Multimodal rehabilitation for post-concussion syndrome

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A mild traumatic brain injury (mTBI) or concussion is a pathophysiological process influencing the brain persuaded by direct or indirect biomechanical forces. Up to 80-90% of individuals who suffer a concussion typically recover within the initial 10 days post-injury. However, a small percentage of individuals experience prolonged symptoms which are labeled as post-concussion syndrome. Post-concussion syndrome may present with a myriad of cognitive, physical, emotional, somatic, and sleep-related symptoms and impairments. While research continues to investigate objective diagnostic procedures such as blood markers and/or advanced imaging for post-concussion syndrome, the clinical examination remains the gold standard for concussion diagnosis. A majority of individuals with an acquired brain injury manifest with oculomotor dysfunction. Testing which assesses ocular motor and vestibular impairments and symptoms have been shown to distinguish concussed from non-concussed athletes. An assessment battery that evaluates neurocognition and postural control remains the most sensitive to injury in excess of 90% from which to base the diagnosis. The pathophysiology of prolonged symptoms in post-concussion syndrome may reflect anatomic, neurometabolic, and/or physiologic causes. Treatment approaches depend on the clinician's ability to differentiate among the various conditions associated with post-concussion syndrome. A period of cognitive and physical rest in the early post-injury period is recommended. However, there is no evidence that prolonged rest for more than several weeks in concussed patients is beneficial. Prolonged rest may induce physical deconditioning, metabolic disturbances, and secondary symptoms such as fatigue and reactive depression. Multidisciplinary rehabilitation has been shown to have a positive impact on functional recovery after a TBI. Identification of specific clinical subtypes of concussion together with the application of targeted treatments and rehabilitation strategies will yield the best clinical outcomes.

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