHL players have become larger and faster, the game has become more claustrophobic (NAM Y. HUH / THE ASSOCIATED PRESS FILE PHOTO)

Concussions have evolved from public awareness (Eric Lindros's 1998 concussion, the first of six as a Flyer) to growing concern (parents and coaches lobbying the Greater Toronto Hockey League to ban checking at the single-A level) to alarm (the deaths of Derek Boogaard, Junior Seau et al.) to multiple lawsuits (former NFL players, former NHL players).

The logical conclusion would be that it become a public health issue. It hasn't, really. Instead it has become a thriving business.

“Player safety is the new frontier for those hoping to make money in the sports business industry,” David Carter, executive director of the Sports Business Institute at the University of Southern California, told the Washington Post in 2013.

The initial beneficiaries have been lawyers. The NFL settled a lawsuit for \$765 million (U.S.). Currently more than 200 former NHL players [are suing the league](#), claiming, among other things, that it ignored growing evidence of the possibly disastrous long-term effects of concussions. A former CFL player is suing the Ottawa Redblacks. Former and current soccer players are suing FIFA, the world football association, for an alleged failure to evaluate and manage concussions.

Helmet manufacturers are another beneficiary (though Riddell, the official helmet supplier of the NFL, is being sued). The new helmets are more expensive, and boast improved performance. An American company, Guardian Caps (“Reducing impact. One hit at a time”), has designed a \$60 soft shell that goes overtop of existing football helmets, with the claim it will reduce impact by a third.

But reducing impact and reducing concussions are separate issues. Dr. Paul Echlin, a sports medicine specialist whose Burlington practice is devoted almost exclusively to treating concussed patients, points out that no helmet is really effective against concussions.

“Helmets and helmet-rating systems,” he says, “are all about the cultural attempt to continue rationalizing inflicting brain trauma on our youth. We don't want to face the fact that the games themselves are the underlying cause. Concussions are the result of the brain colliding with the interior wall of the skull, and helmets can't prevent that.”

Guardian Caps offers a fine-print disclaimer: “No helmet or practice apparatus can reduce or prevent concussions.” The irony of the current helmet race was seen in a Forbes article that stated, “Companies that wish to make an imprint in the Business of Concussions must shy away from any language directly related to the reduction of concussions.”

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So if the Concussion Business isn't about reducing concussions, what is it about? Partly it is about dealing with uncertainty. We don't know exactly how a concussion works — it could be biochemical, it might be the leakage of ions from nerve cells. It might occur in the front of the brain, or the back, or the stem. We don't how much damage will surface years later. Diagnosis is difficult.

The sheer numbers are daunting. Dr. Charles Tator, a Toronto neurosurgeon and one of the country's leading concussion experts, estimates the number of concussions at 200,000 in Canada annually, effectively an epidemic.

The various amateur sports leagues aren't equipped to deal with concussions. A Greater Toronto Hockey League coach who deals with Triple-A players told me the league manages concussions better than it once did, in part because of the possibility of litigation. But he says there still isn't any real expertise in assessing concussions. “One of the symptoms is an inability to concentrate,” he notes. “But lots of kids have ADD. How do you tell? And when there's a lot at stake, you can't rely on the players to be honest, or their parents.”

The public health system isn't equipped to deal with concussions either. “The knowledge level of most GPs isn't sufficient, says Echlin, “because they don't see enough of them.” While there is a growing number of qualified sports medicine doctors, though in Toronto, the wait to see a specialist can be weeks or months long.

In that vacuum, an industry has sprung up. Hundreds of private clinics that deal with the diagnosis, treatment and management of concussions have been started in the last several years.

Konkussion (“Protecting brains — one athlete at a time”) is a private clinic led by a team of Toronto neurosurgeons and neurologists (Tator serves as an adviser). Members pay a fee and receive baseline testing and a card with a 1-800 number to call in the event of a head injury. Someone from Konkussion will call back within 60 minutes and if necessary, the member can see a specialist within 24 to 48 hours, anywhere in Ontario.

The demand is so great that Complete Concussion Management, a clinic that was founded two years ago, is now a chain of more than 120 clinics. They offer offers baseline testing (\$100 for those under 13; \$125 for those over 13; a discount for teams) and rehabilitation, as well as education for coaches and trainers. The company currently has 30 clinics in the GTA, with plans for another 10.

Complete Concussion Management was started by Cameron Marshall, a chiropractor. “There is a huge need in Toronto,” he says. “Demand is very high. No one knows what to do with concussions.”

One of the benefits of private clinics is they provide instant access, which isn’t widely available in the public system. A woman whose son was concussed during a hockey game was told by the family’s pediatrician that he had to have symptoms for three months before getting a referral to a neurologist.

The downside of private clinics is that they create a two-tier medical system. “Those who can afford it get treatment,” says sports physician Echlin, “and those who can’t afford it don’t. Public health should take the lead on this. People shouldn’t have to rely on private clinics. Concussions are occurring at epidemic proportions and should be a public health issue. They’re not.”

And there is a hierarchy among private clinics, with neurologists at the top, then sports medicine physicians, followed by GPs who specialize, then chiropractors and physiotherapists. Because of the demand, concussion clinics that have little or no real expertise have sprung up, some of them making dubious claims about concussion experience to bring in business. “You need to look at who their personnel are, what their background is,” says Echlin.

We haven’t yet reached the fervour of discount furniture outlets (“Prices that will knock you out!”), but given demand, we may get there. Buyer beware.

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Gains in concussion awareness and prevention have been slow and hard-won. “We were slow even to change elbow and shoulder pads to make them so they weren’t offensive weapons,” says Tator.

And we have been slow in making accurate diagnoses. In a 2009-10 study of hockey concussions in two junior teams, physicians attended a total of 55 games and diagnosed concussions. Their incidence of diagnosis was seven times higher than what the league had reported when relying solely on coaches and players.

To mitigate human error, baseline testing has been implemented in minor hockey in Canada and Pop Warner football in the U.S. The 2012 Zurich concussion summit noted, however, “There is insufficient evidence to recommend widespread use of baseline neuropsychological testing.”

“Baseline testing is only a tool when done under medical guidance,” Echlin says. “Without the accompanying medical expertise, it is just another placebo to placate public fears. The most effective approach is education and a change in rules.”

Echlin attempted to do both with a research project he pitched to nine Atlantic universities. Their hockey teams would play half of their games with four on four skaters, then play the remaining half, including the playoffs, with the standard five on five. At the end of the season, Echlin would compare the statistics and see if the incidence was lower in the four-on-four.

The expectation is that there would be fewer concussions: with fewer players, there's more room to avoid collisions. All nine of the universities declined to participate in this experiment. Echlin then appealed to Atlantic provincial health ministers and premiers, to no avail. "The culture is one of massive resistance," he says. "We are aware of the dangers, but we don't want to change the culture of the sport. People want to buy a solution, but you can't."

Even if Echlin's research had gone ahead and the results had showed a significant decline in concussions, it probably would have stopped there. Most people who have watched the four-on-four overtime format in the NHL would agree that it is faster and more exciting. It looks like old-time fire wagon hockey, the end-to-end rushes from a '70s-era Canadiens team. As the players have become larger and faster, the game has become claustrophobic.

Yet there isn't any possibility of implementing four-on-four at the NHL level. The NHL Player's Association would never agree as it would mean lost jobs. The owners have listened to arguments for making the rinks larger, moving to an Olympic size, and have turned the idea down on the basis of expense and lost revenue, though only the cheapest seats would be eliminated. Hockey is a business first, though it isn't always clear what the product is. "We sell hate," Colin Campbell, director of hockey operations for the NHL, once said.

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There is hope for the future. The science is advancing. Toronto Western Hospital, where Tator works, is spending \$1 million annually on concussion research. There are more doctors trained to diagnose and manage concussions.

Governments are now responding as well. In January, Ontario implemented a policy that requires all Ontario school boards to have concussion programs in place. Echlin is also spearheading an educational initiative for Ontario schools.

Increased awareness has meant more concussions are being diagnosed, though Echlin says the lack of identification remains a big problem. Hard data is still difficult to come by. Hospital admission records are the most accurate source, though relatively few concussed people seek hospital treatment.

And the science of managing concussions still needs work; even Sidney Crosby's first concussion was mismanaged.

Despite their prevalence and the accompanying fears, concussions haven't become a public health issue, at least not in proportion to their incidence and the potential damage. In the meantime, the business of concussions is booming, and will likely continue to do so for some time.