

Member of NFL Hall of Fame diagnosed with degenerative brain disease

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The Center for the Study of Traumatic Encephalopathy (CSTE) at Boston University School of Medicine (BUSM) announced today that a recently deceased member of the NFL Hall of Fame suffered from the degenerative brain disease Chronic Traumatic Encephalopathy (CTE) when he died, becoming the 10th former NFL player diagnosed with the disease.

Last week, CSTE researchers announced CTE had been diagnosed post-mortem in a former college [football player](#) who died at 42, the first advanced case in a non-NFL football player. Most concerning, all 11 of the former NFL and college football players studied post-mortem at the CSTE have shown signs of CTE.

Lou Creekmur, former offensive lineman for the Detroit Lions and eight-time Pro Bowl player, was diagnosed with CTE by neuropathologist and CSTE co-director Ann McKee, MD. Creekmur played 10 seasons for the Detroit Lions, and was famous for breaking his nose 13 times while playing without a facemask. He died July 5, 2009 from complications of [dementia](#) following a 30-year decline that included cognitive and behavioral issues such as memory loss, lack of attention and organization skills, increasingly intensive angry and aggressive outbursts.

CTE can only be diagnosed by examining [brain tissue](#) post-mortem. Creekmur's brain was studied by McKee who determined that he was suffering from CTE and not another cause of dementia such as Alzheimer's disease. McKee said, "This is an important case because we are confident many CTE cases are misdiagnosed as Alzheimer's disease. By examining his brain, I was able to confirm that there was absolutely no sign of Alzheimer's disease or any other type of neurodegenerative disease except for severe CTE. This is the most advanced case of CTE I've seen in a football player; his brain changes were similar to those of profoundly affected professional

boxers."

President and CEO of the Alzheimer's Association Mass./N.H. Chapter James Wessler stated, "This is a very important finding that could explain the underlying cause of dementia in countless individuals who have had histories of repetitive head trauma."

The Creekmur case is also important in advancing discussion of what risk factors may play a role in causing CTE other than trauma. One hypothesis that has been put forward is that anabolic steroids could play a role in CTE. However, Creekmur played in the 1950s, a time that predates documented steroid use in the NFL, so the case proves CTE does occur in the absence of steroids.

Robert Stern, PhD, CSTE co-director, added, "The U.S. House Judiciary Committee is holding a hearing on the football head injury crisis on Oct. 28, and we feel that this evidence should be part of the discussion. The long-term consequences of brain trauma in sports are a tremendous public health problem. CTE is the only fully preventable cause of dementia. We need to make changes to the game of football, at all levels of play, which will decrease the risk of CTE to both pro and amateur athletes."

Creekmur was a member the NFL's Plan 88. The Plan was named for former NFL star John Mackey's jersey number. Mackey, a Hall-of-Fame tight end for the Colts in the 1960s and 70s, suffers from severe dementia. The Plan was created by the NFL to provide financial support to families of former players who suffer from some form of dementia. Members of the Plan have been diagnosed with "dementia," which refers to progressive memory and cognitive deficits significant enough to impair daily living. During life, it is not possible to determine the underlying disease that causes dementia. However, now that a Plan 88 member has been examined pathologically, CSTE scientists have proven it is

possible to determine the cause of dementia, which in this case was repetitive trauma from football.

Creekmur's wife of 33 years, Caroline Creekmur, had extensive discussions with her husband prior to death about his brain trauma history, and is confident he remembered "16 or 17" concussions, none that caused loss of consciousness or necessitated a hospital visit. He did not have any significant head trauma since retiring from the NFL.

There are approximately 100 former NFL players whose families are receiving support through Plan 88, including Ralph Wenzel, age 66, former lineman for the Pittsburgh Steelers and San Diego Chargers, who now resides in an assisted living facility with advanced dementia. Upon learning of Creekmur's CTE diagnosis, Wenzel's wife, Dr. Eleanor Perfetto, stated, "Sadly, these findings do not come as a surprise. For those of us who have watched our husbands deteriorate and lose their independence from progressive dementia, our hope is that this research will one day lead to changes in the game of football such that other players and their families will not have to experience the pain that we have experienced."

CTE is characterized by the build-up of a toxic protein called tau in the form of neurofibrillary tangles (NFTs) and neuropil threads (NTs) throughout the brain. The abnormal protein initially impairs the normal functioning of the brain and eventually kills brain cells. Early on, CTE sufferers may display clinical symptoms such as memory impairment, emotional instability, erratic behavior, depression and problems with impulse control. However, CTE eventually progresses to full-blown dementia. Although similar to Alzheimer's disease, CTE is an entirely distinct disease.

Source: Boston University Medical Center

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