



United States' Julie Johnston and Canada's Melissa Tancredi go up for a header during the first half of the CONCACAF Olympic women's soccer qualifying championship final Sunday, Feb. 21, 2016, in Houston.

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## Brain damage in former soccer players fuels fears about heading

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Scientists have found signs of brain damage that could cause dementia in a handful of former soccer players, fuelling worries about the danger of frequent knocks from heading the ball or colliding with others on the field.

The small study was the first of its kind, involving post mortems on six men who died with dementia after long careers playing soccer. All were skilled headers of the ball.

It suggests that some professional soccer players might risk the same long-term cognitive problems suffered by boxers and some American football players.

But experts said more research was needed to prove any definitive link between heading a football and developing dementia, and they added that the risk was likely to be minimal for occasional players.

“We’ve demonstrated that the same type of pathology that occurs in ex-boxers can also occur in some ex-footballers who have dementia, but I’d emphasise this is a very small number of players,” said co-lead researcher Huw Morris of London’s UCL Institute of Neurology.

“The average playing career of these players was 26 years, which is thousands of hours of game playing, thousands of hours of practice and thousands of headers ... I think the risk is extremely low from playing recreational football.”

Soccer is the most popular sport in the world and scientists said the danger of head injuries had to be weighed against the game’s known benefits in improving cardiovascular health, which actually reduces the likelihood of developing dementia.

The study, published in the journal *Acta Neuropathologica* on Wednesday, followed 14 retired soccer players with dementia and secured next-of-kin permission for post mortem examinations for six of them.

The scientists found evidence of chronic traumatic encephalopathy (CTE), a potential cause of dementia, in four of the six brains. All six also had signs of Alzheimer’s disease.

CTE is common in ex-boxers and has been linked to progressive memory, behavioural and motor impairment.

Unlike boxing or American football, blows to the head in soccer are generally lower impact and players are less likely to experience concussion. But there may still be cumulative damage from sub-concussive impacts, experts believe.

Britain’s Football Association said more work was needed into whether degenerative brain disease was more common in ex-footballers, adding it planned to jointly fund research with the Professional Footballers’ Association.