

Criteria published for diagnosing the clinical syndrome of CTE during life

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Newly published National Institute of Neurological Disorders and Stroke (NINDS) Consensus Diagnostic Criteria for Traumatic Encephalopathy Syndrome (TES) are the first expert consensus criteria developed for the clinical disorder associated with Chronic Traumatic Encephalopathy (CTE) brain pathology. CTE is a degenerative brain disease associated with a history of repetitive head impacts, including those sustained in contact and collision sports such as American football and boxing. At this time, CTE can only be diagnosed after death through a neuropathological examination of brain tissue. There has been no accepted approach or agreed upon criteria for the diagnosis of CTE and its clinical manifestations during life until now.

"The publication of these criteria is another important step that will enable scientists to fill knowledge gaps, including a better understanding of CTE's clinical features and natural history, incidence and prevalence, as well as the causes and risk factors for developing this neurodegenerative disease," stated Walter Koroshetz, MD, Director of NINDS, part of the National Institutes of Health, and a co-author of the paper.

As part of the ongoing NINDS-funded multi-center DIAGNOSE CTE Research Project, in April 2019 the "First NINDS Consensus Workshop to Define the Diagnostic Criteria for TES" was held in Phoenix, Arizona. It was attended by a multidisciplinary panel of 20 clinician-scientists and seven observers from 11 academic institutions across the country, with expertise in neurology, neuropsychology, psychiatry, neurosurgery and physical medicine and rehabilitation. The workshop initiated an eight-month process of four rounds of drafting, reviewing, commenting, voting and revising the criteria until a [consensus](#) was achieved amongst the panelists. The new paper, published online in the journal, *Neurology*, describes that process and provides researchers

with detailed criteria for diagnosing study participants with TES and with a "provisional level of certainty" for the individual having CTE brain pathology.

The consensus process was led by Douglas Katz, MD, professor of neurology at Boston University School of Medicine and first author of the new paper. "It was an honor to work with such an esteemed group of experts. Despite the different disciplines and areas of expertise of the panelists, the collegiality and collaborative spirit demonstrated by all those involved led to a consensus and [diagnostic criteria](#) we believe will benefit the field," stated Katz.

To be diagnosed with TES with these new criteria, the individual must have: substantial exposure to repetitive head impacts from contact sports, military service, or other causes (e.g., a minimum of five years of organized American football, with two or more of those years played at the high school level or beyond); and a progressive course of cognitive impairment (specifically in episodic or "short-term" memory and/or executive functioning, such as planning, organization, judgment, and multi-tasking) or neurobehavioral dysregulation (including explosiveness, impulsivity, rage, violent outbursts, and emotional lability) or both. Moreover, the criteria require that other neurologic, psychiatric, or [medical conditions](#) cannot be fully responsible for these clinical problems, although other neurologic and psychiatric conditions may be diagnosed together with TES.

The primary goal of these new NINDS Consensus Diagnostic Criteria for TES is to facilitate further CTE research. The authors of the paper stress that these criteria are not meant to be used by health care providers to make a clinical diagnosis of CTE. According to Robert Stern, Ph.D., director of clinical research for the BU CTE Center and corresponding author of the new paper, these criteria will continue to be revised and updated as new research

information becomes available. "It is expected that biomarkers, such as PET scans and blood tests currently being studied in the DIAGNOSE CTE Research Project, will be integrated into the criteria to improve diagnostic accuracy in the next few years, resulting in the appropriate use of the criteria to diagnose patients in the clinic," Stern said. "The publication of these NINDS Consensus Diagnostic Criteria for TES is a major step in achieving the goal of diagnosing CTE in life and in promoting research to better understand, treat, and ultimately prevent CTE," he added.

Provided by Boston University School of Medicine

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