

# Patients with moderate to severe TBI twice as likely to die from an unintentional injury

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Research examining adults with moderate to severe traumatic brain injury (TBI) who participated in rehabilitation showed that they were twice as likely to die from an unintentional injury that occurred following their TBI. This was in comparison to individuals in rehabilitation of similar age, sex, and race but without TBI. People who have had a moderate to severe TBI may experience changes in cognition and balance, which may put them at greater risk of subsequent unintentional injuries. In the current issue of *NeuroRehabilitation*, experts focus on the issues and risks associated with unintentional injuries following TBI and strategies to mitigate these risks.

"Reducing the [public health](#) burden of TBI extends beyond primary prevention and into understanding how best to prevent injuries after experiencing a TBI," explained guest editor Juliet Haarbauer-Krupa, PhD, senior health scientist in the Division of Unintentional Injury Prevention at the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (CDC). "The articles in this special issue are dedicated to understanding unintentional injury after a TBI, with a particular focus on appreciating injury risk related to changes in cognition, health, and behavior caused by a TBI."

## Commentary from CDC: A Public Health Approach to Injury Prevention

As part of this special issue, subject matter experts from CDC describe

the public health burden of TBI and current efforts to reduce unintentional injuries, including injuries from sports or recreation, [motor vehicle crashes](#), or older adult falls. Their commentary offers insights into the public health approach of [injury prevention](#) and how these efforts can reduce the incidence of TBI.

For youth and young adults, motor vehicles are the main cause of TBI-related death, and account for 55.8% of TBI-related deaths in individuals 5 to 14 years old and 47.4% of TBI-related deaths for 15 to 24 year olds. "At CDC, we aim to keep people safe on the roads every day - drivers, passengers, and pedestrians. Our role includes researching what works to prevent motor vehicle crashes, promoting proven programs, and informing policies to protect people from injury and death," noted Dr. Grant Baldwin, PhD, MPH, director of CDC's Division of Unintentional Injury Prevention.

Older adult falls are another major cause of TBI. According to CDC data, more than 80% of TBIs in adults over 65 are caused by falls. In 2014 alone, more than 27,000 older adults died from falls and approximately half of these fatalities were due to TBIs.

## **Higher Risk of Motor Vehicle Crash for Veterans with TBI**

There is an increased risk of motor vehicle crashes for veterans with a TBI. Kathleen Carlson, PhD, Center to Improve Veteran Involvement in Care, VA Portland Health Care System, Portland, OR, and co-investigators found that veterans who had suffered a TBI were four times more likely to be involved in a [motor vehicle](#) crash compared to veterans without a TBI. They suggest that veterans with TBI might benefit from enhanced driver safety interventions to reduce this risk.

## **Risk Factors for Unintentional Injuries After TBI**

A TBI can have a significant effect on functional skills. Stephanie A. Kolakowsky-Hayner, PhD, Brain Trauma Foundation, Palo Alto, and Rehabilitation Research Center, Santa Clara Valley Medical Center, San Jose, CA, and co-authors, describe these effects and note that changes in cognitive and health functioning can reduce an individual's ability to monitor their environment, therefore increasing their risk for unintentional injuries. Their extensive review concludes that, "recognizing potential triggers, such as alcohol and drug abuse, fatigue, lack of balance and coordination, and seizures, which often follow [traumatic brain injury](#), is a prudent method to prevent additional unintentional injuries, including repeat TBIs."

## **Developing a Patient-Centered Assessment Tool**

Patients with TBI often return home and reside in communities after their injury. Ronald T. Seel, PhD, Crawford Research Institute at Shepherd Center, Atlanta, GA, and co-investigators discuss the development of a patient-centered assessment tool that families, caregivers, and physicians can use for adults with moderate to severe TBI. This tool, called the Safety Assessment Measure, assesses risk related to diminished cognitive capacity, visuomotor capacity and/or wheelchair use, risk perception, compliance with safety recommendations, self-regulation, and a broad range of activities of daily living that can increase the risk of further unintentional [injury](#).

## **Returning to Work: Supports and Barriers**

After a work-related TBI, not all individuals return to work. In a study of 50 individuals who suffered a work-related TBI, half of whom returned to work, researchers from multiple centers in Ontario, Canada led by

Angela Colantonio, PhD, Department of Occupational Science & Occupational Therapy, University of Toronto, assessed the factors that affected return-to-work (RTW) and identified barriers to RTW. In their study, the most common factors perceived to assist the RTW group were support of family and friends (92%) and of treatment providers (80%), and employers who provided accommodations (76%). Difficulty thinking and concentrating (94%) and fatigue (94%) were the most common barriers to RTW.

"Sustaining a TBI can lead to increased risk for subsequent unintentional injuries," Dr. Haarbauer-Krupa concludes. "Better understanding of modifiable risk factors and developing effective interventions to prevent unintentional injuries after TBI could reduce healthcare burden and costs and improve rehabilitation outcomes."

**More information:** Juliet Haarbauer-Krupa, Unintentional injury after traumatic brain injury: Issues, assessment, and reducing risk, *NeuroRehabilitation* (2016). [DOI: 10.3233/NRE-161365](https://doi.org/10.3233/NRE-161365)

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