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Illinois professor chairs committee that recommends immediate calories, protein for traumatic brain injury

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A Vietnam veteran who conducted early-morning mine sweeps on that country's roads, University of Illinois nutrition professor John Erdman knows the damage that a traumatic brain injury (TBI) can cause. That's why he was happy to chair a committee that gave the Department of Defense recommendations that will improve the odds of recovery for persons wounded by roadside bombs.

"Within the first 24 hours after head trauma, patients need to receive at least 50 percent of their normal caloric intake, including a higher-than-normal amount of protein, to reduce inflammation and swelling of the brain and give the brain enough energy to repair itself. This regimen should be followed for at least two weeks," he said.

Erdman, a member of the National Academy of Sciences Institute of Medicine (IOM), led a committee tasked with providing nutritional recommendations for TBI patients to the U.S. Department of Defense.

The IOM reports that in one estimate 10 to 20 percent of returning veterans have sustained a TBI, with other estimates suggesting that TBIs account for one-third of all combat-related injuries.

But soldiers wounded by roadside bombs in Iraq and Afghanistan aren't the only patients who can benefit from these new guidelines. Victims of brain injuries received in motorcycle and car accidents, football and

hockey players who have severe concussions, and even stroke victims need early protein and energy, he said.

"Inflammation, of course, is a particular problem in the brain because there's no room for the swelling; and the secondary effects of inflammation, which include cell death, pressure and hemorrhaging, are unacceptable," he said.

Erdman said the brain uses only glucose for energy and cannot readily draw on fat stores. "This glucose is used up pretty quickly so it's important that it be replaced. Protein is important for its immunological benefits and the role it plays in preventing inflammation," he said.

He noted that wartime victims of TBI often have other injuries that grab a medical professional's attention.

"The first person who arrives on the scene isn't thinking about feeding the wounded person. They're triaging the people who need immediate assistance, and they're stabilizing the soldiers who are severely injured and moving them to a forward base where they can be treated. At some point early on, IV fluids may be given, but they may not contain protein and calories," he said.

The committee was also asked to provide a list of other possible nutritional interventions for enhancing recovery from TBI, and they identified a list of food components that should be researched further. These include 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, he said.

"The Department of Defense was pleased to have the committee's priority list because they need to make good decisions about which studies to fund. They have limited funds," he said.

Defense officials are tremendously interested in increasing the survival rate and speed of recovery of TBI victims and in facilitating their recovery with nutritional interventions, he said.

More information: The report, "Nutrition and Traumatic Brain Injury: Improving Acute and Subacute Health Outcomes in Military Personnel," can be viewed at www.nap.edu/catalog.php?record_id=13121

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