

Book Reviews

Concussion, A. Niranjana, L.D. Lunsford, editors (Karger, Basel, Switzerland) 2014. 256 pages. Price: US\$ 233.00 / CHF 198.00 / EUR 185.00

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This book is a treatise dealing with all aspects of an important topic, concussion. The book is broadly divided into four sections dealing with mechanism, evaluation, management and future development.

In the first section, the impact of American football in traumatic brain injury and its contribution in elucidating the pathophysiology and management of concussion is discussed. Also, the biomechanics and role of angular acceleration in modulating concussion onset and severity is highlighted. The importance of concussion secondary to blasts in military personnel is discussed and the necessity of understanding the mechanism of blast tolerance (for protection and information of involved personnel) is elaborated.

The neurochemical and metabolic cascade induced by cerebral concussion is discussed in the next section. The neurophysiological basis and the ionic mechanisms involved in causation of symptoms and signs of concussion have been classified. A chapter is devoted to an important topic, chronic traumatic encephalopathy (CTE). The prevalence of tauopathy as the primary proteinopathy has been suggested. There is also an up-to-date review of the clinical, pathological and pathophysiological changes associated with traumatic brain injury and their potential for cumulative effects. The role of functional MRI, SPECT, PET, MRS and MEG is also discussed in this section. Electrophysiological and imaging studies can identify new metabolic and microstructural alterations in the integrity of white matter. The utility of high definition fiber tractography in detecting white matter injury is discussed.

There is a detailed analysis for diagnosis, evaluation and management of sports-related concussion, with details of various assessment tools in the third section. In-office management of sports-related concussion with vestibular screening and neurocognitive assessment is elaborated. The role of pharmacological drugs for management of headache, vertigo, cognitive symptoms, sleep disorders and emotional disturbances have also been mentioned. Non-pharmacological interventional strategies in acute, sub-acute and chronic recovery have also been discussed. There is a detailed discussion on the protocol of managing concussion in professional football players, developing interdisciplinary community-based sports concussion management programmes leading to establishment of legislation, athletic organization and international guidelines for players, coaches and care givers.

Neurocognitive defects in South African rugby players especially in areas of visuomotor processing speed has been discussed in the last section. Detection of eye movement abnormalities resulting from concussion are also detailed. An attempt to link the neurodegenerative changes seen after concussion to similar findings in Alzheimer's disease has been discussed in the last chapter on future directions.

Overall this book is a comprehensive text dealing with all aspects of concussion, especially sports related mild traumatic brain injury. This book will be of interest to neurosurgery and sports medicine students as well as clinicians in the related fields.

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