

Head trauma: Key questions on CTE lack answers

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HOUGHTON - Decades after the first research on concussions and chronic head trauma, there's a widespread effort to mitigate their damage. But many of the most pressing questions still don't have answers.

Syd Johnson, an assistant professor of philosophy and adjunct assistant professor of kinesiology and integrative physiology at Michigan Tech, gave a lecture on concussions and chronic traumatic encephalopathy (CTE) Friday as part of the Kinesiology and Integrative Physiology department's monthly series.

The signs of CTE were first discussed in a 1928 article on "punch drunk syndrome." The first confirmed case of CTE in a non-boxer didn't come until 2002, when it was diagnosed of the late Mike Webster, a longtime Pittsburgh Steelers center. Since then, it's been found in athletes from sports such as hockey and wrestling, as well as combat veterans and victims of domestic abuse. Symptoms include memory disorders, violent behavior, personal and behavior changes and premature dementia.

Article Photos



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Syd Johnson, an assistant professor of philosophy and adjunct assistant professor of kinesiology and integrative physiology at Michigan Tech, gives a lecture Friday on concussions and chronic traumatic encephalopathy (CTE).

CTE can occur even in athletes without a history of concussion. It's shown up more in certain positions or

roles, such as defensive lineman in football and enforcers in hockey.

Eighty-seven of the 91 NFL players who have donated their brains for study have been diagnosed with CTE. The actual percentage of athletes who develop CTE is unknown, though it's likely to be somewhat smaller - though probably not as small as CTE skeptics would have people believe, Johnson said.

"Because we can only diagnose the disease post-mortem, there's a lot of selection bias, and it skews the percentage," she said.

There has been a history of criminal behavior and substance abuse in athletes with CTE, Johnson said. But because of the post-mortem nature of diagnosis, it can't be made in time to help the person.

The youngest person diagnosed with CTE was an 18-year-old athlete. Because of the repetitive trauma, the CTE likely begins before children are considered old enough to give informed consent, bringing up a host of ethical and legal issues, Johnson said.

Sports have adopted numerous rule changes to combat concussions, such as the NHL enacted Rule 48, which banned hits to the head. But those are ineffective in preventing CTE, which can also result from repeated subconcussive trauma after hits to the body. Some of the measures failed to reduce concussions, such as the headgear used for amateur boxers. The headgear was dropped from next year's Olympics, which will make it the first with bareheaded boxers since 1984.

In addition to proper preventive and protective measures, there are other unknowns. Some athletes may be at greater risk than others, but the factors are unclear. The threshold of injury for causing severe damage is unknown. Even the precise mechanism of damage remains undetermined.