



EMBARGOED UNTIL: March 3, 2011, 8 A.M. E.T.

Contact: Gina DiGravio, 617-638-8480, gina.digravio@bmc.org

BOSTON UNIVERSITY RESEARCHERS REPORT NHL STAR BOB PROBERT HAD CHRONIC TRAUMATIC ENCEPHALOPATHY

2nd Former NHL Player Diagnosed with CTE

AT A GLANCE

- **Bob Probert's family donated his brain to BU researchers after his death from heart disease at age 45.**
- **Probert is the second former NHL player diagnosed with CTE post-mortem.**
- **CTE is a degenerative brain disorder caused by repeated brain trauma, including concussions and multiple blows to the head, such as those found in contact sports.**

(BOSTON) – The Sports Legacy Institute (SLI) announced today that researchers at the Center for the Study of Traumatic Encephalopathy (CSTE) at Boston University School of Medicine (BUSM) have discovered Bob Probert, a recently deceased former National Hockey League (NHL) player, had the degenerative brain disease Chronic Traumatic Encephalopathy (CTE) when he died at age 45 of a heart attack in 2010, becoming the second former hockey player diagnosed with the disease.

Probert played left wing for 16 seasons in the NHL, including nine for the Detroit Red Wings and seven for the Chicago Blackhawks. He was best known as an enforcer, standing 5th all-time in penalty minutes in the

NHL with 3,300 and fighting in more than 200 fights, although he scored 163 goals, had 221 assists, and was named to the 1987-88 NHL All-Star team for his playmaking abilities.

Probert was diagnosed with CTE by neuropathologist and CSTE co-director Ann McKee, MD, the director of the largest CTE “brain bank” in the world, located at the Bedford VA Medical Center. CTE can only be diagnosed by examining brain tissue post-mortem. Probert is the second former NHL player diagnosed with CTE after Reggie Fleming, who died in 2009 at the age of 73 with dementia, following 30 years of worsening behavioral and cognitive difficulties. The CSTE brain bank contains 68 specimens, including the brain of former NFL player Dave Duerson, who committed suicide two weeks ago. McKee now has completed the analysis of the brains of 40 former athletes, and more than 30 have shown signs of CTE, including 13 of 14 former NFL players, as well as college and high school football players, hockey players, professional wrestlers and boxers.

“We are only beginning to appreciate the consequences of brain trauma in sports,” said SLI Co-founder and CEO Chris Nowinski. “Early evidence indicates that the historical decision not to discourage contact to the head was an enormous mistake, and we hope aggressive changes continue to be made to protect athletes, especially at the youth level.” The CSTE is a collaboration between Boston University and the non-profit Sports Legacy Institute.

The details of Probert’s brain tissue analysis are embargoed pending submission to an academic medical journal. However the Probert family requested the diagnosis be made public in an effort to

raise awareness of the dangers of brain trauma in sports and encourage greater efforts to make sports safer for the brain.

Probert's wife of 17 years, Dani Probert, said, "Bob told me he wanted to donate his brain to Boston University after learning about the research on *60 Minutes*. His sole motivation was to make sports safer for our children. Bob was a great husband and father, and we miss him every day."

Born and raised in Windsor, Ontario, Canada, from a young age Probert struggled with substance abuse, including alcohol and cocaine, and made multiple trips to rehabilitation throughout his career. However, Dani Probert noted that her husband exhibited a mental decline in his 40s, displaying new and growing problems with short-term memory, attention and a short-fuse, which are symptoms consistent with the clinical picture of CTE displayed by other athletes.

Currently, there is a robust discussion of the issue of concussions and brain trauma in hockey. The significance of Probert's diagnosis in that debate is unclear. "The diagnosis of CTE in Probert's brain is not necessarily an indictment of hockey, as he received brain trauma during hockey fights as well as outside of sports, including a major car accident," said Nowinski. "Reggie Fleming, the only other NHL player diagnosed with CTE, also was an enforcer, so we need further study before this research can truly inform that ongoing, and important, debate."

In discussions during the last year of his life, Dani Probert noted Bob believed he had three or four "significant concussions," although when he counted what he considered "getting his bell rung," which by definition are concussions, he suffered "over a dozen."

Former hockey players hope this research will continue to inform policy to protect the brains of current and future hockey players. Keith Primeau, a retired NHL star who is one of more than 300 athletes who are part of a longitudinal study of brain trauma at the BU CSTE that includes brain donation, said, "Hockey continues to make positive steps to protect players from concussion and brain trauma, and I hope the findings from the study of my friend Bob Probert will accelerate that momentum throughout all levels of the game."

CTE, originally referred to as "dementia pugilistica" because it was believed to only affect boxers, is a progressive brain disease believed to be caused by repetitive trauma to the brain, including concussions or subconcussive blows. However, it is likely that there are other not-yet-discovered additional factors, such as genetic predisposition, that put certain individuals at greater risk of developing this neurodegenerative disease. CTE is characterized by deposits of an abnormal protein called *tau* in the form of neurofibrillary tangles, glial tangles, and neuropil threads throughout the brain, and, in some cases, the presence of another protein – associated with motor neuron disease – known as TDP-43. These abnormal proteins are associated with the impaired functioning and eventual death of brain cells. Early on, CTE sufferers may display symptoms such as memory impairment, emotional instability, erratic behavior, depression, and problems with impulse control. CTE may eventually progress to full-blown dementia. Although similar to Alzheimer's disease, CTE is pathologically distinct, and it is the only known preventable cause of dementia.

The CSTE (www.bu.edu/cste/) was founded in 2008 and is the leading center in the world studying the long-term effects of repetitive brain trauma in sports and the military. The CSTE was created as a collaboration between Boston University (BU), Sports Legacy Institute (SLI) and the Department of Veterans Affairs. Co-directors of the BU CSTE include Robert Cantu, MD, a clinical professor of neurosurgery at BUSM; Ann McKee, MD, an associate professor of neurology and pathology at BUSM; Chris Nowinski; and Robert Stern, PhD, an associate professor of neurology at BUSM. The mission of the CSTE is to conduct state-of-the-art research of CTE, including its neuropathology and pathogenesis, the clinical presentation, biomarkers, and course, the genetics and other risk factors for CTE, and ways of preventing and treating this cause of dementia. Brain trauma is increasingly seen as a public health crisis due to the discovery of CTE in a number of recently deceased athletes, most of whom have been studied at the CSTE. The CSTE's groundbreaking research created a dramatic change in the understanding of and response to brain trauma and concussions in all sports, especially football. The BU CSTE has received grants from the National Institute on Aging and the National Operating Committee on Standards in Athletic Equipment (NOCSAE), and has received an unrestricted gift from the NFL.

Sports Legacy Institute is a 501(c)(3) nonprofit corporation founded in 2007 to advance the study, treatment and prevention of the effects of brain trauma in athletes and other at-risk groups. SLI partnered with Boston University School of Medicine to form the Center for the Study of Traumatic Encephalopathy in 2008. (www.sportslegacy.org)

CSTE co-directors Cantu, McKee, Stern, and Nowinski serve on the NFL Players Association Mackey/White Traumatic Brain Injury Committee, which includes, and is chaired by, CSTE registry member Sean Morey. In addition, Cantu serves as a senior advisor to the newly created NFL Head, Neck and Spine Committee.