

Study Finds Pattern in Brain Injuries Linked to Contact Sports

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Reuters

BOSTON (Reuters) - Years of hits to the head in football or other contact sports lead to a distinct pattern of brain damage that begins with an athlete having trouble focusing and can eventually progress to aggression and dementia, a study released on Monday says.

Researchers examining the brains of 85 former athletes and soldiers who sustained multiple mild head injuries over their lives found the condition they developed, chronic traumatic encephalopathy, came in an “ordered and predictable” four-stage pattern.

The condition, which causes depression and erratic behavior, has attracted public concern in recent years following the high-profile suicides of former professional athletes.

Worries about chronic traumatic encephalopathy, or CTE, have prompted youth and college football programs around the United States to take steps intended to limit the number of hits to the head athletes experience in practice and games. The National Football League has banned the most dangerous helmet-on-helmet hits.

The latest study, published in the journal *Brain* by researchers affiliated with Boston University School of Medicine, spells out how the condition progresses through four stages that can begin with mild memory loss, progress to cognitive failure and eventually bring on aggression.

Symptoms of stage one CTE include headache and loss of attention. Stage two sufferers may face depression, outbursts of anger and short-term memory loss. Those in stage three encounter executive dysfunction and cognitive impairment. Symptoms of the most severe fourth stage include dementia, aggression and difficulty finding words.

DEMENTIA PUGILISTICA

Researchers are now able to chart CTE’s progression in the brains of dead people who had suffered from the condition originally known as “dementia pugilistica” for its occurrence in boxers. But they remain unable to diagnose it in the living.

“Until we do that, we can’t fully understand the risk factors, we can’t understand how common it is,” said Robert Stern, a Boston University professor and co-author of the study. “The goal would be to have a variety of measures of this predictive pattern in the brain while someone is alive.”

Stern said he was working on tests that would diagnose the condition early, by using magnetic resonance imaging or testing for specific proteins linked to the problem.

The research found CTE was closely linked to the number of years an athlete played football, but not directly tied to the number of concussions sustained.

That suggests a steady diet of mild hits to the head, rather than a handful of more traumatic injuries, brings on CTE, Stern said.

He cautioned the condition would not develop in all athletes and suggested that concerns about CTE should not prompt parents of young players to pull their children from the sport, though he said parents should closely monitor how the game is played.

“We don’t want people to feel that they’re going to get this early dementia just because they had a concussion or two,” Stern said. “This is a disease of total, overall repetitive brain trauma.”

On Saturday, Kansas City Chiefs linebacker Jovan Belcher shot and killed his girlfriend and then shot himself in front of the team’s coach and general manager in an act that shocked fans of the National Football League. While CTE can bring on confusion, depression and violent behavior, there was no evidence Belcher’s actions were related to brain injury.

Belcher was only 25 and had played in the league four seasons. Other prominent suicides involved players with longer careers including Junior Seau in May, Ray Easterling in April and Dave Duerson last year.

“An individual’s suicide and aggressive behavior at such a young age is so multi-factoral, it is such a complex issue, that you can’t jump to the conclusion that CTE is the cause of any individual’s behavior,” Stern said.