

Profound Damage Found in Maine Gunman's Brain, Possibly From Blasts

A laboratory found a pattern of cell damage that has been seen in veterans exposed to weapons blasts, and said it probably played a role in symptoms the gunman displayed before the shooting.

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The scene outside Schemengees Bar & Grille in Lewiston, Maine, after a shooting in October. Hillary Swift for The New York Times

A specialized laboratory examining the brain of the gunman who committed Maine's deadliest mass shooting found profound brain damage of the kind that has been seen in veterans exposed to repeated blasts from weapons use.

The lab's findings were included in an autopsy report that was compiled by the Maine chief medical examiner's office and released by the gunman's family.

The gunman, Robert Card, [was a grenade instructor](#) in the Army Reserve. In 2023, after eight years of being exposed to thousands of skull-shaking blasts on the training range, he began hearing voices and was stalked by paranoid delusions, his family said. He grew increasingly erratic and violent in the months before the October rampage in Lewiston, in which he killed 18 people and then himself.

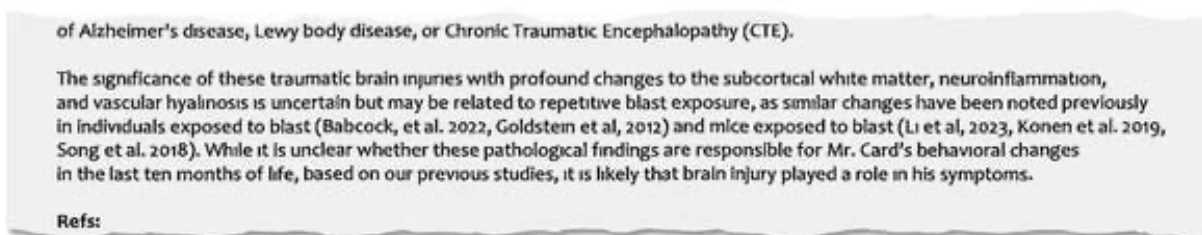
His brain was sent to a Boston University's C.T.E. Center, a laboratory known for its [pioneering work](#) documenting [chronic traumatic encephalopathy](#), or C.T.E., in athletes.

According to the lab's report, prepared on Feb. 26 and updated on Wednesday, the white matter that forms the wiring deep in the brain had "moderately severe" damage, and in some areas was missing entirely. The delicate tissue sheaths that insulate each biological circuit lay in "disorganized clumps," and throughout Mr. Card's brain there was scarring and inflammation suggesting repeated trauma.

This was not C.T.E., the report said. It was a characteristic pattern of damage that has been found before in military veterans who were repeatedly exposed to weapons blasts during their service.

"While it is unclear whether these pathological findings are responsible for Mr. Card's behavioral changes in the last 10 months of life, based on our previous studies it is likely that brain injury played a role in his symptoms," the report concluded.

Image



A portion of the lab's findings included in an autopsy report released by the gunman's family. Credit...Medical Examiner of Maine

The findings have grave implications for the military, because Mr. Card never saw combat, and had never been exposed to explosions from enemy fire or roadside bombs. The only blasts that hit his brain came from training that the Army said was safe.

"We know very little about the risks of blast exposure," said Dr. Ann McKee, who leads the lab and signed the report. "I think these results should be a warning. We need to do more investigation."

Congress has been pushing the military in recent years to investigate whether the blasts from repeatedly firing heavy weapons cause brain damage, but the military has proceeded at a halting pace that has yielded few changes in the field.

Soldiers like Mr. Card are still being exposed to large numbers of blasts from grenades, mortars, cannons and rocket launchers in training every day. And current Pentagon guidelines say that absorbing thousands of grenade blasts, as Mr. Card did over his career, poses no risk to troops' brains.

In a statement on Wednesday, the Army said it had issued recommendations in recent months to reduce blast exposure in combat units. "The Army is committed to understanding, mitigating, accurately diagnosing and promptly treating blast overpressure and its effects in all forms," the statement said. "While prolonged blast exposures can be potentially hazardous, even if encountered on the training range and not the battlefield, there is still a lot to learn."

For much of his life, Robert Card was a quiet, friendly, dependable man with no history of causing trouble, his family said. He grew up on his family's dairy farm in Bowdoin, Maine, and drove a delivery truck for work. He liked to fish in local ponds with his son, and often took his nieces and nephews along.

"He was always there to do chores on the farm, there for the kids and Sunday dinner," his sister, Nicole Herling, said in an interview.

Mr. Card joined the Army Reserve in 2002, and for his first 12 years in the service he was a petroleum supply specialist. In 2014, he was transferred to 3rd Battalion, 304th Regiment, a training unit based in Saco, Maine.

Every summer, his platoon of the 3rd Battalion conducted a two-week field course for cadets from the U.S. Military Academy West Point, teaching them to use rifles, machine guns and shoulder-fired anti-tank weapons. Soldiers said that during the course, Mr. Card spent most of his time on the grenade range. Each of the 1,200 cadets had to throw at least one grenade; most threw two. Soldiers said that over the years, Mr. Card could have easily been exposed to more than 10,000 blasts.

The Defense Department has [a list of 14 weapons](#) that in normal use, unleash a blast powerful enough to be potentially hazardous to the troops who use

them. Grenades are not on the list. Soldiers in Mr. Card's platoon said they received no briefings about the dangers of repeated exposure.



Photos of the victims during a candlelight memorial service at Holy Family Church in Lewiston, in October. Credit...Andrew Cullen for The New York Times

In 2022, Mr. Card began to lose his hearing. His family noticed that he was growing sullen and short-tempered. In the spring of 2023, he began to believe that people at a local market and the bar where he liked to play cornhole were talking about him behind his back, and calling him a pedophile. He also started to rapidly lose weight.

His brothers and sister tried to intervene a number of times, encouraging him to see a doctor. At one point, his sister called a veterans' crisis line. But Mr. Card pushed his relatives away, they said, and accused them of conspiring against him.

In July, the Army put Mr. Card in a psychiatric hospital for two weeks after he complained of hearing voices and made threats against fellow soldiers. Doctors at the hospital prescribed him lithium, his sister said, but he was not assessed for a traumatic brain injury. When he got out of the hospital, he stopped taking the medicine.

Mr. Card had a number of other angry and violent interactions in the months that followed. One day, his mother came home to find him weeping on her front porch over his delusions of people talking about him.

He lost his job driving a recycling truck. The police came to his parents' house in September, warning that he was making threats against soldiers in his Army unit. Mr. Card's brother and father both tried to take his guns away, but he grew angry and told them to get off his property.

A few weeks later, when the local news reported that a man had opened fire in a bar and a bowling alley in Lewiston, Mr. Card's siblings saw the video footage and recognized their brother.

As the state of Maine reeled over the loss of life and argued over missed warning signs, Mr. Card's brain was shipped to Boston, where researchers examined thin cross sections of tissue.

"The damage was just tremendous," said Dr. Lee Goldstein, a professor of neurology at Boston University who analyzed Mr. Card's brain tissue with an electron microscope.

The long, slender, cablelike cells called axons that pass messages deep in the brain were in tatters, Dr. Goldstein said in an interview. "I'm seeing cables that have lost their protective wrapping, cables that are just missing, cables that are inflamed and sick, cables that are essentially filled with cellular garbage bags," he said. "These cables control how one part of the brain communicates with another. If they are damaged, you can't function right."

The findings are not the first indications that the military has gotten about the possible risk of repeated blasts to grenade instructors.



Crosses and signs in front of Just-In-Time Recreation in Lewiston, in October.
Credit...Hilary Swift for The New York Times

In 2015 and 2017, Army research teams investigated reports of instructors in Georgia and South Carolina complaining of headaches, fatigue, memory issues

and confusion. The Army gathered measurements of grenade blasts, but took no broad action to limit blast exposure.

Similar concerns were raised at Fort Leonard Wood in Missouri in 2020. A small study funded by the Army examined the brains of new grenade and explosives instructors using PET scans. Researchers found that before they worked around blasts, the instructors brains looked healthy. But in follow-up scans five months later, their brains were [teeming with an abnormal protein](#) called beta amyloid that is associated with Alzheimer's disease.

"In a young brain you should see no amyloid. None. Zero," said Dr. Carlos Leiva-Salinas, the University of Missouri neuroradiologist who ran the study. "We were surprised, very surprised."

Mr. Card's sister said the analysis of his brain, which the family learned about on Friday, changed how the family saw the shooting and their brother.

"It allowed me to forgive him," she said. "I know a lot of people are in a lot of pain," she added. "Maybe we can use what happened to help other people."

In a statement on Wednesday, the family wrote: "We want to begin by saying how deeply sorry and heartbroken we are for all the victims, survivors and their loved ones, and to everyone in Maine and beyond who was affected and traumatized by this tragedy."

"While we cannot go back," the statement continued, "we are releasing the findings of Robert's brain study with the goal of supporting ongoing efforts to learn from this tragedy to ensure it never happens again."

[Dave Philipps](#) writes about war, the military and veterans and covers The Pentagon. [More about Dave Philipps](#)

<https://www.nytimes.com/2024/03/06/us/maine-shooting-brain-injury.html>

This became acutely evident in the Iraq Wars. The percussions troops are exposed to now are beyond the human nervous system's capacity to handle. Further, the percentage of troops given psychiatric medications in Iraq, and elsewhere since, was/is staggering. Black Ops and SEALs veterans come home prone to domestic violence, drug abuse, and suicide. But militaries depend upon young men seduced by the mystique submitting to the risks. What your own side demands of you can be more dangerous than the enemy. Armies depend upon you being more afraid of those behind you than those in front. TJB