

# Brain issues blamed on youth tackle football in new study

Study conducted by researchers at Boston University found that players who participated in youth football before the age of 12 had a twofold “risk of problems with behavioural regulation, apathy and executive function” and a threefold risk of “clinically elevated depression scores.”



Youths who began playing tackle football before the age of 12 had more behavioral and cognitive problems later in life than those who started playing after they turned 12, according to a study released on Tuesday by Boston University researchers. (TAMIR KALIFA / THE NEW YORK TIMES)

By **KEN BELSON** The New York Times  
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**Athletes who began playing tackle football before the age of 12 had more behavioural and cognitive problems later in life than those who started playing after they turned 12, a new study released on Tuesday showed.**

The findings, from a long-term study conducted by researchers at Boston University, are likely to add to the debate over when, or even if, children should be allowed to begin playing tackle football.

The results of the study, published in [Nature.com](#)'s [Translational Psychiatry](#) journal, was based on a sample of 214 former players, with an average age of 51. Of those, 43 played through high school, 103 played through college and the remaining 68 played in the NFL.

In phone interviews and online surveys, the researchers found that players in all three groups who participated in youth football before the age of 12 had a twofold "risk of problems with behavioural regulation, apathy and executive function" and a threefold risk of "clinically elevated depression scores."

"The brain is going through this incredible time of growth between the years of 10 and 12, and if you subject that developing brain to repetitive head impacts, it may cause problems later in life," Robert Stern, one of the authors of the study, said of the findings.

The study is consistent with earlier findings by Stern and others that looked specifically at NFL retirees. That research found that retirees who started playing before 12 years old had diminished mental flexibility compared to those who began playing tackle football at 12 or older.

A growing number of scientists argue that because the human brain develops rapidly at young ages, especially between 10 and 12, children should not play tackle football until their teenage years.

Last year, doctors at Wake Forest School of Medicine used advanced magnetic resonance imaging technology to find that boys between the ages of 8 and 13 who played just one season of tackle football had diminished brain function in parts of their brains.

The NFL, which long denied that there was any link between the game and brain damage, has in recent years been promoting what it considers safer tackling techniques aimed at reducing head-to-head collisions.

More recently, the league has been promoting flag football as an even safer alternative, an implicit acknowledgment that parents are worried about the dangers of the sport and turning away from it.

Participation in tackle football by boys ages 6 to 12 has fallen by nearly 20 per cent since 2009, though it rose 1.2 per cent, to 1.23 million, in 2015, according to the Sports and Fitness Industry Association.

Schools across the United States have shut their tackle football programs because of safety concerns and a shortage of players. Large numbers of children have shifted to other sports such as flag football, soccer, baseball and lacrosse.

The new Boston University study looked only at behavioural changes, based on the phone and online surveys.

There was no examination of physical changes in the brain. (A separate study published by researchers at Boston University in July found that 110 out of 111 brains of deceased former NFL players had chronic traumatic encephalopathy (CTE), a degenerative brain disease.)

Still, the findings are yet more evidence that have contributed to an existential crisis for the game, from youth leagues to the NFL. Pop Warner, the most established youth football organization in the country, has reduced the amount of contact in practice — where the majority of head hits occur — and changed game rules, including banning kickoffs, one of the most dangerous plays in the game.

Last year, the [Ivy League decided to eliminate tackling at practices](#) during the regular season. The Canadian Football League [made a similar announcement last week](#).

USA Football, the governing body for the sport, is introducing a 7-on-7 version of football that includes measures, like players starting in a two-point stance, designed to reduce the risk of head hits.

Other groups, like Practice Like the Pros, suggest that only flag football be played through the sixth grade and a limited version of tackle football in seventh and eighth grades.

“The curiosity about head injuries and the correct age to play full contact is peaking,” said Terry O’Neil, the group’s founder. “Tackling is the culprit. Everybody associated with the game is worried about the participation numbers.”