

# Study finds association between energy drinks and traumatic brain injury in teens

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Teens who reported a traumatic brain injury in the past year were seven times more likely to have consumed at least five energy drinks in the past week than those without a history of TBI, according to a study published today in *PLOS ONE*.

Researchers also found that [teens](#) who reported sustaining a TBI within the past year were at least twice as likely to have consumed [energy drinks](#) mixed with alcohol than teens who reported sustaining a TBI more than a year previously.

"We've found a link between increased brain injuries and the consumption of energy drinks or energy drinks mixed with alcohol," said Dr. Michael Cusimano, a neurosurgeon at St. Michael's Hospital. "This is significant because energy drinks have previously been associated with general injuries, but not specifically with TBI."

Dr. Cusimano said energy drink consumption could interfere with recovery efforts for teens who have sustained a TBI. "Energy drinks, such a Red Bull and Rockstar, contain high levels of caffeine and change the chemical state of the body, which can prevent people from getting back on track after a TBI," said Dr. Cusimano. "Brain injuries among adolescents are particularly concerning because their brains are still developing."

At a time when energy drink consumption is rising among teens in Canada and the United States, the study also suggests that the caffeinated drinks are particularly linked with those who play sports.

"I think that energy drinks appeal to teens, especially athletes, because the drinks provide temporary benefits such as increased alertness, improved mood and enhanced mental and physical states," said Dr. Cusimano. "Advertisements for the drinks also often feature prominent athletes."

Teens who reported suffering a TBI in the past year while playing sports were twice as likely to consume energy drinks as teens who reported a TBI from other injuries in the same time period.

Data for the study was collected by the Centre for Addiction and Mental Health's 2013 Ontario Student Drug Use and Health Survey.

Approximately 10,000 students ages 11 to 20 participated in the self-administered, in-classroom survey. TBI was defined as an injury resulting in the loss of consciousness for at least five minutes, or being hospitalized for at least one night.

"It is particularly concerning to see that teens who report a recent TBI are also twice as likely to report consuming energy drinks mixed with alcohol," said Dr. Robert Mann, senior scientist at the Centre for Addiction and Mental Health in Toronto and director of the OSDUHS.

"While we cannot say this link is causal, it's a behaviour that could cause further injury and so we should be looking at this relationship closely in future research."

About 22 per cent of all students surveyed reported they'd experienced a TBI, with sports injuries accounting for almost half of TBI cases experienced in the past year.

Previous research at St. Michael's Hospital found that TBI is associated with poor academic performance, [mental health](#) issues, violence, substance abuse and aggression in both teens and adults—factors that can interfere with rehabilitation, said Dr. Cusimano.

According to the new study, a better understanding of the link between TBI and energy drinks could help medical professionals, parents, teachers and coaches understand how to better prevent, diagnose and treat brain injuries.

Provided by St. Michael's Hospital

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