

Chronic traumatic encephalopathy risk increases with longer rugby careers, study finds

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A rugby player's risk for developing chronic traumatic encephalopathy (CTE) increases the longer their career lasts, according to a new landmark study involving Boston University researchers.

Scientists from BU, the University of Glasgow and University of Sydney have found new evidence that links playing rugby union—either at the amateur or elite level—with developing the degenerative brain condition CTE.

Much of the focus around CTE has involved American football players, and their exposure to repeated head impacts and concussion head injuries. Researchers are only able to diagnose CTE in those who have died.

This latest study looked at the results of postmortem brain examinations of 31 former amateur and elite rugby union players whose brains were donated for research purposes in the U.S., United Kingdom, and Australia. CTE was found in 68% of the brains examined, and in both amateur and elite players.

The risk for developing CTE was tied with the length of a player's rugby career—with each additional year of play adding 14% to CTE risk. Player position or level of participation, either amateur or elite, did not appear to influence CTE risk.

"CTE is a preventable disease," said Ann McKee, director of the BU CTE Center and UNITE brain bank.

"There is an urgent need to reduce not only the number of head impacts, but the strength of those impacts, in rugby as well as the other [contact sports](#), in order to protect and prevent CTE in these players," added McKee, a co-author of the rugby CTE study.

Rugby union is known to have a high risk of concussions, with injury rates highest in the professional game.

In this study, the average rugby career length was around 18 years, with

an equal number of forward and backs. Twenty-three (74%) played rugby exclusively as amateurs, with eight (26%) reaching elite level.

"These results provide new evidence regarding the association between rugby union participation and CTE," said Willie Stewart, consultant neuropathologist and honorary professor at the University of Glasgow.

"Specifically, our data show risk is linked to length of [rugby career](#), with every extra year of play increasing risk," Stewart added. "Based on this it is imperative that the sport's regulators reduce exposure to repeated head impacts in match play and in training to reduce risk of this otherwise preventable contact sport related neurodegenerative disease."

The research is [published](#) in the journal *Acta Neuropathologica*.

More information: William Stewart et al, Risk of chronic traumatic encephalopathy in rugby union is associated with length of playing career, *Acta Neuropathologica* (2023). DOI: 10.1007/s00401-023-02644-3

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