

ANSWERING QUESTIONS ABOUT Chronic Traumatic Encephalopathy (CTE)



This handout provides a snapshot of what researchers currently know about chronic traumatic encephalopathy or CTE. Research on CTE is growing. More studies can help answer many questions about this disease.

What is CTE?

CTE is a *brain disease* that results from changes in the brain. These changes can affect how a person thinks, feels, acts, and moves. Traumatic brain injuries, including [concussions](#), and repeated hits to the head, called subconcussive head impacts, may lead to CTE.

What are Subconcussive Head Impacts?

Subconcussive head impacts are bumps, blows, or jolts to the head. Unlike concussions, which cause symptoms, subconcussive head impacts do not cause symptoms. A collision while playing sports is one way a person can get a subconcussive head impact.

CTE has been diagnosed in people who had a history of repeated subconcussive head impacts and did not have any known history of concussion.^{1,2} Researchers believe that the more years a person has repeated subconcussive head impacts or other brain injuries, the higher the chance they have of getting CTE.³

How Common is CTE?

Researchers do not know how many people in the United States have CTE. Most studies on CTE focus on former athletes who played contact sports (such as football or boxing) and military service members.

Occasional Hits to the Head Do Not Cause CTE

Not everyone who has repeated hits to the head or brain injuries will develop CTE. Occasional hits to the head, such as the bumps and tumbles that children take when learning to walk, do not cause CTE.

What are the Signs and Symptoms of CTE?

CTE symptoms can affect the way a person thinks, feels, acts, and moves. Symptoms do not show up in the same way for each person.⁴ Some people with CTE may first have problems with depression or anxiety. They may then later develop memory and other thinking problems that become serious enough to get in the way of their normal daily activities (such as social or work-related activities).^{1,4,5} Other people with CTE may experience memory and thinking problems first. Over time they may have mood or personality changes or become forgetful and struggle with daily tasks.^{1,4,5} Mental health problems can increase for those with CTE.⁴ The link between CTE and suicide is unclear.⁶

Symptoms of CTE are similar to those of other health problems. Having CTE symptoms does not mean a person has CTE. If you or a family member or friend have any questions or concerns, it is important to talk to a doctor. Treatments may be available to help.

CTE Symptoms May Affect How A Person:



THINKS

Trouble with memory and problem-solving



FEELS

Changes in emotion (such as depression, hopelessness, or anxiety)



ACTS

Problems with behavior (such as anger or impulsivity)



MOVES

Problems with coordination, greater risk of falling, or tremors

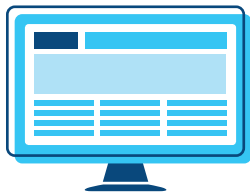
How is CTE Diagnosed?

Currently, CTE can only be diagnosed after death. To diagnose CTE, doctors check the brain for changes that happen to people with CTE. Through this process, doctors confirm whether the person had CTE or another disease, such as Alzheimer's disease.⁷



National Institutes of Health (NIH) Study is Looking for Answers on CTE

NIH funded a large [research study](#) to learn how to diagnose CTE while a person is alive. Developing ways to diagnose CTE during life will help researchers learn more about the disease. It may also lead to treatments for CTE in the future.⁸



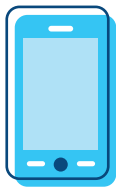
Resources:

To learn more about CTE and other brain diseases:

- Visit <https://www.ninds.nih.gov/Current-Research/Focus-Research/Focus-Traumatic-Brain-Injury>.

If you or someone you know needs to speak with a trained counselor:

- Contact the National Suicide Prevention Lifeline at **1-800-273-TALK (1-800-273-8255)**, or
- Visit <https://suicidepreventionlifeline.org>.



The Veterans Crisis Line connects veterans, their family, or friends with qualified caring responders:

- Call confidential toll-free hotline at **1-800-273-8255**, or
- Text to **838255**.

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8. Asken BM, Sullan MJ, DeKosky ST, Jaffee MS, Bauer RM. Research gaps and controversies in chronic traumatic encephalopathy: a review. *JAMA Neurol*. 2017;74(10):1255-1262. doi:10.1001/jamaneuro.2017.2396