

# Does it matter what position you play when it comes to CTE?

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A position played in collision sports like football and hockey may not raise an athlete's risk for developing brain disease later. Researchers found no link between the position played by football and hockey players, nor the length of their career, and their risk of degenerative brain disease. The new study is published in the February 24, 2021, online issue of *Neurology*, the medical journal of the American Academy of Neurology. Additionally, only about half of the athletes studied showed evidence of chronic traumatic encephalopathy (CTE).

Chronic traumatic encephalopathy is a neurodegenerative disease associated with repeated blows to the head. Symptoms include behavioral problems, mood problems and problems with thinking. The disease often gets worse over time and can result in dementia.

"In football, linemen tend to get more concussions than players at other positions; in hockey, forwards do," said study author Lili-Naz Hazrati, M.D., Ph.D., of The Hospital for Sick Children in Toronto, Canada. "Also, longer careers have been associated with an increased number of

concussions. But it hasn't been clear whether position played and career length are tied to an increased risk of CTE."

The study examined the brains of 35 men, 24 who played football and 11 who played hockey at the professional or elite level. After death, autopsies were conducted on their brains. Their average age when they died was 63. All the athletes had neurological or neuropsychiatric symptoms, ranging from minor mood disorders to severe dementia.

Researchers looked at online databases to determine the length of the players' careers, the age they retired from [competitive sport](#) and the position they played at their highest level. For the [hockey players](#), researchers looked at their fighting history and number of penalty minutes.

Of the 35 former players, 17, or 49%, were diagnosed with CTE, which was determined by the amount of tau deposits, or protein tangles, in the brain.

Broken down by sport, researchers found no correlation between position played and CTE presence, nor between hockey fighting or penalty histories and CTE. In both the football and [hockey](#) group, there was no association between age of retirement and CTE presence.

"Our results are surprising when you consider previous studies have found upwards of 80% CTE in the brains of football players," Hazrati said. "More research into factors not related to sports, like [genetic factors](#), stress, drugs or alcohol, may help us understand why different athletes have different susceptibilities to CTE."

The study was limited by the small number of athletes studied and the lack of a control group of athletes without [neurological symptoms](#) during their lives. Future studies are needed with larger groups of athletes to determine if these results can be

confirmed.

**More information:** *Neurology*,  
[n.neurology.org/lookup/doi/10. ...](https://n.neurology.org/lookup/doi/10.1213/00006123-202102000-00011)  
[WNL.0000000000011668](https://n.neurology.org/lookup/doi/10.1213/00006123-202102000-00011)

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