

Protein and calories can help lessen effects of severe traumatic brain injury

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To help alleviate the effects of severe traumatic brain injury (TBI), the U.S. Department of Defense should ensure that all military personnel with this type of injury receive adequate protein and calories immediately after the trauma and through the first two weeks of treatment, says a new report from the Institute of Medicine. Evidence from several studies of severely brain-injured patients shows that providing energy and protein to patients early reduces inflammation and improves their outcomes, said the committee of experts who wrote the report.

This is the only nutrition-related approach to treating TBI that the committee recommended DOD implement at this time based on its review of the possible benefits of nutrients, [dietary supplements](#), and specific diets to improve outcomes for TBI ranging from mild to severe. Several other nutritional approaches show potential for reducing the symptoms of brain injury, but there is not yet enough evidence about their effectiveness to recommend their adoption.

The committee identified the [B vitamin](#) choline, the amino acid-like compound creatine, n-3 fatty acids commonly known as EPA and DHA, and zinc as the most promising areas of investigation and recommended that DOD scientists and other researchers give them priority attention. These approaches are ones for which human clinical trials have been undertaken or are ongoing.

Other approaches, including antioxidants, [flavonoids](#), ketogenic diets,

and [vitamin D](#), have less supporting evidence that has come solely from animal studies or from studies in people with different conditions.

Although researchers must prioritize resources, DOD should continue to monitor the clinical literature for any new findings about the potential of these nutrients and diets in lessening brain injury effects, the report says.

The research priorities outlined in the report could generate information that provides health professionals with a fuller picture of which nutrients and dietary approaches work safely and most effectively. This information could also lead to new evidence-based clinical guidelines. There are few well-supported guidelines to inform health professionals' use of foods and dietary supplements to treat brain-injured patients, so clinicians employ a wide range of practices.

The IOM study focused on the potential role of nutrition in protecting against or treating the immediate and near-term effects of TBI. It did not evaluate the role of nutritional therapies in the rehabilitation phase or address long-term health effects associated with brain trauma, such as post-traumatic stress disorder, Alzheimer's disease, pain, and depression. A review of nutrition approaches to lessen long-term effects of TBI would be useful, the committee noted.

TBI is a significant cause of death and disability among personnel serving in the wars in Iraq and Afghanistan. It also contributes to nearly one-third of all injury-related deaths in the United States, making it a major health concern for the civilian population as well. According to recent estimates, between 1.6 million and 3.8 million sports-related TBIs occur annually, including those not treated by a health care provider.

Provided by National Academy of Sciences

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