

# Brain autopsies of four former football players reveal not all get chronic traumatic encephalopathy

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Preliminary results from the first four brains donated to the Canadian Sports Concussion Project at the Krembil Neuroscience Centre, TorontoWesternHospital, reveal that two of the four former Canadian Football League (CFL) players suffered from a brain disease known as Chronic Traumatic Encephalopathy (CTE), while two did not show signs of CTE.

Bobby Kuntz, a former Toronto Argonaut and Hamilton Tiger-Cat and Jay Roberts, an Ottawa Roughrider both had a history of repeated concussions during their careers and showed the characteristic signs of CTE, an abnormal build-up of a protein called Tau in the brain, and other degenerative changes.

CTE can result in [memory impairment](#), emotional instability, erratic behavior, depression, and problems with [impulse control](#). CTE may eventually progress to full-blown dementia. Dr. Hazrati is very clear, however, to emphasize that the precise relationship between concussions and neurodegeneration remains to be demonstrated by future research.

Peter Ribbins, a former Winnipeg Blue Bomber, passed away in December 2010, at age 63 of Parkinson's disease. Autopsy results show he did not have signs of CTE. Tony Proudfoot, an all-star defensive back for the Montreal Alouettes, died at age 61 in 2011 of Lou Gehrig's disease (a neurodegenerative condition also known as ALS). Although a connection between ALS and repeated head trauma is being researched, Proudfoot did not have signs of CTE. Both of these players were in the league at a time when it was common to spear tackle with the crown of the head. According to the Canadian Football League Alumni Association (CFLAA), Proudfoot experienced repeated [head trauma](#) as a hard-hitting defensive

back throughout his 12 seasons in the league.

Kuntz passed away in February 2011 at age 79 after a long battle with Parkinson's Disease and diffuse Lewy body disease, a condition that overlaps with Parkinson's and Alzheimer's. Roberts, 67, who died in October 2010, suffered from dementia and lung cancer. The autopsies were performed by Dr. Lili-Naz Hazrati, a neuropathologist in the Laboratory Medicine Program at the University Health Network.

"While both of these men appeared to have pathological signs of CTE, they also suffered from other serious neurological and vascular related diseases," said Dr. Hazrati. "Right now we have more questions than answers about the relationship between repeated concussions and late brain degeneration. For example, we are still trying to understand why these two players acquired CTE and the other two did not."

Mary Kuntz, wife of the late Bobby Kuntz, donated his brain to the Canadian Sports [Concussion](#) Project at the Krembil Neuroscience Centre and believes the more players who donate their brains, the better the chances of helping future athletes.

"We've always had questions about Bob's health, because there were so many conflicting medical opinions," said Mary Kuntz. "We knew there must have been some effect from all of the concussions over the years, and this was an affirmation that concussions did have a part in his health problems."

"Young players should know the risks of concussions. When you are young, you can't believe what can happen to you when you are older, but we have lived through it. What is good about this study is that there will be more evidence and information for players."

"We were very happy to be involved in this and it has brought us a sense of closure."

The Canadian Sports Concussion Project at the Krembil Neuroscience Centre is organized by a team of concussion experts including Dr. Charles Tator and Dr. Richard Wennberg and scientists from several other Canadian institutions. The focus of the project is to further our understanding of how concussions affect the brain.

"There are still so many unanswered questions surrounding concussion and the long-term consequences of repeated head injuries," said Dr. Tator. "We are trying to determine why some athletes in contact sports develop CTE and others don't, as well as how many concussions lead to the onset of this degenerative [brain disease](#). Also, we need to develop tests to detect this condition at an early stage and to discover treatments."

According to Jed Roberts, son of Jay Roberts, he and his sisters began noticing early signs of their father's memory decline when he starting repeating stories, but insisting he had never told them. "My dad had numerous concussions, although they were undocumented, and I think he knew there was something was wrong, which is why he wanted to help find answers that would hopefully protect future football players," said Jed, a former CFL player with the Edmonton Eskimos. "I think it is really important that we create awareness around this issue, so that players can live healthy, productive lives beyond the game."

Provided by University Health Network

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