**Can heading a football really cause BRAIN DAMAGE? Expert says children shouldn't do more than five headers in a match**

* **British scientists have examined the autopsies on six footballers with dementia**
* **They found evidence of a degenerative disease usually associated with boxing**
* **Now, parents are being warned to not let their children do too many headers**

By [Angela Epstein for the Daily Mail](http://www.dailymail.co.uk/home/search.html?s=&authornamef=Angela+Epstein+for+the+Daily+Mail)

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Parents often worry about their children playing rugby. But should football be a concern, too?

In a study to be published this week, British scientists investigating the autopsies on six retired professional footballers with dementia found they had a form of the disease associated with blows to the head, perhaps from headers.

They had evidence of chronic traumatic encephalopathy (CTE), a progressive degenerative disease usually associated with boxing.

The research follows a study at the University of Stirling, published last year, which found 'significant' changes in the brain's short-term memory function from routine heading practice.

Researchers asked 19 footballers to head a ball 20 times as if they were heading from a powerful corner kick.

They were tested before and afterwards, and scientists found their memory test performance was reduced by between 41 and 67 per cent — although it reverted to normal within 24 hours.

Concerns about repeated heading are not new. When former England striker Jeff Astle died in 2002 aged 59, having suffered from dementia, a coroner found the condition was caused by repeatedly heading footballs.

Re-examination of his brain tissue in 2014 revealed that he had CTE.

Modern footballs are lighter than those Astle headed, yet there may still be cause for concern.

'A header is like a punch to the head,' says Dr Tom Crisp, a consultant in sport and exercise medicine at the London Independent Hospital.

This month, U.S. researchers found that players who headed the ball a lot were three times more likely to suffer concussion symptoms — which include headache, nausea and confusion — than those who didn't.

If the player has a second head knock while concussed, it can cause more serious damage, according to Dr Nicholas Davies, a consultant neurologist at the Queen Elizabeth Hospital and Spire Parkway Hospital in Birmingham.

'If there is mild concussion, a player might not realise it. If they then suffer another blow in quick succession, it could lead to brain injury,' he says.

More insidious is the potential for repeated headers to cause long-term sub-concussive damage — injury to the brain without any obvious symptoms, suggests Dr Michael Grey, a neuroscientist from the University of Birmingham.

Heading the ball over a period of years could damage the white matter (nerve fibres that connect various brain regions), leading to loss of functions such as reasoning, he suggests.

The concern with children is that their brains are still developing.

So, too, are their neck muscles, which means they have less strength to take the force of the ball's impact (footballs can travel at 34mph in recreational play and more than double that in professional play).

Two years ago, the United States Soccer Federation banned children aged ten and under from heading footballs, following a lawsuit.

While more research is needed, children should avoid practising headers many times a day, says John Hardy, a professor of neuroscience at University College London.

Tony Kochhar, professor of sports science at the University of Greenwich, suggests that 'at the very least, children playing school football should wear headguards or be prevented from doing more than five headers a match'.

Read more: <http://www.dailymail.co.uk/health/article-4221620/Can-heading-football-really-cause-BRAIN-DAMAGE.html#ixzz4c3s1RS8i>   
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