The many faces of Concussion

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Previously stated in the international consensus statements, a concussion is defined as a complexed pathophysiologic process. Inherent in the term "complexed pathophysiologic process" is the fact that the presentation of concussion can be widely varied. Concussion presentations include variable symptoms, symptom clusters, and severities. Consequently, the diagnosis of concussion has not always been straightforward, especially when premorbid conditions exist. Those who evaluate concussions are saddled with the fact that they must often rely upon the patient's reported symptoms. These well-recognized symptoms are often followed until there has been a resolution of the concussion. To help diagnose concussions, easy to administer neurocognitive tests were created. These neurocognitive tests, which were once relied upon, are now being used less frequently due to the inherent weaknesses and inconsistencies of the tests. Concussion diagnosis is now facilitated by other more measurable deficiencies such as ocular motor dysfunction, balance impairments, or impaired physiologic response to exercise. More recently, biomarkers have been studied to help facilitate the diagnosis of concussion, but are not yet proven to be effective in the management of concussion within the general population. To date, imaging studies have been ineffective in the diagnosis of concussion, as a concussion is a functional injury rather than a structural one. More advanced imaging studies such as DTI MRI's and functional MRI's are being studied at research centers, but are not ready to be used outside of the research environment. Outside of imaging, a functional assessment of concussion using EEG or a variant of EEG is also being studied. Although there is an abundance of new and exciting research currently being performed regarding the diagnosis of concussion, the mainstay of the current concussion diagnosis and management still relies upon a thorough history and physical examination.

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