

# Even mild traumatic brain injury may cause brain damage

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Even mild traumatic brain injury may cause brain damage and thinking and memory problems, according to a study published in the July 16, 2014, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

For the study, 44 people with a mild [traumatic brain injury](#) and nine people with a moderate traumatic [brain](#) injury were compared to 33 people with no brain injury. All of the participants took tests of their thinking and memory skills. At the same time, they had [diffusion tensor imaging](#) scans, a type of MRI scan that is more sensitive than traditional MRI for detecting damage to [brain cells](#) and helps map fiber tracts that connect brain regions. The people with brain injuries had their scans an average of six days after the injury. A year later, 23 of those with injuries had another scan and took the cognitive tests again.

Compared to the people with no brain injury, those with injuries had [brain damage](#) in brain [white matter](#) consisting of disruption to nerve axons, those parts of nerve cells that make up white matter and that allow brain cells to transmit messages to each other.

The study found that patient scores on the verbal letter fluency task, a test of thinking and memory skills, were 25 percent lower than in the healthy people. This was strongly related to the imaging measures of white matter damage.

"Most of the studies thus far have focused on people with severe and

chronic traumatic brain injury," said study author Andrew Blamire, PhD, of Newcastle University in the United Kingdom. "We studied patients who had suffered clinically mild injuries often from common accidents such as falling from a bicycle, or slow speed car accidents. This finding is especially important, as 90 percent of all traumatic brain injuries are mild to moderate."

One year after the injury, the scores on thinking and memory tests were the same for people with brain injuries and those with no injuries, but there were still areas of brain damage in people with injuries. "These results show that thinking skills were recovering over time," Blamire said. "The areas of brain damage were not as widespread across the brain as previously, but focused in certain areas of the brain, which could indicate that the brain was compensating for the injuries."

Provided by American Academy of Neurology

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