

A call for more research on brain damage in American football

March 24 2015

More research is needed to identify how athletes sustain brain injury from American football, and also to develop strategies to protect them, write experts in *The BMJ* today.

Chronic traumatic encephalopathy (CTE) is a progressive neurodegenerative syndrome that can affect athletes. It is thought to result from concussion and brain injury following repeated blows to the head.

But the topic of brain damage in football is controversial. The National Football League, for example, does not acknowledge any association between football and [brain injury](#).

CTE symptoms include memory problems, depression, poor impulse and motor control, anger and apathy. But diagnosis can be confirmed only with an autopsy.

Over the course of the last 60 years, just 63 cases of CTE have been identified. When compared to the millions of football players, this number is very low, explain the authors, and this makes research "challenging" as definitive conclusions are difficult to make based on small samples.

Consequently, it will take time and further research to make American football safer, but it must remain a top priority, they argue.

All cases of confirmed CTE following autopsy suggest that the condition is linked to repetitive blows to the head.

But not all of these persons had a history of concussion and this suggests that undiagnosed subconcussive blows may also contribute to CTE, they explain, and call for more research into how the condition develops and to determine other risk factors.

Previous research has shown that retired NFL players demonstrated more cognitive impairment if they had started playing [football](#) at a younger age, and this suggests the role of long term injuries to the head.

The development of new technologies that can measure subconcussive blows would benefit research, add the authors. For example, helmet mounted accelerometers can measure these blows and has shown that high school players can sustain over 1,000 head impacts per season. But the NFL recently stopped its use because of difficulties and questions over the reliability of such data.

Risk reduction of head injuries has included legislation requiring injured athletes to be medically assessed before returning to play and changing rules to avoid or reduce head trauma. But long term studies still need to assess whether these strategies are effective, they add.

Protective equipment, such as helmets, have been implemented, but have mixed results and more mechanisms to reduce trauma and to treat injuries should be developed and evaluated, they argue.

"We are still lacking a clear clinical picture because there have been no long term prospective studies of the disease spectrum from diagnosis to death," write the authors. "It is unclear whether any treatment could slow progression of the disease if it was recognised early."

More information: Brain damage in American Football ,
www.bmj.com/cgi/doi/10.1136/bmj.1381

Provided by British Medical Journal

Citation: A call for more research on brain damage in American football (2015, March 24)
retrieved 5 May 2024 from
<https://medicalxpress.com/news/2015-03-brain-american-football.html>

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