

# Risk of suicide increased three-fold in adults after a concussion

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Credit: George Hodan/Public Domain

The long-term risk of suicide for adults who have had a concussion is three times higher than the population norm, and the risk increases further if the concussion occurred on a weekend, found a new study published in *CMAJ* (*Canadian Medical Association Journal*).

"Given the quick usual resolution of symptoms, physicians may

underestimate the adverse effects of concussion and its relevance in a patient's history," states Dr. Donald Redelmeier, senior core scientist at the Institute for Clinical Evaluative Sciences (ICES) and a physician at Sunnybrook Health Sciences Centre, Toronto, Ontario. "Greater attention to the long-term implications of a concussion might save lives because deaths from [suicide](#) can be prevented."

Suicide is a major cause of death in the community. In 2010, there were 3951 deaths from suicide in Canada and 38 364 in the United States. Concussion is the most common brain injury in adults. Each year in Canada, there are about 400 000 cases of concussion and about 4 million in the United States. "The link between concussion and suicide is not confined to professional athletes or military veterans," states Michael Fralick, a coauthor and medical trainee at the University of Toronto.

In this large study, researchers examined anonymized records for 235 110 patients with concussion over a 20-year period in Ontario, Canada, using diagnostic codes from the health insurance database. The study specifically compared concussions that occurred on a weekend or a weekday to distinguish between recreational and occupational injuries. The mean age of the patients was 41 years, about half were men, and the majority lived in cities. Most had no prior suicide attempt, hospitalization or past psychiatric disorder.

During follow-up (9.3 years), there were 667 suicides. Patients diagnosed with a concussion on weekdays accounted for 519 suicides and an absolute suicide risk three times the population norm (29 suicides per 100 000 people a year). Patients diagnosed with a concussion on weekends accounted for 148 suicides and an absolute suicide risk four times that of the population norm (39 per 100 000 a year).

The mean time from concussion to subsequent suicide was 5.7 years. Additional concussions were associated with a further increased risk of

suicide. The majority of patients had visited their family physician in the month before suicide. The most common mechanism was a drug overdose, and the average age at death was 44 years.

Other studies have shown a link between concussion and suicide. However, "no past study, to our knowledge, has focused on concussions and tested the potential difference between weekends and weekdays," write the authors. "The increased long-term risk of suicide observed in this study persisted among those who had no psychiatric risk factors and was distinctly larger than among patients after an ankle sprain."

The authors hope the study will help doctors and [patients](#) better understand the risks of [concussion](#) and prevent possible suicides.

**More information:** *Canadian Medical Association Journal*,  
[www.cmaj.ca/lookup/doi/10.1503/cmaj.150790](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.150790)

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