



CHRONIC / ACUTE CONDITIONS

Understanding the Injured Brain

J. DAVID CASSIDY, DC, PHD, DRMEDSC, TALKS MILD TRAUMATIC BRAIN INJURY AND THE LATEST FINDINGS.

Peter W. Crownfield

A supplemental issue of *Archives of Physical Medicine and Rehabilitation* puts the spotlight on an increasingly relevant public health issue: mild traumatic brain injury. [The supplement](#), which features 16 papers on prognosis and treatment, updates 2004 findings by a World Health Organization task force on MTBI.

Leading the research efforts in 2014, as he did 10 years ago: J. David Cassidy, DC, PhD, DrMedSc, perhaps best known for his participation on the Bone and Joint Decade's Task Force on Neck Pain and Its Associated Disorders. In this exclusive interview, Dr. Cassidy summarizes the latest findings, explains MTBI's relevance to doctors of chiropractic, and emphasizes the importance of this and other DC-led research in advancing collaborative research and clinical care.

Dr. Cassidy, how did the supplemental issue come about? Summarize the process that led to your participation and why you chose to be involved. From 2000-2004, I served as the scientific secretary for the WHO Collaborating Centre for Neurotrauma, Prevention, Management and Rehabilitation Task Force on Mild Traumatic Brain Injury, and we published our findings in a [supplemental issue](#) of the *Journal of Rehabilitation Medicine (J Rehabil Med, Volume 36, Suppl 43, 2004)*. The WHO Task Force reported on all aspects of MTBI, including the epidemiology, diagnosis, treatment and prognosis.



We also recommended that the task force's findings be updated in 10 years, and that is what we have recently published, although this update only deals with prognosis and treatment of MTBI. The Ontario Neurotrauma Foundation funded this recent work and many of the original members of the WHO Task Force participated.

I chose to be involved in this because MTBI is an important public health problem with potential of long-term sequelae for those that are injured. There is especially increased interest in this topic because of concerns that concussions can cause long-term neurological problems and early-onset dementia.

The supplement contains 16 papers, including 10 systematic reviews, three methodological papers and three original research studies) and was published in the *Archives of Physical Medicine and Rehabilitation*, Volume 95, Number 3, Supplement 2, March 2014. It is entitled, "Results of the International Collaboration on Mild Traumatic Brain Injury (ICoMP)." ICoMP included 17 clinician/scientists from Canada, the U.S., Sweden, Denmark and France, and four graduate students.

From a 21st century health care and chiropractic perspective, why is MTBI an important issue? MTBI affects more than 600 [per] 100,000 adults per year, and contact sports may account for even more injuries that are not seen in hospitals and go unreported. There is increasing evidence that concussions can affect cognitive abilities and increase the risk of epilepsy in children. Motor vehicle collisions, falls and contact sports are main causes for MTBI/concussion, and chiropractors are on the front lines of care and are seeing many of these patients because of associated neck pain and headache.

What is the importance of a special supplement in a major peer-reviewed journal led by a DC and featuring participation by several other chiropractors? In my view, it is important for the advancement of the chiropractic profession to show engagement in collaborative research and

clinical care. The chiropractic profession has existed in isolation in the past, but that is changing now, and I am very hopeful that the next generation of DCs will take up this challenge.

An excellent example of this is the chiropractic program at the University of Southern Denmark in Odense, Denmark. There, DCs are trained with MDs and some go on to obtain PhDs and participate in collaborative clinical research. This Danish program has an impressive research output and could serve as a model of successful clinical and research collaboration for the profession.

What does the research (as presented in the supplement) suggest regarding MTBI, particularly in terms of risk factors, evaluation and treatment? We did not look at risk factors for MTBI for this second supplement. However, I can tell you that falls and motor vehicle collisions are the main risk factors. As I mentioned previously, concussions due to sports injuries are hard to measure, but contact sports such as American football and ice hockey likely cause a substantial number of [concussions](#) in those that participate. We also know that the risk for MTBI is greater in the young and old than it is in middle-aged adults.

Our recent task force focused on treatment and prognosis. Surprisingly, there are very few scientific studies of the treatment of MTBI/concussion despite all the concern about this condition. The available studies only address acute care, and they show that educating patients about the condition improves their prognosis. Most of the treatment beyond the acute setting is focused on symptoms such as headache, neck pain, dizziness, fatigue, and associated depression.

The evaluation of patients with [MTBI/concussion](#) is important to rule out more serious brain lesions that have the potential to cause neurological deterioration and even death in rare cases.

Why is it important for DCs to understand MTBI? Because many DCs are involved in the care of athletes, they will see patients with concussions. Some team DCs need to assess acute concussions on the field of play, or shortly after the injury. Obviously, they need to have the proper training and understanding of the problem to identify those at risk of neurological complications.

Also, most DCs are involved in caring for individuals injured in traffic collisions and falls. It is important to recognize that patients with neck pain and/or headache after traffic collisions or falls may have an MTBI. Educating these patients about their symptoms and their prognosis will help them to recover. A good understanding of the prognostic factors for MTBI/concussions will help DCs anticipate their patients' recovery and help them to understand some of the factors that are influencing their recovery.

What role can conservative-care practitioners (e.g., DCs) play in the management of MTBI and/or its sequelae? I have mentioned the role that some sports chiropractors play in acute care of MTBI, and the same goes for DCs seeing patients with acute MTBI after other causes. Proper neurological assessment is important in these cases and quick triage of those at risk of deterioration. It is also important to make sure that a reliable adult observes those with acute MTBI/concussions over the first 24 hours after the injury. Any signs of altered consciousness, increased nausea and vomiting could indicate deterioration and the need for neurological assessment.

More likely, the DC is involved in the care of the sequelae of MTBI. One of our papers in the ICoMP supplement ([Hartvigsen, et al., Arch Phys Med Rehabil 2014](#)) looked at what symptoms MTBI patients have over the year after the injury and what practitioners they receive care from. Early care is mostly given by MDs, but after the acute period they are often consulting physiotherapists and chiropractors. There is a good reason for this as MTBI can cause persistent headaches and neck pain, and these are symptoms often managed by physiotherapists and chiropractors.

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