

Mild traumatic brain injury causes long-term damage in mice

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A new *Annals of Clinical and Translational Neurology* study in mice found that mild traumatic brain injury (TBI) can precipitate not only acute damage but also a lifelong degenerative process.

At 24 months, animals exposed to repetitive mild TBI showed clear evidence of learning and working memory impairment with a lack of spatial memory and certain motor deficits. There was also evidence of ongoing degeneration of neuron projections as well as neuroinflammation. These changes were also observed after a single mild TBI, albeit to a lesser degree than repetitive mild TBI.

"This is the first demonstration of what is, in essence, lifelong behavioural and pathological consequences of mild TBI in a relevant pre-clinical model," said co-author Dr. William Stewart, of the University of Glasgow, in the UK. "Read with our previous characterisations at earlier time points in survival from injury, we can now see not only that repetitive mild TBI can precipitate lifelong and evolving pathology, but that even just a single mild TBI at a young age can lead to changes over normal ageing at very late survival points."

"This recognition of lifelong consequences of mild TBI in this model provides a promising platform for studies into processes driving these pathologies, and also strategies for their prevention," added lead author Dr. Benoit Mouzon, of the Roskamp Institute in Florida.

More information: Benoit C. Mouzon et al. Lifelong behavioral and

neuropathological consequences of repetitive mild traumatic brain injury, *Annals of Clinical and Translational Neurology* (2017). [DOI: 10.1002/acn3.510](https://doi.org/10.1002/acn3.510)

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