



CTE Hope

Research. Development. Support. Advocacy.

WHAT IS CHRONIC TRAUMATIC ENCEPHALOPATHY?

Chronic Traumatic Encephalopathy (CTE) is a neurodegenerative brain disease found in athletes participating in high-contact sports, military veterans, domestic abuse victims, and others with a history of repetitive brain trauma. In CTE, a protein called Tau forms lumps that slowly spread throughout the brain, killing brain cells. CTE has been seen in people as young as 17, but symptoms on average do not generally begin until years after the onset of head impacts. Currently, CTE can only be diagnosed after death through brain tissue analysis, however, symptoms associated with CTE can appear in a patient's late 20s or 30s.

WHAT CAN CAUSE CTE TO DEVELOP?

CTE is caused by repetitive hits to the head sustained over a period of years. Most people diagnosed with CTE suffered hundreds or thousands of head impacts over the course of their lifetime. Evidence points towards sub-concussive hits, and not full-blown concussions, as the biggest factor. One concussion in the absence of other brain trauma has never been seen to cause CTE.

Subconcussive hits are those that are below the threshold for a concussion. The brain is shaken, but not violently enough so that the damage to brain cells is severe enough to see through symptoms. The brain is affected, but the symptoms are not noticeable right away. These sorts of hits include tackles and collisions in football, headers in soccer, checks or collisions in ice hockey, and body checks in lacrosse.

COMMON SYMPTOMS INCLUDE:

BEHAVIORAL:	MOOD:	COGNITIVE:	MOTOR:
Explosivity	Depression	Dementia	Ataxia
Impulsivity	Anxiety	Preservation	Dysarthria (speech)
Physical violence	Apathy	Lack of insight	Parkinsonism
Inappropriate speech	Lethargy	Alogia/Aphasia	Gait disturbances
Psychosis	Mania	Impaired judgment	Tremors
Social inappropriateness	Hopelessness	Impaired memory	Masked facies/facial tics
Disinhibited behavior	Fearfulness	Impaired executive dysfunction	Impaired executive dysfunction
Paranoid delusions	Loss of interest	Dysgraphia	Dysgraphia
OCD	Flat affect	Visuospatial difficulties	Visuospatial difficulties
Loss of control	Euphoria	Reduced intelligence	Reduced intelligence
Short fuse	Suicidality	Language difficulties	Language difficulties
Aggression	Irritability	General cognitive impairment	General cognitive impairment

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This is a medical Disclaimer for CTE Hope. The information you will find on our media sources and in our presentation and literature are for educational purposes to help create a support system for people involved with TBIs and CTE. Any advice or suggestions found on our media sources, and in our presentations and literature are not intended to be medical diagnosis, create a treatment plan, or manage your specific complaints and/or signs and symptoms. If you would like to contact our Medical Research and Development Team, please send an email to: info@cte-hope.org.



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COMMON SYMPTOMS INCLUDE:

BEHAVIORAL:	MOOD:	COGNITIVE:	MOTOR:
Rage	Insomnia	Impaired attention and concentration	Impaired attention and concentration
Verbal violence	Mood swings		Rigidity
Boastfulness	Prolix/Tedious/Perfectionism		Muscle weakness
Childish behavior	Labile emotions (short fuse)		Spasticity
Social isolation			Involuntary muscle contractions
Disinhibited speech			
Personality changes			

These lists are a broad range of symptoms that have been associated with CTE. However, those who eventually develop CTE may only suffer from a moderate percentage. These lists are not meant to unnecessarily scare you, only to present the vast range of symptoms that have been seen with this disease.

IMPORTANT REMINDER:

Symptoms commonly associated with CTE mirror post-TBI symptoms, but experiencing those symptoms does not mean you have CTE or even that you will develop CTE later on. It is important not to conflate the two or believe the worst possible scenario. CTE can only be diagnosed definitively upon death and a brain autopsy so it is not accurate to say you suffer from CTE until it can be accurately detected in the living. The biggest difference between symptoms of a TBI and symptoms of CTE is that with CTE, symptoms are progressive, meaning they continuously get worse as time goes on, while symptoms of TBIs can be managed, plateau, and even decrease in intensity. Not everyone who receives a concussion or repeated sub-concussive hits will get CTE.