

Children, tackle football and the possible dangers of brain diseases

(Ery Burns for The Washington Post)

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August 19, 2019 at 3:57 p.m. EDT

If U.S. Surgeon General Jerome Adams asked for our advice (he hasn't), we'd recommend that he issue the following statement:

SURGEON GENERAL'S WARNING: Tackle football is dangerous for children. Children who play tackle football absorb repeated hits to the head. As adults, they're at higher risk of suffering cognitive deficits as well as behavioral and mood problems.

We'd suggest that, as the nation's top doctor, the surgeon general put this warning on every youth football helmet and place it in bold type on all youth tackle football registration forms. A parent or guardian wouldn't be able to sign up their child without seeing it.

It's hard to overstate the importance of these steps. It's fair to say that millions of sports-playing kids would enter adulthood with healthier brains and better futures.

[Forty million children](#) participate in organized sport each year. Protecting them from head injury is a big task. Youth sports organizations generally do an admirable job. In the past decade, the U.S. Soccer Federation [has banned heading](#) for players 10 years old and younger and limited heading for players 11 to 13. USA Hockey no longer allows body checking until players are 13. Even tackle football is safer — marginally. Pop Warner, the largest national youth football league, has eliminated kickoffs for the youngest players — 5- to 10-years-old — and limited full-contact practice time.

Of late, we're learning more about brain injury among youth players in rougher "collision" sports such as football. These young athletes are at greater risk than we knew and than many parents and coaches would find acceptable.

Recent studies of youth football are particularly alarming. Since 2015, Boston University's Chronic Traumatic Encephalopathy Center (which Robert C. Cantu co-founded) has published three studies all leading to a disquieting conclusion: Adults who played tackle football as children were more likely to deal with emotional and cognitive challenges in later life.

In one [BU study](#), researchers dug into the sports-playing pasts of 214 former football players. Their finding: Starting as a player in a tackle football league before age 12 corresponded with increased odds for clinical depression, apathy and executive function problems — for example, diminished insight, judgment and multitasking.

In [another study](#), BU researchers zeroed in on the effects of head slams by comparing groups of adults who started in football before and after age 12 and who went on to develop CTE, a degenerative brain disease linked to repetitive hits in sports. The results were chilling for anyone who's watched 10-year-olds knock heads at the line of scrimmage. Those in the study who played before age 12 experienced cognitive deficits

— also, behavioral and mood problems — a full 13 years earlier than those starting at 12 or older.

Also troubling: For every year younger that someone was exposed to tackle football, the start of cognitive problems occurred 2.4 years earlier and behavioral and mood problems started 2.5 years earlier, according to the study.

These are hard things to hear about youth sports and particularly about tackle football, which in many parts of this country inspires devotion bordering on obsession. Football die-hards will point out that the sport is irreplaceable at the youth level, that it is a proving ground for perseverance and toughness and that as a character-builder for children, it stands alone. Some doubt reports about the health risks. Some say more research is needed. They're right about the last part. There are many more questions needing answers. Among them:

What would researchers learn if they followed thousands of youth football players from their first football games to adulthood, a true longitudinal study? Are other collision sports risky? Do the brains of girls and boys react differently? Do family history and heredity play a role? What are other risk factors? How many seasons of tackle football can a child play safely? (A [2018 study](#) at Wake Forest School of Medicine found changes in the brains of boys 8 to 13 after just one season). It may be 20 years before we have answers.

The questions that loom over all: What is the future of tackle football and of all collision sports? Do we accept head injury as inevitable and live with the chance that youth players when they grow up will face higher risk of emotional and cognitive challenges?

Action on concussions in youth football has been impressive in recent years.

All 50 states now have concussion laws. They've led to greatly improved efforts in recognizing and treating concussions, a shaking of the head that triggers chemical changes in the brain and causes symptoms such as headaches and dizziness. Compared to the bad old days (a decade ago), it's rare that youth athletes go back into a game with concussion symptoms.

In the BU studies, brain injury was linked not to concussions but to long-term exposure to repeated subconcussive hits. These are the head blows that happen in football on almost every play, and are also part of sports such as rugby, ice hockey, even soccer. Long-term exposure to subconcussive hits [has been associated with CTE](#), which has stricken more than 100 former National Football League players. NFL stars Junior Seau, Mike Webster and Frank Gifford all were diagnosed with CTE when they died.

CTE also has been found in ex-National Hockey League players, college athletes and even several high school athletes.

The nature of subconcussive hits is that they're a problem years after they occur.

When they're happening, no one notices. It's the accumulation of micro hits that trigger damaging changes years later.

How should kids be protected? In "[Concussions and Our Kids](#)," a book we co-wrote in 2012, we argue for children to defer playing tackle football until age 14. (Until then, they should play flag football, where kids grab flags instead of each other). Some parents and coaches pushed back at the proposal, which at the time was radical. Seven years later, it's a mainstream idea.

Even before the recent studies, some adults were turning away from football for kids, alarmed by medical research and reports of CTE in pro football. Participation has declined. In 2018, 1.2 million children ages 6 to 12 participated in organized tackle football compared to 1.7 million in 2008, according to the Sports & Fitness Industry Association (SFIA).

There's been a push for transparency. The National Operating Committee on Standards for Athletic Equipment, an independent organization, requires that manufacturers place a warning label on all football helmets that states, in part, "NO HELMET CAN PREVENT ALL HEAD OR ANY NECK INJURIES A PLAYER MIGHT RECEIVE WHILE PARTICIPATING IN FOOTBALL." (The warning omits the mention of brain diseases). At the same time, flag football is growing. Participation in flag leagues for children ages 6 to 12 jumped 9.2 percent in 2018, according to the SFIA. And NFL star quarterback Drew Brees has added the cool factor as founder of a national noncontact league, Football "N" America, for kids up to the 10th grade. By no means is youth tackle football on its last legs. According to the National Federation of State High School Associations, high school squads drew 1 million players in 2017-2018. That's more players than golf, baseball and boys' and girls' lacrosse combined.

The future of tackle football in the next decade is unknown. Participation numbers may stabilize or even bounce back a bit. They may continue to erode at a pace that spares some children but leaves millions of others vulnerable to the long-term, repeated hits described in the BU studies.

Or possibly the surgeon general enters the picture.

In 1964, then-Surgeon General Luther Terry famously issued a warning to the American public that exposed the link between cigarette-smoking and lung cancer. Millions of smokers heard and quit the habit. At the time, more than 40 percent of adults in the United States were smokers. Five decades later, that figure is less 20 percent. Many factors contributed, but none was more important than the surgeon general's deft use of the bully pulpit.

Reasons that Jerome Adams, the current surgeon general, might stay away from a national debate on youth football are too many to mention. The firestorm that an anti-football pronouncement would kick up would be intense, especially in "Friday Night Lights" states where football is king. Protests also probably would be loud from those with a financial stake in preserving youth football as is, including youth football leagues and the NFL.

For the foreseeable future, kids will continue suiting up on weekends. This debate has yet to cross the 50-yard line.

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