

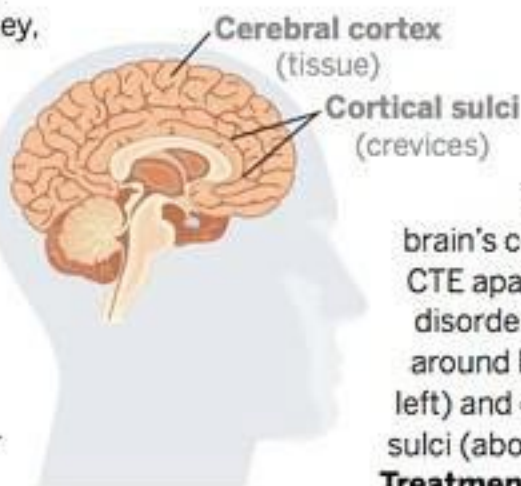
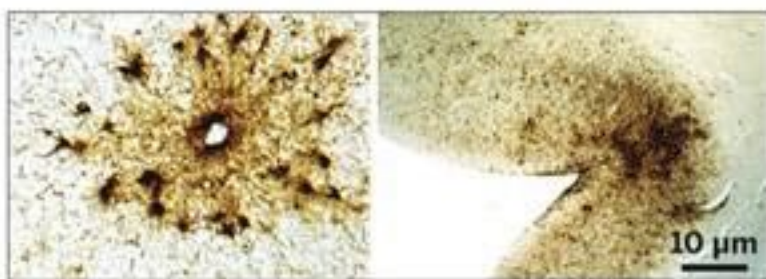
CTE At A Glance

Full Name: Chronic traumatic encephalopathy

Cause: Repetitive mild traumatic brain injury

Who's affected: Athletes in contact sports such as boxing, football, ice hockey, soccer, and wrestling; military veterans; victims of domestic abuse; headbangers

Symptoms: Memory loss, depression, suicidal thoughts, explosive or aggressive behavior, and in some cases, trouble walking or speaking



Pathology: Unlike in Alzheimer's disease, in CTE, tau protein tangles first accumulate in the brain's cortex. What also sets CTE apart from other brain disorders is that tau collects around blood vessels (above, left) and deep in the cortical sulci (above, right) of the brain.

Treatment: None

Stages Of Disease



Stage I: Hot spots of tangled tau pop up in isolated areas of the cortex (black circle).



Stage II: Multiple hot spots of tangled tau appear in the cortical sulci, and tau begins to migrate.



Stage III: Tau hot spots begin to blend with one another. Tangles appear more diffusely throughout the ridges of the brain. Tau begins to collect in the hippocampus (involved in learning and memory) and amygdala (involved in decision making and emotions).



Stage IV: Dense tau tangles cover the brain's cortex and appear in most other regions, including the spinal cord.

NOTE: Stages proposed by Ann C. McKee, Boston University, still need to be validated by other research groups. Based on *Brain* 2013, DOI: 10.1093/brain/aww307.