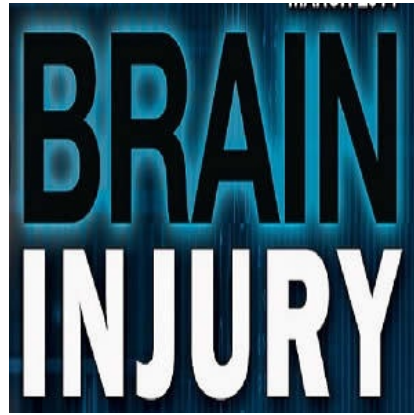




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## Imaging Agent Reveals Concussion-Linked Brain Disease



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According to a proof-of-concept study conducted at the Icahn School of Medicine at [Mount Sinai](#), experimental positron emission tomography (PET) tracer can effectively diagnose concussion-related brain degeneration while a person is still alive. The study is published in *Translational Psychiatry*.

During the study, the researchers used an experimental imaging agent called Avid 1451 with PET to examine the brain of a living, 39 year old football player who had experienced 22 concussions and was exhibiting symptoms that were consistent with chronic traumatic encephalopathy (CTE), a brain disease commonly associated with repetitive blows to the head in athletes and soldiers.

The imaging agent in question latches onto tau, a protein that accumulates in the brain due to repetitive traumatic brain injury. It then lights up the PET scan of the brain of a patient that has a buildup of tau. The scan results are consistent with CTE but until now, evidence for CTE pathology was only possible by brain examination after death.

“Our study participant’s scan is the first to reveal during life a pattern of tau imaging that outlines the wrinkles and folds of the living brain, just like the ‘pathognomonic pattern’ described by the NINDS panel as diagnostic of a brain with CTE,” says Sam Gandy, MD, Director of the Center for Cognitive Health and NFL Neurological Care Program at the Icahn School of Medicine at Mount Sinai and last author of the study. “When fully validated, this new ligand has the potential to be used as a diagnostic biomarker and represents an exciting development in the detection and tracking of CTE.”

Dara L. Dickstein, PhD, Assistant Professor of Neuroscience, and Geriatrics and Palliative Medicine at the Icahn School of Medicine at Mount Sinai and first author of the study points out that this research is still in its infancy and researchers still have to determine if the pathology can be reversed or halted. The new tauopathy PET scans could help in this endeavour. The Mount Sinai team is in the process of studying live patients believed to have CTE and will be establishing a clinical trial early next year to identify CTE patients who might respond to anti-tauopathy medicine.

Howard Fillit, MD, ADDF’s Founding Executive Director and Chief Science Officer is hopeful that this could prove to be an early diagnostic tool for patients with repeated brain injuries and could help clinicians better understand the similarities in disease processes between CTE, Alzheimer’s and other neurodegenerative diseases. They can also help determine if repeated head injuries can lead to the onset of Alzheimer’s.

Source: [Mount Sinai Health System](#)

Image Credit: Wikimedia Commons

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