What is Chronic Traumatic Encephalopathy?

Chronic Traumatic Encephalopathy, or CTE, is a progressive degenerative disease affecting the brain in people who have suffered repeated concussions and traumatic brain injuries. CTE was initially diagnosed among boxers in the 1920s, but recently confirmed in retired football players and other athletes with a history of repetitive brain trauma.

What causes CTE?

Repeated brain injuries can trigger progressive deterioration of brain tissue as well as a buildup of an abnormal form of the tau protein. Too much abnormal tau interferes with the function of the brain’s neurons. Genetics may also play a role because not everyone who’s suffered repeated head traumas develops CTE. Little is known about other causes.

How is CTE diagnosed?

CTE is only diagnosed definitively by studying brain tissue after death. Research is underway to identify methods and biomarkers that could help diagnose CTE in living subjects.

Is CTE treatable?

At this time, there is no treatment for CTE. Researchers are conducting studies to better understand development, progression, risk factors and earlier diagnosis.

How can CTE be prevented?

There’s no definitive answer as to how much brain trauma causes CTE. More research is needed to determine if some are more susceptible than others to developing CTE in response to repeated brain trauma.

What’s the difference between CTE and Alzheimer’s disease?

CTE

- Impaired judgment and reasoning
- Impulse control
- Aggression
- Postmortem CTE brain shows tau protein

Alzheimer’s

- Memory loss
- Postmortem Alzheimer’s brain shows beta amyloid

CTE by the Numbers

Researchers at the Department of Veterans Affairs and Boston University studied brain tissue of 165 people who played football at the high school, collegiate or professional level.

- 131 out of 165, or 79% of brain tissue samples showed evidence of CTE.
- 91 of the brain tissue samples belonged to former NFL players
- 87 out of 91, or 96% of NFL brains showed signs of CTE.

The Four Stages of CTE

1: Headaches, decreased capacity for attention and concentration
2: Depression, short-term memory loss, explosive outbursts
3: Cognitive impairment, inability to plan, organize, multitask and make judgements
4: Signs of dementia, loss of attention and concentration, aggressive tendencies, suicidal thoughts, neurodegenerative disease

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Sources:
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